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FOODGRAIN MARKETING EFFICIENCY : A CASE STUDY OF GUJARAT*

OBJECTIVES

This study has two main objectives. The first is to analyse the operational efficiency of the foodgrain marketing system. The second is to evaluate the pricing efficiency of the foodgrain markets. The major marketing problems faced by the farmers have also been presented.

METHODOLOGY

Scope of the Study

The scope of the present study is restricted to the four major foodgrain commodities, namely, bajra, jowar, paddy and wheat. The primary data needed for the study were collected through survey method from the farmers and traders in Gujarat State. The secondary data and information were obtained from the market committees and other official and non-official sources.

Sampling Design

Mehsana, Kaira and Surat which are the most important foodgrain producing districts in Gujarat and form the major exporters of these commodities both in relation to other areas within the State and to outstation markets in the country were purposively selected for the study. In order to be able to select a sample of markets, traders, marketing co-operatives and agencies of the Food Corporation of India (FCI) for the study, a complete list of regulated markets and the commodities regulated in each market within the selected districts was obtained from the Gujarat Regulated Markets Union, Ahmedabad. The list was then discussed with the officials of the Union, to include all those markets in the study where at least some portion of the marketable surplus of foodgrain commodities is sold by the farmers in the market yards and the concerned market committees could supply secondary data on market arrivals and prices required for the study. On the basis of this procedure, the study was designed to cover Patan, Unjha, Harij, Meh-sana and Kalol markets in Meh-sana; Cambay, Kapadwanj, Borsad, Mehmedabad, Anand and Nadiad markets in Kaira; and Vyara, Madhi, Mandvi and Mahuva markets in Surat; all the foodgrain traders in these markets and all the marketing co-operatives and agencies of the FCI in the vicinity of these markets. However, it was found during the investigations that Kalol, Anand, Nadiad, Mahuva and Mehmedabad could not be included in the study. The market arrivals and price data required for the study were not available from Kalol, Anand and Mehmedabad market committees and

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practically no marketable surplus of foodgrain commodities was sold in the market yards at Nadiad and Mahuva.

In each district, two progressive villages known for high production and marketed surplus of foodgrains were selected. The villages were in the vicinity of best markets which were known for highest market arrivals of foodgrains in the market yard. All the farmers in each of these six villages were categorised into three size-groups,¹ and equal importance was given to these three groups in the selection of the sample because generally the small farmers face the maximum problem in marketing of their produce whereas the maximum marketable surplus comes from the medium and large farmers. Seven farmers from each of the three groups were selected at random from each of the six sample villages. Thus, the total number of sample farmers was 126. The primary data on marketing methods and procedures, costs incurred and prices received and the marketing problems faced, were collected from them.

Analytical Procedure

The operational efficiency of the foodgrain marketing system has been analysed by preparing and comparing partial budgets for the produce sold through different marketing channels. Pricing efficiency of the marketing system has been studied by analysing (i) price trends in different markets, (ii) market integration and (iii) the price spread in the marketing channel. The marketing problems faced by the farmers in selling their marketable surplus of foodgrains have also been analysed to examine the overall efficiency of the foodgrain markets.

OPERATIONAL EFFICIENCY

Marketing Channels

The various marketing channels used for marketing of foodgrain commodities by the sample farmers are given in Table I. This table also shows the relative importance of the different channels in the overall marketing system. Broadly speaking, the choice lies between selling direct to the consumers and indirectly through various middlemen. The agencies of the FCI, however, were not found to be purchasing directly from the farmers. They depended mostly on the co-operatives and other traders.

