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Public Policy and Wheat Market in Pakistan

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"Man and animals are merely a passage
and channel for food . . ."
Leonardo da Vinci: **The Note Books**

Drawing upon a series of country-wide surveys undertaken in 1986, the study addresses the micro and macro policy issues related to the operations of the wheat market in Pakistan. It focuses on the relative roles of the private traders and the government in determining the prices received by the primary producers and the final consumers of wheat. It finds that the government occupies the "commanding heights" in the wheat market. To regulate the market it employs, as policy instruments, *voluntary* procurement, storage and transportation of wheat, milling of wheat into flour, and supplying wheat and flour to the consumers through both ration shops and the open market.

The study recommends that while the scope of private traders' activities needs to be widened, the government must continue to operate effectively and more selectively. In particular, the present policy of the voluntary procurement of wheat should be used, though at a reduced level, to stabilize farmers' income, and a (restructured) rationing system must function to subsidize the consumption of wheat and wheat flour by the poorer section of the society.

I. INTRODUCTION

Wheat is the staple diet of Pakistanis, especially of the rural and urban poor: the share of wheat in the consumption of foodgrains in Pakistan is about 65 percent. The production of wheat has grown by approximately 5 percent per year since 1965. But the production possibilities are severely limited because the average yield per acre is still quite low, with large variations from the average. The variations are mainly explained by the condition of soils and the availability and use of key agricultural

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inputs, particularly irrigation water.[1] Of the total wheat produced in a normal year, nearly 55 percent is retained for own consumption or paid as wages (in kind) to farm workers, so that only 45 percent of the wheat harvest is the marketed surplus available for distribution among non-producing consumers.[2]

In general, the size of the marketable surplus of wheat is negatively correlated with the distance of farm from the market. Large farmers tend to sell wheat much later in the post-harvest season than small farmers do. Also, large farmers generate a greater marketable surplus than small farmers mainly because of the larger output of the former. This is true despite the higher 'own consumption' of large farmers on account of the typically larger families which they have compared with small farmers. Also, for all classes of farmers, the marketable surplus is higher in the Punjab than in Sind. On the other hand, the small farmers, especially those in the wheat-deficit areas, occasionally have to engage in "distress sales" soon after harvest to repair their fragile liquidity position – only to return to the market in the post-harvest season for buying wheat for 'own consumption'. Such practices reduce the real income of the small farmers who have to pay a higher price for wheat repurchases than the one they had earlier received on their (distress) sales.

It is essential that public policy be geared to raising the size of the marketable surplus to 'adequate' levels as well as to stabilizing the price of wheat, especially in the 'off-season' period. Given the production levels achieved and the size of own consumption of wheat, public policy should also ensure that (i) farmers obtain a fair price, (ii) the marketed surplus is sufficient at least for the consumption needs of the population, and (iii) the distribution channels are clearly laid out so that consumers, especially the poor ones, have adequate access to wheat. A knowledge of the 'structure' of wheat market is crucial for understanding the forces that influence producer and consumer prices and for regulating the size of the marketable surplus to satisfy the demand for wheat.

It was with a view to unravelling the mystique of the wheat market, which connects the primary producers with the final consumers of wheat, that country-wide surveys were conducted in June 1982 in the provinces of the Punjab, Sind and the NWFP. This set of surveys, referred to hereinafter as the Survey, has generated

[1] Other contributory factors are: the size of farm, and the type of the tenurial contract between the land-owner and the cultivator. In general, yields per acre are lower in areas that depend on natural precipitation (called *barani* areas) or are affected by water-logging and salinity, while they are relatively high in irrigated areas. Given the quality of soil and the availability of essential inputs, per acre yield tends to be higher on small farms than on large farms, while the reverse is the case on tenant-operated farms.

[2] A large number of farmers in the rain-fed (*barani*) districts of the Punjab and NWFP produce wheat mainly for "own consumption" with only insignificant marketable surplus.

a wealth of information, which provides unique insights into the working of the wheat market in Pakistan.[3]

The present study uses the primary data generated by the Survey to address both the micro and macro policy issues about the operations of the wheat market. It identifies the principal 'actors' in the wheat market in Pakistan, analyses their economic activities, and relates their activities to the prices received by the primary producers and those paid by the final consumers. As in a Russian novel, a large number of such actors appear in the narrative that follows. They are private traders, private millers, provincial Food Departments and other related government agencies, and the ration shopkeepers. Although each of these many actors is assigned well-defined roles, in practice they run into each other – sometimes even working at cross-purposes.

The analysis presented here is divided into six sections. The second section makes some general observations about the nature of State intervention in the wheat market. The third section summarizes the relevant findings of a comprehensive study of the wheat market done by Cornelisse and Naqvi [9; 10]. The fourth section examines the question of State intervention versus private traders in the wheat market, while the fifth section discusses the outline of an 'adequate' policy response to the problems of the wheat market. The final section makes some concluding observations about these problems.

II. GENERAL CONSIDERATIONS

State intervention in the domestic foodgrain market has been practised all over the world in response to a variety of economic, social and political factors. In Pakistan, government intervention in the wheat market aims at ensuring (i) that the wheat producers get a 'reasonable' price in view of the wide fluctuations to which market price of wheat is subject; (ii) that the middlemen's storage and marketing activities remain reasonably profitable; and, (iii) that the additional food supplies so generated are made accessible to the (poor) consumers. To attain these stated objectives, the government has employed a series of policy instruments.[4] The elaborate procurement systems, the milling of wheat into flour, and the distribution of wheat and flour through a network of ration shops have been the main policy instruments used by the government in this context. These policies have changed over time. Table 1 provides a picture of the impact of these government policies in 1982.

[3] The Survey did *not* 'cover' the Baluchistan province because of logistic and financial problems and the binding time constraint, as noted in [12].

[4] For example, there was the compulsory procurement system (1952-53), which is now voluntary; an elaborate rationing system (1953); an inter-district ban on grain movement; the many price support schemes including voluntary procurement and input subsidies (1959-60); an active involvement in building up storage capacity to regulate the behaviour of middlemen; and the provision of credit to the farmers. For a detailed discussion of State intervention in the wheat market, see [4; 5; 24].

