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Resource use pattern input-output relationship and marketing issues of cotton crop - An empirical analysis

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Abstract
In an agrarian-based economy like India, any programme launched to tackle the poverty of the downtrodden in rural areas occupies a more significant role. Otherwise, it can jeopardise all the developmental activities and nullify the gains achieved so far. The study found that a few big farmers enjoy the benefits of irrigated land, denying the fruits of many small and marginal farmers. The study has revealed that most big and medium farmers could get Rs. 4,000 per quintal of cotton output. The use of modern resources had a more significant influence on the output of cotton crops, as these districts were endowed with numerous resources to raise cotton crops. These districts are also known as the cotton bowl of Telangana State.
Further, implementing Government programmes and privatisation has not only led to a depletion of resources but also deprived the poor peasants of getting good returns. Under this paradoxical situation, rural areas have, of late, attracted the attention of researchers. The study observed that the top five ranked marketing problems in Adilabad district were price fluctuations, non-availability of storage facilities, high cost of packing material, transport costs, and commission charges, and in Karimnagar district, Fluctuations in price, improper methods of sale, the role of market intermediaries, unauthorised deductions, and a lack of market information. The present study has been undertaken in selected rural areas of Telangana.

Keywords: Resources, irrigated land, cotton output, marketing problems and Telangana

Introduction
Land is the most critical asset in rural areas of our country. All the socio-economic relationships revolve around how the land is distributed and cultivated. Particularly in the rural areas of Telangana state, there is extreme inequality in the distribution and cultivation of land. Even today, it has been observed that most farmers belong to either small or marginal landholders possessing less than 5 acres of land. Whereas minority farmers, i.e., big farmers whose number is usually less in rural areas, occupy a more significant proportion of the land in rural areas.

Significance of the Study
An efficiently organised cotton market system facilitates the proper and smooth disposal of what the farmer produces and acts as a catalyst for increased production. The factors which may affect the development of a more complex marketing system include the increased commercialisation of production, adoption of more scientific techniques, increased labour and firm specialisation, the geographical separation of production and consumption, population increase and urbanisation, changing food habits and purchasing power, changing consumer mobility, Government related conditions, etc.

Review of Literature
From the very inception of planning, agriculture has always been given priority choice, and several methods have been applied to improve the conditions of cotton. However, problems in the marketing of cotton still need to be solved. Several studies have found snags at different levels—particularly those conducted by Dantwala Committee (1950) [1]. Zaibun, (1977) [17], Mehta (1970) [12], Kainath (1980) [3], Saini (1979) [14], Sani (1975), Uppal (1978) [16] found lack of organisation among cultivators, a long chain of intermediaries, unregulated markets a multiplicity of market charges, mal-practices in the markets, absence of grading and standardisations, defective marketing methods, adulteration, absence of marketing knowledge, absence of storage facilities, transport facilities, financial facilities, etc.
Saxena (1964) [15] made a pioneering effort in the selected Punjab areas to discover the problems of marketing cotton. He found that the growers brought nearly 85 per cent of the produce to the regulated markets. Even though cooperative marketing societies were operating, their impact was minimal since they hardly handled one per cent of the total arrivals. The main reason for this lean business of the societies in Punjab was their inability to advance loans to the producers. As a result, the cost of ginning and pressing varied from market to market.
On the other, a study on the dynamics of cotton acreage in nine districts of Maharashtra was conducted by Kaul (1968) [4], and it was found that a considerable proportion of cotton acreage had been gained by jowar over the years. However, acreage for other crops like groundnut had also shown some increase. It has also pointed out that cotton growers responded to price changes both in the short and long run. The response, however, is slow because of restraints on acreage allocation due to subsistence needs. Hence Kaul suggested a favourable cotton / jowar price as a policy measure to increase acreage under cotton cultivation.
Similarly, an attempt was made by Khandelwal (1977) [5] who tried to find out the problem of cotton and cotton-seed forward markets in Madhya Pradesh. He visualised the problems connected with future cotton and cotton-seed markets and suggested effective measures to overcome these problems. He found that the forward markets needed to be fixed in Madhya Pradesh. The strength of the membership of the Association had declined. Hence he has

recommended reforms in cotton marketing practices, and changes in government policy are needed.

