

ECONOMICS OF CULTIVATION AMONG THE SMALL AND MARGINAL FARMERS IN GUNTUR DISTRICT OF ANDHRA PRADESH

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Abstract

Small and marginal farmers have a significant role in ensuring social stability whose benefit cannot be qualified in monetary terms. Hence no agricultural policy will succeed without making these farms economically sustainable and vibrant. As per the causes explained in the preceding payers, the small and marginal farmers are still in the clutches of indebtedness and poverty. This agrarian crisis has manifested in the form of suicides and has reached to dangerous levels in the state of Andhra Pradesh. The gravity of this problem as well as its causes pointed out that most of the suicides were among cultivators who belong to the category of marginal and small farmers. . These farmers are facing so many problems in accessing to timely quality inputs including capital and in marketing this produce in an efficient manner apart from the general problems being faced by the agrarian sector, ranging from poverty to crop failure, indebtedness, marital discord and alcoholism. Their ability to absorb high cost technologies is also limited as compared to both medium and large farmers. The main objective of the paper is to analyse the economics of cultivation of marginalized farmers in the Andhra Pradesh. A multi-stage random sample method is employed to select 200 sample households from these two regions.

Key words: Small, Marginal Farmers, Cost of Cultivation, Agriculture, Per acre

Introduction

The agricultural sector, extending over 46 per cent of the total geographical area by making it a vital element for the inclusive and sustainable growth of Indian economy and providing employment to nearly 53 per cent of the population. The facts that approximately 30.5 per cent of the rural population live below poverty line in 2012-13 emphasized the need for high growth rate in agricultural sector. Thus the agricultural sector not only contributes to overall growth of economy but also reduce poverty by providing the employment and food security to the majority of the population in the country. Over the last sixty years the production of food grains has been increased from 52 million tons in 1950-51 to 250 million tons in 2011-2012, at the same time the production of oil seeds also increased from 5 million tons to 28 million tons. India got a third place in terms of production in Paddy, Wheat, Fruits, Cereals, Groundnut and Sugarcane. The share of agriculture and allied sector in gross domestic product declined steadily from 38.8 per cent in 1980-81 to 13.7 per cent in 2012-13. The share of agriculture in total work force also declined from 75.9 per cent in 1961 to 56.4 per cent in 2016-17. The performance of agriculture in the post independence period had been impressive as compared to the pre independence period. The overall performance of agriculture and allied sector had got up to the mark during the period 2001-2017. The low growth in GDP from agriculture during 2001-2017 coupled with higher instability would have lead to more vulnerability and distress among the farming community.

Small and marginal farmers have a significant role in ensuring social stability whose benefit cannot be qualified in monetary terms. Hence no agricultural policy will succeed without making these farms economically sustainable and vibrant. As per the causes explained in the preceding payers, the small and marginal farmers are still in the clutches of indebtedness and poverty. This agrarian crisis has manifested in the form of suicides and has reached to dangerous levels in the state of Andhra Pradesh. The gravity of this problem as well as its causes pointed out that most of the suicides were among cultivators who belong to the category of marginal and small farmers. . These farmers are facing so many problems in accessing to timely quality inputs including capital and in marketing this produce in an efficient manner apart from the general problems being faced by the agrarian sector, ranging from poverty to crop failure, indebtedness, marital discord and alcoholism. Their ability to absorb high cost technologies is also limited as compared to both medium and large farmers.

The rapid increase in population, subdivision and fragmentation of land holdings and the changed family system from joint to nuclear families in rural India have made the size of holdings smaller and smaller. In Indian Agriculture, area operated by marginal farmers has increased, but not the proportional holdings. On the other hand, both the number of large holdings (of 10 hectares and above) and the area operated by large holders have slightly declined. This shows that in future Indian agriculture will be dominated by small and marginal holdings, on which application of new agricultural technology

would become more difficult. The prominent feature of the structural change in agricultural was the increase in the number of marginal holdings of below one hectare, without a proportionate increase in the area operated by them: This tendency is likely to continue in the near future also...given the demographic trend, small holdings will remain with us as far as one can see, and their persistence would give rise to many problems in the application of the new agricultural technology to Indian agriculture

Keeping in view the vast majority of small and marginal farmers and their resource-poor condition, the question is- how to make these farm households viable. How can these farmers maximize their total returns from farming? It is a known fact in India that small and marginal farmers are generally resource—poor. This is more so in arid and semi-arid regions, where due to lack of adequate potential of development, like irrigation, the farmers are forced to use the available resources without caring for sustainability. As a result their poverty is further aggravated. Even in a favourable condition where facilities like irrigation, HYVs, fertilizers and bank loans for capital are available, these resource-poor farmers are unable to overcome the 'Poverty Trap' due to social, political, technical, and economic constraints.