Table 1

Volumes of Production, Procurement, Releases and Consumption of Wheat in Pakistan and Provinces: 1982

('000 tons)

	Punjab	Sind	NWFP	Baluchistan	Pakistan
Production: 1981-82	7,798	2,062	962	318	11,140
Procurement: 1982-83	2,479	604	21	27	3,131
Releases to Mills: 1982-83	926	706	625	198	2,454
Consumption of Wheat and Wheat Flour: 1982-83	6,245	2,120	1,170	n.a.	n.a.
(i) Consumption of Wheat	4,665	1,390	800	n.a.	n.a.
(ii) Consumption of Ration Flour	830	210	90	n.a.	n.a.
(iii) Consumption of Market Flour	750	520	820	n.a.	n.a.

Source: The Survey.
Note: n.a. = not available.

Even though in some cases actual policies have failed to achieve the intended results, the rationale of the various 'components' of State intervention in the wheat market seems to rest on the following implicit arguments, which have not always been made explicit in the somewhat Delphic government pronouncements.

(i) The high variability of the market prices of food and the possibility of high concentration of market power among private traders in a situation of free trade require that the government, through its procurement activity, should act as a stabilizing force with respect to the prices that farmers receive both at the harvest time and during the post-harvest period.[5]

(ii) The same reasons have dictated an elaborate rationing policy, which has the effect of creating a dual price system to achieve an effective (food) market segmentation. Indeed, it can easily be shown that under strict Pareto-optimality such

[5] See Bale and Lutz [1].

market segmentation not only provides a subsidy to the poorest consumers but may also result in a higher average price for the producers.[6] In so far as the production of foodgrain is demand-constrained, a lower price of food than would prevail without government subsidy may indirectly provide an expanding market to the producers of food.[7] Rationing policy may also generate greater employment and economic growth through a reduction in the reservation wage.

(iii) To minimize the large wheat losses that occur at different points in the chain connecting the farmers with the consumers, the government must also undertake long-haul transportation and storage of the large amounts of wheat procured at each harvest.

These activities, singly and together, enable the government to influence the prices received by the primary producers as well as those paid by the final consumers, and to regulate the behaviour of the private traders in the wheat market. Even more important is the fact that, with respect to their focus and impact, all these policies are interrelated. The size of the buffer stocks that the government holds and the level of procurement it embarks on are interrelated decisions, which depend on, among other things, what the government does about the present food-rationing system. The storage and transportation requirements are directly related to the level of procurement, the size of wheat stocks, the duration for which these stocks may have to be held in various areas of the country, and the requirements of the ration shops. The functioning of the rationing system itself depends on the size of the marketed surplus, the efficiency of the wheat market, and the 'needs' of the urban and rural population for wheat and wheat flour.

However, as will be shown in the present study, public policy has not always been implemented adequately to achieve the pre-assigned objectives efficiently and equitably. Firstly, small farmers, because of the small size of their lots, often cannot sell directly to procurement centres, which do not purchase lots of less than 950 kg. Instead, they find it easier to deal with private traders, who tend to pay a somewhat lower price than is paid by procurement centres. Secondly, the rationing system is concentrated mainly in urban areas, keeping out the rural poor from the purview of the system. Oddly enough, medium-income groups tend to make a more extensive use of the rationing facility than is made by low-income groups. The rural poor in the wheat-deficit provinces of the NWFP and Baluchistan are perhaps the major victims of inadequate implementation of official policies. Special mention must be made in this connection of the ban on inter-provincial mobility of wheat which keeps the price of wheat in the 'deficit' provinces (Baluchistan and the NWFP) higher than it would otherwise be.

[6] An interesting example of such a result is provided by Hayami, Subbarao and Otsuka [14]. Our attention to this point was drawn, in private correspondence with the authors, by Prof. Pan Yotopoulos.

[7] See Mellor [20] and Mellor and Johnston [21] on this point.

However, it does not follow that the State should withdraw from the wheat market – despite the finding of the Survey that private traders do their job at a reasonably low cost, i.e. the marketing margins are quite low. What does follow is that, while private traders should continue to function, the 'scope' of State intervention, especially of procurement and rationing policies, should be re-demarcated to achieve the stated objectives of government policy more efficiently and equitably. The same is true of its storage policy and the policy about the milling of wheat into flour. But rationalization of State intervention is not the same thing as its abandonment. We do not throw away the baby with the bath-water.

III. STRUCTURE OF THE WHEAT MARKET AND RELATED ACTIVITIES[8]

The Marketing Channels

Wheat trade in the Punjab, Sind and the NWFP provinces of Pakistan is conducted by clearly distinguishable types of wheat traders. They are the village shopkeepers, the *beoparis* (the middlemen), the commission agents, wholesalers and the procurement centres (Table 2).

The use of the various trade channels by farmers depends on their capacity to hold stocks of wheat, their liquidity position, and the size of their marketable surplus. Small farmers with (small) maketable surplus depend mainly on the village shopkeepers and *beoparis*, while the large producers deal with commission agents and government procurement centres. In general, *beoparis* and commission agents dominate the private wheat-trade.

As Table 3 shows, private traders, within their very limited area of operation, appear to perform their specific function at a reasonably low cost: the marketing margin, which is the difference between the price received by the farmer and the price paid by the consumer for wheat and wheat flour, is quite small.[9]

However, the low-cost operations of the private traders are definitely related to the results of the procurement and distribution activities of the government, whose presence in the wheat market is overwhelming. The procurement price acts as a lower limit to the price paid to farmers by private traders, while the subsidized price of ration flour has a depressing effect on the price that consumers are willing to pay for wheat and wheat flour in the open market. Then, the procurement price, which is uniform throughout the country, is known to all primary producers and various actors in the wheat market. As such, there is very little room for the private

[8] The discussion in this section relies mainly on Cornelisse and Naqvi [9; 10].

[9] Several studies show that the marketing margin tends to be much narrower than one would expect on the basis of the market structure and tenurial status of the farmers in the developing countries. However, this fact does *not* necessarily imply that the agricultural markets are competitive. See Mellor [19].

