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Economic Viability of Marginal and Small Farms in Rain Fed Farming System in Tamil Nadu

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ABSTRACT

Marginal and small farms accounted for 36 per cent of total area under cultivation. In Tamil Nadu, socio-economic environment of some of farmers are financially viable, which means that they are able to earn enough income to meet their farm as well as household expenditure, while others fails to do so. The viability of marginal and small farms was 58 and 70 per cent respectively. The factors responsible for the viability are; farm size, off farm income, income from dairy, consumption expenditure and gross income from crops. This paper examined the contribution of these factors towards the viability of marginal and small farmers by collecting data from ariyalur districts of the state. It was found that off farm employment and crop income contributions much for the augmentation of income in both marginal and small farms. Therefore, on the policy front, all efforts should be made to create off farm employment opportunities for these farmers. Assuring remunerative prices and up scaling of the marketing and input supply facilities are the need of the hour to promote dairying and other allied activities among these farmers.

Key words: *Economic Viability, Marginal and Small farms and Discriminant Functional Analysis*

INTRODUCTION

The marginal and small farmers account for 80 per cent of total operational holding in the country, cultivating about 36 per cent of total area. India has a marginal (less than 1 hectare) with an average size of only 0.20 ha and 18 per cent are small (1-2 ha) with average size of 1.4 ha. Marginal and small farmers accounted for 35 per cent of total leased in area. The progressive fragmentation of land holdings, degrading natural resources base and emerging concerns of climate change are escalating pressure on land and water. Nearly 600 million people in India are engaged in farming. This resource poor situation leads to inefficient management of soil and water resources, ineffective control of pest and diseases which result in the low average yields of major crops and cropping systems in India, which account for just 40 per cent of what can be achieved even with the technologies currently on the shelf.

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Marginal and small farmers is not listed in government revenue records and are therefore excluded from government schemes and facilities for credit, insurance, inputs, extensions etc., for which they have to depend on private sources[1].

A large number of rural poor, particularly the small and marginal farmers who live in marginal environment are at the brink of subsistence. The real challenge lies in increasing their purchasing power by expanding required agricultural credit and remunerative employment. Gains in agricultural productivity have significant potential to impact on poverty. The focus should therefore be henceforth on not merely accelerating agricultural growth but also on empowering more and more people with purchasing power so as to have social equity.

Uneconomic size of very large numbers of marginal and small farms, low economic status of the farmers affects the full adoption of scientific farming. In the state, some farmers with same socio –economic environment, some of the marginal and small farmers are prosper and able to earn enough income to meet, their actual expenditure. There are multiple factors responsible for viability of individual farmer. Broadly, the factors are family size, farm size, and fixed investment, off farm income, consumption expenditure and gross income from crops. The objective of paper is to find financial viability of marginal and small farms.

DATA AND METHODOLOGY

This paper is based on the primary data collected from Ariyalur district of Tamil Nadu state. Three stage stratified random sampling technique was adopted for the selection of respondents. Selection of block is the first stage, village as the second stage and operational holding as the third stage. From district, two blocks were selected and 5 villages from each block were selected randomly. From each village, 5 marginal farmers and 5 small farmers were selected at random. Thus the total sample size was 100 farmers. Discriminant function analysis, which is a statistical technique used to differentiate between two or more classes, based on the common variables, was used for the analysis of the data. The discriminant function helps measuring the net effect of a variable by holding the other variables constant.

The sample farmers are categorized into two groups on the basis of economic surplus left with a farm household after deducting the farm and consumption expenditure from sum of gross returns from agriculture plus off farm income of respective farm household. The farms having positive economic surplus was categorized as viable farms and the farmers with negative economic surplus was categorized as a non -viable farms. The linear discriminant functions of form of equation was applied to find the relative importance of different variables in discriminating between these two groups of farms, viz, viable farms and non -viable farms.

$$Z = \sum_{i=1}^{n} L_i \; X_i$$

RESULT AND DISCUSSION

The data collected were analysed and the results are discussed. From sample, average farm size of marginal farms was 0.63 hectares and it was 1.80 hectares in small farms. The major crops raised are black gram, ground nut and sesame in both marginal and small farms.

A.Economic Surplus of Sample Farms

Economic surplus is amount left with a farm household after deducting the farm and consumption expenditure from the sum of gross returns from agriculture plus off farm income of respective of farm households.The off farm income added to the economic surplus from crops and dairy and the overall economic surplus was arrived. The results are presented in Table 1.

Table 1: Economic Surplus of Sample Farmer

(Rs./farm/annum)

S. No	Particulars	Marginal Farms	Small Farms
1.	Farm business income from crops	20000	25000
2.	Farm business income from dairy	6250	9000
3.	Total farm income (crops and dairy)	26250	34000
4.	Consumption expenditure	35870	43000
5.	Economic surplus from crops and diary (3-4)	(-)9620	(-)9000
6.	Off farm income	15000	18000
7.	**Overall economic surplus**	5380	9000

It is evident from the table that in the marginal farmers farm business income from crops was Rs.20,000 followed by income from dairy (Rs.6250) and total income was Rs.26250. The consumption expenditure was Rs.35870 and they incurred loss to the tune of Rs.9260. The off farm income was Rs.15000 and overall economic surplus was Rs.5380. In small farmers the loss was Rs.9000.The off farm income was Rs.18000 and overall economic surplus was Rs.9000.