The village has been the most commonplace for sale of agricultural produce to the moneylenders, village merchants and itinerant merchants. The development of regulated markets has altered this pattern in favour of sale in the market wherever these markets are functioning properly. This can be

1. Small=5 acres and below. Medium=Between 5 and 15 acres. Large=Above 15 acres.

TABLE I—MARKETING CHANNELS USED BY DIFFERENT SIZE-GROUPS OF SAMPLE FARMERS FOR MARKETING OF DIFFERENT FOODGRAIN COMMODITIES AND PROPORTION OF PRODUCE MARKETED THROUGH DIFFERENT CHANNELS: 1971-72

Marketing channel	Bajra			Jowar			Paddy			Wheat			Per cent of total produce marketed						
	Per cent distribution of farmers			Per cent distribution of farmers			Per cent distribution of farmers			Per cent distribution of farmers									
	Small	Me- dium	Large	Small	Me- dium	Large	Small	Me- dium	Large	Small	Me- dium	Large	Bajra	Jowar	Paddy	Wheat			
Sale through village merchant	10	5	..	10	13	12	28	16	8	18	9	5.37	16.20	14.81	7.36				
Sale through itinerant merchant	5	2	10	57	16	17	21	22	1.00	11.00	22.22	13.98				
Sale through middlemen*	85	84	87	82	87	72	15	8	26	81	61	74	88.16	66.40	11.11	74.81
Sale through co-operatives	5	5	..	..	..	53	27	..	..	0.97	..	29.63	..	..	..	..
Sale through retailer	8	3	..	..	..	..	7	..	..	1.20	2.00	0.85	..	..	..	..
Sale through miller	7	22	..	..	..	..	22.22	..	..	..	..
Sale direct to consumer	5	3	3	3	3	..	1	2	4	3.30	4.40	3.00	..	..	..	..

* Commission agent, wholesale and wholesaler-cum-commission agents. The farmers do not know to which of these agencies their produce goes at the time of auction in the market.

noted from the sale of bajra which is the main crop in Mehsana where regulated markets have been developed to a fairly high standard. Here, the role played by the village merchants and the itinerant merchants is almost negligible. In the case of jowar, paddy and wheat which are the major foodgrain crops in South Gujarat where regulated markets are not well developed so far, these merchants have secured a fairly high proportion of total produce marketed by the farmers. Generally the small and medium farmers prefer to sell to the village and itinerant merchants because it is convenient for them to dispose of their small marketable surplus right in the village, particularly, when there is no well organized market centre nearby and there is no guarantee of remunerative prices for their produce in the market.

Sale through middlemen who may be commission agents, wholesalers and wholesaler-cum-commission agents in the market formed the most dominant channel of trade, both from the point of view of a number of farmers using it and the quantity of foodgrains sold by them. In general, more than 60 per cent of the farmers of all the three size-groups have sold more than 50 per cent of their produce through this channel except in the case of paddy. This channel accounted for about 88, 66 and 75 per cent of the total produce sold of bajra, jowar and wheat respectively. The sales in this case are done primarily in the market yards of well developed regulated markets and also directly to the traders outside the market yards in other markets.

A part of the produce is also sold through millers, co-operatives, retailers and direct to the consumers. Paddy, which requires milling, is particularly disposed of by the farmers through private millers and co-operative mills. Some co-operatives have been purchasing some quantity of other foodgrain commodities also particularly on commission basis on behalf of the agencies of the FCI. A small number of farmers, generally, medium farmers sold some proportion of their produce of bajra, jowar and wheat through retailers. The quantity sold through this channel is very small as compared to other channels, because retailers generally purchase in small lots as they do not have enough resources and storage capacity. Some quantity of bajra, jowar and wheat have been sold direct to the consumers by some of the farmers. Almost all categories of farmers have sold one or the other of the three crops through this channel. Generally, the farmers selling direct to the consumers have large families and retain most of their production for home consumption and as such do not go to the market to sell their produce. Some of the farmers sell direct to the consumers in preference to sale through the village merchants.

Efficiency of different marketing channels as indicated by the analysis of costs and returns of farmers in the marketing of different foodgrain commodities through various marketing channels is shown in Table II. The sale direct to the consumers fetches the highest net price to the farmers. The sale through retailers is the next most profitable channel for the farmers. How-

ever, only a small portion of the produce can be sold at a time through these channels. The sale in the market through wholesalers and commission agents is the third best channel and much more remunerative as compared to the sale through the co-operatives and village sales through the village and itinerant merchants. The relative remunerativeness of different marketing channels is exactly similar for all the foodgrain commodities. The net income of the farmers increases in the order of sale through the village merchants and co-operatives, sale through itinerant merchant and millers, sale through the agent middlemen, sale through the retailers and sale direct to the consumers.

