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A STUDY OF CHANGES IN PRODUCER'S SHARE IN THE CONSUMER'S RUPEE OF AGRICULTURAL COMMODITIES IN INDIA

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Recently, it has been debated that the consumers are paying increasingly higher prices for agricultural commodities but the growers are not receiving adequate share of the higher price paid by the consumers despite government policy interventions. One of the main reasons advocated for lower share of producers in the price paid by the consumers is the larger magnitude of the gross marketing margins. The gross marketing margin refers to the difference between the price paid by the ultimate consumer and the price received by the grower. The gross marketing margins consist of margins of various intermediaries who are engaged in moving the produce from the growers to the ulitmate consumers and the marketing costs involved in the assembling, processing, storage, transportation and handling of the products. A higher magnitude of gross marketing margins is not only an additional burden on consumers but it is also an injustice to the poor growers who do not get adequate benefits from the produce which they are growing. This may also have an adverse effect on the growth of agricultural production. The marketing margin is an indicator of the efficiency of the marketing system. The larger is the value of marketing margins the greater is the inefficiency in the marketing system. On the other hand, if the goods can be moved from the producers to the ultimate consumers at the minimum cost, the marketing system is said to be efficient.

OBJECTIVES

The efficiency of marketing system varies from region to region and from time to time. The regional disparities of existing marketing system at different points of time influence the relative proportion of the producer's and middlemen's share in the consumer's price of agricultural products. The value of share of both, *i.e.*, producers and middlemen also depends on the seasonal arrivals of agricultural commodities in the markets. The gross marketing margins which include the cost of marketing are affected by the activities involved in the process of marketing of the product. To examine these aspects some studies were undertaken but these were confined to a particular region or agricultural product. A comprehensive study in this regard has not been conducted so far. Keeping in view the aforesaid facts, the present study has been undertaken with the following main objectives : *(i)* to study the spatial, temporal and seasonal changes in the proportion of the producer's share in the consumer's rupee of agricultural commodities in selected States, *(ii)* to examine the variation of the producer's share in the consumer's rupee among agricultural products, *(iii)* to measure the gross marketing margins of different agricultural commodities and their behaviour over time and season and *(iv)* to determine the effect of market arrivals of agricultural products on gross marketing margins during harvesting and lean season of crops.

METHODOLOGY

The present study is confined to four major groups of agricultural commodities, namely, cereals, pulses, oilseeds and vegetables and from each group one commodity, *viz.*, wheat, gram, rapeseed-mustard and potato has been selected respectively. The major crop growing

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States which contribute more than 5 per cent to the total production of the crop in the country were taken into consideration. Bihar, Haryana, Punjab, Uttar Pradesh and Rajasthan are the major wheat growing States. Gram is mainly grown in the States of Haryana, Uttar Pradesh and Rajasthan. As regards rapeseed-mustard, its major growing States are Haryana, Uttar Pradesh and Rajasthan. In the case of potato, it is mainly grown in the States of Uttar Pradesh, West Bengal and the Union Territory of Delhi. Some of the States growing these major crops were left out because of non-availability of required data. Time-series data on average farm harvest prices and retail prices of agricultural commodities under study for individual States were collected from secondary sources for the years 1963-64 to 1980-81. The available data on market arrivals of agricultural commodities were also taken from secondary sources during harvesting and non-harvesting season for the period 1969-70 to 1980-81.

The gross marketing margin which includes the costs of marketing is the difference between the retail price and the farm harvest price and the ratio of gross marketing margin to retail price gives the share of middlemen including marketing costs in the consumer's rupee. The share of producer in the consumer's rupee is found out by subtracting the share of middlemen in the consumer's rupee from 1. In notation these values are expressed as follows :

Gross Marketing margins (M) = Retail price – Farm harvest price

$$= P_r - P_h$$

Share of middlemen in consumer's rupee $(M_s) = \frac{P_r - P_h}{P_r}$

Share of producer in consumer's rupee $(P_s) = (1 - M_s)$

The percentage of gross marketing margin (M_p) to the farm harvest price (which is nothing but the price paid by the wholesaler) is worked out as : $M_p = \frac{(P_r - P_h)}{P_h} \times 100.$

To determine the effect of market arrivals of agricultural products on gross marketing margins, the following Cobb-Douglas function was fitted separately for harvesting and non-harvesting season :

$$M = C A^b$$

viz., $\text{Log } M = \log C + b \log A$

where M = gross marketing margins,
A = markets arrivals,
b = elasticity of marketing margin with respect to arrivals.