Table 2

The Primary Wheat-Market: Shares of Wheat Buyers in Sales by Farmers of Different Farm Sizes: 1982

(Percentage)

Wheat Buyers	Shares of Farms					Average of All Farms
	<2.5 Acres	2.5–5 Acres	5–12.5 Acres	12.5–25 Acres	>25 Acres	
Other Farmers	0.0	29.4	8.4	7.4	1.8	4.7
Village Shopkeepers	19.5	5.2	4.1	3.4	0.9	2.2
Beoparis	61.0	39.7	57.4	52.0	14.5	30.9
Commission Agents	0.0	1.7	8.9	6.0	28.4	19.4
Procurement Centres	19.5	24.3	20.9	30.7	54.4	42.6

Source: The Survey.

Table 3

Marketing Margins at Various Stages of the Wheat Market in Pakistan[a]

(Rupees per maund of wheat)

Variables	Shopkeepers	*Beoparis*	Commission Agents	Wholesalers[b]
Purchase Price	48 – 54[c]	54 – 56[c]	57 – 75	56 – 74
Sale Price	53 – 58	58 – 64	–	58 – 78
Marketing Margin	5 – 4	4 – 8	–	2 – 4

Source: The Survey.

Notes:
a. The table gives the extreme values of the market prices in the Punjab and in Sind. Actual market prices lie roughly in the middle of the indicated extreme values.
b. In the NWFP this group of traders is very much akin to *beoparis.*
c. Purchase prices in the NWFP are 25 to 35 percent higher than in the Punjab or in Sind.

wheat-traders to 'exploit' the producers. Periodic releases of wheat from the State buffer-stocks keep the market price within reasonable limits *even in the wheat-deficit provinces in the post-harvest period, long after the procurement 'fever' has subsided.*

Characteristics of Private Wheat-trade

Table 4 describes the flows of wheat between the main groups of buyers and sellers in the wheat market of the Punjab.[10] In this table, rows indicate sale transactions, whereas columns indicate the purchases made by different classes of wheat traders and wheat users. The first six rows are reserved for traders (including procurement centres), and the next two rows for farmers and earners of wages in kind. The actors in Cols. 2–7 are the same as those in the first six rows. The next three columns describe purchases by other user categories; Col. 11 gives the surplus of production over consumption in the Punjab.

The data provided in Table 4 point to the triangular structure of trade among wheat dealers. This reflects the specific position each group of traders takes in the wheat-trade chain. The groups of dealers at the lower end of the chain, such as wholesalers and procurement centres, obtain a smaller proportion from farmers and a greater proportion from other dealers than groups of traders higher up in the chain, such as shopkeepers and *beoparis*. The table further shows that the volume of wheat traded among private dealers (the sum of the volumes appearing in the left-upper 5 X 5 matrix of the table) is about 22 percent of the total turnover of wheat by private traders. From the totals of columns and rows one can also see the relative importance of each group of traders. The wheat harvest in the Punjab is given in the table as 7,798 (= 6,956 + 842) thousand tons and the marketed surplus as 3,396 (= 6,956 – 3,561) thousand tons. As can be seen from Col. 7, the procurement activity took up in the Punjab 32 percent of wheat production, or 70 percent of the marketed surplus, in 1982-83. For the nation as a whole the figures for the same year are 28 percent and 67 percent. Thus it appears that the government occupies the "commanding heights" in the Punjab and in Sind, where it virtually determines the process of price formation and the activities of storage and long-haul transportation.

Private traders achieve a high rate of turnover and do not seem to provide much credit to the farmers. The purchase price of wheat, especially in the Punjab and Sind, is set after subtracting from the sale price a margin for the services of the traders. The Survey shows that prices tend to be somewhat lower for smaller lots of wheat and for those which have to travel a longer distance to reach the market. Owing to these factors, the prices received by small farmers tend to be somewhat lower than the prices received by large farmers.

[10]Wheat-trade tables for Sind and the NWFP could not be constructed because the distinction between trading patterns of groups of dealers are not as sharply drawn as in the Punjab.

Table 4

The Network of Wheat Trade, Punjab: 1982 Harvest

('000 tons)

Traders	Purchasers										
	Wheat Traders						Wheat Users			Provincial Surplus	Total Purchases
	Shopkeeper	*Beopari*	Small Commission Agent[a]	Large Commission Agent[a]	Wholesaler	Procurement Centre	Govt. Milling	Private Milling	Wheat Consumption		
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Shopkeeper	0	16	12	8	0	0	0	0	1	0	37
Beopari	0	0	135	115	30	579	0	243	31	0	1133
Small Commission Agent	0	51	19	171	46	315	0	124	110	0	836
Large Commission Agent	0	0	0	0	0	308	0	152	95	0	555
Wholesaler	0	0	0	0	0	67	0	28	25	0	120

Continued –

Table 4 – (*Continued*)

Traders	Purchasers										
	Wheat Traders						Wheat Users			Provincial Surplus	Total Purchases
	Shopkeeper	*Beopari*	Small Commission Agent[a]	Large Commission Agent[a]	Wholesaler	Procurement Centre	Govt. Milling	Private Milling	Wheat Consumption		
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Procurement Centre	0	0	0	0	0	0	829	96	0	1554	2479
Farmers	37	1066	670	261	44	1210	0	107	3561[b]	0	6956
Wages in Kind	0	0	0	0	0	0	0	0	842	0	842
Total	37	1133	836	555	120	2479	829	750	4665	1554	12985

Source: Cornelisse [6].

Note: [a]"Small" and "Large" commission agents display different trade patterns. The quantity of 25,000 maunds as the amount of wheat handled distinguishes "large" from "small" commission agents. (A maund is 37.3 kg)

[b]This figure denotes mainly own consumption; but it also includes some sales by farmers to consumers and the amount retained for seed and feed.