PRICING EFFICIENCY OF THE FOODGRAIN MARKETING SYSTEM

Pricing efficiency depends upon the nature and extent of competition among the traders in the market. The effects of competition are reflected through prices. In a competitive market system, price movements in one market are considered to be closely related to price movements in other markets. The analysis of prices is thus believed to give a fairly good indication of the efficiency of the marketing system.

Trend in Wholesale Prices

The analysis of price trend in different markets indicates the general direction of price movements in different markets. The trends in the wholesale prices of selected foodgrain commodities over the period 1965-66 through 1970-71 in different sample markets selected for different commodities were analysed through regression analysis. The results are given in Table III.

It can be seen from Table III that the trends in wholesale prices of foodgrain commodities are not similar in all the markets. There is a wide variation in the trends in prices of the same commodity in different markets. Prices of bajra show a declining trend in different markets under consideration. However, the trend is significant in some markets and not so in certain other markets. In jowar, the prices show a falling trend in most of the markets which is not significant. In a few markets, jowar prices also show a rising trend which in some cases is significant. The paddy prices have recorded both falling as well as rising trends in different markets. Both types of trends are significant in some of the markets. In the case of wheat the prices show a falling trend in one market and a rising trend in other markets which in some cases is significant.

Market Integration

The degree to which wholesale prices of a commodity in different markets is related to each other is the most important consideration in determining the pricing efficiency of a marketing system. The interrelation between price movements in different markets which mostly depends upon the nature and

TABLE III—TRENDS IN WEEKLY WHOLESALE PRICES OF FOODGRAIN COMMODITIES IN DIFFERENT SAMPLE MARKETS: 1965-66 THROUGH 1970-71

Markets	Bajra		Jowar		Paddy		Wheat			
	Value for constant	Regression coefficient	Value for constant	Regression coefficient	Value for constant	Regression coefficient	Value for constant	Regression coefficient		
Borsad	85.36	-0.301*** (0.068)	76.39	-0.030 (0.053)	94.74	-0.167* (0.104)	95.15	-0.023 (0.075)
Cambay	105.46	-0.526 (0.406)	72.93	-0.051 (0.058)	74.73	0.329 (0.119)	98.53	0.115 (0.077)
Harij	81.01	-0.249*** (0.081)	264.90	-0.237 (0.512)			87.48	0.133* (0.092)
Kapadwanj	79.78	-0.003 (0.276)	75.49	-0.045 (0.065)			92.27	0.025 (0.071)
Mehsana	86.16	-0.337*** (0.087)	75.27	-0.035 (0.064)			91.02	0.140** (0.076)
Patan	200.87	-0.083 (0.557)	77.27	-0.048 (0.075)			89.53	0.178*** (0.071)
Unjha	83.42	-0.260 (0.074)	75.24	-0.045 (0.073)			87.72	0.182 (0.089)
Madhi			80.57	-0.019 (0.079)	129.65	-0.903*** (0.038)		
Mandvi			79.76	0.035* (0.024)	97.55	-0.545*** (0.095)		
Vyara			77.09	0.135*** (0.056)	78.69	0.0119** (0.069)	88.03	0.112** (0.056)
Average (all markets)	85.10	-0.302*** (0.071)	75.95	0.001 (0.058)	83.19	0.125 (0.099)	91.96	0.091* (0.067)

Source of data : Market committee of the respective market.
 Figures in parentheses are the standard errors of the respective coefficients. *** Significant at 1 per cent level.
 ** Significant at 5 per cent level.
 * Significant at 10 per cent level.