To study the temporal changes in the proportion of producer's and middlemen's share in the consumer's price, average gross marketing margins for three consecutive years during the harvesting and non-harvesting season were worked out at three points of time, *viz.*, 1963–64 to 1965–66 (before the green revolution period), 1969–70 to 1971–72 and 1978-79 to 1980-81 (during the green revolution period). The harvesting season is the period from April to June for *rabi* crops and October to December for *kharif* crops. The non-harvesting season is the remaining months of the year.

RESULTS AND DISCUSSION

Spatial, Temporal and Seasonal Changes of Producr's Share in the Consumer's Rupee

Average producer's and middlemen's shares including marketing costs in the consumer's rupee of agricultural commodities, namely, wheat, gram, potato, rapeseed-mustard during the harvesting and non-harvesting seasons at three points of time in the selected States of India are worked out and given in Table I. It may be seen from this table that the producer's share in the consumer's rupee of wheat and gram in different States varied from 0.70 to 0.93 except in Bihar during both these seasons. In the case of rapeseed-mustard, it ranged from 0.67 to 0.89. As regards potato, a vegetable crop, the producer's share in the consumer's rupee was comparatively lower in all the States during the non-harvesting season and it ranged from 0.48 to 0.62. The results indicate that the share of the producer and the intermediaries in the consumer's price of agricultural product varied significantly from State to State. The regional disparities in the proportion of the producer's and middlemen's share in the consumer's price are due to different marketing systems existing in the region. The States where the middlemen's shares are relatively higher than producer's share need an improvement in the marketing conditions through government interventions by introducing the regulated markets, public procurement and distribution system of agricultural products.

A comparison of the producer's share in the consumer's rupee at three points of time indicated that in most of the States, there were no significant changes in the producer's share in the consumer's rupee of wheat over the time periods whereas in the case of gram and rapeseed-mustard, it has slightly decreased in the recent period. For example, in Haryana the producer's share in the consumer's rupee was 0.80 before the green revolution period and it has reduced to 0.76 during the green revolution period in the harvesting season. Similarly in the non-harvesting season, it decreased from 0.76 to 0.71. As regards potato, the relative shares of the producer and middlemen in the consumer's price remained more or less the same before and during the green revolution period in the same season. A slight decrease in the producer's share in the consumer's price of pulses and oilseeds in the recent period may be due to a declining trend of supply as a result of lower level of production of these crops. The intermediaries and traders in the private marketing system get the benefit of shortage of agricultural commodities and tend to raise the prices and marketing margins. Hence the production of pulses and oilseeds should be increased to arrest the rising prices and marketing margins.

If a comparison of the producer's share in the consumer's rupee in the harvesting season is made with the lean season, it reveals that the share of the producer in the price paid by the consumer is substantially lower in the non-harvesting season for all the agricultural products under study. For example, during the recent period, in Uttar Pradesh, the producer's share in the consumer's rupee of wheat was 0.77 in the non-harvesting season and 0.86 in the harvesting season. In the same State, in the case of gram, it was 0.77 and 0.85 in the non-harvesting and harvesting seasons respectively. As regards rapeseed-mustard, it was 0.72 in the lean season and 0.77 in harvesting season in the same State. In the case of potato, the share accruing to the producer in the consumer's price was substantially lower in the non-harvesting season in comparison to the harvesting season. For example, during the recent period, in West Bengal, the producer's share in the consumer's price of potato was only 55 per cent in the non-harvesting season as compared to 81 per cent during the peak season. This significant difference of producer's share in the consumer's price between both the seasons in the case of vegetables which are perishable in nature is due to relatively higher costs of marketing on account of storage costs and its losses during lean season. Thus the marketing margins and marketing costs of vegetables increase in the non-harvesting season.