Marketing problems of cotton in Andhra Pradesh have revealed that cotton yield could have been higher since it was cultivated in poor soils and regions of uncertain rainfall. The yield is further affected by a high incidence of pests and diseases. A study by the National Council of Applied Economic Research (NCAER) (2009) [11] highlighted the prevalence of malpractices like unauthorised deduction and a few buyers in some regulated markets, thus giving scope for concentration and the use of more inputs like; fertilisers and cultivation under assured irrigation facilities.

Green marketing is still in its infancy, and much research is to be done on it to explore its potential fully. Green marketing should look at minimising environmental harm, not necessarily eliminating it, Lal (2015) [8].

Further, Gangwar (1975) [2] examined the economic feasibility of financing cotton growers in the Hissar district of Haryana. The study relates to two types of cotton varieties. Farmers faced severe constraints on these inputs as American cotton requires more pesticides, fertilisers, and irrigation. They should prefer the desi variety. The net income derived from both varieties is the same. Even under adverse weather conditions, financial institutions may consider advancing credit since these varieties assure minimum recovery of the amount invested.

The respondents demanded providing irrigation facilities to prevent 100 per cent crop failures and thereby prevent farmers from falling into debt traps, Lal (2013) [7]. The need is to enable farmers to combat climate change; by contributing to policies that affect them and will eventually be effective. Loan waivers are an unsustainable solution to the farm crisis, Lal (2019) [10].

Therefore an efficiently organised market system for cotton facilitates the proper and smooth disposal of what the farmer produces and acts as a catalyst for increased production. The factors which may affect the development of a more complex marketing system include the increased commercialisation of production, adoption of more scientific techniques, increased labour and firm specialisation, the geographical separation of production and consumption, population increase and urbanisation, changing food habits and purchasing power, changing consumer mobility, Government related conditions, etc.

Objectives

1. To examine the Resource Use Pattern and Input-output relationship of Cotton Crops of different categories of farmers.
2. To find the Marketing facilities in the various market yards in the study areas.
3. To suggest Suitable Policy measures to overcome the hurdles in the Marketing of the Cotton Crop.

Hypotheses Formulated

1. Resource use pattern for raising cotton differs from area to area and also among different respondents and
2. The minimum supporting price of cotton is the bone of contention between farmers and officials, as their opinions on MSP contradict each other.

Methods and Materials

Primary data was collected by well-prepared questionnaires administered to the respondents. It includes the disposal pattern of the product, reason for selling the produce, mode of transporting and distance covered, opinion on the existing marketing facilities, and problems faced when selling their product. Simple statistical tools such as percentages and averages were used for comparative analysis. Multiple regression analysis has also been done to explain the critical variable influencing output and tested hypotheses.

The Study Area and Communities Involved

The study is primarily based upon the Primary Data, and the required information has been collected from the two essential districts of Telangana State, i.e., Adilabad and Karimnagar, which are known as the Cotton Bowls of the State. We have selected six villages from two districts based on stratified random sampling. The selection of study areas has been chosen after consulting concerned Agricultural officers and Village level authorities. After pre-testing, final selections of the areas have been identified. From each area, sixty respondents were picked up based on random sampling techniques. They represented various categories of farmers, such as marginal, small, medium and big farmers, covering different social groups, i.e., Schedule Castes, Schedule Tribes, Backward Classes and Forward Classes communities.

Results and Discussion

Based upon the data collected from the field investigation below analysis has been made. This study focused on the following aspects; Land particulars of the sample respondents, Per acre average value of the output of cotton crops, Analysis of input-output of cotton crops in Adilabad and Karimnagar districts and, Marketing problem faced by respondents' weighted averages in Adilabad and Karimnagar districts.

Table 1: Land Particulars of the Sample Respondents (in Acres)