Objective of the paper

The main objective of the paper is to analyse the economics of cultivation of marginalized farmers in the Andhra Pradesh

Methodology

A multi-stage random sample method is employed to select 405 sample households from these three regions. In the first stage two districts are selected at random from the list of districts in each region where more than 80 per cent of farmers are marginal and small farmers. Thus, for the study, Guntur from Coastal Andhra and Chittoor district from Rayalaseema region are selected. In the second stage one mandals from every district are selected at random, which is Tadikonda from Guntur and Chandragiri from chittoor district. Altogether two mandals were selected from the list of mandals where more than 80 per cent of marginal and small farmers depend on cultivation. In the third stage two villages are selected which are Ponnekallu and Pamulapadu from Tadikonda and Panapakam and Mittapalem from Chandragiri mandal, thus altogether four villages were selected at random by following the criteria that majority of marginal and small farmers are depending on cultivation. Finally each village 50 respondents are selected by random, altogether 200 respondents are selected for the study.

Empirical Analysis

In this section clearly analyze the cost of cultivation, income of the farm households and input-output estimation of the costs in the state of Andhra Pradesh is presented in the below

Region wise distribution of cost of cultivation by different cost concepts:

The information pertaining to per acre cost of production according to various cost concepts viz., Cost A1, Cost A2, Cost B and Cost C is shown in Table-1. Here Cost A1 represents the out of pocket expenses incurred by the farmers, Cost A2 represents rental value of leased-in land along with Cost A1, Cost B represents imputed value of own land and interest on fixed capital along with Cost A2 and Cost C represents imputed values like family labour income and interest on fixed capital along with Cost B.

Region wise cost of cultivation on the basis of different cost concepts are computed and are also furnished. Here Cost A1, includes all the paid –out cost Viz., expenditure incurred on owned and hired human labour, owned and purchased seed, owned and purchased organic manure, fertilizers, pesticides and other farm operating expenses such as irrigation, Transport, Marketing charges, Miscellaneous expenditure and interest on working capital. The value of depreciation on farm assets is included also in Cost A1. Cost A2 is obtained by adding rental value of leased –in land to Cost A1. Cost B is obtained by adding rental value of leased –in land to cost A1. Cost B will be obtained by adding rental value of owned land and interest on fixed capital to Cost A2. Then finally net loss can be calculated by adding of by family labor income to Cost B.

Table -1: Regions and Category wise Cost of Cultivation –All Crops

REGIONS	Farming. Category	COSTA1	COSTA2	COSTB	COSTC	PRIME COST
COSTALANDHRA	Marginal	41210	43727	54976	60553	54196
	Small	49539	51963	65904	71192	64964
	Total	44576	47055	59392	64852	58547
RAYALASEEMA	Marginal	22786	23342	29755	32609	28837
	Small	24157	25075	33193	36610	32550
	Total	23501	24245	31547	34695	30773
Total	Marginal	34392	35995	46578	51273	45823
	Small	42661	45188	57145	61817	56379
	Total	38173	40198	51409	56094	50650

Source: Primary data

Cost A1: It includes, value of hired human labour,value of bullock hired labour, value of owned bullock labour, value of owned and hired machine labour, value of seed,value of manures and fertilizers, depreciation (on buildings, implements etc.),water tax, interest on working capital, miscellaneous expenses

Cost A2: Cost A1+ Rent paid for leased-in-land.

Cost B: Cost A2 + Rental value of owned land + Interest on fixed capital.

Cost C: Cost B + Imputed value of family labour.

