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# **The Wheat-marketing Activity in Pakistan**

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## PREFACE

The present study is the result of a research project jointly carried out, between October 1981 and September 1983, by the Centre for Development Planning in the Economics Faculty of the Erasmus University, Rotterdam, and the Pakistan Institute of Development Economics, Islamabad. The project aimed at providing maximum information on the working of the wheat market in Pakistan. As will become clear in the following pages, a study of the wheat market in Pakistan is a many-splendoured thing. From the farm-gate to the final consumer there are many catalytic agents – viz. village shopkeepers, *beoparis*, commission agents, wholesalers, procurement centres and ration shops – whose economic behaviour determines the size of the marketed surplus and the price that the producers receive and the final consumers pay for wheat and wheat flour. While the government intervenes – indeed, rules the roost – in the wheat market, mainly by fixing the procurement price and by setting up an elaborate distribution system, the many private traders listed above are, so to speak, the many slips between the producer's cup and the consumer's lip. It is, therefore, important to determine exactly the functions performed and the business handled by these economic agents, and to know, at least approximately, about the efficiency with which these jobs are done and the 'price' that the producers, consumers and the society pay for these services. Here we have the problems of efficiency and social welfare inextricably bound up with the manner in which the wheat market functions.

We relate in the following pages the story of the commodity wheat, which first drove Adam and Eve from Paradise and has ever since kept their progeny toiling at producing it, distributing it and consuming it. To know reasonably enough about such a mysterious character, it was necessary to have many collaborators — or shall we say co-conspirators — in this undertaking. It involved the design, pre-testing and execution of a detailed survey to generate primary data, which then had to be processed. Finally, a series of studies was required to highlight, one at a time, the crucial findings of the survey. These studies and the considerable analytical and computational extra work, not to mention the sweat and the tears that go with it, were the necessary inputs of the present synthesis report. We only hope that this synthesis is more than just a linear combination of its components.

It would be appropriate to acknowledge the contributions of various persons and institutions that participated in the project. Two persons, Dr M. Ghaffar Chaudhry and Mr T.M.P. van Gaalen, played a key role at every stage of the project. They participated in the preparation and execution of the survey and wrote valuable working papers which have been separately published. Both these scholars maintained constant contact with the Dutch and the Pakistani directors of the project, who are now the co-authors of the present study. While we guided the entire research effort, sometimes in detail, both these scholars helped us in preparing the data base for this study. The work on the survey of the many agents in the wheat market — farmers, traders, millers, ration shopkeepers and consumers — was carried out in the Punjab, Sind and the North-West Frontier Province (NWFP) with the help of the Punjab Economic Research Institute, the Faculty of Agricultural Economics and Rural Sociology of the University of Agriculture, Faisalabad, the Applied Economics Research Centre of the University of Karachi, the Sind Agriculture University (Tando Jam) and the

Centre for Applied Economic Studies of the University of Peshawar. Their painstaking work is gratefully acknowledged. Furthermore, Mr Hans de Kruijk of Erasmus University, on the basis of his knowledge of Pakistan's economy, made a variety of useful suggestions, and also wrote a working paper on wheat consumption in Pakistan, which has been separately published. Then, some students of development planning at the Erasmus University – Messrs J.G.P. Jansen, G. Meester and J.M.M. Roks – made use of the opportunity that the project provided to them for writing their Master's theses on specific aspects of the wheat market. Their work provided important insights into the operation of the wheat market in Pakistan. The processing of the sizeable data collected through the survey and from many other published and unpublished sources was handled competently by Messrs. J.V. Hooft van Huysduyen, B. Ferment and A.G.J. van der Torre, all students of the Erasmus University. Jan Hooft deserves special mention for an excellent organization of the data-base system. Ms Irene Frieling assisted in collecting data from 'external' sources.

This study, the underlying working papers and several other documents were typed by M. Aslam, Karin Niepoth, Caroline van Ruyven and Carla Verhoeff, who combined tact and patience with their skills to meet bewildering demands on their limited time from all directions.

Apart from enjoying the help of the above-mentioned persons and organizations, we greatly profited from highly illuminating discussions with knowledgeable persons in Pakistan. Special mention needs to be made of Mr M. Fazil Janjua, (former) Federal Minister of Food and Agriculture, with whom we had a long and enjoyable talk on the subject. Then, the many officials of the Ministry of Food and Agriculture, the Agricultural Development Bank, the Planning Commission, the Agricultural Prices Commission and CIMMYT and persons operating the various sections of the wheat market shared their expertise with

participants in the wheat-market study and added to the understanding of specific matters which would otherwise have remained obscure.

Finally, the project could not have been carried out without the active participation of the Pakistan Institute of Development Economics and the generous financial support from the Research and Adapted Technology Section of the Dutch Ministry of Development Co-operation. The personal attention of the members of these institutions contributed a great deal to the smooth management and execution of the project. The help obtained from the Dutch Embassy in Islamabad at various stages of the project is duly acknowledged. We also wish to thank Prof. Mahmood Hasan Khan (Simon Fraser University, Canada) and the many officials of the Dutch Ministry of Development Co-operation for making extensive comments on the preliminary version of this synthesis study. We are grateful to Mr Syed Hamid Hasan Naqvi, who did the onerous job of editing the entire manuscript in a most competent manner. Needless to add that only the authors bear the cross of responsibility for any errors that may still be there in this synthesis study. It is our earnest hope that the study will generate both heat and light.

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## Chapter 1

### INTRODUCTION

#### Purpose of the Study

The purpose of this study is to present results of an analysis of the working and modalities of the wheat markets in Pakistan. It seeks to identify the chain of 'events' that stretches from farm-level production to the final consumer of wheat. In between these 'poles', there are the many actors who convert the wheat harvest into marketed surplus. An analysis of the activities and effectiveness of these actors is required to understand the forces that determine the level of production, the size of marketable surplus, and the distribution and consumption of wheat, the staple diet of the Pakistanis. These marketing activities are especially important because the urban and rural poor in Pakistan, like those in many other developing countries, depend on the provision of food through the market even more than the better-off sections of the society.

The analysis presented in this study addresses itself to the following broad groups of questions:

- (i) What contribution do various groups of farmers make to wheat production and what is the proportion of their contribution, by province, area, tenurial status and size of farm? What purposes do farmers use wheat for?

- (ii) What are the functional groups of wheat traders, whose economic activities together define the dimension and size of the wheat market, to be stood up and counted?
- (iii) What are the various means through which the wheat traders make their presence 'felt' in the wheat-market 'chain'? Are these wheat traders 'efficient' and are they powerful enough to influence the decisions at the farm level?
- (iv) What are the technical and economic functions of the millers, whose function it is to grind wheat into *aata* (flour)?
- (v) What sources do consumers use (by province, area, and classes of income) to obtain wheat or wheat flour, and what are the main differences between these sources of supply?
- (vi) What are the magnitude and form of State intervention in the wheat market and what effects do they have on decision-making at the farm level and on the behaviour of the many agents in the wheat-market chain?

Once these questions are answered with a reasonable degree of accuracy, it should be possible to recognize the existence and importance of the various channels through which wheat travels from the farmer to the consumer, and of the role which the various 'actors' – farmers, village shopkeepers, *beoparis*, commission agents, wholesalers, millers, procurement centres and ration shops – play in this process. Such a knowledge would allow us to assess the strengths and weaknesses of the prevailing wheat-market network, which is defined as the set of decision-makers and their activities which move wheat from sellers to buyers. It would also provide us a sound basis for making policies to improve the functioning of this system by effecting suitable marginal and structural changes. In particular, such a study of

the market structure would complement various other studies that relate to the production process of foodgrains.

We have selected wheat for a detailed study because it is by far the most important single food product in Pakistan: the value added in wheat production alone contributes approximately 7 percent to the national income; and the land area under wheat accounts a shade more than 35 percent of the total cropped area in Pakistan, whereas cotton and rice, which are the next important agricultural products, each take up only about 10 percent of the cropped area [4]. The expenditure on wheat and wheat flour, in 1979, constituted on average 9.4 percent of household budgets and 18.4 percent of food expenditure in Pakistan. The corresponding figures for rice, the second largest food expenditure item, were only 2.1 percent and 4.2 percent respectively [5]. (See also Table 19)

The present study is unusual in terms of the details it provides for the first time about the entire chain of wheat market that connects the producers to consumers of wheat. It is hoped that the methodology, analysis and results of this study will be useful for understanding similar market structures in other developing countries as well. A detailed study of the kind presented in the following pages should also help in evolving new hypotheses about the market structures in the agricultural sector in place of the many simplistic notions that are found in the literature.

### Recent 'Happenings' in the Wheat Market<sup>1</sup>

This section briefly surveys the main recent developments in the wheat market of Pakistan. The following subsection provides some general information, whereas the subsection dealing with policies in the recent past concentrates on policy measures relating directly or indirectly to the wheat market.

<sup>1</sup>This section is largely based on M. Ghaffar Chaudhry [1; 2].

*Empirical Evidence*

In Pakistan, production of wheat has experienced sharp fluctuations, with periods of near self-sufficiency in wheat followed by periods of unsatisfactory performance. These fluctuations have been caused mainly by the vagaries of weather, which, in spite of a highly developed irrigation network in the Indus Basin, casts a long shadow on the fortunes of the agricultural sector. Nevertheless, the introduction of better agricultural technology – e.g. improved varieties of seeds, a more intensive use of fertilizer and assured water supply through tubewells – has helped to raise the level of wheat production through an increase in area and improvement in the yield per acre. As a result, domestic production has, since 1981, been sufficient to meet the increasing domestic consumption of wheat, caused by a rise in per capita income and an increase in population over time. However, the overall rising production trend has been marred by bad harvests, which have, from time to time, necessitated large imports to meet the excess domestic demand for wheat. The first three columns of Table 1 show that the favourable weather conditions of the last five years have led to a very considerable reduction in imports, and that there has been a sizeable build-up of wheat stocks (last column). While the overall rise in the domestic production of wheat, which has enabled the government to cut down sharply the imports of wheat and build sizeable stocks, represents a commendable performance, it is premature to conclude that the goal of self-sufficiency in food (wheat) has been achieved on a sustainable basis.

Table 2 presents some valuable information on the relative change over time in the domestic (wholesale and retail) price of wheat in relation to the import price of wheat and to the prices of fertilizers etc. A comparison of domestic (procurement) prices (Col. 3) with the import prices (Col. 4) shows little change in the ratio of the former price to the latter price (Col. 6). This

Table 1  
*Production, Imports, Total Availability, Procurement and Stocks of  
 Wheat in Pakistan 1970-71 to 1982-83*

	Production (in '000 tons) <sup>a</sup>	Imports (in '000 tons) <sup>b</sup>	Total Availability (in '000 tons) <sup>c</sup>	Procurement (in '000 tons) <sup>d</sup>	Stocks (in '000 tons) <sup>e</sup>
1970-71	6,476	285	7,579	1,017	n.a.
1971-72	6,890	690	7,166	841	n.a.
1972-73	7,442	1,359	8,249	208	n.a.
1973-74	7,629	1,229	8,671	1,342	n.a.
1974-75	7,673	1,344	8,973	1,253	n.a.
1975-76	8,691	1,186	8,859	1,236	417
1976-77	9,144	499	9,190	2,339	728
1977-78	8,367	1,052	10,196	1,842	255
1978-79	9,950	2,236	10,603	1,086	347
1979-80	10,857	602	10,552	2,376	685
1980-81	11,475	305	11,162	2,955	1,021
1981-82	11,304	360	11,835	2,989	1,572
1982-83	12,414	353	11,495	3,131	2,097

Source: Pakistan Economic Survey [3] for 1982-83.

Notes: <sup>a</sup>Sown in October, harvested in April.

<sup>b</sup>From July to June.

<sup>c</sup>Production of previous year plus imports.

<sup>d</sup>From May to April.

<sup>e</sup>Measured in April at the end of the harvest year, just before the harvest.

n.a. = not available.

indicates, among other things, that *the implicit tax on the farmer has not decreased over time.*

It may also be observed that during the 1970s the prices of wheat, a winter crop, somewhat lagged behind those of rice, a summer crop, although in 1982-83 the ratio of wheat price to that of rice regained the level of 1969-70. The table also shows that the rise in the price of fertilizers during the 1970s lagged behind the increase in the price of wheat, thus stimulating a greater use of fertilizers in 1980 (Col. 8). The figures in the last column show that the real income of wheat producers, measured in terms of manufactured goods, has risen.

Table 2

9

*The Wholesale, Procurement and Import Prices of Wheat, and the Indices of the Ratio of the Price of Rice, the Price of Fertilizers, the Consumer Price and the Manufactures Price Indices, 1972-73 to 1982-83*

Year	Wholesale Wheat Price in Faisal- abad Rs per 40 kg	Procure- ment Price of Wheat Rs per 40 kg	Price of Import- ed Wheat Rs per 40 kg	Ratio of Columns 2 to 4	Ratio of Columns 3 to 4	Ratio of Wheat Price to			
						Price of Rice 1969-70= 100	Price of Fertilizer 1969-70= 100	Price of Consumer Goods 1969-70= 100	Price of Manu- factured Goods 1969-70 = 100
1	2	3	4	5	6	7	8	9	10
1972-73	22.6	24.1	32.7	69.11	73.70	77.7	64.5	100.4	99.8
1973-74	28.2	27.3	50.3	56.06	54.27	77.1	69.7	95.8	96.4
1974-75	44.4	39.7	73.2	60.66	54.24	103.4	63.9	116.1	127.5
1975-76	41.4	39.7	60.2	68.77	65.95	91.5	69.2	101.3	112.3
1976-77	42.6	39.7	52.9	80.53	75.05	79.3	64.1	91.1	97.8
1977-78	52.6	39.7	50.8	103.54	78.15	80.1	55.3	97.8	108.2
1978-79	54.4	48.2	62.7	87.76	76.87	97.8	47.8	99.5	111.7
1979-80	54.8	50.0	69.2	79.19	72.25	95.8	60.9	93.6	102.7
1980-81	56.7	58.0	83.0	68.31	69.88	86.3	63.6	83.3	95.4
1981-82	66.1	58.0	88.9	74.35	65.24	90.3	63.6	88.3	109.9
1982-83	70.1	64.0	87.6	80.02	73.06	98.7	57.7	93.7	114.3

Source: Pakistan Economic Survey [3] for 1982-83.