Village & category of Farmers	Different types of Lands (Own)				
	Irrigated Land	**ID Land**	**Unirrigated**	**Fallow land**	**Total**
Adilabad					
Marginal Farmers	40 (2.22)	10 (0.56)	20 (1.11)	10 (0.56)	80 (4.44)
Small Farmers	70 (3.18)	60 (2.73)	30 (1.36)	60 (2.73)	220 (10.00)
Medium Farmers	120 (10.91)	44 (4.00)	12 (1.09)	20 (1.82)	196 (17.82)
Big Farmers	130 (14.44)	40 (4.44)	40 (4.44)	40 (4.44)	250 (27.78)
Total	360 (100.00)	154 (100.00)	102 (100.00)	130 (100.00)	746 (100.00)
Karimnagar					
Marginal Farmers	40 (2.11)	12 (0.63)	24 (1.26)	12 (0.63)	88 (4.63)
Small Farmers	90 (3.46)	30 (1.15)	28 (1.08)	40 (1.54)	188 (7.23)
Medium Farmers	98 (8.91)	40 (3.64)	15 (1.36)	10 (0.91)	163 (14.82)
Big Farmers	50 (12.50)	20 (5.00)	10 (2.50)	14 (3.50)	94 (23.50)
Total	278 (100.00)	102 (100.00)	77 (100.00)	76 (100.00)	533(100.00)

Source: Filed Data **Note:** Parentheses Indicate the Percentage

Efforts were made to find out the different types of land owned by the various categories of farmers in the study areas. Table – 1 reflects that all the 120 respondents in Adilabad District possessed 746 acres of the total land, of which 360 acres in Irrigated land, 154 acres were Irrigated Dry Land, and the remaining 102 acres were unirrigated land. However, in the case of Karimnagar District, 533 acres of land are controlled by 120 respondents belonging to different categories of farmers. Of this total land, 278 acres are Irrigated land, 102 acres are irrigated dry land, and the remaining 77 acres are unirrigated land. Thus, 213 acres of land are more visible in the Adilabad district than in Karimnagar District.

If we look type of land distribution separately, in Adilabad District, out of 746 acres of Irrigated land, only 32 big and medium farmers possessed 250 acres of land, whereas 88 small and marginal farmers had only 110 acres of land. It means that there is glaring inequality in possession of Irrigated land where few medium and enormous farmers have a large proportion of ID land. On the other, many weak farmers, i.e., small and marginal farmers, i.e. 88 members, possess only 110 acres of land.

Similarly, in the case of Karimnagar district also, only six big farmers had 278 acres of Irrigated land, whereas 26 marginal farmers shocking have only 40 acres. Even if we look at small farmers' possession of irrigated land, 62 members have only 90 acres of land. Thus, like the Adilabad district in Karimnagar district, a few big farmers enjoy the benefits of Irrigated land, denying the fruits of many small and marginal farmers.

Let us look at the land distribution situation in the case of Irrigated Dryland. Disparity syndrome is visible, i.e., in Adilabad District, 12 respondents representing the prominent farmer's category have 44 acres of land, and in Karimnagar, six big farmers have 40 acres of ID land. However, in the case of marginal farmers, out of 30 in Adilabad and 26 in Karimnagar, respectively, have only 10 and 12 acres. This inequality in the distribution of land, whether irrigated or irrigated dry land, is visible glaringly in the cotton growers of the Adilabad and Karimnagar District study areas.

Table 2: Per Acre Average Value of the Output of Cotton Crops per Quintal (in Rs.)

Name of the Village & Category of Farmers	Income Range					Total
	Up to 2500	>2500- 3000	>3000 - 3500	>3500 - 4000	>4000	
Adilabad						
Marginal Farmers	4 (66.67)	20 (76.92)	5 (14.29)	1 (2.13)	0 (0.00)	30 (25.00)
Small Farmers	2 (33.33)	6 (23.08)	30 (85.71)	20 (42.55)	0 (0.00)	58 (48.33)
Medium Farmers	0 (0.00)	0 (0.00)	0 (0.00)	16 (34.04)	4 (66.67)	20 (16.67)
Big Farmers	0 (0.00)	0 (0.00)	0(0.00)	10 (21.28)	2 (33.33)	12 (10.00)
Total	6 (5.00)	26 (21.67)	35 (29.17)	47 (39.17)	6 (5.00)	120 100.00)
Karimnagar						
Marginal Farmers	8 (61.54)	10 (40.00)	4 (16.67)	2 (7.14)	2 (6.67)	26(21.67)
Small Farmers	5 (38.46)	15 (60.00)	20 (83.33)	10 (35.71)	12 40.00)	62(51.67)
Medium Farmers	0 (0.00)	0 (0.00)	0 (0.00)	16 (57.14)	10 33.33)	26(21.67)
Big Farmers	0 (0.00)	0 (0.00)	0 (0.00)	0 (0.00)	6 (20.00)	6(5.00)
Total	13 (10.83)	25 (20.83)	24 (20.00)	28 (23.33)	30 25.00)	120(100.00)