They did not substantially help the farmers. Operational cost includes expenditure on seeds, fertilizers, pesticides, bullocks, tractors and human labour. The expenditures like depreciation, irrigation charges, rent paid on leased in land, rental value of owned land etc., comes under overhead cost. The cost C is found to be high in Costal Andhra when compared to Rayalaseema regions. The intra size analysis also clearly shows that there is positive relation with firm size in the three regions

Region and Category wise Operational and Overhead Costs

Region wise distribution of total cost into operational cost and overhead cost by size wise is presented in table-2 . As the commercial crops grown farmers are supposed to be more progressive as they are expected to use more inputs, the proportion of operational cost is to be more on these regions and holdings. In contrast to this the total costs, of traditional crops growing farmers are expected to have higher percentage of overhead cost as the use of modern input is lower in these holdings. Now a days majority of farmers are using modern inputs without proper knowledge and also applying more inputs like fertilizers and pesticides even without any expert suggestions and hence the operational cost has been increasing alarmingly.

Apart from this, cash crops like Cotton, Chillies, Groundnut, Maizes are capital intensive in nature and also labour intensive crops when compared to food crops like Jower, paddy. It is expected that the operational cost depends on cropping intensity, cropping intensity depends on availability of water for through year. The timely completion of different operations which depend on nature and climate conditions and the proportion of paid out cost to total costs are found to be high in case of Costal Andhra region. This may be due to predominance of input costs of intensive cash crops like Cotton, Chillies and Maize. The data further reveals that proportion of paid out cost to total cost is lower in Rayalaseema region.

It is also evident that there is a direct relationship between farm size and proportion of imputed costs to total costs in all the regions. On the other hand, the inverse relationship between farm size and proportion of imputed costs to total cost is associated with the negative relationship between farm size and the proportion of expenditure on family labour to total work.

Table -2 : Region and Category wise Per Acre Operational and Overhead Cost-All Crops

Regions	Farming Category	OPERATIONAL COST	OVERHEAD COST	TOTAL
COSTALANDHRA	Marginal	40997 (67.71)	19555 (32.29)	60553 (100.00)
	Small	49164 (69.06)	22028 (30.94)	71192 (100.00)
	Total	44298 (68.31)	20555 (31.69)	64852 (100.00)
RAYALASEEMA	Marginal	22500 (69.00)	10109 (31.00)	32609 (100.00)
	Small	23902 (65.29)	12708 (34.71)	36610 (100.00)
	Total	23231 (66.96)	11464 (33.04)	34695 (100.00)
Total	Marginal	34145 (66.59)	17128 (33.41)	51273 (100.00)
	Small	42331 (68.48)	19486 (31.52)	61817 (100.00)
	Total	37888 (67.54)	18206 (32.46)	56094 (100.00)

Source: Primary Data

Returns from Farming

The per acre returns from cultivation among different farm holdings by region wise are analysed by calculating the following concepts of returns viz., gross return, farm business income, family labour income, net income and farm investment income.

Gross Income

The data pertaining to per acre gross returns from the cultivation of all crops by region and farming category wise are given in table-3. It can be observed from the table that per acre gross returns are high in Costal Andhra region (Rs.57,064/-) which is high by 106 percent and 15.92 per cent more than that of Rayalaseema and just Rs.27,674/- in Rayalaseema Region. Further, the data reveals that the gross returns per acre constantly are higher among the marginal and small farmers in Costal Andhra farm households than that of Rayalaseema regions. A positive relationship is observed between farm size and gross returns among the three regions of farm households. This leads to conclusion that the marginal and small farmers face constrains like inefficient management of farms.

Farm Business Income

Farm business income represents returns to the farmers from land, family labour, interest on fixed capital and management. It can be obtained by deducting the paid-out costs i.e., Cost A1 or Cost A2 as the case may be from gross returns per acre. Region wise farm business incomes on all crops in cultivation by different farm sizes are shown in Table - 4. From the table it can be observed that the farm business income is high in Costal Andhra farm households (Rs. 10,009/-) when compared to Rs. 3428/- in Rayalaseema region farm households. The intra size group analysis clearly reveals that farm business income is increasing with the farm size in both Costal Andhra and Rayalaseem.

