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Vol XLI  
No. 4

ISSN 0019-5014

CONFERENCE  
NUMBER

PART II  
OCTOBER-  
DECEMBER  
1986

# INDIAN JOURNAL OF AGRICULTURAL ECONOMICS



INDIAN SOCIETY OF  
AGRICULTURAL ECONOMICS,  
BOMBAY

### **Sub-theme 3: Macro Policies**

#### **(a) Prices**

### **PRICE POLICY FOR WHEAT AND PADDY VIS-A-VIS EQUITY IN PUNJAB**

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The story of green revolution in India is primarily an account of spectacular increase in wheat production followed by that of paddy. Besides technological breakthrough, agricultural price policy has since then played a significant role in stimulating the productivity and production of agricultural commodities in the country. Foodgrain prices are no longer subject to violent fluctuations, which were usual in pre-policy era. The administrated prices for agricultural commodities are more relevant for the States like Punjab, Haryana and parts of Uttar Pradesh, which produce large surpluses of these crops.

The major objective of the price policy is to ensure remunerative prices to the producers with a view to sustain their interest for increased production. It has, however, been argued that the procurement prices of wheat and paddy, the main cereal crops in Punjab, fixed by the Government in the past have not been remunerative and thus the real incomes of the farmers have rather decreased (Grewal and Rangji, 1983). Many researchers and economists have studied different aspects of agricultural price policy at length, but not much work has been done to study the role of prices on the distributional aspect of farm income. An attempt has, therefore, been made in this article to examine this aspect and to suggest guidelines for improvement in agricultural price policy.

#### **METHODOLOGY**

##### *Study Sample and Data*

The study is based on the data collected from "Comprehensive Scheme to Study the Cost of Cultivation of Principal Crops in Punjab", for the agricultural year 1971-72 and 1983-84 pertaining to farm income, cost components and other related variables used in crop production on the farm. It covers 200 farms in each year spread over the whole State. Time-series data recording the cost of cultivation of wheat from 1970-71 through 1983-84 and paddy for 1978-79, 1981-82 to 1983-84 were also taken from the same scheme. Data regarding the procurement prices for the respective crops for the corresponding seasons were taken from different issues of Statistical Abstract of Punjab.

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*Economic Analysis*

Simple tabular analysis along with Gini ratio was used to meet the objectives of the study. The following two cost concepts were employed in this study: Cost  $A_2$ : All variable expenses incurred in cash or kind by the owner operator and rent paid for leased-in land. Cost C: Cost  $A_2$  + imputed value of family labour, rental value of owned land (net of land revenue) and interest on fixed capital. To study the size distribution of farm income, net farm income concept (gross farm income minus Cost  $A_2$ ) was used.

## RESULTS AND DISCUSSION

The results of the study are discussed in two parts. Part I covers procurement prices versus cost of production and part II price policy and equity.

*I: Procurement Prices versus Cost of Production*

The behaviour of cost  $A_2$ , cost C and procurement prices of wheat and paddy over time are given in Table I. It is evident from this table that the

TABLE I. COST OF PRODUCTION AND PROCUREMENT PRICES OF WHEAT AND PADDY IN PUNJAB THROUGH 1970-71 TO 1983-84

Year/Crop	Cost of production per quintal		Procurement price per quintal	Actual difference between procurement price and		Real difference at 1970-71 prices	
	Cost $A_2$	Cost C		Cost $A_2$	Cost C	Cost $A_2$	Cost C
(Rs.)							
Wheat							
1970-71 .. .. .	28.44	61.04	76	47.56	14.96	47.56	14.96
1971-72 .. .. .	31.37	59.71	76	44.63	16.29	43.50	15.88
1972-73 .. .. .	36.65	67.10	76	39.35	8.90	34.05	7.70
1973-74 .. .. .	41.08	74.34	82	40.92	7.66	29.12	5.45
1974-75 .. .. .	42.00	87.76	105	63.00	17.24	34.94	9.56
1975-76 .. .. .	50.91	99.45	105	54.09	5.55	32.06	3.29
1976-77 .. .. .	56.27	101.39	105	48.73	3.61	30.42	2.25
1977-78 .. .. .	62.65	108.57	110	47.35	1.43	25.23	0.76
1978-79 .. .. .	60.74	101.45	112.50	51.26	10.55	27.96	5.75
1979-80 .. .. .	62.28	102.76	115	52.72	12.24	24.88	5.78
1980-81 .. .. .	77.52	124.70	117	39.48	-7.70	15.30	-2.98
1981-82 .. .. .	75.44	118.53	130	54.56	11.47	19.52	4.10
1982-83 .. .. .	78.03	125.19	142	63.97	16.81	21.79	5.72
1983-84 .. .. .	84.32	137.47	151	67.68	-14.53	21.94	-4.71
Paddy							
1978-79 .. .. .	43.90	67.53	87	41.10	19.47	22.42	10.62
1981-82 .. .. .	64.96	102.31	115	50.04	12.69	17.91	4.54
1982-83 .. .. .	66.00	103.87	122	56.00	18.13	19.07	6.17
1983-84 .. .. .	77.94	122.32	132	54.06	9.68	17.53	3.14

differential between procurement prices and  $A_2$  has increased in monetary terms over time both for wheat and paddy. This differential was Rs. 47.56 during 1970-71 which increased to Rs. 67.68 during 1983-84 for wheat crop, and for paddy crop it increased from Rs. 41.10 during the year 1978-79 to