### *Policies in the Recent Past*

After more than a decade, during which time the wheat market in Pakistan was largely run by the private sector, the active intervention by the federal and provincial governments in the market began to increase with the onset of the Sixties. In 1959-60, the State started to support major agricultural commodities, including wheat, by fixing the domestic prices higher than international prices in an attempt to promote domestic production by guaranteeing a fair price to the producers. Also, a rationing system with subsidized prices for wheat consumers was instituted in the early Fifties in the Punjab. A few years later, the rationing system was introduced in the provinces of Sind, the NWFP and Baluchistan as well. Rules were enforced to minimize the malpractices that go with such a system and to make the system more efficient. Committees consisting of either traders and farmers or of civil servants supervised the application of the rules and supplied the necessary information to market actors and the government. This administrative structure is still in place and working.

Another important measure, introduced in 1959-60, was to impose a ban on the movement of wheat by private traders across provincial boundaries. This was done to facilitate the procurement of wheat in areas of surplus production by the government. Thanks to the mechanics of the procurement system, the domestic (procurement) wheat price was pushed below the price of the imported wheat by the end of the 1960s. However, the implicit tax, which the lowering of the domestic price of wheat below the international price imposed on the farmers, was reduced by the policy of keeping the domestic price of fertilizer lower than its international price (Table 2).

In 1972, the level of wheat procurement was raised again by the introduction of procurement centres, which were established near the farms. This system has been run by the provincial

Food Departments and the Pakistan Agricultural Supplies and Storage Corporation (PASSCO), created in 1973, which operate in different surplus-producing areas. In recent years, such government institutions have become the *dominant* actors in the wheat market as they purchase about 25–30 percent of the harvested wheat, i.e. nearly 70 percent of the amount actually marketed (see Table 1). The procured wheat, which in years of relatively poor harvests supplemented imported wheat, was supplied to consumers through an ever-expanding rationing system.<sup>2</sup>

Towards the end of the Seventies, this heavily subsidized distribution system, fondly built up in the preceding two decades, had become a burden on the government budget: in 1979-80 it claimed Rs 6,500 million out of a total government revenue receipt of approximately Rs 39,400 million. Wheat subsidies (Rs 2,400 million) and fertilizer subsidies (Rs 2,500 million) were by far the largest items in the total subsidy bill. Fortunately, several bumper harvests allowed the government to cut down the wheat import bill drastically. As imported wheat was more expensive than the procured wheat (Tables 1 and 2), the total subsidies paid on wheat also decreased over time. Furthermore, it was decided by the government to sharply reduce subsidies on agricultural inputs, and to eliminate them by 1985. Incidentally, the new government policy has led to a sharp increase in the price of agricultural inputs, fertilizers in particular.

The decision to do away with fertilizer subsidies and to denationalize roller flour mills marked a break with the trend of the increasing State involvement in markets of agricultural products that had started in the early 1960s and reached a record high in 1974-75. This process of 'decontrolling' the agricultural sector has recently led to the lifting of the ban on

<sup>2</sup>In the first half of the Seventies, large-scale flour mills were nationalized. Although denationalization followed in 1977, the State maintained a firm grip on these mills by fixing the "grinding margin" – the fee paid for grinding the procured wheat into ration flour – which was much too low even to cover their milling cost.

interprovincial private wheat trade out of the surplus areas. The relatively favourable supplies of wheat in recent years and adequate stocks will help the government to deescalate its interventionist role even further, without undermining its predominant position in the wheat market.

### The Present Situation

The considerable increase in domestic wheat production in the past decade, apart from reducing Pakistan's dependence on imports, has permitted the per capita wheat consumption in Pakistan to attain the level of 130–140 kg since 1969-70. The population increase at a rate of approximately 3 percent per annum has obvious implications for the consumption requirements of wheat in the years to come: the domestic production of wheat must increase by about 350 thousand tons per year if the present level of per capita consumption is to be maintained, without necessitating a rise in wheat imports over the present levels.

Table 3 presents figures on the key magnitudes in the wheat market of Pakistan and its provinces. Even a casual inspection of the table shows that the Punjab has been by far the largest producer of wheat. It meets not only its 'own' consumption requirements but also those of other provinces. By contrast, Sind produces just enough wheat to meet its own consumption, while the NWFP and Baluchistan are the deficit provinces, whose wheat needs are met either through transfer of the domestically produced wheat from the Punjab or through imports.

It is also clear from the table that there are large interprovincial differences between the quantities procured by the four provincial governments. In the Punjab and Sind, the provincial governments procure as much as 29–32 percent of the wheat harvest. This is about 70 percent of the wheat actually brought to the market in those provinces. (Note that only 40–45 percent

Table 3

*Volumes of Production, Procurement, Releases and Consumption,  
by Provinces*

	('000 tons)				
	Punjab	Sind	NWFP	Baluchistan	Pakistan
Production, 1981-82 <sup>a</sup>	7,798	2,062	962	318	11,140
Procurement, 1982-83 <sup>b</sup>	2,479	604	21	27	3,131
Releases to mills, 1982-83 <sup>b</sup>	926	706	625	198	2,454 <sup>d</sup>
Consumption of wheat and Wheat flour, 1982-83 <sup>c</sup>	6,245	2,120	1,710	n.a.	n.a.
(i) Consumption of wheat, 1982-83 <sup>c</sup>	4,665 (74.7)	1,390 (76.6)	800 (46.8)	n.a.	n.a.
(ii) Consumption of ration flour, 1982-83 <sup>c</sup>	830 (13.3)	210 (9.9)	90 (5.3)	n.a.	n.a.
(iii) Consumption of market flour, 1982-83 <sup>c</sup>	750 (12.0)	520 (24.5)	820 (48.0)	n.a.	n.a.

<sup>a</sup>Source: [4].

<sup>b</sup>Source: [3].

<sup>c</sup>Source: The Survey, Figures between parentheses are percentages.

<sup>d</sup>Excludes 328,000 tons for Azad Kashmir and Defence.

of the wheat harvest is actually marketed.) The procured wheat is then released to the mills for grinding it into flour, and for subsequent releases to the ration shops and for sales in the private market to ease seasonal price fluctuations. In the Punjab, the

surplus of the procured wheat, over and above the releases to the mills, is used to build up stocks and to meet the deficits in other provinces.

As one would expect, there are also some differences in consumption patterns between provinces.<sup>3</sup> The data collected through the Survey show that the wheat-flour ratio is much higher in the Punjab than in Sind or the NWFP, indicating differences in the importance of flour mills in those provinces. Also, the position of the suppliers of ration flour shops and private retailers *vis-a-vis* the consumers differs across the four provinces. These and other matters are examined in more details in the subsequent chapters.

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<sup>3</sup> Estimates of consumption of wheat and flour by provinces have been obtained by multiplying volumes of consumption per head in rural and urban areas derived from the Survey by the corresponding population figures. Further, for only the Punjab, volumes of consumption have been made consistent with volumes of production, procurement and releases to the mills by means of an interactive procedure referred to in the section on Wheat Trade in the Punjab in Chapter 4.

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## Chapter 2

### METHODOLOGICAL ISSUES

#### The Analytical Framework

The operation of national commodity-markets has usually been described and evaluated with reference to the perfect-competition model. However, such a model, though useful as a first approximation, is not very helpful in 'simulating' the complex market structures in the agricultural sector, and is inadequate in several respects. Firstly, in an analysis of market structures in the agricultural sector, the interdependence of activities of exchange and other economic activities, such as production and consumption, must be explicitly recognized. For example, the organization of production directly affects the structure of the market where a specific commodity is traded, whereas variations in the terms at which that commodity is exchanged can have a lasting effect on the level of production. Secondly, markets for different products and factors of production may be afflicted with various distortions. They may also be strongly interrelated, or "interlocked", with each other through non-market activity. Thus, if, for instance, it is suspected that middlemen use the provision of loans to strengthen their bargaining position when buying from debtor-farmers, it may become necessary to examine the credit market as well as to understand the mechanics of the product (wheat) market. Thirdly, matters relating to equity — i.e. the welfare of the farmer and the final

consumer — deserve consideration along with those concerning efficiency. This requires that an adequate model should focus not only on the activities of the producers and final users of agricultural products (wheat in the present case) but also on the many marketing channels through which different recognizable categories of traders impinge on these activities. The effectiveness with which these suppliers make use of the marketing 'facilities' depends on their relative economic strength *vis-à-vis* the primary producers and the final consumers.

It is, therefore, essential that a more adequate, though less formal, analytical framework be evolved to comprehend a phenomenon so complex as the one we have on our hands. The present study employs a 'system-oriented' approach, which is defined, somewhat loosely, as a descriptive-analytical framework that explicitly identifies the main actors in the wheat market in terms of their marketing functions. These 'functional actors' are related to various micro variables, which then determine, through the wheat-market chain, the size of the marketed surplus of wheat, the relative rewards received by the principal actors for their marketing activities, the price of wheat received by the primary producers and the price paid by the final wheat consumers. Such an approach, as a first approximation, permits an explicit consideration of a wide range of issues relating to the market structure in the agricultural sector. Such an approach also includes an explicit analysis of activities related to the marketing of wheat — viz. production, milling and consumption of wheat — and of the connections between these activities.

The strategy of the present study is to conduct a series of related studies of the 'activities' of production, processing and consumption of wheat and of the various markets that connect these activities. The scarcity of relevant data and the need for ensuring consistency between the studies dealing with specific aspects pose problems. Yet, an investigation of the marketing chain, connecting the producers to the final consumers, helps to

overcome, at least partially, some of these problems. Firstly, such an analytical strategy provides a built-in mechanism to check on the apparent peculiarities of the data obtained from the Survey. Such checks are particularly useful in studies such as the present one, where a rigorous verification of their specific findings is essentially difficult. Secondly, such a strategy also makes explicit phenomena which are clearly discernible from the data relating to one element of the chain but not so obvious in the data relating to another element, and throws additional light on the reliability of information concerning the various elements of the wheat-marketing chain.

### Variation of Market Structure by Provinces and Regions

There are wide disparities in the characteristics of the forces governing the processes of the production and consumption of wheat in the four provinces of Pakistan: the Punjab, Sind, the NWFP and Baluchistan. Within these provinces, significant differences exist between various districts owing to variations in climate, soil conditions, availability of irrigation water, degree of urbanization, availability of infrastructure, and so on. Table 3 illustrates these observations. In a country of the size of Pakistan such regional differences are not at all surprising. The collection of the relevant data proved to be very difficult in Baluchistan because of its larger size, low density of population and a road system much less developed there than in other provinces. For these reasons, and because of the binding budget constraint, the Survey could not 'cover' Baluchistan, and had to be confined only to the Punjab, Sind and the NWFP. This is a shortcoming of the study which should be clearly noted.

The interviews to fill out the questionnaires were conducted by several teams of investigators. Each of them covered a specified area. The field investigators were recruited from, or made available by, institutions well acquainted with local customs and experienced in conducting surveys. An additional advantage of working with several teams of investigators was that the period during which the data were collected was practically the same for all the areas covered by the Survey. The leaders of the investigating teams carried out on-the-spot first checks of completed questionnaires. The second round of checks was done upon receipt of the questionnaires from the various teams.<sup>2</sup>

One of the most difficult problems encountered in framing the questionnaire concerned achievement of a satisfactory degree of representation of the various groups within the five main categories of actors identified in the Survey. For example, for farmers, the 'sample mix' of tenants and owners, large and small farmers, and irrigated and non-irrigated areas had to be sufficiently close to the 'actual mix' to help to draw valid conclusions from the Survey data.<sup>3</sup> Fortunately, earlier publications, such as the 1972 Census of Agriculture [3] and the ESESJAY study [1], provided useful points of reference.<sup>4</sup> Then, a study using factor analysis was carried out by G. Meester of Erasmus University [2] to identify relatively homogeneous areas in terms of agriculture-related properties. This study provided additional information on the most appropriate areas to be included in the Survey. Similarly, for the category of consumers, information on the distribution of income of rural and urban population in the recent past provided a basis for the composition of the sample. The study done by G. Schmidt [4] of agricultural markets in

<sup>2</sup>This process continued when the information was fed into the computer and even during the analysis of their information.

<sup>3</sup>An alternative division could have been as follows: (i) non-cultivating owners; (ii) cultivating owners; (iii) owners-cum-tenants; and (iv) tenants.

<sup>4</sup>When the Survey was being prepared, the results of the Census of Agriculture of 1980 had not yet been published.

Kamoke and Chichawatni in the Punjab proved to be useful in providing information about wheat dealers. The strategy followed to collect the relevant data for this study was to approach a large number of wheat dealers, millers and ration-shop owners each time a team of investigators visited a specific Survey area. This strategy paid off in terms of maximizing the number of answers to the questions asked about the nature and size of their business.<sup>5</sup>

Having selected the cities and rural areas for the Survey, it was determined what number of questionnaires on the activities of farmers and consumers was required to draw statistically meaningful inferences from the sample data. In each of the selected rural areas, one *mandi* (market) town was chosen which would have 1–3 'satellite' villages. The distribution of consumers by income groups was then specified. The choice of the composition of the farmer category was left to the leader of the investigators' team since the number of information points appeared to be too large for *a priori* specification. Thus, in order to get an idea of the local situation in this regard, the team leader, on arrival in a village, first sought to complete a "village information schedule" (see the Appendix) and subsequently decided on the mix of farmers. This procedure also helped in the collection of valuable information at the village level.