Family Labour Income

Family labour income gives the return to the family labour and management of the crop enterprise and can be obtained by deducting Cost B. Region wise family labour income by size wise computed and presented in the table-3. From the table it can be observed that the family labour is negative in all the three regions. The farmers in the study area they not get even the family labour income from the cultivation.

Net Income

Net income indicates profit or loss from farm business. It is residual of gross income after deducting total Cost C from it. Per acre net return or loss is presented in table 5.4. From the table it can be shocking observe that per acre net return is found to be negative in marginal and small farmers in the three regions, where there is net loss of Rs. -7,788/- in Costal Andhra region farmers, Rs.-8,930/- in Rayalaseema region. This has led to the conclusion that cultivation is not at all economical in the three regions. In the absence of alternative livelihood sources, farmers cultivate the land even at negative returns.

Farm investment income

The farm investment income represents the income remained with the farmer for his investment which comprises of the rental value of owned land, interest on fixed capital and return to the management. The value of farm investment income for all the farming categories is presented in the Table -3. It can be observed that the farm investment income is found to be positive in all farming categories. Per acre farm investment income is higher in case of Costal Andhra (i.e. Rs. 4,827/-) when compared to Rs. 551/- in Rayalaseema region. This is in conformity with the economic theory. It is clearly observed from the foregoing analysis which has established that the intensive use of modern inputs in Costal Andhra cultivation. Per acre investment by all cost concepts is high in Costal Andhra when compared to Rayalaseema region. Mechanization has also altered the total costs structure, between operational and overhead costs and also between paid out cost and imputed costs.

Table-3 Region and Category wise per Acre Returns –All Crops

Regions	Farming Category	AGRI CULTURAL INCOME	FARM BUSINESS INCOME	FAMILY LABOUR INCOME	NET IN-COME	FARM INVESTMENT INCOME
COSTA-LANDHRA	Marginal	52350	8623	-2626	-8203	3258
	Small	64016	12054	-1888	-7176	7140
	Total	57064	10009	-2327	-7788	4827
RAYALASEEMA	Marginal	25043	1701	-4711	-7565	-866
	Small	30090	5015	-3104	-6521	1852
	Total	27674	3428	-3873	-7021	551
Total	Marginal	43322	7327	-3256	-7951	2879
	Small	53749	8562	-3395	-8067	4220
	Total	48090	7891	-3320	-8004	3492

Source: Primary Data

Output-Input Ratios

To estimate the returns per a rupee of investment in cultivation, the output-input ratios are calculated and presented in the table-4. It can be observed from the table that the output-input ratio is 0.968 in Costal Andhra farm holdings when compared to 0.926 in Rayalaseema region farm households. It can be observed that the return per rupee investment is lower on marginal followed by small in the three regions, which is (0.963, 0.975 in Costal Andhra, 0.828 and 0.863 in Rayalaseema region). However, there is a positive relationship between rate of returns and farm size. The low output-input ratio reflects the uneconomical crop production enterprise. These farm holdings have cultivated crops without any economic gain. Thus it leads to the conclusion that all the marginal and small farm households gain the negative returns on agriculture and have not received even their investments in most of the occasions.

Table-4: Region and Category wise Per Acre Output-Input Ratios-All Crops

Regions	Farming category	OUTPUT-INPUT
COSTAL ANDHRA	Marginal	0.963
	Small	0.975
	Total	0.968
RAYALASEEMA	Marginal	0.828
	Small	0.863
	Total	0.846
Total	Marginal	0.920

	Small	0.925
	Total	0.922

Suggestions

The conclusions drawn from the study reveals that the income from the cultivation is meager and it not sufficient to meet today to day consumption expenditure. The price of all the inputs for cultivation and day to day consumption expenditure is hike. In this situation the marginal and small farmers are fall in to debt cycle and not away from the debt trap and he pushed in to the poverty then it leads to suicides