The positive overall economic surplus was realised by marginal and small farms by adding off farm income.

B. Financial viability sample farms

Financial viability of sample farms is determined by economic surplus of farm. The farm with positive economic surplus was categorized as viable farms and with negative economic surplus was categorized as non-viable farms. The results are given in Table 2.

It could be seen from the table that 58.00 per cent of marginal farms were viable and 32.00 per cent of farmers were non-viable. Whereas in small farms, 70.00 per cent were viable and 30.00 per cent were non-viable.

Table 2: Details of Viable and Non-Viable of Sample Farms

(Numbers)

S. No	Farm size	Viable farms	Non-viable farms
1.	Marginal	29 (58.00)	21 (32.00)
2.	Small	35 (70.00)	15 (30.00)
3.	Overall	64	36

In total, 64 farms were viable and 36 farmers were non-viable. It is concluded that the non-viability is higher in marginal farms as compared to small farms.

IV. Discriminant Factors for viable and non-viable farms

A. Marginal Farms

The results of discriminant function analysis of marginal farms in rain fed farming system are presented in Table 3. It could be seen that total fixed investment was significantly higher in viable farms (Rs.8607) than non-viable marginal farms (Rs.8458). Off farm income, consumption expenditure, gross income from crops and net income were significantly higher in viable than non-viable. The total distance between significant factors such as the contribution of total fixed investment was 14.55 per cent; off farm was 48.44 per cent, gross income was 28.17 per cent. It indicates these two factors were the major factors in discriminating viable and non –viable marginal farms.

B. Small Farms

The results of discriminant function analysis of small farms are presented in Table 4. It is obvious from the table that off farm income, consumption expenditure and gross income

from crops were significant factors. Off farm income was significantly higher in viable small farms (Rs.18649) than non-viable small farms (Rs.16559). Consumption expenditure, gross income from crops were significantly higher in viable small farms (Rs.23934) than non-viable (Rs.22316) and net income from dairy were significantly higher in viable farms (Rs.8682) than non-viable (Rs.7432).The total distances between significant factors such as the contribution of off farm income, consumption expenditure, gross income from crops and net income from dairy was 22.82 per cent, 1.88 per cent, 17.67 per cent and 40.95 per cent, respectively.

Table 3: Results of Discriminant Function Analysis on Marginal Farms of Rain fed System

S. No	Items	Mean		Mean difference (d_i)	Discriminant coefficient (L_i)	Discriminant distance (d_i) (L_i)	Percent contribution to the total distance
		Viable	Non –Viable				
1	Family size (in numbers)	3.89	3.66	-0.23	-0.2	0.046	-0.05
2	Farm size (in hectares')	0.61	0.63	0.02	-0.08	-0.0016	0.002
3	Total fixed investment (in Rs.)	8607	8458	-149*	0.09	-13.41	14.55
4	Off farm income (in Rs.)	18742	17254	-1488***	0.03	-44.64	48.44
5	Consumption expenditure (in Rs.)	35164	34515	-649**	0.04	-25.96	28.17
6	Gross income from crops (Rs./ha)	21287	19496	-1791***	0.02	-35.82	38.86
7	Net income from dairy	4225	4532	307**	0.09	27.63	-29.98
						-92.15	100

Note: * indicate significant at 1 percent level ** indicate significant at 5 percent level *** indicate significant at 10 percent level

Table 4: Results of Discriminant Function Analysis on Small Farms of Rain fed Farming System

S. No	Items	Mean		Mean difference (d_i)	Discriminant coefficient (L_i)	Discriminant distance (d_i) (L_i)	Percent contribution to the total distance
		Viable	Non – Viable				
1	Family size (in numbers)	3.8	4.13	0.33	4.54	1.4982	1.64
2	Farm size (in hectares)	1.67	1.33	-0.34*	0.03	-0.0102	-0.01
3	Total fixed investment (in Rs.)	17392	17445	53	0.26	13.78	15.05
4	Off farm income (in Rs.)	18649	16559	-2090*	-0.01	20.9	22.82
5	Consumption expenditure (in Rs.)	43065	42893	-172*	-0.01	1.72	1.88
6	Gross income from crops (Rs./ha)	23934	22316	-1618***	-0.01	16.18	17.67
7	Net income from dairy	8682	7432	-1250**	-0.03	37.5	40.95
						91.56	100.00

Note: * indicate significant at 1 percent level ** indicate significant at 5 percent level *** indicate significant at 10 percent level

CONCLUSION

Sample farms were classified based on economic surplus as viable and non-viable farms. In rain fed faming system 58 per cent of marginal farms and 70 per cent of small farms were viable. In marginal farms significant factors are total fixed investment, off farm income, domestic expenditure and gross income from crops. In small farms significant factors are off farm income, domestic expenditure and gross income from crops.

Since, dairy played a positive role to the financial viability of small and marginal farms it has to be promoted. Necessary efforts should be made to create off farm employment opportunities for small and marginal farmers.

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