ORIGINAL RESEARCH PAPER

Economics

COST AND RETURNS TO PRODUCTION OF PADDY IN CUDDALORE DISTRICT, TAMIL NADU

KEY WORDS:

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ABSTRACT

One third of the world's paddy area is in India (i.e.) 83 million hectares. Agriculture contributes over 25 percent of the Gross Domestic Product and provides food for a population of over billion and livelihood to over 70 percent of them. Tamil Nadu is one of the major paddy producing states in India. Economy of Cuddalore district is dependent an agriculture. In the study average cost per acre, was found higher in the case of large farmer compared to other farmers' category. The various cost components of High Yielding Varieties of paddy in the present study area results reveals that cost of human labour had major share followed by cost of chemical fertilisers and 76.16 per cent of variation in yield caused by five explanatory variables. The capital flows had a greater influence on the determination of yield, by the variables such as human labour, fertilizer and pesticides.

INTRODUCTION

In India, Agriculture is undergoing transformation in the present centuries. The traditional technology is slowly giving way to modern technology. This transformation to new technology and techniques brings to the fore new problems and offers new opportunities and new avenues of research to agricultural economists. The 'New Strategy' for agricultural development was initiated in 1966. In essence, the implementation of High Yielding Varieties Programme (HYVP) in all districts selected under Intensive Agricultural District Programme (IADP) and allied schemes. The strategy was concerned with higher productivity of crops per acre, but with multiple cropping, the HYVP had assumed crucial importance in the Planning Commission's agricultural development strategy. In view of this, the present study was attempted to identify the production status of paddy in Cuddalore District.

The paddy production is a great impact of Green Revolution on the power structure at various levels and the issue of taxation of agricultural incomes. A three dimensional approach towards agricultural development was chemical technology that guaranteed minimum paddy as an incentive to agricultural production. Technological change or the new strategy proposes to make a new technological breakthrough in India. It comprises the introduction of new and HYV of improved seeds, increased application of the recommended dose of fertilizers and extension of the use of pesticides that can save crop from destruction by insects. This technological change brought spectacular changes in the agriculture production of our country. The rapid introduction of HYV of paddy and wheat and their multiplier effects on other crops justify the name Green Revolution.

The new agricultural strategy technology adopted since the mid sixties has helped in revolutionizing Indian agriculture. Technological change in agriculture is characterised by the use of pesticides, irrigation, machinery, improved implements, soil conservation and the like. The successful adoption of these components of new strategy has resulted in the increase of agricultural production. The introduction of above mentioned components of new agriculture strategy depends upon factors like irrigation, size of farm, capital, institutional credit, and extension services. There are many regions with better factor endowments.

Aldas Janaiah et al., (2005) in their study stated that the serious concerns have been raised recently about the long-run sustainability of the productivity effects of green revolution technologies in the light of the decelerating trend in the yield growth of paddy since the mid-1980s under the irrigated ecosystem. However, it is also important to recognize that the changes in physical yield are not true measures of productivity from an efficiency perspective. The paper addresses the crucial issue of total factor productivity, which is a true measure of the economic efficiency of any technological impact. Results suggest that various modern varieties adopted by the farmers over the period have continued to make a considerable impact on paddy productivity growth — as reflected in the increasing trend of TPF growth. Selvaraj and Ramasamy (2006) in their study stated that the understanding agricultural risks and the ways of managing it are very crucial in the context of their impact on agricultural production and livelihood of the people, particularly in a water limiting environment. Although the use of high-yielding varieties has brought huge gains in yield, variability is still a formidable production risk in a rain-fed environment. It is imperative that the varieties meant for water limiting environment should ensure minimal level of yield during the stress period and this could induce the farmers to go for a higher level of adoption. Continued research on development of drought-tolerant paddy varieties and seed supply management are crucial.

STATEMENT OF THE PROBLEM

Paddy is an important food crop and it has greater economic importance among the food crops, since it is one of the leading commodities in agricultural exports. Hence, the production performance of the crop is of critical importance in improving the efficient use of resources. The cost of production and net returns obtained per unit would determine the profitability of the crop. The profitability of an enterprise depends upon the efficient use of the resources in production. Further, the study of cost and returns structure of paddy would help the farmers in ensuring proper resource combinations to augment the paddy yield, thereby increasing the profits. Hence, the present study makes an attempt to analyse the production of paddy in Cuddalore District.