### *General Comments*

Generally speaking, the results of the Survey appear to be very satisfactory in the sense that a great majority of the questions formulated at the beginning of the project were addressed and answered. Also, the results of the various sub-surveys conducted within the framework of the Survey are by and large

<sup>5</sup>The data collected show that in the Punjab to every *beopari* there are approximately 0.5 village shopkeepers, 0.4 commission agents and less than 0.1 wholesalers active in the wheat trade. (See Chapter 4.) In Sind, these proportions are about the same; but little can be said in this regard about the NWFP.

consistent. And, yet, some of the shortcomings of the Survey should be noted here. Firstly, in the Survey data, the payment of rent as a percentage of production data appears to surpass considerably the corresponding percentage of the rent received. This inconsistency has been rectified by using the data on rent payments which appeared to be more reliable than the data collected on rent receipts. Secondly, the data collected in the Survey could not be relied upon to yield an accurate estimate of income, partly because of the tendency of the respondents to understate their incomes to avoid tax liability and partly because of the fact that a part of their income was received in kind. The information on cost items was similarly unreliable, particularly in cases of joint products in which it was very difficult to impute costs to each individual product.

Thus, in order to allow an independent estimate of income and costs, the components of both were investigated in detail in the questionnaires. But in a number of cases this approach appeared to tax too much the patience of the interviewer, or the interviewee or both.

Further, in the questionnaire for millers a formulation was used that gave rise to considerable misunderstanding. For it did not adequately take into consideration the peculiarities of grinding the State-owned wheat into ration flour. In effect, the activity of grinding wheat into flour takes the form of sub-contracting. Hence, the questionnaire for millers was framed accordingly. But, in practice, mills buy wheat from one State institution and thereafter sell the flour again to another at a pre-set price which includes a fixed "grinding margin". The confusion caused by these problems was, however, largely removed when the data were finally processed.

## The Data Input

The data-input stage was prepared carefully to ensure accessibility of the relevant data for processing and analysis. During the months preceding the receipt of the completed questionnaires, the many variables included in the study were coded. Data files were prepared, containing information on the units of measurement and the maximum permissible size of the coefficients of the included variables. Software packages needed to process these data were obtained and try-outs made to check on the feasibility of the computational system. These labours, at the preparatory stage, were rewarded by a very large reduction in the time-lag between data collection and analysis.

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**EXPLANATORY NOTE**

This appendix contains additional information on the Survey, which provided most of the data input 'used up' in the present report. Table 4 presents the distribution of questionnaires by type of actors and by location. In the location code the first digit indicates the province, the second relates to major cities, the third to *mandi* (market) towns and the fourth to villages. Figure 1 illustrates the geographic position of the main locations in the Survey. (The set of six types of questionnaires used in the Survey is reproduced at the end.)

Table 4

*Distribution of Questionnaires by Categories of Respondents and by Location*

Code and Location	No. of Questionnaires filled for						Total
	Village Shop-keepers	Farmers	Millers	Middle-men	Ration-shops-keepers	Consumers	
1100 Karachi	0	0	20	20	10	101	151
1010 Nawabshah	0	0	5	10	3	30	48
1011 Chak 6/0 B	1	42	1	1	0	17	62
1012 87 A	1	37	1	1	0	22	62
1013 Chak A	1	43	1	3	0	14	62
1020 Hyderabad	0	0	7	10	3	31	51
1021 Lakhi	1	41	1	1	0	17	61
1022 Churitani	1	38	1	2	0	22	64
1023 Soofi	1	22	1	15	0	24	63
1030 Thatta	0	0	7	12	3	30	52
1031 Koor	1	40	1	1	0	17	60
Total Sind	7	263	46	76	19	325	736
2100 Lahore	0	0	24	12	26	102	164
2200 Faisalabad	0	0	19	20	12	102	153
2010 Samundri	0	0	2	9	1	41	53
2011 Nangli	1	38	2	3	0	20	64
2012 Patiala	1	35	3	4	0	18	61
2013 Fatiana	1	35	1	2	0	20	59
2020 Khushab	0	0	3	8	1	39	51
2021 Thatti Kabram	1	35	0	0	0	22	58
2030 Khanewal	0	0	6	6	1	40	53
2031 23/10 R	1	34	1	5	0	18	59
2032 171/10 R	1	35	2	0	0	18	56
2033 80/10 R	1	34	2	4	0	21	62
2040 Kamoke	0	0	8	10	3	30	51
2041 Tanboli	1	41	2	0	0	15	59
2042 Malkey	1	40	2	1	0	15	59
2043 Kaja	1	20	2	0	0	15	58
2050 Raiwind	0	0	6	10	3	31	50
2051 Rao Khan Nala	1	40	2	0	0	15	58
2052 Rayyan	1	41	2	1	0	15	58
2053 Bhamba	1	40	2	3	0	16	62
2060 Chakwal	0	0	6	10	3	30	49
2061 Titral	1	40	2	0	0	15	58
2062 Balmasar	1	40	2	0	0	15	58
2063 Murid	1	40	2	0	0	15	58
2070 R. Y. Khan	0	0	1	9	5	15	30
2071 99/P	1	40	3	3	0	14	61
2072 100/P	1	34	2	3	0	21	61
Total Punjab	18	682	109	123	55	738	1725
3100 Peshawar	0	0	10	10	5	125	150
3010 Mardan	0	0	2	15	3	40	60
3011 Babani	1	28	2	4	0	47	82
3012 Charagha	1	28	2	4	0	41	76
3020 Dera Ismail Khan	0	0	2	15	4	40	61
3021 Kotla Qaim Khan	1	24	2	0	0	49	76
3022 Ara	1	20	2	1	0	46	70
Total NWFP	4	100	22	49	12	388	575
Grand Total	29	1045	177	248	86	1451	3036

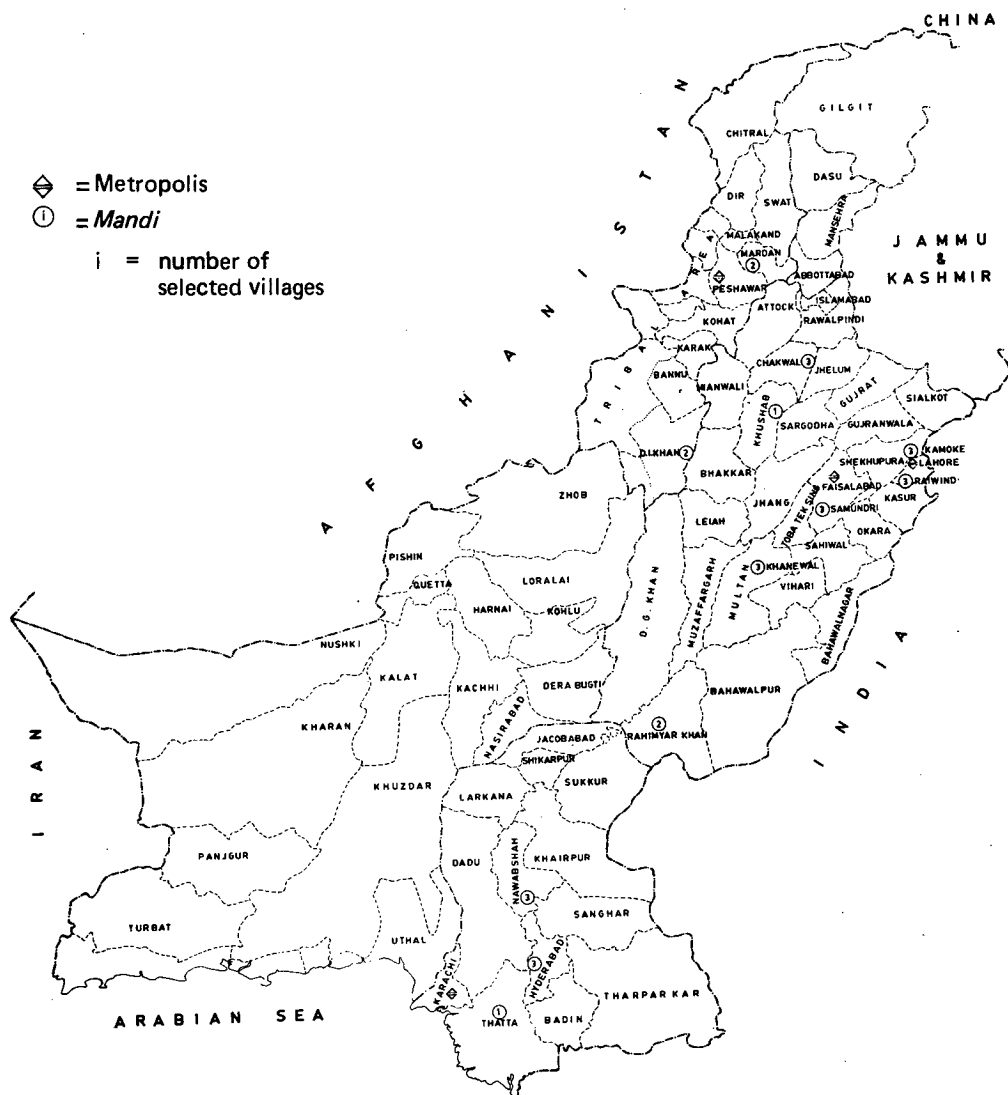


Fig.1. Locations Selected for Sampling in the 1982 Wheat-market Survey

## Chapter 3

### PRODUCTION AND THE MARKETING SURPLUS OF WHEAT<sup>1</sup>

#### Introduction

This chapter deals with the problems related to the supply of wheat by farmers, the various uses of wheat, and the trade channels through which wheat reaches the market. The relevant information has been obtained from the Survey (see the discussion under The Survey in the previous chapter). Even though the results of the 1980 Census of Agriculture were not yet available, it is interesting to note (Table 5) that the distribution of questionnaires by size of farm and by tenurial status is in line with the corresponding distribution in the Censuses. Only the small farmers are under-represented in the Survey.

#### The Production and Availability of Wheat

Wheat is a winter crop in Pakistan. With nearly 70 percent of the country's winter-cropped area devoted to wheat according to the 1980 Census [4], it is easily the dominant winter crop in Pakistan. The 1980 Census also shows that, except in the cases of very small (less than 1 acre) and large (more than 150 acres) farms, the share of land used for wheat tends to fall with an increase in the size of farm. For example, for Pakistan as a whole,

<sup>1</sup>This chapter has greatly benefited from the working papers by T. M. P. van Gaalen [1] and J. M. M. Roks [7].

Table 5

*The Distribution of Farms by Size (in acres) and by Tenorial Status according to the Census of Agriculture of 1972, the Census of Agriculture of 1980 and the Survey*

Farm Classification	Percentage of Farms according to			Percentage of Self- Cultivated Area according to		
	Census	Census	Survey	Census	Census	Survey
	1972	1980	1982	1972	1980	1982
<b>By Size (in acres)</b>						
< 2.5	11	18	7	2	2	1
2.5–5	14	17	17	5	5	6
5–12.5	41	40	46	32	28	32
12.5–25	22	17	23	30	25	29
> 25	11	8	8	32	40	32
<b>By Tenorial Status</b>						
Owners			50			45
Owner-landlords	[42]	[55]	8	[40]	[52]	10
Owner-tenants	24	19	15	31	26	23
Tenants	34	26	28	30	22	22

the share of winter crop-land used for wheat on farms of 1–2.5 acres is 77 percent, and on farms of 50–150 acres, this share is 60 percent. The corresponding figures for the Punjab are 77 percent and 58 percent. The same tendency is reported in the Survey data and in a study by the Agricultural Prices Commission of Pakistan [3]. On the other hand, M. H. Khan's study [2] and that by the Punjab Economic Research Institute [6] do not reveal any such negative correlation between farm size and the share of wheat in the cropped area. Part of the reason for these contrary findings may be that these studies do not relate to the

same time. If wheat area is compared with the cropped area for an entire year, the relation between farm size may be different from what it would be if it is compared with the cropped area during the winter season only. This is because cropping intensity is much higher on small farms than on large farms.

The results of the Survey for the three provinces (viz. the Punjab, Sind and the NWFP) suggest that wheat yield falls on owner-operated farms only slightly with an increase in the size of the farm. However, on farms cultivated by tenants the relation between wheat yield and farm size tends to be positive. These observations suggest that, if only for wheat, the small farm owners may be more efficient producers than tenants, while the reverse seems to hold for large-sized farm owners. However, the *quality* of land appears to be a much more important determinant of wheat yield per acre. This is particularly true for the Punjab. The average figure for that province, in 1982, was 17 maunds per acre.<sup>2</sup> This was one maund less than the yields in the previous year when a bumper crop was harvested. The yields on irrigated farms not affected by salinity, on irrigated areas affected by salinity and on rain-fed areas work out to be 23 maunds, 11 maunds and 7 maunds per acre, respectively. (For more details, see Table 6.) These figures indicate a per acre wheat yield that is lower than those in countries which apply a more advanced agricultural technology. Indeed, even the prevailing low levels of wheat yield per acre in Pakistan may not be sustained, if the relatively high susceptibility of wheat crop to diseases is not effectively brought down. (See the following section.)

The variables briefly discussed above – viz. land used for wheat and wheat yield per acre – determined the volumes of wheat production *and* total wheat availability in 1982.<sup>3</sup>

<sup>2</sup>One maund is equal to 37.3 kilograms (kgs).

<sup>3</sup>This is because the volumes of wheat exports and imports in 1982 were negligible.

Table 6

*Wheat Yield (in maunds per acre) by Type of Land, Size of Farms and Tenorial Status;<sup>a</sup> the Punjab, 1982 Harvest*

Size in Acres	Irrigated Land				Rain-fed Land	
	Non-saline		Saline			
	Owner	Tenant	Owner	Tenant	Owner	Tenant
0-5	24	20	12	9	7	5
5-12.5	24	20	12	7	7	7
12.5-25	23	22	11	8	8	—
> 25	21	23	11	12	6	—

Source: The Survey.

Note: <sup>a</sup>Farmers renting in more than 60 percent of the land they cultivate have been classified as tenants, while others are treated as owners. Lessors have not been included.

However, for the individual sharecropper the amount of wheat available for subsequent disposal among various uses depended not only on the volume of the wheat harvested but also on contractually agreed payments in kind for the use of land.