Wheat Consumption and Distribution

Most households spend a substantial part of their income on food, of which wheat is the largest single item in the food budget of an average household. Its 'weight' is much larger in the budgets of the low-income groups, especially in rural areas. The average wheat consumption per capita tends to be higher in rural areas than in urban areas. The demand for wheat in urban areas does not increase by much, once the level of per capita income reaches Rs 150 per month (at the 1982 prices).[11] It does not, however, mean that the aggregate demand for wheat would not increase more rapidly if incomes rose in the future, for wheat may then also be demanded as feed to meet increased consumption of high-protein food items.[12]

As shown in Table 5, the mode of acquiring wheat and wheat flour for consumption by an average household is determined by its (rural or urban) residence and income level. Most of the rural households and a selected group of urban households in the Punjab, Sind and the NWFP acquire wheat flour from 'own farming'. The importance of this source of wheat *increases* with the level of household income. The high-income groups in the urban Punjab meet as much as 45 percent of their wheat-flour requirements from own farming. Then, the rural landless poor, except in Sind which has a high incidence of share-cropping, satisfy a significant part of their consumption requirements through wages received in kind. In the urban and rural NWFP, a very large proportion of the demand for wheat flour is satisfied mainly through purchases made in the open market because the share of the poor in own farming is small and there are practically no ration shops in rural areas. We thus have the perverse result that the poorest consumer in one of the poorest provinces (NWFP) has to buy the largest proportion of wheat flour from the (higher-priced) open market! Table 5 also shows that ration flour is, after market flour, the most important form in which wheat is consumed in the urban areas of Sind and the NWFP, but much less so in the urban Punjab.

In spite of its poor quality, the ration flour commands considerable additional demand among the rural and urban poor, owing largely to its low prices, as shown by the data in Table 6, particularly in the NWFP. In that province the prices of wheat and wheat flour in the open market tend to be higher than those in Sind and the Punjab. On the other hand, in the rural areas of the Punjab, where these prices are

[11] See Cornelisse and de Kruijk [7] and de Kruijk [16] for a detailed treatment of this subject.

[12] Pan Yotopoulos shows in an interesting study [32] that at low levels of income the (direct) demand for food swamps the (indirect) demand for feed; but as income rises beyond a certain point, the demand for feed rises fast because of the high income-elasticity of demand for animal products. With the rise of a prosperous middle class in the developing countries, while the rich keep their privileged position, the growing food-feed competition may be yet another factor contributing to the low availability (accessibility) of food to the urban and rural poor.

Table 5

Percentage Distribution of Sources of Wheat (Flour) for Urban and Rural Consumers, by Monthly Income per head, and Provinces

(Percentages)

Consumer Groups (by per head Monthly Income in Rupees)	Wheat (Flour) Sources									
	Own Farming		Wages in Kind		Open Wheat-market		Ration Flour		Open-market Flour	
	Urban	Rural	Urban	Rural	Urban	Rural	Urban	Rural	Urban	Rural
					PUNJAB					
< 50	–	14	–	26	39	22	17	10	44	28
50–99	10	46	–	19	22	18	38	9	30	8
100–149	17	63	3	6	19	15	37	11	24	5
150–199	13	60	4	8	25	25	27	6	31	1
200–299	23	72	–	10	28	9	27	4	22	5
300–499	27	81	–	2	34	15	16	2	23	–
500–749	43	88	–	3	19	5	15	4	23	–
> 750	45	(a)	–	(a)	26	(a)	1	(a)	28	(a)
All Groups	20	55	1	12	24	18	28	8	27	7
					SIND					
< 50	–	64	–	4	–	10	35	–	65	22
50–99	6	70	–	3	4	7	57	1	33	19
100–149	8	76	–	–	–	6	41	–	51	18
150–199	–	81	–	–	–	3	30	–	70	16

Continued –

Table 5 – (*Continued*)

200–299	–	(a)	–	(a)	20	(a)	30	(a)	50	–
300–499	–	83	–	–	–	–	18	–	82	17
500–749	30	(a)	–	(a)	–	(a)	10	(a)	60	(a)
>750	–	(a)	–	(a)	–	(a)	15	(a)	85	–
All Groups	7	73	–	2	3	6	38	1	52	18
					NWFP					
<50	3	28	–	25	5	–	30	1	62	46
50–99	4	39	–	6	1	–	45	2	50	54
100–149	–	64	–	5	–	3	50	4	50	24
150–199	–	29	–	–	–	–	47	–	53	71
200–299	36	46	–	–	5	–	16	–	43	45
300–499	13	53	–	–	2	–	4	–	81	47
500–749	15	(a)	–	(a)	–	(a)	5	(a)	80	(a)
>750	18	(a)	–	(a)	–	(a)	18	(a)	64	(a)
All Groups	9	41	–	11	2	–	31	2	58	48

Source: The Survey.
Note: (a) Stands for one observation only.

Table 6

Consumer Prices of Purchased Wheat and Flour, in Rs per 40 kg, by Region: 1982

(Rupees)

Wheat and Flour	Price in					
	Punjab		Sind		NWFP	
	Rural	Urban	Rural	Urban	Rural	Urban
Wheat	62	63	64	64	75	82
Ration Flour	74	(a)	(a)	73	(a)	75
Open-market Flour	79	79	85	79	99	98
Weighted average	69	72	79	86	98	90

Source: The Survey.

Note: (a) One observation only.

relatively low, more ration flour is made available to consumers than in the rural areas of the other provinces.

The Wheat-milling Activity

The milling of wheat into flour takes place in the private sector. The milling activity uses three kinds of technologies – namely, the traditional *chakkis*, modern grinding plants, and roller flour-mills. *Chakkis* are commonly employed for small-scale operations and are instrumental in meeting a considerable part of the requirements of flour in the rural areas. The flour they produce is preferred by villagers because of its presumed high nutritional value and better taste. The modern grinding plants operate on a much larger scale and also perform the washing and cleaning operations. The millers grind wheat on three accounts: on their own (for selling in the open market), for other private parties or individuals, and for ration shops. The decision whether or not to mill wheat for ration shops is not left to the millers themselves, however, as the government indicates the mills selected for this purpose as well as the volumes of wheat they have to process. The most profitable flour-milling is that which is done for the open market; the least profitable operation is milling for the government. In the latter case, the "grinding margin" for turning wheat into flour is not sufficient even to cover the milling costs.[13] There is also evidence of the existence of considerable excess capacity in the milling activity, especially in the large flour mills in the Punjab.