Rs. 54.06 during 1983-84. However, this picture turned out to be illusive, when these values were deflated by the general price index to the 1970-71 level. The real margins of procurement price over cost  $A_2$  have declined from Rs. 47.56 to Rs. 21.94 for wheat and from Rs. 22.42 to Rs. 17.53 for paddy in the respective periods for each crop.

Further, when cost C was deducted from procurement price, this situation became even more depressing. The Punjab farmers who earned Rs. 14.96 over cost C during 1970-71 by producing one quintal of wheat incurred losses in 1980-81 and 1983-84. This means that whatever small benefits farmers had from the production of wheat during the initial stages of green revolution, have continuously decreased. This was due to the fact that the procurement prices have not kept pace with the increased cost of production. The data available for paddy revealed that the price differential between the cost of production and procurement prices followed the same pattern of decreasing margins after the mid-seventies, which was followed by wheat crop since the early seventies. This shows that the behaviour of procurement prices and cost of production for wheat and paddy crops has been uniform since their large scale adoption, but it was the lag in the adoption of wheat and paddy at the green revolution level which has created this difference.

A comparison of increases in procurement prices of wheat and paddy crops with that of their input price index has been made to examine their impact on the Punjab farmers. An index of the ratio of the procurement price to the composite index of the prices of inputs purchased by the farmers from the non-farm sector was used.<sup>1</sup> A continuous decline in this index from 100 in the base year 1970-71 to 61.75 in 1982-83 for wheat and after the mid-seventies from 139.77 in 1974-75 to 80.13 in 1982-83 for paddy supported our earlier conclusion (Table II). This means that over a period of time the cultivation of these crops is becoming less and less profitable.

TABLE II. INDEX OF THE RATIO OF THE PROCUREMENT PRICE TO THE COMPOSITE INDEX OF THE PRICES OF INPUTS PURCHASED BY FARMERS FROM NON-FARM SECTOR

(Base: 1970-71=100)

Year	Wheat	Paddy
1970-71	100.00	100.00
1971-72	93.10	81.50
1972-73	90.91	75.17
1973-74	83.75	111.62
1974-75	76.90	139.77
1975-76	69.02	77.55
1976-77	75.31	108.71
1977-78	77.48	112.20
1978-79	77.13	103.73
1979-80	74.59	103.35
1980-81	59.92	90.95
1981-82	58.09	74.76
1982-83	61.75	80.13

1. The basic data for the preparation of this index was used from Nilakantha Rath, "Prices, Costs of Production and Terms of Trade of Indian Agriculture", *Indian Journal of Agricultural Economics*, Vol. XI, No. 4, October-December 1985, pp. 451-481.

*II: Price Policy and Equity*

The results presented in the preceding section are those of an average farmer, including both the big and small farmers. When the distribution of the farm income among the farmers is studied over time, the picture turned out to be even worse. The farmers with relatively large size of holdings were able to reap the benefits of better support price and lower costs during the earlier stages of the green revolution.

Table III shows that the large farmers had a larger quantity of wheat and paddy to sell in the market after meeting their family and other requirements such as seed, feed and kind payments. Continuation of this trend over the years has affected the distribution of farm income in favour of large farmers.

TABLE III. MARKETABLE SURPLUS OF WHEAT AND PADDY ON DIFFERENT FARM SIZE-GROUPS IN PUNJAB

Size category (acres)	Wheat				Paddy			
	Marketable surplus (qtl.)		Marketable surplus as per cent of total production		Marketable surplus (qtl.)		Marketable surplus as per cent of total production	
	1970-71*	1983-84	1970-71*	1983-84	1970-71*	1983-84	1970-71*	1983-84
Less than 5 ..	20.15	22.69	61.03	60.02	7.41	36.33	61.09	93.46
5-10 ..	40.35	37.01	52.22	59.12	14.58	61.38	74.91	89.72
10-15 ..	91.57		75.33		145.77		95.87	
15-20 ..	133.24		74.60		160.66		91.32	
20-25 ..	91.82	145.05	58.37	74.62	37.34	231.13	79.27	93.37
More than 25 ..	257.70		79.93		275.63		93.98	

\* Balwinder Singh and D. S. Sidhu, "Marketable Surplus of Foodgrains, Oilseeds and Cash Crops in Punjab", *Agricultural Marketing*, Vol. XVI, No. 3, October 1973, pp. 1-5.