The practice of paying rent in kind is widespread in Sind where tenants constitute 49 percent of the total number of farmers and use 36 percent of the cultivated area. In the Punjab and the NWFP the practice is less common, because in these provinces only 18 percent and 24 percent, respectively, of the farmers are tenants, who occupy 20 percent of land [4]. Among them only about two-thirds of the rent contracts are settled in kind. The rent is around 40-50 percent of the harvest. A careful examination of the relevant values mentioned in the questionnaires leaves no doubt that this gap is due to under-reporting, by landowners, of the rent received by as much as 65 percent, on the average. Allowing for this factor, we find the following percentages of rent payments: 10 percent in the Punjab, about 40 percent in Sind and 7 percent in the NWFP.

## Uses of Wheat by Farmers

This section presents an analysis of the various uses that farmers make of wheat. The uses distinguished here are 'own' consumption, payment in kind to workers, miscellaneous other uses — e.g. as feed, seed, and expected storage losses — and actual and planned sales of wheat. On average, own consumption by farmers is the largest single use of wheat. It was not easy to derive from the Survey precise estimates of own consumption, because at the time of the interview farmers indicated only the amount of wheat they *intended* to put aside for own consumption. However, the actual own consumption is most likely to be lower than the intended amount reported in the Survey. This is particularly true of the large farmers. As the level of wheat consumption does not vary much across farm households, the unintended surplus per capita is most likely to be higher for the former class of the farmers.<sup>4</sup>

A daily diet of 400 grams of grain already provides two-thirds of the 2,200 calories that adults in rural areas require per day. Hence, it has been assumed that wheat consumption, reported in the Survey, in excess of the quantity needed to allow consumption of 750 grams per adult per day will, for some time, be held in reserve against calamities, but will eventually be sold. According to the Survey, such unintended sales of wheat are quite large and cause a significant rise in the post-harvest marketable surplus. (The estimates of marketable surplus given in the last column of Table 7 have been adjusted for such unintended sales.)

Table 7 presents the distribution of the various uses of wheat discussed above as percentages of the production in the

<sup>4</sup>When examining household consumption pattern in rural areas, it must be kept in mind that household size is a function of its capacity to generate income. The Survey and other studies show clearly that the number of household members increases considerably with the size of farms. Also, households on tenant-operated farms tend to be smaller than on owner-operated farms. Therefore, it is preferable to express the consumption level per household member, or, better still, per adult-equivalent rather than per household.

Table 7

*Estimates of Uses of Wheat as Percentage of  
Total Wheat Production, by Province; 1982*

Provinces	Rent in Kind	Uses of Wheat			
		Own Con- sumption	Payment in Kind to Labour	Miscellaneous Uses	Market Surplus
Punjab	10	39	10	8	43
Sind	38	44	9	7	40
NWFP	7	35	13	15	37

Source: The Survey.

three provinces. The figures are in the nature of approximations, because corrections have been made for the receipts of rent and the use of excessive reserves for own consumption. The share of own consumption is fairly high and there is relatively little difference in this respect between the three provinces. Payments in kind to labour and miscellaneous uses also absorb a significant portion of the wheat harvest, especially in the NWFP. In Sind, however, the share of wheat production devoted to these uses is noticeably lower. As the "other uses" of wheat are still fairly large, the aggregate share of the marketed surplus in wheat production appears to be below the 50 percent mark in the three provinces.

The aggregate figures presented in Table 7 are to be interpreted with care as they do not reflect the very considerable variations in the uses of wheat between owners and tenants, between farms of different sizes and between farms with different qualities of land. These variations have been mentioned in the discussion of the various uses of wheat in this section. However, the heterogeneity of the farm population leads to

severe statistical problems, because the size of the more homogeneous sub-sets of the Survey sample appears to be too small to enable one to derive statistically reliable mean values.

Wheat is also used to pay the wages of seasonal, permanent or other workers. The basis of payment appears to differ with the type of labour. For example, harvest labour is paid on a per acre basis (1.67 maunds of wheat on the average), while the threshing labour is paid a predetermined proportion of the wheat processed (approx. 9 percent). It is interesting to note that artisans are paid a wage which appears to be inversely related to farm size. Farmers, and especially small farmers, prefer to use family labour to employing other workers. They apparently succeed best in this policy for jobs other than threshing and artisan work, as wheat payments for these other jobs rise more than proportionally to wheat production. Employment of permanent workers is concentrated on the largest farms in areas with better soil. Further, it appears that wage payments by tenants are only slightly lower than those by owners on farms of corresponding size. Among the "miscellaneous uses", the proportions of wheat retained for seed and for feed are about equally important: these uses absorb 3–5 percent of the total wheat production in the three provinces. The proportion of wheat retained for seed is presumably much too high. In the Punjab and the NWFP the percentage of wheat reserved for seed tends to increase with farm size. Contributions in kind to meet religious obligations constitute approximately two percent of the harvest. Storage losses are reported to be less than one percent on an average, except in the NWFP, where these losses may be twice as high. (See Chapter 8 for a fuller discussion of this topic.)

Finally, the size of the marketed surplus is determined soon after harvest. Wheat sales by farmers are concentrated in May and June and probably more than 90 percent of the planned sales of wheat materialize by the end of August. In the NWFP this percentage is much lower, possibly because the government

procurement of wheat, which is at its peak in the Punjab and Sind between May and August, is hardly of any importance. The Survey also shows that small farmers tend to sell much sooner after the harvest than the large farmers.<sup>5</sup>

As a result of the practice of payments of rent in kind, the amount of wheat made available by tenants is consistently smaller than that supplied by owners for the same size of farm and the quality of land, even though tenants tend to use a lower proportion of the total production than owners do for payments to labour and miscellaneous uses of wheat. Similarly, marketed surpluses are typically lower on low-quality than on high-quality farmland. The ratio of marketed surplus to total production rises significantly with the size of the farm. However, it should be noted that, of the payments to labour and the miscellaneous uses, there are some items which (as percentage of total wheat production) do not vary with the size of the farm. Examples are: labour for threshing, wheat retained for feed, and contributions made to meet religious obligations. On the other hand, payments to workers other than artisans and threshing workers rise with farm size, while there are other payments which fall with a rise in the size of farms, e.g. payments to artisans. However, the main reason explaining the positive relationship between marketed surplus and farm size is the relatively large share of own consumption in total wheat production on small farms.

Some statistical tests have been conducted of the behaviour of the marketed surplus of wheat in Pakistan on the basis of the Survey data. Some interesting results of this exercise are presented below. The estimated equations relate to the Punjab only, because of the importance of that province in wheat production and because there it is possible to distinguish more precisely between lands of different qualities. The main explanatory

<sup>5</sup>The same conclusion is reached in [5] and [3].

variable is the "net availability of wheat", which is defined as total production net of payments of rent in kind, miscellaneous uses and payments to labour. Equations have been estimated separately for non-saline, saline and rain-fed areas to capture the effects of various factors on the marketed surplus. Comparing

**Non-saline  
Areas**

$$MTS = -4.11 + 0.85NAV + 0.04NAY - 0.09(DPC)^2$$

$$(-0.67) \quad (0.01) \quad (0.02) \quad (-0.03) \quad (1)$$

**Saline Areas**

$$MTS = -0.77 + 0.91NAV - 0.23NAY - 0.18(DPC)^2$$

$$(-2.58) \quad (0.02) \quad (-0.06) \quad (-0.12)$$

$$\bar{R}^2 = 0.98 \quad (2)$$

**Rain-fed  
Areas**

$$MTS = -0.22 + 0.76NAV - 0.21NAY - 0.14(DPC)^2$$

$$(-2.00) \quad (0.03) \quad (-0.06) \quad (-0.03)$$

$$\bar{R}^2 = 0.93 \quad (3)$$

where

- MTS* = marketed surplus of wheat in maunds per family member,  
*NAV* = net availability of wheat in maunds per family member,  
*NAY* = income in rupees (domestic currency) per family member from non-agricultural sources, and  
*DPC* = distance, in miles, to nearest procurement centre.

*Note:* The figures reported in parentheses are SEE values.

equations 1, 2 and 3 note that the sign of the *NAY* coefficient changes with the type of the area. The negative sign of the coefficient in equations 2 and 3 may be explained by the fact

that incomes in the saline and rain-fed areas are much lower than in non-saline areas. At such low income levels, the marginal increment in income may reduce the marketable surplus by raising own consumption of wheat. Also, note that, as should be intuitively obvious, the distance from the farm to the procurement centre (DPC) significantly affects the marketed surplus in two of the three areas. This finding agrees with that of the *Punjab Wheat Disposal Survey* [3], which shows that marketing costs increase with the distance of farms from the procurement centres. Again, as one would expect,  $NAV$  is positively and significantly related to the marketed surplus in all cases. The size of the (negative) constant term in equation 1 reflects a more than proportional increase in the relative marketable surplus with an increase in  $NAV$ , which variable, in turn, is a function of farm size per family member. The latter tendency is less clear in saline and rain-fed areas as the constant terms are statistically insignificant in equations 2 and 3. This may be due to a lesser degree of market orientation. The majority of the farmers in the corresponding areas buy more wheat than they sell, so that the marketed surplus in these cases is negative. Still, because large farms tend to have a larger marketed surplus than small farms do and because large farms occupy a larger area of agricultural land than small farms, the amount of wheat traded in the market originates, to an overwhelming degree, in large farms.<sup>6</sup>

Wheat purchases among farmers are fairly common in the Punjab, but less so in Sind and the NWFP, probably because the volume of wheat produced and marketed is much smaller in the last-named province. For obvious reasons, these purchases of wheat are reported mostly by small farmers, especially by tenants, and in areas with low yields. In the rain-fed areas of the Punjab, purchases of wheat by farmers constitute approximately

<sup>6</sup>It can be estimated that as much as 75 to 80 percent of the marketed surplus of wheat is supplied by farms over 12.5 acres.

75 percent of the total sales. In fact, if the non-agricultural population is also considered, these areas are not self-sufficient in wheat.<sup>7</sup>

### The Sale Channels used by Farmers

In this section, we examine the groups of buyers to whom farmers sell their wheat and the proportions that each of these buyers claims. The Survey distinguishes between the following buyer groups: 'other farmers', village shopkeepers, *beoparis* (i.e. traders in agricultural produce mainly operating on the village level), commission agents (mainly situated in market towns), procurement centres (i.e. public purchasing depots with a price guarantee of Rs 58 per 40 kg for standard quality wheat in 1982). The farmers' cooperatives command a negligible share and have been ignored in the following analysis.

Table 8 presents information on the pattern of sales in the *primary* wheat market, i.e. the sales by farmers to wheat buyers. The figures illustrate clearly the differences in farmers' sales patterns, which are mainly due to the pattern of specialization among wheat traders. For example, *beoparis* and village shopkeepers are typically concerned with the collection of wheat at the village level, where they enlarge the lot size for subsequent sale to other wheat traders. Small farmers tend to sell to them. On the other hand, commission agents and procurement centres engage, on an average, in much larger transactions, while procurement centres are not allowed to buy lots of less than 950 kg. As a result, with higher levels of availability, large farmers tend to sell a larger share to these groups of buyers. When farmers buy wheat from other farmers they may do so as traders, but often also as consumers. The conditions of transactions differ with the category of buyers, mainly because of the different position that each of the trader categories assumes in the wheat-trade chain.

<sup>7</sup>In all the three provinces included in the Survey, there are 3–5 percent of the farmers who engage in "distress sales" of wheat but then have to buy back subsequently to satisfy own consumption requirements.

Table 8.

*The Primary Wheat Market: Shares of Wheat Buyers  
in Sales by Farmers of Different Farm Size: 1982*

(Percentage)

Wheat Buyers	Shares on Farms					Average of All Farms
	Under 2.5 Acres	2.5–5 Acres	5–12.5 Acres	12.5–25 Acres	Over 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
<i>Beoparis</i>	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.

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## Chapter 4

### WHEAT TRADERS AND WHEAT TRADE<sup>1</sup>

#### Introduction

This chapter, in the first two sections, attempts a description of the wheat trade in Pakistan, and of the economic activities of the four groups of private wheat-traders identified in the Survey – viz. village shopkeepers, *beoparis*, commission agents and wholesalers. Their activities consist of price formation, the collection and distribution of wheat, preparation of suitable lots for the market, storage of wheat, and its transportation to the market. These activities need a detailed description because economic agents in the market differ considerably in terms of the transactions they conclude, the way in which they organize their business and the functions they perform.

The third section, which is more analytical, highlights the aggregate magnitudes of wheat passing through various trading channels. Although significant 'structural' differences exist between the three provinces, the main factors determining the size of these trade flows are: the volume of production, the degree of 'self-sufficiency' in wheat and the volume of 'procured'

<sup>1</sup>This subject is dealt with at length in Cornelisse [1].

wheat in each of these provinces. A wheat-trade table for the Punjab presents in more detail estimates of quantities of wheat traded among farmers, various groups of traders and groups of users in that province.

### Characteristics of Wheat Dealers: A Brief Description

In the Punjab and Sind, the four groups of private wheat-dealers show clearly distinct characteristics in terms of the functions they perform. However, the following description is not entirely representative of the situation in the NWFP: shopkeepers in that province have very much in common with their colleagues in the other provinces, but *beoparis* show fewer similarities, whereas commission agents and wholesalers in the NWFP show characteristics which are considerably different from those of their counterparts in the other two provinces. The clearly discernible specialization by groups of traders is not observable in the NWFP. In particular, the activities of all groups of traders resemble those of *beoparis*. This embryonic state of market specialization among wheat traders in the NWFP may be due to the relatively low volume of wheat trade in that province. The characteristics of wheat dealers presented in the following subsections relate to Sind and the Punjab; distinctions in the behaviour of these groups operating in the NWFP are indicated in Table 9.

#### *Village Shopkeepers*

Wheat trade is typically a sideline of village shopkeepers; they buy and sell wheat in very small quantities. A large minority receives wheat as payment for the groceries sold to farm households in the pre-harvest months. Shopkeepers buy wheat primarily from small farmers at a price which is below the prices paid by other traders. They sell mostly to *beoparis* and commission agents. Although the average size of their sales transactions is much larger than that of their purchase transactions, it is only a fraction of the average size of the transactions of other dealers.