Pattern of Producer's Share in the Consumer's Rupee of Different Agricultural Commodities

It may be further seen from Table I that at different points of time the producer's share in the consumer's rupee varied from commodity to commodity. A comparison of the shares of the producers and middlemen in the consumer's price of various agricultural commodities revealed that the producer's share in the consumer's rupee of wheat and gram was relatively higher than those of potato and rapeseed-mustard. In wheat and gram it varied from 0.84 to 0.92 in the harvesting season and 0.77 to 0.85 in the non-harvesting season. In the case of rapeseed-mustard, it ranged from 0.76 to 0.80 in the harvesting and 0.71 to 0.75 in the non-harvesting season whereas in potato it varied from 0.81 to 0.85 in season and 0.55 to 0.62 during off-season. The results indicate that the producer's share in the consumer's price was relatively lower in rapeseed-mustard in comparison to other commodities during both the seasons and also in the case of potato during the non-harvesting season. On the other hand, the proportion of marketing margins and marketing cost was comparatively higher in oilseeds and vegetables. In the case of oilseeds, the marketing costs and margins are higher on account of the requirement of processing and storage of the product. Vegetables, which are perishable products, require storage facilities during the non-harvesting season and thus the marketing costs increase in the process of marketing of vegetables. The higher marketing margins and marketing costs of agricultural commodities particularly of oilseeds and vegetables can be reduced by introducing public procurement and distribution of edible oils and vegetables and developing new low cost techniques for processing and storage purpose. There is a need to encourage co-operative organizations for providing marketing, processing and storage facilities and thus the marketing costs can be reduced.

Trend of Gross Marketing Margins of Agricultural Commodities

Gross marketing margins and percentage of marketing margins to farm harvest price (purchase price of wholesaler) for agricultural commodities at three points of time during both the seasons for selected States in India are given in Table II. It may be seen from this table that gross marketing margins which include the profits of intermediaries and marketing costs involved in the marketing channels mostly increased during the recent period. A part of this increase was due to the rise in prices over the years. For example, in Punjab, the gross marketing margins for wheat were Rs. 6 and Rs. 13 per quintal in the harvesting and non-harvesting seasons respectively before the green revolution but it increased to Rs. 18 and Rs. 32 per quintal in the respective seasons during the green revolution period. In Haryana, in the case of rapeseed-mustard, the gross marketing margins were Rs. 30 and Rs. 38 per quintal in season and off-season respectively before the green revolution period but it rose to Rs. 115 and Rs.147 per quintal in the respective seasons during the recent period. If we consider the gross marketing margins in terms of percentage of farm harvest price, *i.e.*, the purchase price of wholesaler, gross marketing margins of agricultural commodities also increased during the recent years in most of the cases but their magnitude of increase varied.

A comparison of gross marketing margins of agricultural products in the harvesting season with the non-harvesting season revealed that they were considerably higher in absolute as well as percentage terms during the non-harvesting season in all the commodities particularly for vegetables. For example, in the case of potato, the gross marketing margin was 22.9 per cent in the harvesting season while it was 83.1 per cent in the non-harvesting season during the green revolution period in West Bengal.

Among all the agricultural commodities under study, the gross marketing margins were relatively higher in the case of rapeseed-mustard during both the seasons in all the States.

The wholesaler charged 24.3 to 40.8 per cent of the purchase price of rapeseed-mustard during the recent period whereas it ranged from 7.8 to 38.1 per cent in the case of wheat. As regards vegetables, the gross marketing margins were also higher during the lean season. The results indicate that the middlemen or traders are maintaining a certain proportion of the purchase price as their profit margins and in some cases they have been increasing their margins. The middlemen are getting relatively higher marketing margins in the case of oilseeds and vegetables because they provide additional services like processing and storage in the marketing process.