[13] The "grinding margin", in 1982, was only Rs 3.00 to Rs 3.50 per maund in the Punjab and Sind.

Wheat Losses

One of the weakest spots in the wheat-distribution system is the lack of efficient and high-quality storage facilities. Wheat losses due to poor storage alone are about one-third of the total loss of wheat.[14] Private storage is inadequate in quantity as well as quality. Both wheat farmers and private traders face serious problems in storing grain for extended periods, which can be only at a substantial cost. To compensate for inadequate storage capacity in the private sector, the public-sector storage capacity has been expanded at a rapid rate. It now seems adequate to hold the present level of wheat stocks, which are required to maintain relatively stable prices in the post-harvest season, and to keep the rationing system well supplied. As shown by M. A. Chaudhry [3], total wheat losses at different points in the wheat-trade chain are very large: these losses amounted, in 1982, to Rs 2700 million, representing 15–17 percent of the marketed wheat. The wheat losses due to poor storage facilities alone were about 9 percent of the marketed wheat, which is much higher than the official estimates of only one percent. Note that this figure relates only to storage in the Government-owned godowns. A large part of the wheat harvest retained each year for 'own consumption' by farmers and private wheat-traders suffers even greater losses owing to unsatisfactory on-the-farm storage facilities.

IV. STATE INTERVENTION AND 'EFFICIENCY' OF THE WHEAT MARKET

It should be clear by now that State plays a key role in determining the outcome of the economic processes in the wheat market. An important question that needs to be addressed at this point is: Is it desirable for the State to continue to play such a dominant role in this very important product market? Or, to put the question differently, can the private sector crowd out the government from the wheat market, without imposing excessive efficiency costs on the economy? However, the question of 'efficiency' is difficult to decide, and requires an understanding of the structure of the wheat market.[15]

When setting out to examine the efficiency of operation of a certain market, there is the problem that just one parameter in which efficiency performance can be

[14] In 1982, at the time of the Survey, the total loss of wheat was estimated to be as much as 15–17 percent of the wheat harvest. However, it may be noted that at different points in the trade chain the wheat losses may, at least partially, be offset by animal consumption of the wheat so 'lost'. But there are no estimates of amounts of wheat losses offset in such a manner.

[15] A study by Uma J. Lele [17] suggests that private grain-traders in India may be efficient. See also Faiz Mohammad [22] on this point. But, as is clear from the text, the term 'efficiency' may be used and measured differently by different authors.

expressed does not exist. The best alternative, therefore, is to consider a set of 'indicators' of efficiency which, when taken together, provide an impression of the functioning of the market concerned. The Survey provides data on (i) price spread (the difference between consumer's and producer's prices expressed as a percentage of the consumer's price), (ii) the variations in producer's price, (iii) credit ties, (iv) the rate of turnover of wheat stocks held by private traders, (v) seasonal price fluctuations, and (vi) the adjustments made by private traders to the requirements of the producers and consumers. Each of these indicators gives the impression that the private wheat market appears to have worked at reasonably low cost to the producers and consumers of wheat. But, as noted above, the government deserves a good share of the credit for this apparently 'happy' state of affairs in the (private) wheat market. For example, the very moderate seasonal fluctuations in the price of wheat are primarily achieved through counter-cyclical releases of wheat from the stocks held by the government. And the remarkably small variation in producer prices is the result of the government's procurement activity. The small marketing margin may, at least partly, have been due to the announcement effects of the procurement price and the relatively small share of the marketed surplus that private traders handle. As remarked earlier, the government holds the commanding heights in the wheat market, so that any sweeping generalizations about the efficiency of the private wheat-market in the absence of any government intervention from the evidence gathered by the Survey would be at best conjectural.

An interesting study by Faiz Mohammad [22] may lead one to view with some suspicion the alleged efficiency of the private wheat-market, even within the limited sphere in which it is constrained by the government to operate. The study shows the share of leading firms in total sales of wheat. Taking an average of the sales ratio in 13 *mandi* towns, he finds that in the 1973–76 period the top 5 of all traders (or 3.5 percent of the total number of traders) controlled 16.5 percent of the market, and the top 20 traders (or 14 percent of the total number of traders) controlled as much as 39.07 percent of all wheat sales in those *mandi* towns. These figures show that considerable concentration does exist. (The Survey also revealed a wide disparity in the amounts of wheat handled by different types of traders.)

A clear view of the market structure is provided by the value of the Gini coefficient implied by these sale-concentration ratios. But it would be erroneous to compute Gini coefficient from three observations (including the origin) only. To do so, one needs a complete set of observations. To generate a plausible sales frequency distribution based on reasonable extrapolation from the three observations in these *mandi* towns, it is assumed that the (complete) Lorenz Curve lies below the diagonal and is mildly non-linear. The resulting data are presented in Table 7.

Table 7

Average Distribution of Wheat Sale among Traders in 13 Major Agricultural Markets in Pakistan (from Top to Bottom categories)

Categories	Number of Traders Handling Sales	Percentage of Traders Handling Sales	Cumulative Number of Traders Handling Sales	Cumulative Percentage of Traders Handling Sales	Percentage Sales Handling	Cumulative Percentage of Sales
(1)	(2)	(3)	(4)	(5)	(6)	(7)
Top (large)	5	3.53	5	3.53	16.51	16.51
Next	15	10.48	20	4.01	22.56	39.07
Next	37	26.00	57	40.00	25.94	65.00
Next	28	20.00	85	60.00	20.00	85.00
Next	28	20.00	113	80.00	10.00	95.00
Bottom	28	20.00	141	100	5.00	100.00

Notes: 1. Due to rounding error the percentages here may not add to exactly one hundred.
2. To interpret the data in the table, Cols. (2), (3) and (6) should be read together. Similarly, Cols. (4), (5) and (6) should be examined together.