TABLE VI—CORRELATION MATRIX OF WEEKLY WHOLESALE PRICES OF PADDY IN DIFFERENT MARKETS: 1965-66 THROUGH 1970-71

Market				Borsad	Cambay	Madhi	Mandvi	Vyara
Borsad	..	..	..	1.00	0.37	0.29	0.21	0.58
Cambay	..	..	..		1.00	-0.31	-0.22	0.53
Madhi	..	..	..			1.00	0.59	-0.48
Mandvi	..	..	..				1.00	-0.21
Vyara	..	..	..					1.00

TABLE VII—CORRELATION MATRIX OF WEEKLY WHOLESALE PRICES OF WHEAT IN DIFFERENT MARKETS: 1965-66 THROUGH 1970-71

Market				Borsad	Cambay	Harij	Kapad- wanj	Mehsana	Patan	Unjha	Vyara
Borsad	..	..	..	1.00	0.79	0.81	0.96	0.87	0.75	0.48	0.69
Cambay	..	..	..		1.00	0.79	0.78	0.84	0.75	0.56	0.54
Harij	..	..	..			1.00	0.82	0.81	0.80	0.54	0.57
Kapadwanj	..	..	..				1.00	0.90	0.82	0.52	0.74
Mehsana	..	..	..					1.00	0.87	0.59	0.68
Patan	..	..	..						1.00	0.56	0.62
Unjha	..	..	..							1.00	0.41
Vyara	..	..	..								1.00

It would be useful to mention here before we discuss the effectiveness of pricing that Borsad, Cambay, Harij, Kapadwanj, Mehsana, Patan, Unjha and Vyara are comparatively bigger markets. A look at the correlation coefficients for wholesale prices of bajra shows that correlation coefficients are high only between Borsad, Harij, Mehsana and Unjha markets. The interrelation between wholesale price movements of bajra in other markets is very low and even negative. The correlation matrix of wholesale prices of jowar between the ten markets shows that the correlation coefficients are high only for Borsad, Cambay, Kapadwanj, Mehsana, Patan and Unjha markets and they are very low and even negative for other markets. In the case of paddy, only Borsad, Cambay and Vyara show comparatively higher correlation bet-

ween wholesale price movements. In the case of wheat alone which is relatively a more scarce commodity in Gujarat, the correlation coefficients of price between different markets are in general high but they are nowhere at the extremely high level which can indicate a high degree of pricing efficiency.

Thus, the analysis of pricing efficiency from the point of view of market integration in this study shows that the existing foodgrain marketing system on the whole is not efficient. The reasons for this are not far to seek. There are only a few traders in most of the markets who purchase most of the produce regularly in the absence of pure competition, they may agree through mutual understanding and outright collusion to avoid price competition. The total number of traders and the number of traders present at the time of auction of foodgrain commodities in different markets is given in Table VIII. The table shows that there are only a few markets where 7 to 12 traders (which is not a larger number) are present at the time of auction. In other markets the number of traders buying foodgrain commodities varies only from 2 to 4.

TABLE VIII—TOTAL NUMBER OF TRADERS AND THE NUMBER OF TRADERS PRESENT AT THE TIME OF AUCTION IN THE MARKET YARDS OF DIFFERENT FOODGRAIN MARKETS: 1970-71

Market	Total number of licenced traders	Number of wholesalers and commission agents	Average number of traders present at the time of auction	Per cent of column (4) to column (3)
(1)	(2)	(3)	(4)	(5)
Borsad	1,316	193	3	1.55
Cambay	1,186	126	8	6.34
Harij	430	97	4	4.12
Kapadwanj	1,520	182	4	2.19
Madhi	314	100	2	2.00
Mandvi	178	81	2	2.46
Mehsana	807	251	7	2.78
Patan	1,014	291	12	4.12
Unjha	610	618	10	1.61
Vyara	329	69	4	5.79
Total	8,704	2,008	56	2.79

Marketing Margins and Price Spread

Another method of examining the pricing efficiency is the analysis of marketing margins and price spread. A high degree of market integration may come simply as a result of free exchange of price information between the traders in different markets rather than the actual demand and supply conditions in the markets. In this situation there are chances for the existence of wide price spread and excessive profits of the traders in the market system. In an efficient marketing system, the marketing margins and price spread are fairly near transportation costs, handling charges and normal profits of the traders. The high marketing costs and excessive profits of the traders are signs of marketing inefficiency. Marketing margins and price spread, analysed in terms of (i) rupees per quintal and (ii) as per cent of consumers' price, for the markets where the sample farmers had sold their marketable surplus of bajra, jowar and wheat are given in Table IX. From the farmer to the commission agent, to the wholesaler, to the retailer, to the consumer is the most important marketing channel for foodgrain commodities, this channel is considered for working out the marketing margins and price spread. The data used in Table IX are those collected from personal interviews with the sample farmers and traders.