Effects of Market Arrivals on Marketing Margins

The relationship between gross marketing margins and market arrivals was worked out for the crops for which time-series data on market arrivals were available. Cobb-Douglas functions were fitted for individual States during the harvesting and non-harvesting seasons for the recent period. The estimated elasticities of gross marketing margins with respect to market arrivals of gram and rapeseed-mustard for each State in both the seasons are presented in Table III. It may be seen from this table that the elasticities of gross marketing margins were negative in all the States for both the crops except gram in Rajasthan. It indicates that marketing margins and market arrivals of agricultural commodities are inversely related. As the market arrivals of agricultural products increased, the marketing margins decreased but its effect was not found to be significant in most of the cases. A clear-cut difference of effects of market arrivals on marketing margins between the harvesting and non-harvesting season was noted. In all the cases except rapeseed-mustard in Uttar Pradesh, the elasticities of gross marketing margins with respeet to market arrivals were relatively higher (in absolute terms) during the non-harvesting season as compared to the harvesting season. For example, in the case of rapeseed-mustard in Haryana, one per cent increase in the market arrivals will result in 1.18 per cent decrease in gross marketing margins during the off-season while it will result in 0.05 per cent decrease in season. The results indicate that the percentage changes in marketing margins as a result of percentage change in market arrivals of agricultural products are higher in the lean season than in the harvesting season.

CONCLUSIONS

The results of this study indicate that there exists wide regional disparities in the producer's share in the consumer's rupee. It is, therefore, suggested that these regions, where the producer's share in the price paid by the consumer is relatively lower, need to improve the marketing conditions through government interventions by regulation of markets, public procurement and distribution of agricultural products. Secondly, during the recent period in the case of cereals the producer's share in the consumer's rupee has not changed much but in the case of oilseeds and pulses, it has slightly decreased. The decline in the producer's share of oilseeds and pulse products may be due to a declining trend of supply of these crops. The middlemen get the benefits of shortage of the commodity and tend to increase the price and their margins, Thus, there is a need to increase the supply of agricultural commodities from domestic production or by imports to avoid the manipulation of price and profits by the intermediaries. Thirdly, among all the commodities under study, the gross marketing margins and costs are relatively higher in oilseeds and vegetables. It is because of additional costs on account of processing and storage of the products. In order to reduce the costs of processing and storage, a low cost technology has to be developed for providing the processing and storage facilities. The co-operative marketing, processing and storage societies are to be encouraged to provide these types of facilities to the growers. Fourthly, in most of the commodities the middlemen's share is higher during the lean season in comparison to the harvesting season. The higher share of middlemen during the non-harvesting season should

be minimized by maintaining a huge buffer stock of products by procurement and levy and this can be distributed to the public through fair price shops during the off-season. Fifthy, the traders are charging a fixed proportion of purchase price as their margin, which is comparatively higher in the off-season. The marketing margins are inversely related to market arrivals of agricultural products. The elasticity of marketing margins with respect to arrivals is relatively higher in the non-harvesting season.

TABLE 1.1. AVERAGE PRODUCER'S AND MIDDLEMEN'S SHARE IN THE CONSUMER'S RUPEE OF AGRICULTURAL COMMODITIES IN SELECTED STATES OF INDIA

State	Season	1963-64 to 1965-66		1969-70 to 1971-72		1978-79 to 1980-81	
		Producer's share	Middlemen's share	Producer's share	Middlemen's share	Producer's share	Middlemen's share
				Wheat			
Bihar	Season	0.75	0.25	0.77	0.23	0.84	0.16
	Non-season	0.65	0.32	0.70	0.30	0.78	0.22
Haryana	Season	—	—	0.92	0.08	0.90	0.10
	Non-season	—	—	0.84	0.16	0.82	0.18
Punjab	Season	0.90	0.10	0.85	0.15	0.87	0.13
	Non-season	0.82	0.18	0.81	0.19	0.79	0.21
Rajasthan	Season	0.88	0.12	0.92	0.08	0.93	0.07
	Non-season	0.83	0.17	0.90	0.10	0.85	0.15
Uttar Pradesh	Season	0.89	0.11	0.90	0.10	0.86	0.14
	Non-season	0.79	0.21	0.79	0.21	0.77	0.23
				Gram			
Haryana	Season	0.92	0.08	0.94	0.06	0.92	0.08
	Non-season	0.81	0.19	0.84	0.16	0.85	0.15
Rajasthan	Season	0.89	0.11	0.89	0.11	0.85	0.15
	Non-season	0.87	0.13	0.81	0.19	0.79	0.21
Uttar Pradesh	Season	0.83	0.17	0.78	0.22	0.85	0.15
	Non-season	0.70	0.30	0.73	0.27	0.77	0.23
				Rapeseed-mustard			
Haryana	Season	0.80	0.20	0.72	0.28	0.76	0.24
	Non-season	0.76	0.24	0.68	0.32	0.71	0.29
Rajasthan	Season	0.89	0.11	0.87	0.13	0.80	0.20
	Non-season	0.83	0.17	0.81	0.19	0.75	0.25
Uttar Pradesh	Season	0.69	0.31	0.79	0.21	0.77	0.23
	Non-season	0.67	0.33	0.74	0.26	0.72	0.28
				Potato			
Uttar Pradesh	Season	0.85	0.15	0.82	0.18	—	—
	Non-season	0.48	0.52	0.48	0.52	—	—
West Bengal	Season	0.81	0.19	0.80	0.20	0.81	0.19
	Non-season	0.49	0.51	0.53	0.47	0.55	0.45
Delhi	Season	—	—	0.74	0.26	0.85	0.15
	Non-season	—	—	0.49	0.51	0.62	0.38