The Gini coefficient of the sales distribution pattern indicated in the table is 0.385.[16,17] It may be noted that such a considerable concentration ratio exists despite government's procurement activity, which absorbs as much as three-quarters of the marketed surplus, and in conditions in which own consumption is a fairly high proportion of the total wheat produced. Also, by the time the lots of wheat arrive in *mandis* (auction houses) located in towns, their size becomes fairly uniform. If transactions at all points of the marketing chain were included in the sample observations reported in Faiz Mohammad's study, the degree of concentration would have been even higher.

Although the evidence on the wheat-market structure presented above is not decisive, it should be clear that a government decision to withdraw from the wheat market precipitately may not be desirable even on efficiency grounds. If left alone, traders' monopolies may be created, even though the current evidence does not

[16] It may be noted that the Gini coefficient is strictly a measure used to indicate the extent of the inequality of income (and wealth). The use of this concept to indicate sale-concentration ratio, as done in the context, may not be conceptually clear.

[17] It is interesting to note that the value of the Gini coefficient indicated in the text is much higher than the one implied (0.26) by three observations reported by Faiz Mohammad [22].

suggest that such monopolies do actually exist now.[18] Firstly, in the absence of a reasonable procurement activity and a uniform procurement price throughout the country, the private traders may widen the differential – i.e. the marketing margin – between the price that farmers receive and the price that consumers have to pay. Secondly, if the subsidized rationing system is abolished, the food security, especially of the poorest consumers, is endangered because they will have to buy all their wheat requirements from the open wheat-market, where the prices are higher. Thirdly, in case the storage activity is left entirely to private traders, the State will still have to play the role of the provider of agricultural credit. As the most likely recipients of the bank credit are the big private traders, to the high sales-concentration ratio will be added a high capital-concentration ratio.

V. THE TAXONOMY OF PUBLIC POLICY[19]

Assuming, then, that the government will continue to play a role in the wheat market, it should be clear that its operations should be restructured and streamlined to make them more efficient and to guarantee food security to the poor, both urban and rural.

Procurement Policy

In case the government decides to de-escalate its procurement activity, two important problems need to be faced. Firstly, the government must know, even though approximately, what the new level of procurement should be. Secondly, it must plan the rate of de-escalation of the procurement activity to bring it down, in stages, to the 'desired' level. In fixing the new (reduced) level of procurement, the government should have a clear idea of the size of the stock of wheat needed to stabilize the price level in the post-harvest season and supply subsidized wheat and wheat flour to the "target" groups. In our view, a procurement of approximately 2 million tons annually can meet the needs of a revamped rationing system (see below) and also offset the off-season price fluctuations. This is one million tons less than the average volume of procurement in the last three years. Further, a wheat stock of nearly 2 million tons – an unprecedented magnitude – represented in 1984 about 40 percent of the marketed surplus, so that procurement for building up of

[18] In this connection it may be noted that the existence of a large number of traders in the wheat market does not necessarily make the private wheat-market structure efficient. As can be seen from Table 7, the largest number of traders handle the least amount of trade. While the top 25 traders control 39.07 percent of the total sales, the bottom 56 traders transact only 15 percent of the total sales. Indeed, it would be more efficient in such a situation to have a smaller number of traders.

[19] The discussion in this section draws on Naqvi and Cornelisse [23]. Some of the issues raised in this section have been discussed, with a different motivation in [13], [31] and [29].

stocks of wheat was no longer required.[20] Needless to add, the adequacy of this reduced procurement activity to meet the officially stated objectives will depend crucially on the efficiency of the pre-existing private and public channels for distributing wheat (and wheat flour).

To ensure a smooth functioning of the wheat market, the following points should be kept in view.

(i) The procurement activity should not be reduced precipitately because of the manifest inability of the private traders to take on large marketable surpluses without encountering serious credit, storage and marketing problems.

(ii) The government's procurement effort should concentrate relatively more on those wheat-producing areas where private traders are not very active. It should also focus on small farmers, who at present have to rely mainly on village shopkeepers for selling their surplus wheat. The minimum quantity of wheat which procurement centres are allowed to purchase is 950 kg. As small farmers are thus cut off from procurement centres, this requirement should be abolished.

(iii) The State should help private traders to perform their marketing functions in a more efficient manner by taking the following steps.

  (a) It should introduce inter-provincial and inter-district mobility of wheat to keep a balance between the deficit and surplus wheat-producing areas and to help the producers of surplus areas to get a reasonable price, while preventing the producers in deficit areas from earning excessive scarcity rents.
  (b) It should extend credit to the private traders to help them to establish their own storage facilities.

(iv) As long as the State procures wheat from the primary producers (farmers), the support price it pays them should be manipulated in an intelligent fashion:

  (a) It (the support price) should be announced at the beginning of the wheat-growing season so that farmers can plan the level of sowing in advance;

[20]Wheat stocks were greatly reduced in 1984-85 when, because of bad weather, wheat production dropped to a level considerably below the long-term trend value.

(b) This price may be kept in an approximate balance throughout the country to avoid misallocation of land to wheat production in different parts of the country;[21] and

(c) It ought to be increased gradually during the post-harvest period to compensate the producers and private traders for storage costs.

Storage Policy

As pointed out above, government's wheat-storage policy must be consistent with its planned level of procurement activity, its attitude towards private traders, and its policy of keeping the ration shops well supplied with wheat flour. Furthermore, the storage policy should be related to the magnitude of wheat losses.

Here we dwell briefly on the issues arising from the wheat loss/storage 'connection'. The loss of wheat stored by the farmers for own consumption should be minimized. A sharp reduction in such losses will improve the real income of the farmers and increase the size of their marketed surplus. The private traders should be given access to government-owned storage facilities when the procurement level is reduced.

The following points should be noted in this connection. Firstly, the size of wheat losses, though substantial at present, cannot be entirely eliminated. It is simply not economical to do so beyond a certain point; for the marginal cost of salvaging wheat from loss may far exceed the marginal revenue from selling it. Secondly, it should be clear that, while private traders should be encouraged to build their own storage facility, the 'price' that the consumer has to pay for the increased private-storage activity should be kept at a 'reasonable' level. As pointed out above, there are certain types of modern storage that require large investment and which, for this reason alone, exclude the private sector from this activity. Thirdly, in view of their low cost, the existing *katcha*-bin type storage facilities – i.e. temporary storage arrangements made of clay – should be improved and enlarged to prevent wheat losses at the farm level. Fourthly, in order to reduce losses of the wheat retained for own consumption, the State may consider providing metal bins at a subsidized price, or encouraging the farmers to build on-the-farm storage facilities which are cost-effective and simple to construct.