OBJECTIVES

1. To examine the cost structure of paddy production in the study areas.
2. To analyse the factor affecting returns to paddy production for HYV and traditional variety .

SAMPLING DESIGN

The area chosen for the present study is Cuddalore district, situated at the southern part of Tamil Nadu. Multistage stratified random sampling technique has been applied in the present study. Kuringipadi and Chidambaram Taluk are selected among 6 taluks in the Cuddalore district from which Kuringipadi block and Bhuvanagiri block are selected. There are 150 samples farmers selected in each blocks (viz) Kuringipadi and Bhuvanagiri from these villages are Karunkuzhi, Maruvai and Nainarkuppam under Kuringipadi block and Karaimedu, Maruthur and Kolakkudi under

Bhuvanagiri block. Therefore each village consist of 50farmers comprising mariginal, small , medium and large farmers.

COST STRUCTURE OF PADDY PRODUCTION

The per acre average cost structure of marginal, small, medium and large farmers cultivating paddy are furnished in Table 1.

The cost analysis reveals that the per acre total cost, that is operational cost of cultivation for marginal farmers worked out to Rs.8,208, whereas it was Rs.8,466 for small farmers, Rs.9,436 for medium farmers and Rs.9,508 for large farmers. It is observed that total cost incurred was found higher in the case of large farmer compared to other farmers' category.

The cost of human labour forms the major component of the total cost of production for all the farmer categories. Next to human labour, the amount spent on the use of chemical fertilizers occupied the major portion in the total cost of production. It came behind the cost of farm manure, cost of irrigation, pesticides, seed cost and bullock labour. The costs of the inputs such as human labour, seed cost, farm manure and interest on working capital were higher for large farmers. In case of medium farmers, the inputs such as bullock labour, chemical fertilizer, cost of irrigation were higher whereas in case of small farmers, the input namely pesticide cost only was higher. Thus, it is inferred from the analysis that the medium farmers were earned more net returns through paddy cultivation than the other farmer categories in the study area.

The percentage of various cost components to total cost in Table 2 shows that the share of variable cost is 88.25 per cent for marginal farmers, 86.97 per cent for small farmers, 86.82 per cent for medium farmers and 86.36 per cent for large farmers. Human labour cost was found to be high for marginal farmers which constitute 40.35 per cent followed by cost of chemical fertilizers. The small farmers spent 14.60 per cent of their total cost on the utilisation of chemical fertilizer while medium and large farms spent 13.30 per cent and 13.05 per cent respectively. Next to this the major cost component was cost of bullock labour which constituted 11.28 per cent, 10.06 per cent, 7.62 per cent and 7.22 per cent of the total cost for medium, large, small and marginal farmers respectively. Cost of pesticides worked out to 6.22 per cent for the marginal farmers, 6.81 per cent for small farmer, 5.14 per cent for medium farmers and 4.88 per cent for large farmers. Farm manure constituted 6.59 per cent, 6.12 per cent, 6.00 per cent and 5.21 per cent for medium, small, large, marginal and small farmers respectively. The rent for land was higher for medium farmers than the other farmer categories which constitute 9.21 per cent.

DETERMINANTS OF RETURNS TO PADDY PRODUCTION

It is understood from Table 1 that the marginal farmers produced 2,209 kgs of paddy and earned Rs.13,183 per acre while their net returns per acre were Rs.3881. In the case of small farmers, the yield per acre was 2,085 kgs and they realised Rs.12,758 per acre as gross returns while their net return per acre was Rs.3,022. With regard to medium farmers, the yield per acre was 2,321 kgs and they realised Rs.14,870 per acre as gross returns while their net return per acre was Rs.4,022. In case of large farmers, the yield per acre was 2,139 kgs and they realised Rs.14,489 per acre as gross returns while their net return per acre was Rs.3,479

It is inferred that in the case of farmers cultivating High Yielding Variety, R2 value indicated that about 78.41 per cent of variation in yield were jointly caused by the five explanatory variables included in the model. Human labour, fertilizer, pesticides and capital flows were found to be statistically significant at 5 per cent level. It indicated that one per cent increase in these variables could yield by 0.3012 per cent, 0.2911 per cent, 0.1131 per cent and 0.3162 per cent per acre respectively. It was also found that the capital flows had a greater influence on the determination of yield, followed by the variables, human labour, fertilizer and pesticides. As per F-value, the fitted regression model was statistically significant at 1 per cent level.