Table 9

*Summary of Characteristics of Village Shopkeepers, Beoparis,  
Commission Agents and Wholesalers, 1982<sup>a</sup>*

Characteristics	Shopkeepers	<i>Beoparis</i>	Commission Agents	Wholesalers <sup>j</sup>
Volume Traded	approximately 100 maunds	> 1,000 maunds	approximately 10,000	approximately 10,000 maunds
Purchases/Inflow	farmers	farmers, shopkeepers <sup>e</sup>	farmers, <i>beoparis</i> <sup>f</sup>	commission agents, farmers
Sales/Outflow	<i>Beoparis</i> , Commission agents	procurement centres, commission agents	procurement centres, mills	procurement centres, millers
Purchase lot	1–10 maunds	approximately 100 maunds	approximately 400 maunds	> 2,000 maunds
Sale lot	approximately 20 maunds	up to 400 maunds	500–2,000 maunds	varying widely
Purchase price	Rs 48–54 per maund <sup>b</sup>	Rs 54–56 per maund <sup>b</sup>	Rs 57–75 per maund	Rs 56–74 per maund
Sale price	Rs 53–58 per maund <sup>c</sup>	Rs 58–64 per maund <sup>c</sup>		Rs 58 to 78 per maund

—Continued

Table 9—(Continued)

Workers	Owner only	owner, family member, permanent worker	owner, family member	owner, family members, other workers
Investment per maund of wheat traded	large variance	around Rs 7 per maund <sup>g,h</sup>	below Rs 25 per maund	between Rs 4 and Rs 20
Functions	collection, some credit, small-scale transportation, enlargement of lot size <sup>d</sup>	collection, transport, enlargement of lot size <sup>i</sup>	some transportation, enlargement of lot size credit <sup>i</sup>	transportation, enlargement and reduction of lot size, storage, some price formation

Source: The Survey.

Notes: <sup>a</sup>The table reflects primarily the situation observed in the Punjab and in Sind. In the NWFP private traders tend to have different characteristics. Most of them are described in the other footnotes.

<sup>b</sup>Purchase prices in the NWFP are 25–35 percent higher than in the Punjab or in Sind.

<sup>c</sup>Also sale prices tend to be 25–35 percent higher in the NWFP.

<sup>d</sup>Shopkeepers in the NWFP maintain small stocks of wheat.

<sup>e</sup>In the NWFP *beoparis* buy wheat also from other *beoparis* and through commission agents.

<sup>f</sup>*Beoparis* in the NWFP sell wheat also to other *beoparis* and through commission agents.

<sup>g</sup>In the Punjab the value is between Rs 3 and Rs 7 per maund and in Sind between Rs 7 and Rs 20 per maund.

<sup>h</sup>The value in the NWFP is, on average, as high as Rs 100.

<sup>i</sup>In Sind and in the NWFP the storage function is more developed. Therefore price formation is of some importance.

<sup>j</sup>In the NWFP the transactions, organization of business and functions of this group of traders resemble very much those of *beoparis*.

Shopkeepers run their business almost single-handedly. Even then, quite a few of them find time to work as farmers, tenants or farm labourers; and some of them also trade in products other than wheat. Their area of operation is almost always exactly one village. The distances they travel to collect wheat are short. Their means of transportation, even though primitive, are economical because the roads to farms are generally poor and the size of their purchases is very small.

The shopkeepers have specialized in collecting the small quantities of wheat they purchase into lots of larger size and in moving them to a convenient place from where they can be transported by lorries or other faster means of transportation. Storage is of very little importance for lack of adequate facilities. Also, shopkeepers' role is quite limited in the price-formation process. They are practically price takers in sales transactions; the prices paid to farmers are derived by subtracting a margin from expected sales prices. They provide small amounts of credit to clients which is repaid, together with interest, in terms of wheat. The imputed rates of interest on such loans, according to the Survey, are not 'excessive'.

### *Beoparis*

The *beoparis* operate primarily in the first stages of the wheat-marketing chain, buying mainly from farmers, and only very little from other traders. Their main function also is to collect into larger lots what they buy from individual farmers, and then to transport them to the market-place, but mainly to procurement centres. While village shopkeepers buy mainly from small farmers, *beoparis* buy also from medium or large farmers. According to the Survey, the *beoparis* provide the main marketing outlet for the wheat harvested on farms of up to 25 acres (Table 8). Their purchases are considerably larger than those of village shopkeepers, — approximately 100 maunds<sup>2</sup> on the

<sup>2</sup> A maund is 37.3 kgs.

average, but with a large variance. With larger purchase lots, the handling costs per unit are lower which enables the *beoparis* to pay a reasonable high price to the farmers for their wheat. Of the total amount of wheat so bought, the *beoparis* sell about 50 percent to the procurement centres, while the other half is sold to the millers directly or through commission agents.

Typically, the *beoparis* also trade in products other than wheat, such as sugar, cotton, rice and fertilizer. Their business is mostly organized as a family enterprise. They tend to employ labour on a permanent basis in Sind, while in the Punjab the usual practice is to hire casual workers. The latter's wages range between Rs 15 and Rs 25 per day. The amount of investment per maund of the wheat traded appears to be remarkably low, especially in the Punjab,<sup>3</sup> illustrating the high turnover rate that *beoparis* achieve in their transactions. The procurement depots contribute significantly to this performance by making payment in cash on delivery.

*Beoparis* are price takers in the seller's market because they sell primarily to procurement centres at a fixed procurement price, either directly or, indirectly, through commission agents. Their storage capacity is very limited, so that they have to sell almost immediately after purchasing from the farmers. This also limits their capacity to influence wheat prices after the procurement season is over. They provide very little credit to customers owing to the scarcity of financial means which also forces them to aim at a high rate of turnover.

### *Commission Agents*

Commission agents are 'mediators' between buyers and sellers of wheat. The majority of these agents appear, in the

<sup>3</sup>In the Punjab, the value varies only between Rs 3 and Rs 7 per maund; in Sind, it is between Rs 7 and Rs 20 per maund. In the NWFP the value is considerably higher with an average of approximately Rs 100 per maund.

Survey, to be *katcha arhtis*, i.e. commission agents engaged by sellers of wheat to find suitable buyers for them. Their commission varies between Rs 0.50 and Rs 2.00 per maund.

Although the majority of the sellers engaging commission agents are farmers, a fairly large proportion of these sellers consists of other traders. This illustrates that, in the wheat-trade chain, commission agents are further removed from farmers than the shopkeepers and the *beoparis*.<sup>4</sup> The lots they deal in are normally, but not invariably, larger than those of the *beoparis* and so is the average volume they handle – approximately 10,000 maunds. Their transaction prices also tend to be higher.

Most of the commission agents are also engaged in trading on “own account” and practically all deal in a variety of agricultural products – e.g. wheat, rice, *gur*, sugar, cotton and groundnuts, depending on the area in which they operate. The investment-to-trade ratio for the commission agents is significantly higher than that for the *beoparis*, as the former provide much more credit to the farmers. However, there is not much evidence that this leads to ‘exploitation’ on a significant scale, possibly because commission agents are engaged mainly by large farmers who have a sufficiently strong negotiating position.<sup>5</sup> The bulk of the trade in which commission agents partake is directed towards procurement centres where prices are determined by the government. For this reason their influence on prices is very limited, if any. Although some commission agents collect wheat in villages and move it to *mandis* (market towns) their normal level of operation is at the *mandi* level.

### Wholesalers

The main function of the wholesalers is to collect wheat from other dealers and to distribute it to the final users. They are

<sup>4</sup>The difference in the relative roles of *beoparis* and the commission agents – apart from the matter of the ownership of traded goods – is much less pronounced in the NWFP than in Sind and the Punjab.

<sup>5</sup>See the next section for a definition of the ‘exploitation’ used in this study.

also involved in the activities of transportation, enlargement and reduction of wheat lots. In many other respects wholesalers and commission agents are much alike.<sup>6</sup> For example, their purchase and sale lots, volumes traded and transaction prices are in the same order of magnitude; both concentrate their activities in the *mandi* towns; and their employment patterns are also similar. However, there is a difference between the two, particularly with respect to the composition of purchases in that wholesalers buy primarily from other traders. They occupy a position at the farthest end of the wheat-trade chain. Further, as the Survey suggests, the wholesalers provide credit to the customers much less regularly than the commission agents do. However, they appear to hold stocks of wheat more often and for longer periods of time than the other traders, possibly because they sell a considerable share of wheat to millers who have an interest in a regular supply of wheat over time. Because of their wheat-storage function, the wholesalers tend to sell wheat during the months after the procurement season, which gives them a leverage to influence the price of wheat in the post-procurement period.

### *Economics of the Wheat Traders' Activities*

The characteristics and activities of the four groups of private traders recounted in the preceding sections are summarized in Table 9. A comparison of the characteristics of these groups shows clearly the 'division of labour' between these groups in terms of the area of operation, the size of their purchases, etc. The position of each group in the wheat-trade chain appears to be clearly defined, with village shopkeepers at one end of the chain and wholesalers at the other end. In the NWFP, however, with a much smaller volume of wheat trade there, the trade hierarchy does not go much beyond the *beoparis*.

The Survey also allows an evaluation of the characteristics of the wheat market. Several observations can be made in this

<sup>6</sup>In the NWFP, however, wholesalers resemble *beoparis* rather than commission agents.

connection. Firstly, it appears that private wheat-traders aim at maximizing their income *by raising the rate of turnover*, subject to the overall storage-capacity constraint. *Buying and selling transactions are completed in rapid succession and speculative hoarding of wheat by the traders can be regarded as insignificant.* Secondly, *mark-up charges appear to be reasonable* owing to keen competition among the wheat traders. During the procurement season (May till August) wheat traders are reduced to the position of price takers in both the buyer's and the seller's markets. As such, the market price of wheat gravitates towards the procurement price. Any deviations from this price are mostly local. The size of the variance is related to the lot size and the distance to the nearest procurement centre.<sup>7</sup> The farmer's price is lowered when, given the distance between the farm and the procurement centre, the lot size decreases, or, given the lot size, the distance increases. It follows that, given the distance between the farm and the procurement centre, small farmers tend to obtain lower prices for their wheat than larger farmers do. However, thanks to the existence of the procurement price, which is widely announced, the private traders cannot 'exploit' the farmers, except by misinformation about the procurement price or about the cost of transportation from the farm-gate to the procurement centre. Thirdly, while the above-mentioned factors lead to differences between wheat prices as reported by farmers, *the variance of these prices appears to be very moderate.* Fourthly, *there are no signs that wheat traders provide credit to farmers on a large scale* and thereby enlarge the scope for 'exploitation'.<sup>8</sup> Fifthly it can be added that the various activities performed by the groups of traders distinguished above seem *to meet the requirements of different categories of farmers.*

<sup>7</sup>These are the main determinants of marketing costs per maund. Very useful additional information is presented in [2].

<sup>8</sup>It is interesting to note that in the NWFP, which is a deficit province in wheat and where prices are 25–35 percent higher than in the Punjab and Sind, the restrictions on inter-provincial movement of wheat (now removed), confer 'unearned rent' on the (large) farmers there.

An impression of the structure of the wheat market can often also be obtained from *the differential between the price obtained by the producers and the price paid by the consumers* where, of course, a difference between the two prices may suggest, though not decisively, a modicum of competitiveness. The problem with the measurement of the consumer's price is that it is not a single figure, because consumers buy wheat as well as wheat flour and because prices show seasonal fluctuations. If the average price paid to the farmers in the Punjab and in Sind is put at Rs 55 per maund and in the NWFP at Rs 70 per maund, the ratio of this price to the price of wheat reported by the consumers appears to vary between 85 percent and 90 percent. These are high figures; but then it must be kept in mind that most of the wheat is bought shortly after the harvest. Wheat flour, however, is bought much later in the season, so that storage costs are more important in this case. For this reason and because of the "grinding margin" — the cost of grinding wheat into flour — the ratio of the producer's wheat prices to the open-market flour prices is around 70 percent in the Punjab and the NWFP, while it is closer to 60 percent in Sind. The larger price differential is in line with these additional costs.

Any inference from these 'findings' about the efficiency of the wheat market is essentially a value judgement about what one considers to be a reasonable rate of return in wheat trade. However, there is no doubt that, *under the 'umbrella' of the procurement prices and the procurement centres*, private wheat traders are constrained to perform a socially and economically useful function. As the process of price formation is dominated by government activities, private traders engage in what may be loosely termed "retrograde pricing" — i.e. the purchase prices are set by subtracting from the sale price, determined by other market actors, a margin for their services.<sup>9</sup> The government

<sup>9</sup>This situation has great advantages for the farmers, however, because the acceptable price can be determined easily and is generally known.

assumes the responsibility also for the storage and long-haul transportation of wheat. It remains to be seen as to how private traders will perform if a greater share of these important functions is left to them in the event of a partial withdrawal of government intervention in the wheat market.

## The Network of Wheat Trade

This section unravels the complex network of the wheat trade in the provinces of the Punjab, Sind and the NWFP. For the Punjab the analysis goes into more detail with the help of Table 10 which features the quantities of wheat involved in the transactions between farmers, the various types of private traders identified in the foregoing section, procurement centres and users of wheat. It also charts out the various 'trajectories' which the traders with a maund of wheat can follow from the producer to the final user of wheat, and points out the reasons why one may choose one particular trajectory rather than another. An attempt was made to set up similar tables for Sind and the NWFP, but, unfortunately, this did not prove to be fruitful.

### *Wheat Trade in the Punjab*

The Survey provides information on the patterns of purchases and sales within the wheat-trade network. It gives a clear impression — at least in the Punjab — of the shares of the various market actors in the wheat trade. The Survey looks at most transactions of wheat from two angles: from the point of view of the sellers (e.g. farmers and private traders) and from the point of view of the buyers (e.g. private traders, millers and consumers). Thus, for example, in the Punjab the flow of sales from the *beoparis* to the wholesalers constitutes, on average, approximately 3 percent of their total sales and 25 percent of the total purchases by the wholesalers. Such a two-sided view can be obtained of most of the transactions between the various actors in the wheat market.