Source: Filed Data

Note: Parentheses Indicate the Percentage

Table-2 denotes that in Adilabad Districts, out of 12 big farmers, ten members could earn up to Rs.4,000 per quintal on their cotton, and another two members more than Rs.4,000. In the case of Karimnagar district, the average value of the output of cotton crops raised by all the big farmers was more than Rs.4,000 per quintal. One interesting observation is that in both these two districts, 32 medium farmers, i.e., representing an equal number of 16 in each district, had the average value of their cotton crop to the extent of Rs.3,500 - Rs.4,000.

However, in the case of the small farmer's category, 30 respondents in Adilabad District, i.e. more than 51 per cent in their sample size, had a value of Rs.3,000 - Rs.3,500 for their output. Similarly, in Karimnagar District, out of 26 small farmers, 61 per cent of them, i.e., 16 members, had an output value of Rs.3,500 - Rs.4,000. However, when we look at the average value of the output of cotton crops raised by the marginal farmer's category, except for two in Karimnagar District, all had an output value of up to Rs.4,000. A large number of them were earning only Rs.3,000 per quintal. Their percentage is more visible in the Adilabad district, where out of 30 respondents belonging to this category, 20 members, more than 76 per cent, were getting only Rs.3,000 per quintal on their output.Thus, the study has revealed that most big and medium farmers could get Rs.4,000 per quintal cotton. However, the same trend is not observed when we look at the output value of cotton crops raised by small and marginal farmers.

Table 3: Regression Analysis on Input - Output of Cotton Crop in Adilabad District

Independent Variable	Coefficient Value	Standard Error	t-values
Pesticides	-0.145421	2.560304	-0.05731
Fertilisers	3.548964	3.854108	1.803125
Seeds	-0.06757	-1.510076	-0.05770
Labour Charges	*5.666750	2.084325	4.159507
Other expenditure	2.175012	2.05723	0.94567

$R^2 = 0.62$

* Significant at 5 per cent level.

If we observe the table-3 R^2 value regression analysis of cotton in the study areas of Adilabad district was relatively higher and depicts around 60 per cent variation only in output. Further, it was shown that the R^2 value for pesticides and seeds is negative but statistically insignificant. It means the expenditure on seeds and pesticides is declining in raising a cotton crop for mandals when the output value is slightly upward.

On the other, the co-efficient for fertilisers, labour charges and other miscellaneous expenditure are positive, and

particularly labour charges were statistically significant. It means labour charges are an essential variable in influencing cotton yield.

Table 4: Regression Analysis on Input - Output of Cotton Crop in Karimnagar District

Independent Variable	Coefficient Value	Standard Error	t-values
Pesticides	-0.132322	0.427774	0.392184
Fertilisers	2.739254	3.754205	1.702135
Seeds	-0.057421	-1.410056	-0.043320
Labour Charges	*4.177630	2.077225	3.129408
Other expenditure	2.135013	2.04713	0.93475

$R^2 = 0.81$

* Significant at 5 per cent level.

Table - 4 depicts the effect of variable resource use on the output of cotton crops in the study areas of Karimnagar. Here R^2 value is higher than the study areas of Adilabad District, reflecting that various resources used to raise cotton crops have a more significant variation in cotton yield. Further, it shows that the co-efficient for pesticides and seeds is negative but not statistically significant.

When we look at the coefficient for fertiliser labour charges and other expenditures is positive. Among all labour charges is a significant variable for explaining variations in the output of cotton crops.

Table 5: Regression Analysis on Input - Output of Cotton Crop in Entire Study Area

Independent Variable	Coefficient Value	Standard Error	t-values
Pesticides	0.393154	0.808565	0.482183
Fertilisers	*6.813343	0.945712	8.100041
Seeds	*3.028674	0.437574	6.842632
Labour Charges	*1.954265	0.741076	2.401777
Other expenditure	*4.176749	0.536141	5.566121

$R^2 = 0.855926$

* Significant at 5 per cent level.

Similarly, when we look at the regression analysis of cotton in the entire study area except for pesticides, all other inputs are positive and hence significant co-efficient. The R^2 value also shows that explanatory variables could explain the variations in output to the extent of 85 per cent. This is relatively higher than the values observed in the other two areas.