As far as the farmers cultivating Traditional Variety of paddy, all the five explanatory variables together accounted for nearly 79.22 per cent variation in the yield. Out of five variables included in the regression model, human labour, fertilizers and capital flows were found to be statistically significant at 5 per cent level. It indicated that one per cent increase in these variables could increase yield per acre by 0.2831 per cent, 0.3078 per cent and 0.2948 per cent respectively. The impact of fertilizer on yield of paddy was found to be higher in the case of farmers producing Traditional Variety of paddy. The F-value showed that the estimated regression model was statistically significant at 1 per cent level.

In the case of overall farmers, the five independent variables jointly accounted for about 76.16 per cent of the variations in the yield of paddy. All the five variables had a positive effect on the determination of yield. Input variables such as fertilizer and capital flow were found to be significantly related to the yield of paddy. It indicated that on additional percentage of use of these variables, it was capable of increasing the yield by 0.2783 per cent and 0.2869 per cent per acre respectively. Capital flow was found to be most influential input on yield determination of paddy, followed by the variable, fertilizer. The F-value showed that the overall regression model emerged statistically significant at 1 per cent level. Thus, it may be concluded from the analysis of among two varieties of paddy farmers, human labour, fertilizer and capital were found to be significant variables. The result of chow's test shows that the computed F-value (F') was higher than the Table F-value and it was statistically significant at 1 per cent level. It indicates that structural difference existed between HYV and TV variety of paddy farmers.

CONCLUSION

It is suggested on the basis of the findings that the extension service officials may improve technical efficiency by advising the farmers on input application at the proper time as recommended. The farmers in the study area were of the opinion that they could not achieve the maximum yield due to severity of diseases and pest attacks. It is suggested that the farmers should be educated property to apply the pesticides at the prescribed level and this may be done through the Agricultural Department Officer attached to the Panchayat unions.

Thus, it is concluded from the analysis that medium farmers are economically more efficient than the other farmers' category irrespective of varieties of paddy cultivation in the study area. This could be due to the better supervision and more efficient farm management favoured by the smaller size of operational holdings. This indicated that apart from efficient allocation of inputs, direct supervision and farm management are crucial determinants of economic efficiency.

Table - 1 Farm Size-wise Average Cost Structure of Paddy Cultivation (Rs. per acre)

SI. No.	Cost Component	Marginal Farmers	Small Farmers	Medium Farmers	Large Farmers
1.	Human Labour	3,753	3,862	4,267	4,354
2.	Bullock Labour	671	741	1,225	1,107
3.	Chemical Fertilizer	1,438	1,421	1,445	1,437

4.	Pesticide	578	662	558	537
5.	Seed	392	391	462	507
6.	Farm Manure	557	507	591	673
7.	Irrigation	235	262	921	268
8.	Rent	817	896	921	938
9.	Interest on Fixed Capital	275	371	511	562
	Total Cost	9,301	9,735	10,868	11,009

Table -2Percent Share of Various Cost Components of Paddy Production

SI. No.	Cost Component	Marginal Farmers	Small Farmers	Medium Farmers	Large Farmers
1.	Human Labour	40.35	39.68	39.26	39.55
2.	Bullock Labour	7.22	7.62	11.28	10.06
3.	Chemical Fertilizer	15.47	14.60	13.30	13.05
4.	Pesticide	6.22	6.81	5.14	4.88
5.	Seed	4.22	4.02	4.25	4.61
6.	Farm Manure	6.00	5.21	6.59	6.12
7.	Irrigation	2.53	5.70	2.74	2.44
8.	Interest on Working Capital	6.23	6.33	5.38	5.65
9.	Variable Cost	88.25	86.97	86.82	86.36
10.	Rent	8.79	9.21	8.48	8.53
11.	Interest on Fixed Capital	2.97	3.82	4.70	5.11
	Total	100.00	100.00	100.00	100.00

REFERENCES

1. Aldas Janaiah, Keijiro Otsuka and Mahabub Hossain (2010), "Is the Productivity Impact of the Green Revolution in Paddy Vanishing": Empirical Evidence from TPF Analysis", Economic and Political Weekly,
2. Selvaraj, K. N. and Ramasamy, C. (2011) Drought, Agricultural Risk and Rural Income: Case of a Water Limiting Paddy Production Environment, Tamil Nadu", Economic and Political Weekly,