(–) indicates non-availability of data.

TABLE II. GROSS MARKETING MARGINS INCLUDING MARKETING COSTS OF AGRICULTURAL COMMODITIES IN SELECTED STATES OF INDIA

State	Season	1963-64 to 1965-66		1969-70 to 1971-72		1978-79 to 1980-81	
		Margins (Rs./qtl.)	Percentage of margins to farm harvest price	Margins (Rs./qtl.)	Percentage of margins to farm harvest price	Margins (Rs./qtl.)	Percentage of margins to farm harvest price
			Wheat				
Bihar	Season	25	33.3	25	29.4	26	19.4
	Non-season	36	48.0	37	43.0	39	29.1
Haryana	Season	—	—	8	9.8	14	11.1
	Non-season	—	—	16	19.0	28	22.2
Punjab	Season	6	10.3	14	18.2	18	14.7
	Non-season	13	22.4	18	23.4	32	38.1
Rajasthan	Season	9	11.5	8	9.2	11	7.8
	Non-season	14	20.1	10	11.5	24	17.1
Uttar	Season	8	12.3	9	11.8	19	15.7
Pradesh	Non-season	17	26.1	20	26.3	37	30.6
			Gram				
Haryana	Season	5	8.5	6	6.7	23	8.9
	Non-season	14	23.7	17	18.9	44	17.0
Rajasthan	Season	7	11.9	11	12.8	42	17.6
	Non-season	9	15.2	20	23.2	64	26.8
Uttar	Season	12	21.0	23	28.7	40	17.2
Pradesh	Non-season	25	43.8	30	37.5	68	29.3
			Rapeseed-mustard				
Haryana	Season	30	25.0	58	39.4	115	31.3
	Non-season	38	31.7	68	46.2	147	40.8
Rajasthan	Season	15	11.8	27	15.6	91	24.3
	Non-season	26	20.5	41	23.7	122	32.6
Uttar	Season	47	45.2	102	26.6	107	29.9
Pradesh	Non-seasonal	52	50.0	136	35.5	137	38.3
			Potato				
Uttar	Season	5	17.8	7	21.9	—	—
Pradesh	Non-season	31	110.7	35	115.6	—	—
West	Season	9	23.1	14	25.5	19	22.9
Bengal	Non-season	41	105.1	48	87.3	69	83.1
Delhi	Season	—	—	15	35.7	15	18.7
	Non-season	—	—	44	104.8	49	61.2

(–) indicates non availability of data.

TABLE III. ELASTICITIES OF MARKETING MARGINS OF AGRICULTURAL COMMODITIES

State	Season		Non-season	
	Elasticity	R^2 (%)	Elasticity	R^2 (%)
		Rapeseed-mustard		
Haryana	−0.05	31.1	−1.18	39.6
	(0.24)		(1.80)	
Uttar Pradesh	−1.28	53.6	−1.13	45.1
	(2.40)		(2.03)	
Rajasthan	−1.10	55.8	−1.69	38.6
	(2.50)		(1.77)	
		Gram		
Haryana	−0.25	23.0	−1.78*	21.0
	(0.44)		(0.42)	
Uttar Pradesh	−0.14	17.0	−0.27	26.0
	(0.24)		(0.47)	
Rajasthan	0.72	19.7	0.68	32.7
	(0.98)		(1.20)	

Figures in parentheses indicate standard errors.
* indicates significant at 5 per cent level.