Thus, the multiple regression analysis has revealed that the use of modern resources had a more significant influence on the output of cotton crops as these districts are endowed with numerous resources to raise cotton crops. These districts are also known cotton bowl of Telangana State.

Table 6: Marketing Problem Faced by Respondents Weighted Averages in Adilabad District.

Sl. No.	Marketing problems	Mean	Rank
1	Price Fluctuations	7.15	1
2	Non-availability of storage facilities	6.85	2
3	High Cost of Packing Material	6.775	3
4	Transport cost	6.6583	4
5	Commission charges	6.1083	4
6	Improper method of sale	6.025	5
7	Poor customer relationship	5.9917	6
8	The dominance of market intermediaries	5.975	7
9	Lack of Export promotional activity	5.3917	8
10	Unauthorised deductions	5.2083	9
11	Non-availability of Market Intelligence	3.8067	11

Source: *Field data.*

Further, efforts were made in our study to find weighted averages on the different problems faced by the respondents in both study areas. Table - 6 shows the weighted averages in the selected study areas of the Adilabad district. Price fluctuations are the primary concern at the market yards and occupy the first rank, followed by the non-availability of storage facilities and high loss of package materials in that order. It is also observed that there are few variations in the weighted averages for the response of customer relationships, dominance of market intermediaries, unauthorised deductions and export promotional activities.

We have also collected the data on marketing problems based upon weighted averages in Karimnagar market yards and presented the data according to their ranking.

Table 7: Problems in Marketing and Weighted Averages in the Study Areas of Karimnagar District.

Sl. No.	Problems at Market Yards	Mean	Rank
1	Fluctuations in Price	8.13	1
2	Improper method of sale	7.12	2
3	The Role of market intermediaries	6.15	3
4	Unauthorised deductions	6.10	4
5	Lack of market information	5.19	5
6	Cost of packing material	5.17	6
7	Transport cost	5.05	7
8	Customer relationship	4.19	8
9	Export promotional activity	4.13	9
10	Commission charges	4.10	10
11	Storage facilities	4.09	11

Source: *Field data.*

Table - 7 reflects that fluctuations in price are a severe problem at market yards of Karimnagar District, with a Mean value is 8.13. Improper method of sale added gravity situation to the price determination. This problem is visible more glaringly, and with a 7.12 mean value, it was ranked second place. These issues were also attributed due with the Role of intermediaries. It is observed that with the mean value of 6.15, the Role of market intermediaries is placed in third position. Hence, fluctuations in price, improper methods of sale and the Role of market intermediaries are the significant problems in cotton marketing in the selected areas of Karimnagar.

Such visualisation might become a treat for large farmers who adequately possess capital and storage mechanisms. However, unfortunately, it becomes a bane for the small and marginal farmers who are constrained to access localised markets due to the pre-existing trade arrangements entangled in the lending of credit and locational disadvantage. India is predominantly dominated by the presence of small and marginal farmers who are entangled in the lending of credit and locational disadvantage. An eco-system of competitive trading channels and remunerative prices could be possible when the farmers are freed from the hassles of informal institutional structures and could empower the farmer to make decisions about the operative price. Economic empowerment increases women's access to economic resources and opportunities, including jobs, financial services, property and other productive assets, skills development and market information, Lal (2016) [9].

Conclusion

In India, 80 per cent of the economically active people are engaged in agriculture. They need more access to information to help them improve their productivity and increase their economic contribution. The widespread application of rural technology is significantly thwarted by the absence or erratic supply of power so far as electrically operated machines are concerned, Lal (2004) [6].

After a surge of interest in technological change and the economies of production in less developed countries (LDC), cotton markets have reemerged as significant policy concerns. Cotton marketing problems are viewed as derivatives of broader economic development problems. It is implied that the approach is instrumentalist or pragmatic, i.e., that concern is not with what an 'ideal' marketing system should be like or, more broadly, whether there is a commitment to a particular form of social and economic organisation. Ideologies are considered irrelevant except when they may impinge upon the range of politically available policy alternatives. The main issues are identifying developmentally limitational marketing factors and inventing and testing alternative institutional means for their removal. Empowerment of marginalised groups involves not only the creation process of political space for these groups by the state and civil society, but one can say that it is a process of liberation from artificial bondage through sustained struggle and resistance, Lal (2016) [9].

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