Table IX shows that the net price obtained by the farmers in the two markets under consideration ranges between 68 to 75, 70 to 78 and 78 to 79 per cent of the consumers' price in the case of bajra, jowar and wheat respectively. The balance goes for the marketing margins and costs. The largest proportion of the marketing margins and cost consists of commission and profits of the traders. Preparation of produce for the market, handling, transportation, storage and spoilage are the other items of marketing costs.

The nature and extent of these marketing costs and the profits made by the traders shown in Table IX are further analysed in Table X where the functional analysis of the marketing margins has been done. Table X shows that the commission and profits of traders which account for about 70 to 80 per cent of the total margins and for about 15 to 25 per cent of the consumers' price for different foodgrain commodities, form the bulk of total marketing costs. Amongst other items of cost, storage and spoilage account for about 6 to 9 per cent of the total cost and a little more than 1 to 3 per cent of the consumers' price for different commodities. The remaining costs are mainly composed of preparation of produce for the market, market fee, transportation and handling charges which together account for about 4 to 5 per cent of the total marketing costs and the consumers' price for different commodities.

The overall analysis of the marketing margins and price spread in the foodgrain marketing system thus shows that even in normal years the traders' profit margins account for quite a large proportion of the price paid by the consumers which is clearly a sign of pricing inefficiency.

TABLE IX—MARKETING MARGINS AND PRICE SPREAD PER QUINTAL OF DIFFERENT FOODGRAIN COMMODITIES: 1971-72

Trade level	Patan						Cambay						
	Bajra		Jowar		Wheat		Bajra		Jowar		Wheat		
	Cost (Rs.)	Price (Rs.)	Cost (Rs.)	Price (Rs.)	Cost (Rs.)	Price (Rs.)	Cost (Rs.)	Price (Rs.)	Cost (Rs.)	Price (Rs.)	Cost (Rs.)	Price (Rs.)	
Producers' level													
Net price received by the farmer	61.91 (67.85)			66.67 (69.81)		72.48 (77.52)		65.07 (74.79)		71.85 (77.93)		79.59 (78.80)	
Transportation	1.62		1.62		1.62		1.87		1.87		1.87		1.87
Loading and unloading	0.10		0.10		0.10		0.05		0.05		0.05		0.05
Sieving	0.15		0.15		0.15		0.15		0.15		0.15		0.15
Weighting, bag filling and.. sewing	0.05		0.05		0.05		0.07		0.07		0.08		0.08
Market fee	0.06		0.07		0.08								
Commission agent level													
Commission paid by the farmer	0.64		0.69		0.75		0.51		0.56		0.62		0.62
Wholesalers' level	2.62 (2.87)	64.53 (70.72)	2.68 (2.81)	69.35 (72.62)	2.75 (2.94)	75.23 (80.46)	2.65 (3.45)	67.72 (77.84)	2.70 (2.93)	74.55 (80.86)	2.77 (2.74)	82.36 (81.54)	0.60
Inter-market transportation													
Bag filling, sewing and stencilling	0.06		0.06		0.06		0.11		0.11		0.11		0.11
Storage	1.48		1.60		1.00		0.80		0.90		0.80		0.80
Spoilage	0.64		0.70		0.37		0.33		0.42		0.41		0.41
Wholesalers' profit.. .. .	14.31		12.66		7.06		7.40		6.44		8.74		8.74
Retailers' level	16.99 (18.62)	81.52 (89.34)	15.52 (16.25)	84.87 (88.87)	8.79 (9.40)	84.02 (89.86)	9.24 (10.62)	76.96 (88.46)	8.47 (9.86)	83.02 (90.04)	10.66 (10.55)	93.02 (92.10)	1.60
Transportation	0.80		0.80		0.80		1.60		1.60		1.60		1.60
Cleaning, grading and spoilage	0.40		0.20		0.40		0.30		0.20		0.45		0.45
Storage	0.15		0.20		0.20		0.10		0.20		0.15		0.15
Retailers' profit	8.38		9.43		8.08		8.04		7.18		5.78		5.78
Total marketing margins	29.34 (32.15)	91.25 (100.00)	28.83 (30.19)	95.50 (100.00)	21.02 (22.48)	93.50 (100.00)	21.93 (25.21)	87.00 (100.00)	20.35 (22.07)	92.20 (100.00)	21.41 (21.20)	101.00 (100.00)	0.08
Price paid by the consumer													
		91.25 (100.00)		95.50 (100.00)		93.50 (100.00)		87.00 (100.00)		92.20 (100.00)		101.00 (100.00)	

Figures in parentheses indicate per cent of consumers' price.