Table 10

*The Network of Wheat Trade, Punjab: 1982 Harvest*

('000 tons)

( 000 tons)

	Wheat Traders					Wheat Users					
	Shopkeeper	<i>Beoparis</i>	Small	Large	Wholesalers	Procurement	Govt	Private	Wheat	Surplus	Total
			Commission Agent <sup>a</sup>	Commission Agent <sup>a</sup>							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
Wheat Traders											
1	0	16	12	8	0	0	0	0	1	0	37
2	0	0	135	115	30	579	0	243	31	0	1133
3	0	51	19	171	46	315	0	124	110	0	836
4	0	0	0	0	0	308	0	152	95	0	555
5	0	0	0	0	0	67	0	28	25	0	120
6	0	0	0	0	0	0	829	96	0	1554	2479
Farmers											
Receipts in Kind	37	1066	670	261	44	1210	0	107	3561 <sup>b</sup>	0	6956
	0	0	0	0	0	0	0	0	842	0	842
Total	37	1133	836	555	120	2479	829	750	4665	1554	12958

Notes: <sup>a</sup>"Small" and "large" commission agents display different trade patterns. The quantity of 35,000 maunds as the amount of wheat handled distinguishes "large" from "small" commission agents.

<sup>b</sup>Mainly own consumption, but includes some sales by farmers to consumers and retained seed and feed.

In order to assess the relative importance of particular actors, or particular flows between actors, one needs to know the absolute magnitudes of the total volume of the wheat trade. Such information is available from official documents only for such aggregates as the production of wheat, and the amounts of wheat procured and released to mills. Furthermore, the Survey allows us to estimate the consumption of wheat and flour bought in the open market and of the flour bought in ration shops by multiplying the figures of per capita consumption of different population groups by the corresponding numbers. These aggregate figures, along with the percentage shares in transactions described in the previous paragraph, can be used to draw a quantitative picture of the network of the wheat trade (Table 10).<sup>10</sup>

The design of the table is similar to that of an input-output table: the columns in this case describe purchases by the actors while the rows indicate their sales. A striking characteristic of the trade pattern emerging from the table is the triangular pattern of trade among wheat dealers. It can be verified from the table that approximately 23 percent of the turnover of all private traders consists of mutual trade and that nearly half of the procured wheat is bought from wheat dealers. Also, it appears that the bulk of the wheat trade is handled by the *beoparis* and the commission agents. The table brings out the overwhelming influence of the procurement system on the wheat market. If the volume of marketed wheat in the Punjab is put at 3,400,000 tons, the procured volume comes to nearly three quarters of that amount.

Note that the largest flow in the table travels the shortest distance (Row 6, Column 8). The amount of 3,312,000 tons also includes sales by the farmers to the consumers; the net volume of own consumption is estimated to be approximately 3,041,000 tons, or some 39 percent of the production. Payments in kind to

<sup>10</sup>For a description of the calculation procedure, see Cornelisse [1].

labour and to meet religious obligations (Row 7) constitute another 10.8 percent. This shows once more that even in a relatively commercialized province, such as the Punjab, most of the wheat produced does *not* leave the village where it is produced.

Next to other final uses, the north-east quadrant indicates the volume of wheat produced in excess of consumption (Column 9). With the ban on interprovincial private trade still in effect in 1982,<sup>11</sup> the surplus was first acquired through the procurement system and then transported to other (deficit) provinces.<sup>12</sup>

### *Wheat Trade in Sind*

The attempt to construct a wheat-trade table for Sind, like the one for the Punjab, remained unsuccessful because of the variations in the buying and selling patterns of the main actors in the Sind wheat market. As such, the shares of the various buyers' and sellers' groups in the sales and purchases of individual groups of traders could not be derived. Without this essential component, the wheat-trade table could not be constructed. Yet, whatever information was available did suggest a triangular trade pattern among the wheat dealers in Sind as well.

The variables and parameters describing the structure of the wheat trade in Sind are presented in Table 3. They show that 30 percent of the harvest in 1982 (i.e. some 604,000 tons out of approximately 2,000,000 tons) was procured. As the marketed surplus in Sind is about 40 percent of the production (Table 7), it appears that, as in the Punjab, the procurement system in Sind absorbs three quarters of the volume of wheat appearing in the market. All this, plus 'imports' of 102,000 tons from the Punjab,

<sup>11</sup>The ban was lifted in 1983.

<sup>12</sup>In a comparable table for a deficit province, the inflow of wheat from elsewhere would appear in an additional row in the lower part of such a table.

is consumed within Sind. The Survey reveals that among the consumers in Sind, the magnitude of the ration flour consumed, in 1982, was estimated at about 210,000 tons, which implies that the balance ( $604,000 + 102,000 - 210,000 = 496,000$  tons) was sold to the millers for sale in the open market.

In Sind, with its higher degree of urbanization, production and consumption areas stand wider apart than in the Punjab. Consequently, wheat is transported in bulk. This provides a better opportunity of grinding wheat in bulk in the modern roller flour mills, which are more efficient than the small-scale mills (see Chapter 5). As a result, the proportion of wheat to flour in consumption is considerably lower in Sind than in the Punjab.

### *Wheat Trade in the NWFP*

In the NWFP, the various actors in the wheat market, identified earlier in this chapter, apparently do not behave like their counterparts in the other two provinces. The average shares of the other groups in purchases and sales, as derived from the Survey, are not statistically reliable. The triangular trade pattern found in the Punjab and Sind does not appear to exist in the NWFP. In other words, dealer groups do not seem to have a well-defined position in the trade chain (Group A may sell to Group B, Group B to Group C and Group C to Group A again); and transactions may move in opposite directions (members of Group A sell to Group B which sells again to other members of Group A). It follows that the distinct specialization among the different actors in the wheat market observed in the Punjab and in Sind does not prevail in the NWFP.

There may be two possible explanations for the 'deviant' behaviour of the wheat-trade flows and the wheat traders in the NWFP. Firstly, the level of production there is too low – the estimate of the wheat harvest in the NWFP in 1982 was 960,000 tons – to support a trade system with a high degree of division

of labour. Secondly, the procured wheat — only 21,000 tons, or just over two percent of the harvest — has only very limited influence on the organization of the market and does not require of the market actors the degree of specialization they have achieved in the other provinces. (Table 3 provides more information on the relevant variables.)

The low level of wheat procurement in the NWFP is a result of the very considerable gap between wheat production and wheat consumption. Even with the large amount of the wheat transported by the procurement/distribution system from the surplus-producing Punjab, wheat prices are much higher in the NWFP than in the Punjab or Sind. In fact, the prices paid to the farmers, according to the Survey, are as high as Rs 70 per maund — see Table 9 for prices holding in the other provinces — so that the procurement price of Rs 54.12 per maund is not competitive. The inflow of wheat into the NWFP in 1982 was estimated at 750,000 tons, which was at least 44 percent of the total consumption in the province. According to the Survey, only 90,000 tons of wheat were distributed in the form of ration flour; the rest was sold to flour mills for release to the open market. Furthermore, a part of the domestically produced wheat is ground before it reaches the consumer, so that the wheat-to-flour ratio in the NWFP is only 0.89 as compared with 3.16 and 1.86 in the Punjab and Sind respectively.

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## Chapter 5

### OPERATION AND PROFITABILITY OF WHEAT-MILLING ACTIVITY<sup>1</sup>

The present chapter focuses on the profitability of the wheat-milling activity in Pakistan. The 'sensitive' nature of these matters became obvious during the execution of the Survey: it was hard to find millers willing to be interviewed. They hesitated when answering questions relating to their commercial operations and the cost structure.<sup>2</sup>

#### Operation of the Wheat-milling Sector

##### *Technical Operations*

Although the distinction is a crude one, three main types of wheat-flour mills can be identified in Pakistan, viz. *chakkis*, modern grinding plants and roller flour mills. *Chakkis* are a relatively primitive mode of wheat milling. Power is supplied traditionally by bullocks, but use is being increasingly made of electric and, especially, diesel-engines. *Chakkis* normally grind wheat held by farmers and others for own consumption, and are consumer-oriented, with a low grinding capacity – i.e. mostly less than 100

<sup>1</sup>This chapter is largely based on a paper by J. G. P. Jansen [2].

<sup>2</sup>It may be recalled that roller flour mills were nationalized in 1976 and placed under the control of provincial food departments. This episode did not last long, for denationalization followed in 1977.

maunds<sup>3</sup> per day. The flour they produce, however, is greatly preferred by the consumers to the milled flour because of its better taste and high nutritional value.

Modern grinding plants use more sophisticated equipment and also do the washing and cleaning; and the flour they produce is comparable to that of the roller flour mills, with which they compete. Although part of their production is consumer-oriented, modern grinding plants link up with the wheat flour trade also as their daily capacity usually varies between 250 maunds and 2,700 maunds per day.

The main product of the mills is, of course, flour, but the grain skin (bran) which is removed in grinding is also sold as cattle feed. One of the factors determining the quality of flour from modern mills is the percentage of bran that has been removed. Other factors are the quality of wheat and the quality of blending, cleaning, tempering (i.e. controlling humidity) and grinding during the milling process. By far the most popular grade of flour in Pakistan is *aata*, which is used for *chapatis* (i.e. flat thin cakes of unleavened bread). Other much less common grades are *maida* (extremely fine flour) and *suji* (coarsely ground flour in granules) used for bread and cakes, respectively.

Because of their relatively simple technology, village *chakkis* do not produce all the varieties of flour. Although lagging in technological refinement, the *chakkis* enjoy considerable share in the total quantity of the wheat milled. Precise figures regarding the distribution of wheat flour by the three types of mills distinguished here are not available, but a crude indication of their relative importance can be had from the consumption figures presented in Table 3. They show that the amount of wheat either held in reserve or purchased for own consumption and milled in the *chakkis* forms the bulk of the total wheat consumption in Pakistan. It is 75 percent in the Punjab, 66 percent in Sind and 47 percent in the NWFP.

<sup>3</sup>A maund is equal to 37.3 kg.

### *Commercial Operations*

There are three main modes of commercial operation which coincide only partly with the three technologies distinguished above. One of these operations is subcontracting by which wheat, ground according to specifications at an agreed price, is supplied by a private individual or enterprise. This agreed price is called the "grinding margin", which is often expressed in kind. This mode of operation is the predominant one among the village *chakkis*. In subcontracting, the miller typically does not, at any stage, become the owner of wheat.

The next type of commercial operation relates to milling for the government. This operation takes two forms: (i) the milling of procured wheat (without bran extraction) into whole-meal flour, which is meant for distribution through ration shops; and (ii) the milling of procured wheat, with bran extracted, into flour, which is then sold in the open market to regulate seasonal price variations. In the latter case, mills are paid a margin that covers the full cost of the milling operations. A different kind of arrangement applies to the first case, which is also much more important in terms of the amounts involved. In this case, the release price of wheat is fixed by the government. In the Punjab, in 1982, this price was Rs 155.40 per bag of 100 kg or Rs 58 per maund, whereas the procurement price was Rs 58 per 40 kg.<sup>4</sup> On delivering the ration flour the miller is paid a fixed price of Rs 138.92 per bag of 85 kg, or Rs 61 per maund, implying a grinding margin of only Rs 3 per maund for this operation.<sup>5</sup> These arrangements are like subcontracting, although the procedure as a whole resembles milling on own account, where mills buy wheat and sell flour at their own risk. These operations prove economical to the government because it is in the millers' interest to meet the target date by ensuring rapid processing and

<sup>4</sup>The miller has to make payment through bank transfer one day before the scheduled date.

<sup>5</sup>In Sind, in 1982, the grinding margin in milling for the government was Rs 3.5 per maund. The grinding margin has been raised since then.

a high recovery rate at a relatively low cost. On the other hand, with the grinding margin fixed, millers strive to maximize output in weight units regardless of the quality of flour. Releases of wheat for milling on government account are concentrated in the period from November-December to April-May when wheat and flour become increasingly scarce in the open market.

Finally, millers can operate on "own account", that is they can buy wheat, process it and sell its products directly in the open market. Obviously, the profitability of this mode of operation depends not only on the milling cost, but also on the prices of wheat and flour. Wheat can be purchased in the free market at the going price. Large mills obtain wheat mainly from wholesalers and commission agents, whereas medium-sized mills buy more often from farmers. The government can influence this type of operation directly, as millers require a licence for making own-account transactions in the open market. Apparently, this requirement is honoured more often in breach than in observance.

### *Milling Capacity, and Distribution and Utilization of Milling Operations*

Of the three milling technologies distinguished above, the information on installed capacity is available only for modern grinding plants and roller flour mills [4]. It is estimated that the total annual milling capacity of these two types of technologies in 1980 amounted to 4,856,400 tons in the Punjab, 2,162,700 tons in Sind and approximately 1,100,000 tons in the NWFP. When these figures are compared with the estimates of wheat-flour consumption of 1,580,000 tons, 730,000 tons and 910,000 tons respectively in 1982-83 (Table 3), it becomes clear that considerable excess capacity existed in the wheat-milling units, including the *chakkis*, particularly in the Punjab.

The Survey provides useful information on capacity utilization by milling capacity. Table 11 shows that average capacity

Table 11

***Capacity Utilization by Classes of Total Installed Milling  
Capacity in the Punjab, Sind and the NWFP***

Installed Milling Capacity (m.p.d.)	Percentage of the Installed Capacity Utilized in		
	Punjab	Sind	NWFP
0—10	61	100 <sup>a</sup>	No Observation
10—60	34	83	33
60—300	13	46	53
300—2700	86	81	No Observation
>2700	31	40	52

*Source:* The Survey.

*Notes:* When interpreting the figures given in this table it should be kept in mind that these are first approximations only.

<sup>a</sup>Probably over-estimated.

m.p.d. = maunds per day.

utilization is lower in the Punjab than in Sind. The most efficient capacity utilization is in units having an installed milling capacity of 300—2700 m.p.d. in the Punjab; in Sind it is in units whose installed milling capacity is 10—60 m.p.d.

The Survey also provides information on the storage capacity available to the millers. Table 12 shows that storage capacity tends to increase with the milling capacity. More remarkable, however, is the relatively low ratio of storage-to-milling capacity which implies that millers hold stocks that allow operation at full capacity for only a few days. The obvious reason is the high cost of maintaining stocks and the unpredictable variation in prices which render stock-building a hazardous and costly proposition.