- Tree-based farming, particularly agri-horti-pastoral system linked with livestock development, can help in boosting the agricultural production while providing gainful self-employment to small farmers. Intensive training should be given to selected rural youth in scientific poultry farming through the Veterinary University and private hatcheries with tie up for institutional finance and subsidy admissible under SGSY and other programmes.
- Agriculture alone cannot fulfill the needs of small farmers and landless, it is necessary to tap rural non-farm sector for additional employment generation. While some of these activities are linked to local agricultural production, others are independent of agricultural activities like vermicompost, mushroom spawn, fruit, processing and marketing of ago products and poultry.
- To change the attitude of the farmers toward excess use of fertilizers and pesticides. Majority of the farmers are not followed the extension officers advises, they followed the co-farmers then he has applied four bags of fertilizers then the other farmer applied six bags of fertilizers, in this competitiveness is leads to increase the cost of cultivation
- Credit delivery system should be strengthening: The banker to declare to 20 % of debt to be given to the poor, marginal and small farmer. But in general it was only 8 %
- 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.
- The public investments should be made to remove the regional productivity gaps, as it will enhance income of these farmers

As mentioned above, the income from small and marginal farms is not enough to take care of daily consumption and they have to borrow to survive. Therefore, small holdings farmers have to get part of income from rural non-farm activities. Therefore, promotion of rural non-farm sector is essential for generating incomes for rural population. Poverty can not be removed with 55% of workers in agricultural sector. Ultimately, many of the small and marginal farmers have to be shifted to rural non-farm sector and urban areas.

Conclusion:

can be concluded that the cultivation is associated with risk and uncertain yields. The analysis on the economics of cultivation, it has established that the intensive use of modern inputs in cultivation, as per acre investment by all cost concepts is high in Costal Andhra region when compared to Rayalaseema regions and intra category analysis shows that it is high with small farmers in the three regions. Per acre expenditure on rental value of owned land is higher in Costal Andhra region when compared to Rayalaseema regions due to high cropping intensity and growing commercial crops. It is also found that per acre expenditure is positive or directly related to farm size in the three regions.

The proportion of expenditure on fertilizer and pesticides to total cost are higher in Costal Andhra region when compared to Rayalaseema regions. In Costal Andhra the fertilizrs and pestisides are used extensively high for both traditional and commercial crops among these crops are use more number of bags are applied when compared to traditional crops. The analysis also shows a significant difference on the proportion of expenditure on hired labour to total cost in the three regions. Costal Andhra region have spent major share on human labour where the Cotton, Chillis are labour intensive crops, when compared to Tomoto, jowar, groundnut and sunflower etc. The intra size group comparison reveals that there is a direct relation between the proportion of expenditure on hired labour to total cost and the size of farm and an inverse relationship is found in family labour and farm size.

The proportion of paid out cost to total costs is found to be high in Costal Andhra region where as it is lower in Rayalaseema region. There is a direct relationship between farm size and proportion of imputed costs to total costs in all the regions. On the other hand there is inverse relationship between farm size and proportion of imputed costs to total cost. The gross return per acre constantly is higher among the marginal and small farmers in Costal Andhra than Rayalaseema farm households. A positive relationship is observed between farm size and gross returns in the three regions. Which reflects that the marginal and small farmers face constrains and inefficient management of farms.

With respect to the farm business income it is high for Costal Andhra farm households the other regions. The intra size group analysis clearly reveals that farm business income is increasing with the farm size in both Costal Andhra and Rayalaseem regions. Per acre family labour income is found to be negative in all size groups in the three regions and the rental value of own land and interest on fixed capital is found to be high in case of Costal Andhra. Per acre net return is found to be negative for marginal and small farmers in the two regions, where the net loss is found to be more in Rayalaseema when compared to Costal Andhra, which is proves that the cultivation is uneconomic for these selected households. But tragidecally in the absence of alternative livelihood sources, the farmers cultivate their land even at negative returns. Per acre farm investment income is higher in Costal Andhra when compared to Rayalaseema regions. The per acre farm investment income is increasing with the farm size in the regions except in both two regions. The output-input ratio of Costal Andhra farm holdings is 0.968 and 0.926 in Rayalaseema regions. It can be observed that the return per rupee investment is lower for marginal farm households followed by small farm households in the two regions. Hence we can conclude

that the cultivation is associated with risk and uncertain yields. And hence, gross income, farm business income, family labour income and net income are very low.

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