TABLE X—FUNCTIONAL ANALYSIS OF MARKETING MARGINS PER QUINTAL OF DIFFERENT FOODGRAIN COMMODITIES: 1971-72

Service or item	Patan								
	Bajra			Jowar			Wheat		
	Cost (Rs.)	Per cent of market-ing margin	Per cent of con-sumer price	Cost (Rs.)	Per cent of market-ing margin	Per cent of con-sumer price	Cost (Rs.)	Per cent of market-ing margin	Per cent of con-sumer price
Preparation of produce (loading, unloading, sieving, cleaning, grading, etc.)	0.76	2.58	0.83	0.56	1.94	0.59	0.76	3.61	0.81
Storage and spoilage ..	2.27	7.74	2.48	2.50	8.61	2.62	1.37	6.52	1.47
Transportation and miscellaneous marketing charges	2.98	10.16	3.27	2.99	10.37	3.13	3.00	14.28	3.21
Traders' commission and profits	23.33	79.52	25.57	22.78	79.02	23.85	15.89	75.59	16.99
Total	29.34	100.00	32.15	28.83	100.00	30.19	21.02	100.00	22.48

(Contd.)

TABLE X—(Concl'd.)

Service or item	Cambay								
	Bajra			Jowar			Wheat		
	Cost (Rs.)	Per cent of market-ing margin	Per cent of con-sumer price	Cost (Rs.)	Per cent of market-ing margin	Per cent of con-sumer price	Cost (Rs.)	Per cent of market-ing margin	Per cent of con-sumer price
Preparation of produce (loading, unloading, sieving, cleaning, grading, etc.)	0.61	2.78	0.70	0.51	2.51	0.50	0.76	3.55	0.75
Storage and spoilage	1.23	5.61	1.41	1.52	7.47	1.65	1.36	6.36	1.35
Transportation and miscellaneous marketing charges	4.14	18.88	4.76	4.14	20.34	4.49	4.15	19.38	4.11
Traders' commission and profits	15.93	72.73	18.34	14.18	69.68	15.38	15.14	70.71	14.99
Total	11.93	100.00	25.21	20.35	100.00	22.07	21.41	100.00	21.20

MAJOR MARKETING PROBLEMS

The set of problems faced by the farmers in selling their produce conveniently and at reasonable prices in the markets is another indication of marketing inefficiency. The sample farmers highlighted various problems in the marketing of foodgrains. The major problems enumerated by them are shown in Table XI.

TABLE XI—MAJOR MARKETING PROBLEMS FACED BY DIFFERENT SIZE-GROUPS OF SAMPLE FARMERS

Problem	Per cent of farmers facing the problems			
	Small	Medium	Large	Total
Low prices	85	88	82	88
Non-availability of storage at the time of low prices in the market	54	60	72	62
Damage and spoilage caused to the produce in the absence of roofed shed for their produce	34	22	16	23
Delayed payment	23	12		16
Same price offer for all the lots of a commodity in the market irrespective of the quality of produce	15	8	7	9
Transportation	10	4		4
Pilferage by labourers during sieving	4		7	4
Excess weighment	4	4	3	3

It will be noted from Table XI that the farmers are generally not considerate about the loss of their time in the market and availing facilities like accommodation over-night in the market yard, provision of transport and cheap labour, etc. What they want in the regulated markets but what is lacking there include strict supervision against pilferage, safeguarding the produce against losses through damage, reasonable price for their produce and quick cash payments, etc., all of which have a bearing upon the prevailing shortcomings and inefficiencies of the existing marketing system.

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