It follows that government policy with respect to storage activity should be regulated on three fronts. Firstly, it should expand its own multi-product bulk-storage facilities in the key surplus areas, while balancing the cost of building and maintenance of such facilities against the benefits of avoiding wheat losses. Such

[21] However, a complete lack of price variation throughout the country, as is the case now, may in fact result in a misallocation of land resources. Ruttan has suggested, in private correspondence with the authors, that a set of regional prices in accordance with a "gravity model" may induce an efficient movement of wheat among different regions of the country.

bulk-storage systems, particularly those with a chain-storage system, require heavy investment and are beyond the capacity of the private sector. Secondly, the government may consider extending credit to the private traders for good-quality storage. Thirdly, with a more reasonable level of government intervention in wheat trade, the government should lease State-owned storage facilities at cost price. The leasing of storage space by the State to the private traders would have an added advantage in that it would be possible for the government to monitor effectively the size of wheat stocks and the changes in them.

The Rationing System

The present rationing system, which has been in operation with varying intensity since the early Fifties, explicitly aims at assuring an adequate supply of food at a subsidized price to the consumers, particularly those with very low incomes, and at saving them from the vagaries and uncertainties of the market. The central question that must be addressed is whether a food (wheat) rationing system, with all its problems and shortcomings, should at all be maintained for achieving its avowed objectives. The argument that the system is not needed *because* Pakistan has attained self-sufficiency in wheat needs to be qualified. Self-sufficiency in wheat simply implies that the proportion of domestically produced wheat to total domestic wheat demand has increased to a point where imports are not needed any more to meet the excess domestic demand for food. But this does *not* imply that with an improvement in the supply position, wheat will also be made accessible to the least privileged in a society. For, without government subsidy, the "exchange entitlements" of the least privileged in the society will be impaired as the domestic prices of wheat and wheat flour would then tend to increase.[22] But government intervention is required even to improve the availability of food in the long run. For, assuming that wheat supply is sufficiently elastic, the rationing system, by keeping the price of food sufficiently low, may help the farmer by ensuring for him a larger and expanding demand from the low-income groups, whose elasticity of demand for food is higher.[23]

It follows that a rationing system, properly restructured, is needed to repair the 'failure' of the private food-market to supply wheat at a reasonable price to the poor. Some of the major elements of a 'reformed' rationing system catering only for

[22] A. K. Sen [27] has observed: "Starvation is the characteristic of some people not *having* enough food to eat. It is not the characteristic of there *being* not enough food to eat". The concept of exchange entitlement referred to in the text is also due to Sen, who has also discussed it in [28]. He has shown that starvation and famine have occurred while food availability has been large enough to permit food exports!

[23] According to the studies by FAO [11], and by Mellor and Johnston [21], the marginal propensity to spend on food of the low-income groups is very high: it ranges from 0.5 to 0.9.

the needs of the poor and low-income households in rural and urban areas are outlined below. Since the proposed rationing system will affect the existing ration-card holders, ration-shop keepers and millers, it is useful to elucidate the elements of the new 'selective' system in relation to its probable effects on each of these groups.

Outlines of a 'Selective' Rationing System

Ration-card Holders

The first step for revamping the present rationing system is to deregister all the existing ration-card holders and issue new ration cards simultaneously. The basic eligibility condition for getting the new ration card should be the level of income of the households in rural and urban areas. What income level is taken as a cut-off point is essentially an *ad hoc* decision. It should reflect, even though vaguely, the national consensus about who the poor and low-income households are. Also, the cut-off levels of income may have to be different for rural and urban consumers and will change over time. At 1982 prices, a 'reasonable' average cut-off monthly income for Pakistan may be about Rs 100 per head for purposes of eligibility for a ration card.[24]

A simple and workable procedure should be evolved to establish the (legal) eligibility for ration card and to verify the number of the family members registered on it. A certification from local councillors should be enough for such purposes. The temptation is great to lay down an elaborate procedure for verifying eligibility. However, it is not always understood that there is a cost of *using* such an administrative system which should be set off against the implicit subsidy that the system provides to the users.

In order to facilitate an intensive use of ration flour, a ration-card holder may be permitted to obtain his ration once a week instead of once in two weeks, as at present. Also, the amount of ration flour allowed for each adult family member should be different in rural and urban areas, as rural consumers meet a substantial part of their demand for wheat from 'own farming' and 'wages' in kind (see Table 4). For rural consumers, the present ration of about 4.8 kg per month would just bridge the gap between the quantity available from these sources and the total wheat requirement of the consumer. In order to achieve the same result for the poor consumers in cities, the quantity of ration may have to be doubled. This increase in

[24] However, it may be argued that a cut-off monthly income is not a very good eligibility criterion. For it tends to discriminate against households with individuals who receive much or most of their income in money rather than in kind in contrast with small and medium farmers who can avoid reporting the time-imputed value of production for own consumption. This point has been brought to our attention, in private correspondence, by Eric Thorbecke.

the quantity of ration flour should reduce, if not altogether eliminate, the necessity of the poor consumers to resort to purchases from the open market. In practice, ration flour is bought mostly during the period between October and March/April. Therefore, as a conservative estimate, an amount of 2 million tons is sufficiently large (at the 1982 prices) to operate a rationing system such as proposed here. For further details, see [9; 25; 26].

Ration Shops

Ration shops in urban areas should be concentrated in those localities where mostly the low-income households reside. This is important because the locality restriction simplifies for the authorities the eligibility (for ration card) criterion. Since these localities will be the ones eligible for ration facility, most of the ration shops located in richer areas may have to be closed down. However, it must be kept in mind that poor people live in all kinds of localities, so that the locality restriction cannot be applied too literally. In rural areas, particularly in the NWFP (and Baluchistan), the establishment of ration shops may be difficult and even expensive. However, attempts should be made to use the small *mandi* towns, each serving village communities within a radius of 3 – 5 kilometers, for locating the ration shops in those areas.