Table 12

*Average Own Storage Capacity (in maunds) in Relation to Daily Milling Capacity in the Punjab, Sind and the NWFP*

	Punjab		Sind		NWFP	
Milling Capacity (m.p.d.)	Storage Capacity (maund)	Ratio of Storage Capacity to Daily Milling Capacity	Storage Capacity (maund)	Ratio of Storage Capacity to Daily Milling Capacity	Storage Capacity (maund)	Ratio of Storage Capacity to Daily Milling Capacity
0-10	100	14.2	65	9.3	No Observation	
10-60	91	2.5	182	5.4	145	5.8
60-300	300	2.7	396	4.0	4,075	45.3
300-2700	21,000	19.1	17,730	8.3	No Observation	
> 2700	61,689	29.9	16,250	1.8	35,512	7.1

Source: The Survey.

Note: m.p.d. = maunds per day.

### Profitability of the Wheat-milling Activity

This section discusses the profitability of the wheat-milling activity by province, the milling capacity and the commercial mode of operation. The bulk of the data for the analysis are derived from the survey of millers.

#### *Gross and Net Revenue Margins in Wheat Milling*

The primary component of the total revenue from the milling process is the gross revenue margin. In the case of private subcontracting this margin is simply the agreed price per unit of wheat input paid to the miller for processing wheat into flour. In the case of government and own-account milling, the gross

revenue margin is defined as the difference between the price obtained for flour and the price paid for wheat.

The gross revenue margins obtained in private subcontracting, as estimated from the Survey, are presented in Table 13. Generally speaking, these margins are higher in Sind than in the Punjab. Also, the gross revenue margin obtained in dealing with the government for the production of ration flour is higher in Sind (Rs 3.5 per maund) than in the Punjab (Rs 3 per maund).

Table 13

*Average (gross) Revenue Margins in Private Subcontracting,  
by Province and Milling Capacity*

Milling Capacity (maunds per day)	Average (gross) Revenue Margins (per maund)		
	Punjab	Sind	NWFP
0-10	Rs 3.18 + 1 seer	Rs 5.00 + 1 seer	No Observation
10-60	Rs 3.64 + 1.65 seer	Rs 4.67 + 1 seer	Not Applicable
60-300	Rs 3.83 + 0.92 seer	Rs 4.83 + 1 seer	Not Applicable
300-2700	Rs 5.00	Rs 3.80 + 0.25 seer	No Observation
> 2700	Not Applicable	Rs 5.00	Not Applicable

Notes: 1. One seer is 1/40th of a maund, or approximately 0.93 kg.  
2. Figures in seers represent amounts of wheat deducted by millers per maund of the wheat milled to compensate for the shortfall in the weight of the flour on account of moisture and other losses in the milling process.

Gross revenue margin from milling on own account are much more difficult to estimate because of the problems associated with making the necessary adjustments for fluctuations in the prices of wheat and flour of different grades, through an application of proper weights and a suitable allowance for wheat loss in the milling process. As such, the figures given in Table 14 are only indicative of the order of magnitude.

Table 14

*Approximations of Average Gross Margins (in Rs per maund)  
in Milling on Own Account, by Province and Milling Capacity*

Milling Capacity (maunds per day)	Average Gross Margins		
	Punjab	Sind	NWFP
0-10	No Response	19	No Observation
10-60	No Response	14.5	16.5
60-300	No Response	11	No Response
300-2700	12.5	15	No Observation
> 2700	12.5	13	No Response

Source: The Survey.

The gross revenue margin from milling for the government must be corrected only for the losses incurred in the milling process and on account of storage, transportation, handling and processing.

In own-account milling, the loss of weight is mainly due to extraction of bran. On the other hand, income from the sale of bran is a positive item. The net revenue margin in wheat milling, expressed per weight unit, can be written as follows:

$$\text{Net Revenue Margin} = P_f - P_w - (r_l + r_b)P_f + r_b p_b$$

where  $P_f$  is price obtained for flour;  $P_w$  stands for price paid for wheat;  $p_b$  represents price obtained for bran;  $r_l$  is percentage of wheat losses during handling by mills; and  $r_b$  is the rate of bran removal (in percentage).

This expressions does not take into account the degree of humidity of wheat which falls with the length of the period between harvesting and processing and strongly affects the weight-reduction rate and the net revenue margin. Proceeds from bran

depend on the bran price (Rs 38 per maund here) and the bran removal rate. The bran removal rate, which is zero for ration flour (*aata*), is approximately 10 percent for the private sector. Thus sale proceeds from bran removal amount to Rs 3.80 per maund in own-account milling operation. The information on wheat losses at the hands of millers, obtained from the Survey, suggests that the *chakkis* have the best score on this account, the modern grinding plants fare the worst, and the roller flour mills take an intermediate position. However, the dispersion around the mean values is so large that a distinction between size classes for the present purpose is not warranted. Therefore, uniform, approximate losses of 2.5 percent, 3.5 percent and 5 percent are applied here for the Punjab, Sind and the NWFP, respectively.<sup>6</sup> The net revenue margins so calculated are presented in Table 15.

### *Variable and Fixed Costs of Milling*

This subsection presents estimates of the variable costs and fixed costs in the wheat-milling activity. The variable costs consist of processing costs and variable labour costs, while fixed costs denote fixed labour costs, depreciation and the cost of credit. The corresponding cost estimates are given in Table 16. Note that *total* costs decline with an increase in the milling capacity, while fixed costs fall more rapidly with rising production than variable costs. Especially, the fixed labour costs seem to be subject to economies of scale. The latter phenomenon may partly be more apparent than real, because own labour and family labour, which are of greater importance in small mills, have been valued here at the going wage. Nevertheless, there is every reason to believe that even if the labour costs in small mills are lower than the ones reported in Table 16, the general tendency for the costs to decline with larger volumes will

<sup>6</sup>The report by M. A. Chaudhry [1] presents different figures: 3.4 percent, 3.5 percent and 2.1 percent, respectively. Reliability of the estimates mentioned in the main text is not considered superior. The estimated rates have nevertheless been applied for reasons of consistency.

Table 15

*Net Revenue Margins and Profit Rates (in Rs per maund) by Province and Milling Capacity*

Milling Capacity (maunds per day)	Punjab			Sind			NWFP		
	Govt Account	Private Subcontracting	Own Account	Govt Account	Private Subcontracting	Own Account	Govt Account	Private Subcontracting	Own Account
NET REVENUE MARGINS									
0-10	n.a.	5.38	No. Response	n.a.	8.00	9.15	—	No Observation	—
10-60	n.a.	5.74	No Response	n.a.	6.67	6.29	n.a.	n.a.	7.55
60-300	n.a.	5.67	No Response	n.a.	6.83	3.27	n.a.	n.a.	No Response
300-2700	1.48	5.00	6.55	1.35	4.30	6.66	—	No Observation	—
> 2700	1.48	n.a.	5.55	1.35	5.00	5.06	-0.08	n.a.	No Response
AVERAGE PROFIT RATES									
0-10	n.a.	— .86	No Response	n.a.	-5.01	-3.86	—	No Observation	—
10-60	n.a.	-1.84	No Response	n.a.	-5.95	-6.33	n.a.	n.a.	-4.04
60-300	n.a.	— .29	No Response	n.a.	-2.45	-6.01	n.a.	n.a.	No Response
300-2700	-3.25	.27	1.82	-4.41	-1.46	0.90	—	No Observation	—
> 2700	-2.31	n.a.	2.75	-4.38	-0.73	-0.67	-6.67	n.a.	No Response

Source: The Survey.

Note : n.a. = Not available.

Table 16

*The Composition of Variable and Fixed Costs (Rs per maund),  
in Mills by Milling Capacity and Province*

Province	Types of Costs	Milling Costs (Rs per maund) in Mills having Milling Capacity of				
		0-10 m.p.d	10-60 m.p.d	60-300 m.p.d	300-2700 m.p.d	> 2700 m.p.d
Punjab:	<i>Variable Costs</i>					
	Processing	2.29	3.20	3.57	2.38	2.56
	Variable Labour <sup>a</sup>	0	0.16	0.14	0.18	0.10
	Total Variable Costs	2.29	3.36	3.71	2.56	2.66
	<i>Fixed Costs</i>					
	Fixed Labour <sup>b</sup>	3.12	3.45	1.67	1.89	0.61
	Depreciation <sup>c</sup>	0.71	0.74	0.58	0.28	0.52
	Credit <sup>d</sup>	0.12	0.03	0	0	0.01
	Total Fixed Costs	3.95	4.22	2.25	2.17	1.14
	Total	6.24	7.58	5.96	4.73	3.80
Sind:	<i>Variable Costs</i>					
	Processing	7.35	6.97	5.59	4.90	3.74
	Variable Labour <sup>a</sup>	0	0.88	0.96	0.13	0.09
	Total Variable Costs	7.35	7.85	6.55	5.03	3.83
	<i>Fixed Costs</i>					
	Fixed Labour <sup>b</sup>	4.46	4.11	2.11	0.52	0.56
	Depreciation <sup>c</sup>	1.01	0.62	0.58	0.17	1.17
	Credit <sup>d</sup>	0.19	0.04	0.04	0.04	0.17
	Total Fixed Costs	5.66	4.77	2.73	0.73	1.90
	Total	13.01	12.62	9.28	5.76	5.73
NWFP:	<i>Variable Costs</i>					
	Processing	No Obser- vation	7.42	8.69	No Obser- vation	4.75
	Variable Labour <sup>a</sup>	"	0.22	0.78	"	0
	Total Variable Costs	"	7.64	9.47	"	4.75
	<i>Fixed Costs</i>					
	Fixed Labour <sup>b</sup>	"	2.98	2.70	"	1.06
	Depreciation <sup>c</sup>	"	0.89	0.52	"	0.57
	Credit <sup>d</sup>	"	0.08	0	"	0.21
	Total Fixed Costs	"	3.95	3.22	"	1.84
	Total	"	11.59	12.69	"	6.59

Source: The Survey.

Notes: <sup>a</sup>consists of wage costs of casual workers.

<sup>b</sup>consists of managerial, technical and admin. workers, including own labour and family labour

<sup>c</sup>indicates that depreciation rates are assumed 10 percent for building and machines, 20 percent for transportation equipment.

<sup>d</sup>excludes opportunity costs of own capital.

m.p.d. = maunds per day.

still persist.<sup>7</sup> This suggests that as the road system improves, *chakkis* will find it increasingly difficult to compete with large mills. Commercialization of wheat production will, of course, add to this trend. For the near future, however, the products of the two technologies – viz. *chakkis* and modern milling plants – are sufficiently “differentiated” to warrant a continued peaceful coexistence of both technologies.

Also note that the cost figures for all mill sizes are lower in the Punjab than in Sind or the NWFP. This observation corresponds with the differences in gross milling margins for private subcontracting in the Punjab and Sind, as Table 13 shows. Finally, the present cost estimates can be compared with those of the Punjab branch of the Pakistan Flour Mills Association [3] for a “standard mill” in 1982 with a daily capacity of 100 tons, or approximately 2,700 maunds. If the latter estimates are grouped according to the division made in Table 16, the following pattern emerges: processing costs (all electricity charges, maintenance costs, welfare expenses and insurance) = Rs 2.47; variable labour costs (casual labour only) = Rs 0.16; fixed labour costs (all other labour) = Rs 1.28; depreciation (also including office equipment) = Rs 0.48; credit costs = Rs 0.14; and other costs (not included in the tables above) = Rs 0.19. With only minor exceptions, these figures agree remarkably well with the results obtained from the Survey for mills with a capacity of 300–2,700 maunds and more than 2,700 maunds per day in the Punjab. However, as the table shows these cost estimates do not seem representative of the categories of the same size in other provinces.

### *Profitability of the Wheat-milling Activity*

Table 15 sets out the relevant information on net revenue margin and the profit rates by milling capacity for each of the three provinces. It can immediately be seen that the net revenue margins for private subcontracting and own-account milling

<sup>7</sup>This tendency, though less clear, can also be observed in the case of the gross margins for private subcontracting (Table 13).

are of the same order of magnitude in the three provinces. Net margins seem to be lower in the Punjab than in Sind. This corresponds with the pattern of milling costs, implying a cost-plus-mark-up pricing behaviour.

The net revenue margins calculated for milling on government account are much lower than the margins obtained in milling for the private sector. In reality the situation may be less dramatic, as these net margins are very sensitive to the correction applied for wheat losses (see under "Gross and Net Revenue Margin in Wheat Milling" the formula applied here). The weight loss may be much smaller in the case of *aata* (ration flour) which is produced in the months prior to the new harvest when wheat is very dry and moistening is needed for getting good-quality wheat flour. The Pakistan Flour Mills Association puts the net revenue margin at Rs 3 per maund. Even then, the remuneration in milling on government account is much less than that in private subcontracting.

Moving down to the lower part of Table 15 it may be noted that, by and large, the profit rates are *negative*. Here it must be repeated that in reality smaller mills may well have lower costs, as explained in the preceding section. However, the net revenue obtained from compulsory production of *aata* (ration flour) seems to be too low to cover the milling costs. Only if capacity utilization increases considerably so that costs are reduced further can the milling activity become profitable for the most efficient mills. How do the mills engaged in government-account milling survive? There may be several ways of making a living. Firstly, the millers tend to tinker with electricity meters, play with weights and maintain low quality standards, and so on. Secondly, even if the miller covers only variable costs and a part of the fixed costs, it may still be profitable for him to operate with the existing excess capacity as long as the profits on his sales in the free market remain high enough. Thirdly, firms which have obtained a licence have direct access to the free market, but it is widely known that others operate in the free market

even without a permit. The prevalence of such illegal practices suggests that there is a strong case for raising the grinding margin.