To examine how far the size distribution of income has changed over the period, the income distribution among the farm households at two points of time, *i.e.*, 1971-72<sup>2</sup> and 1983-84 was analysed. Although the changes in the pattern of the size distribution of income over time is a function of a number of variables, the most important variable among them is farm size (Singh, 1973; Kishore, 1978; Balishter, 1983 and Singh, 1986). Hence in order to differentiate its effect on changes in equity over time, the concentration of farm size was also studied along with the concentration of farm income.

2. Though the data during the year 1971-72 was of two zones only, yet the results obtained from this were in confirmation with other studies which have covered the whole State during those years, *e.g.*, Singh (1973) using the data for 1973-74, worked out the value of Gini ratio as 0.38 which was quite near to our value of 0.37.

It is clear from Table IV that the share of the bottom ten per cent of the farmers in the total farm income has decreased from 1.70 per cent during

TABLE IV. DISTRIBUTION OF NET FARM INCOME AND OPERATIONAL AREA AMONG DIFFERENT GROUPS OF FARMERS IN PUNJAB, 1971-72 AND 1983-84

Decile	1971-72		1983-84	
	Per cent share of the decile	Cumulative per cent share	Per cent share of the decile	Cumulative per cent share
Bottom .. .. .	1.70 (5.01)	1.70 (5.01)	1.12 (5.80)	1.12 (5.80)
Second .. .. .	3.95 (6.86)	5.65 (11.87)	2.40 (5.29)	3.52 (11.09)
Third .. .. .	5.12 (4.35)	10.77 (16.22)	3.94 (7.50)	7.46 (18.59)
Fourth .. .. .	6.83 (8.13)	17.60 (24.35)	5.10 (6.96)	12.56 (25.55)
Fifth .. .. .	8.05 (7.08)	25.65 (31.43)	6.57 (7.63)	19.13 (33.18)
Sixth .. .. .	8.91 (8.60)	34.56 (40.03)	8.05 (9.15)	27.18 (42.33)
Seventh .. .. .	10.84 (11.15)	45.40 (51.18)	10.63 (11.69)	37.81 (54.02)
Eighth .. .. .	14.38 (12.33)	59.78 (63.51)	13.43 (12.60)	51.24 (66.62)
Ninth .. .. .	16.71 (17.08)	76.49 (80.59)	18.62 (15.00)	69.86 (81.62)
Top .. .. .	23.51 (19.41)	100.00 (100.00)	30.14 (18.38)	100.00 (100.00)
Gini ratio .. .. .		0.37		0.45
Concentration ratio of farm size .. .. .		(0.27)		(0.22)

Figures in parentheses represent concentration of operational area.

1971-72 to 1.12 per cent during 1983-84 and those of the top decile has increased from 23.51 per cent to 30.14 per cent during the same period. This indicated that the size distribution of farm income has widened over time. The value of Gini ratio which worked out to 0.37 during 1971-72 and 0.45 during 1983-84 again confirmed the above conclusion. The corresponding value of concentration ratio of farm size was estimated as 0.27 and 0.22 for these years respectively. This clearly shows that the increase in farm income inequality over time has not been affected much by farm size. Since wheat and paddy are the two dominant crops of Punjab, covering about 63 per cent of the cropped area in the State, the economy of the rural sector of the State mainly rests on the prospects of these two crops.

## CONCLUSION

Any differential role played by prices towards different categories of farmers is directly reflected in their incomes. From the preceding discussion, it can safely be said that the agricultural price policy during the period under study for wheat and paddy has contributed towards widening the farm income inequalities among the farmers. Secondly, the wages of agricultural labourers also depend on the income of farm families. As it has already been noted that the real income of the farmers showed a declining trend, this would affect the real income of the agricultural labourers which may ultimately lead towards greater inequalities.

The question that arises from this discussion is that how to correct this situation. One answer which strikes immediately and suggested quite often is to give sufficiently higher prices for agricultural products, which may cover not only the cost of production but also take into account the price rise. However, this has its own limitations, as it will affect the poor consumers adversely who have low purchasing power and will ultimately contribute towards widening inequalities. The second suggestion could be to keep in check the prices of farm inputs or subsidise these to the extent that the parity between prices received and paid by the farmers for the inputs and other items of household consumption is maintained. This has merits over the first suggestion as it require less investment by government (Rai *et.al.*, 1982) and will benefit the small farmers more. Finally, of course, a check on general price rise is the key to this problem.

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