Each ration-shop keeper may be assigned a wheat-flour quota on the basis of his ration requirements as indicated by the number of the ration-card holders in that area. The elected local councillors should have the authority to monitor the activities of both the ration-shop keepers and the officials of the Food Department. Public accountability can vastly improve the utility of the rationing system and reduce sharply the incidence of corrupt practices. Supervisory committees of users and civil servants can be an effective device, without adding to the cost of the existing distribution system.

Wheat Millers

The Survey revealed that considerable excess capacity existed in the modern (large) flour mills. Installation of new milling capacity should therefore be discouraged. Instead, the existing unutilized installed capacity should be more fully used to lower the (overhead) milling costs. Also, the present practice of fixing quotas to regulate *both* the amount that a designated mill can sell in the open market and that which it must deliver to the government is much too cumbersome. This practice should be replaced by a single requirement that the mills deliver the pre-assigned quotas to the government at regular intervals. The quotas and delivery dates should be fixed well in advance to avoid disruption or hold-up in the milling activity.

Another important modification of the present policy is to fix the "grinding margin" – the revenue from grinding procured wheat into flour – at a more reasonable level. The present grinding rates of a little over Rs 3 to Rs 3.50 per maund (in the Punjab and Sind), fixed by the government, are simply too low to cover even the milling costs. Such anomaly must be removed to ensure that millers do not have to indulge in illegal practices. Flour mills that deliver good-quality flour should be rewarded with a regular supply of procured wheat. The government, when awarding grinding contracts, may also consider giving preference to smaller flour mills located in rural areas so that their long-haul transportation cost of wheat and wheat flour is minimized. This should also help to reduce the cost of delivering ration flour to rural consumers.

IV. CONCLUDING OBSERVATIONS

In the preceding sections, we spelt out the structure of the wheat market, the main economic challenges arising out of the operation of this important market, and the nature of policy response required to meet these challenges. It should be clear by now that the passage of the innocent-looking wheat from the farmgate to the dinner table is controlled by many a not-so- innocent-looking economic agent – the government, village shopkeepers, *beoparis*, commission agents, wholesalers, millers, retailers and the ration-shop keepers. And then there is many a slip 'twixt the cup and the lip: 15 percent to 17 percent of the marketed wheat is lost at different points of the wheat-market chain. The government occupies the "commanding heights" through (voluntary) procurement, storage and transportation, milling of wheat into flour, and supplying wheat and wheat flour to the consumers both through the ration shops and through the open market. Such activities completely dominate the behaviour of the private trader in the wheat market. Government's procurement activity, by and large, acts as a sheet-anchor in the wheat market, providing a "fair and reliable" price to the farmers. The rationing system is meant to ensure food security through an implicit subsidy on food (wheat and wheat flour) to make it accessible to the poor.

That these policy instruments have not achieved their proclaimed policy objectives – indeed, they have to some extent tended to act perversely – is not necessarily an argument for abolishing these activities altogether. Instead, the aim of the government policy should be to rationalize the present *level* of State intervention. In view of the newly achieved self-sufficiency in wheat, the level of procurement may have to be de-escalated; but it need not be abolished. For the private traders cannot simply take on the entire extra load. Also, the present 'global' rationing system should not be abolished, just because it has not always achieved its objectives. Instead, it should be restructured and redesigned to give subsidy only to those who need it most. If this task is left to the market, it would 'fail' to meet the consumption needs of the

poor, for the simple reason that a higher price of food may push them out of the food market – or, to use A. K. Sen's terminology, the 'entitlement' of the poor may be impaired.

While the storage capacity at the farm level should be enhanced to prevent very large wheat losses, the State must carry most of the marketable wheat literally on its shoulders. Of course, the marginal cost and benefit of minimizing wheat losses must be carefully balanced.

Furthermore, it is essential that the above-mentioned policies adopted for regulating the wheat market constitute, to use Tinbergen's terminology, a "coherent entity".[25] Such policies must be made consistent with each other, and should be conceived and implemented as a homogeneous whole. The government storage policy must be related to its procurement policy, while both these policies, to some extent, should be conditioned by the rationing policy of the government. Furthermore, these policy instruments should be assigned appropriate 'values' to maximize social welfare. As has been suggested earlier, the procurement and rationing policies should be given the highest 'values' for the simple reason that these are the dominant policy instruments and are the most relevant ones for regulating the producer and consumer prices of wheat respectively. The need for making wheat-marketing policy a 'coherent entity' is most clearly seen when we recognize the two-way linkage that exists between the availability of food (wheat), on the one hand, and employment, distribution and economic growth, on the other.[26] For instance, as employment is increased, the demand for food increases, particularly when labour is paid for in kind,[27] but also when employment inflates the ranks of low-wage labour. Conversely, a low price of food may increase employment by reducing the reservation wage of the skilled worker and by expanding the market for wage goods.[28]

To make public policy effective and successful in achieving its avowed objectives, it is also essential that the government should consciously seek to maximize the positive effects of food-marketing policy on income distribution, efficiency, and economic growth. A lower price of food directly increases the real incomes of the low-income groups, whose elasticity of demand for food is high. On the other hand, the elasticity of demand for food of the high-income groups is low. It will, therefore, be socially beneficial if the government follows a dual pricing policy that will

[25] See J. Tinbergen [30]. It may be noted that Tinbergen's concept of coherent entity is much wider in 'coverage': it includes *all* government policies pursued by the government to regulate the economy. Here we use the concept in a somewhat restricted sense.

[26] For a detailed discussion of such a linkage, see Mellor [18].

[27] As Table 4 shows, the amount of wheat received by rural consumers through wages paid in kind is quite substantial in Pakistan.

[28] A general discussion of the problem of the insufficiency of demand being one of the key factors constraining the rate of economic growth is given in Chakravarty [2].

have the effect of a segmentation of the wheat market. A lower (higher) price of food for the low (high) income group with high (low) elasticity of demand for food will maximize the farmers' income by comparison with a situation in which the price of food is kept uniform for all income groups and will also help the producers of food by providing them with an expanding food-market.

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