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## Chapter 6

### THE RATION-SHOP SYSTEM

The objective of the wheat-rationing system is to provide a minimum quantity of wheat at a subsidized price to the population in Baluchistan and the NWFP and to the urban population in the Punjab and Sind. In principle, the system is not selective; all heads of households in Pakistan can apply for a ration card.<sup>1</sup> The card entitles a family to receive fortnightly 2.4 kg of flour for each family member who is older than 10 years and half that amount for those younger than 10 years. (Figures relate to 1981-82.)<sup>2</sup> The purchase of ration flour can only be made at the ration shop indicated on the card. Ration flour is bought mostly during the period from October to March/April when flour prices in the open market are at their seasonal high. Ration flour is sold to ration-card holders at a fixed, authorized price. The quantity of wheat or flour that is legally allowed is not generally sufficient for a subsistence diet. Hence, depending on the size of the family, additional purchases have to be made at the current market price.

The ration-shop keeper buys ration flour from assigned mills at a given price. So his sales margin is fixed, at least on paper. He

<sup>1</sup> In practice, the system is in a sense selective because a ration card can be used by a consumer only if a ration shop exists in the area where he lives.

<sup>2</sup> In Chapter 7 it is argued that this rather long interval between purchases may in effect discriminate against the poorest consumers. More details about the users of the wheat-ration system are also presented in that chapter.

obtains additional revenue by selling the bag in which flour is delivered to him. The amount of flour which a ration-shop keeper can buy in one transaction depends on the maximum demand during a given period and on the outstanding flour stock. The maximum demand for ration flour is given by the number of the ration-card holders registered at the ration shop. As he must pay for the flour on receipt, the ration-shop keeper will not normally buy more than the amount he expects to sell during that period.

When goods are offered much below the scarcity price, it becomes profitable to cheat the system.<sup>3</sup> The ration-shop system is no exception to this rule. It is profitable for the consumers to apply for more than one ration card per family and to inflate the number of persons in the household. The ration-shop keepers may attempt to buy more flour than is legally allowed to them by under-reporting the outstanding stocks and selling the extra amount in the open market at a higher price. They may also make money by harming the consumers through underweighing or adulterating the flour sold. Furthermore, as the Survey suggests, ration-shop keepers charge prices which are considerably higher than the official sales price. These mal-practices indicate that the subsidy on ration flour more than compensates for the inferior quality as compared with the flour available in the open market.

### The Operation of Ration Shops

The maximum volume of flour a ration-shop keeper can sell is determined by the number of ration-card holders registered with his shop. This number is, therefore, of great importance to him. According to the Survey, this number can vary considerably among ration-shop keepers in the Punjab, Sind and the NWFP—between 300 and 1000. (The average numbers of ration-card

<sup>3</sup>The various ways open to consumers and shopkeepers in this regard have been listed in R. Turvey and E. Cook [1].

holders per ration shop in the Punjab, Sind and the NWFP are 518,434 and 546, respectively.) The average quantity of flour purchased per ration-card holder per month can also be estimated from the Survey data. It amounts to 25.8 kg, 39.8 kg and 27.5 kg for the Punjab, Sind and the NWFP, respectively (Table 17).

Table 17

*The Variables relating to Ration Depots, by Province*

Variables	Punjab	Sind	NWFP
Card-holders per Depot	518	434	546
Flour Purchased per Card-holder per Month (kg)	25.8	39.8	27.5
Flour Sales per Depot per Month (85-kg Bags)	157	203	183

Source: The Survey.

These figures suggest that families in Sind that possess ration cards tend to make a fuller use of it than those elsewhere. On the other hand, the average purchases per card-holder are considerably lower (12.0 kg) in Lahore than in the other urban centres of the Punjab (32.6 kg). No convincing explanation of such differential in the consumption of ration flour can be given.

The net revenue margin on the sale of ration flour is a function of the difference between sale and purchase prices and of the proceeds from the sale of empty bags in which flour is delivered to the ration-shops. The sale price of ration flour, as reported by the ration-shop keepers, shows some variations by location. In the Punjab the price per kilo varies between Rs 1.66 (Lahore) and Rs 1.75; in Sind the range is from Rs 1.66 (Karachi) to Rs 1.76; while in the NWFP it varies between

Rs 1.66 and Rs 1.67. However, consumers tend to report prices of ration flour which are consistently higher. The reported price in the Punjab, on average, is Rs 1.85 per kg, while in Sind and the NWFP the corresponding prices are Rs 1.83 and Rs 1.88 per kg respectively.

Purchase prices paid by ration-shop keepers for ration flour are, with only few exceptions, practically uniform within each province. According to the Survey, in the Punjab the price per bag of 85 kg is a uniform Rs 140.25, while in the NWFP it is Rs 139.78. Only in Sind does some variation appear to exist between locations. However, the normal purchase price in Sind is around Rs 138.92 per bag.<sup>4</sup>

The proceeds from empty bags, which are sold at prices between Rs 5.5 and Rs 7.0 per bag, define the "other source of revenues" for the shopkeepers. It can easily be seen that the sale margin per bag of ration flour is in many cases smaller than the yield from the empty bags. For example, in Lahore, Karachi and the NWFP, the average net revenue margins are Rs 6.65, Rs 8.25 and Rs 7.60 per bag. However, in the rest of the Punjab and Sind the situation is different, with the respective average net revenue margin amounting to Rs 12.95 and Rs 10.25 per bag.

On the cost side, the Survey distinguishes between transportation, labour, rent and other costs. The results show that the composition of costs differs widely from one shop to another. It is, therefore, very hard to discern a systematic pattern in this regard. Generally speaking, the cost of transportation forms the largest element, with a share of 50–60 percent in total costs. Next come labour costs which often constitute between 30 percent and 40 percent of the total costs, whereas the share of rent may be between 10 percent and 20 percent.

<sup>4</sup>However, in the town of Thatta the purchase price is as high as Rs 144.60. Also, the sale prices are the highest there.

The relatively small proportion of the fixed component in total costs limits considerably the scope for lowering them by achieving economies of scale. In Lahore, where sales per ration-shop are considerably lower than elsewhere, the average cost per bag is significantly higher (Rs 15.85) than in the rest of the Punjab (Rs 6.24). In Sind, the average cost is Rs 4.48, while in the NWFP it is Rs 5.68. Thus the shopkeepers in Lahore are worse off: a low revenue margin and high cost reduce sharply the profitability of their operations, even though unrecorded activities may provide additional revenue to make these operations profitable. Then the additional income from the sale of ration sugar and from the general stores, which some ration-shopkeepers also manage, enhances their profits.<sup>5</sup>

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<sup>5</sup>The rationing of sugar was abolished in 1983.

## Chapter 7

### PATTERNS OF WHEAT CONSUMPTION<sup>1</sup>

#### Importance of Wheat in Pakistan

Throughout the 1970s, the annual consumption of wheat in Pakistan remained close to 135 kg per head. Although this magnitude is not particularly great if compared with corresponding figures for other wheat-consuming nations in Asia, the share of wheat in the national consumption of food-grains in Pakistan is very high (65 percent). Very few developing countries show this rather heavy 'wheat bias' in food-grain consumption.<sup>2</sup>

Table 18 shows that about 53 percent of a typical household's expenditure is on food, while about 19 percent is on wheat alone. These shares have declined with the passage of time, presumably owing to a secular rise in per capita income.

#### Peculiarities of Wheat Consumption

Since consumption patterns often differ between rural and urban areas, it is worth examining the differences in the rural-urban patterns of wheat consumption in the three provinces included in the Survey. Most of the data used in the following analysis of spatial differentials in wheat availability and of the

<sup>1</sup>This Chapter is largely based on a working paper by Hans de Kruijk [1].

<sup>2</sup>See J. H. Opdam and P. A. Cornelisse [3].

Table 18  
*Percentage Share of Wheat and Food*

	Expenditure on Wheat as Percentage of Food Expenditure	Expenditure on Food as Percentage of Household Expenditure
1969-70 <sup>a</sup>	22	55
1970-71 <sup>a</sup>	20	54
1971-72 <sup>a</sup>	18	55
1979 <sup>a</sup>	18	51
1981-82 <sup>b</sup>	16	48

a. Source: [4].

b Source: The Survey.

relationship between wheat consumption and level of income are drawn from the Survey. Since the Survey was carried out in June 1982, immediately after the harvest, the reported figures relate to 1981-82.

### *Wheat Consumption by Province and Location*

That wheat consumption per head is consistently higher in rural areas than in urban areas is clearly shown in Table 19.<sup>3</sup> Just as the availability of wheat explains the differences in wheat consumption in rural areas and in towns and cities, so does it also explain the inter-provincial variations in wheat consumption. The surplus-producer Punjab seems to surpass both Sind and the

<sup>3</sup>Note that this differential in Sind, estimated from the Survey, is much more pronounced than the differential reported in the *Household Income and Expenditure Survey, 1979* [4].

Table 19

***Annual Wheat Consumption per head by  
Province and Area (in kgs)***

	Per head Wheat Consumption		Average per head Wheat Consumption (Urban/Rural)
	Urban	Rural	
Punjab	117	153	144
Sind	71	161	127
NWFP	112	125	124
Average Wheat Consumption for Pakistan	100	150	136

*Source:* The Survey.

NWFP in terms of wheat consumed per head. The Survey suggests that wheat consumption is low in urban Sind, but the consumption of rice there is high. However, in rural Sind, with its very high wheat consumption, the consumption of rice per head also seems to be higher than it is in other rural areas of Pakistan.

***Wheat Consumption and Income***

The relationship between consumption of wheat and income by households is not normally expected to be strong.<sup>4</sup> Regression analysis does not reveal a significant relationship, presumably because of the influence of wheat substitutes on levels of wheat consumption [3].

<sup>4</sup>However, it has been argued that, with increasing income per head, demand for high-protein food rises significantly, and that the derived demand for grains used as feed also goes up. See J. W. Mellor [2].

The Survey data show that the correlation between wheat consumption and income per head is insignificant. The consumption of wheat per head varies not more widely than the mean values even among consumers in the same class of income. Also, the levels of consumption tend to be higher in rural areas (Table 20). In the urban Punjab, wheat consumption per capita first rises with income and then levels off, whereas in urban Sind the relationship is even negative. In the urban areas of the NWFP consumption first rises, then falls, and stabilizes at a level close to 100 kg. In rural areas, wheat consumption may be somewhat higher in the upper tail of the distribution, but otherwise seems to be hardly affected by changes in levels of income.

### Acquisition of Wheat and Flour

This section examines the sources from which wheat is obtained, and describes the market channels used to meet the demand for wheat by consumers belonging to different income groups. Note that the reliability of supply, the quality of wheat and the conditions of transactions vary with the source from which wheat is obtained. The relevant data for urban and rural areas are presented in Table 21.

Table 21 (first line) shows that urban dwellers in the Punjab acquire a surprisingly high proportion of their wheat requirements through "own farming". The explanation is that "own farming" really indicates procurement of wheat from family farms operated by relatives, or from own land tilled by tenants. Even more important is the finding that higher income groups obtain a larger share of their wheat requirement from "own farming" than the lower-income groups. Incidentally, these figures illustrate the relatively close contact that the urban population in the Punjab keeps with rural areas.

On the other hand, as one would expect, wages paid in kind (in wheat) provide only a negligible proportion of the wheat

Table 20

*Average (monthly) per capita Wheat (flour) Consumption (in kg per year) by Income (in Rs), Province and Area*

Area	Province	Income Classes								All Income Groups
		< Rs 50	Rs 50-100	Rs 100-150	Rs 150-200	Rs 200-300	Rs 300-500	Rs 500-750	> Rs 750	
<i>Urban</i>	Punjab	94	107	121	116	125	126	125	127	117
	Sind	75	80	87	76	59	50	64	49	71
	NWFP	101	129	165	106	103	88	102	95	112
<i>Rural</i>	Punjab	141	152	151	147	171	159	213	(a)	153
	Sind	124	152	190	172	(a)	214	(a)	(a)	161
	NWFP	152	110	126	106	124	134	(a)	(a)	125

Source: The Survey.

Note: (a) One observation only.

Table 21  
Percentage Distribution of Sources of Wheat (Flour) for Urban and Rural Consumers,  
by Monthly Income per head, and Provinces

Consumer Groups (by Monthly Income per head) <sup>a</sup>	(Percentages)									
	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
<b>PUNJAB</b>										
(Rupees)										
<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
<b>SIND</b>										
<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

—Continued

Table 21—(Continued)

Consumer Groups (by Monthly Income per head)	Whea (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
(Rupees)										
150–199	—	81	—	—	—	3	30	—	70	16
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.

storage. Given the enormous quantity of wheat retained by farmers for own consumption, a shift towards storage arrangements of higher quality such as steel bins, even mud bins, can reduce such losses appreciably.

The amount of wheat sold by farmers is also subject to losses. According to Chaudhry's findings the losses of wheat incurred in wholesale trade are moderate compared with those in retail trade and in milling. Among traders, the main cause of wheat loss is improper storage. The handling of bags, which are often of bad quality and are too heavy to carry, also contributes considerably to such losses. When weights are applied in accordance with the amount of wheat passing through trade channels and wheat mills, it is estimated that about 8 percent of the harvest is lost in the trade and milling activities.

According to official figures, the losses of procured wheat due to storage are less than one percent, but simulations suggest that not less than 5.1 percent of the volume of wheat procured by official institutions is lost. Much depends on the type of storage arrangements applied and improvements in this respect achieved in the recent past (see the next section). But if account is taken of the wheat lost in transit from procurement centres to wheat mills, often located at distant places, and a correction is made for the share of procured wheat in total production, an estimated loss of 2.5 percent of the harvest in the procurement system seems realistic. (See also the next section).

Wheat losses at the consumer level are mainly incurred in cleaning, pounding and cooking, during the preparation of food which uses up excessive quantities of wheat. For these and other reasons approximately 4 percent to 5 percent of the wheat produced is lost at this stage.

Thus the total losses of wheat in Pakistan may be between 15 percent and 17 percent of the volume annually available. This is a very large quantity, representing a value of about Rs 2,700

million at the 1982 prices. Of course, it is pointless to argue that this loss can be avoided entirely; for while it is technically feasible to do so, in several cases the cost involved in preventing such losses tends to outweigh the gains. Yet it seems that improved handling, storage and treatment can reduce losses considerably at relatively moderate costs.

### Storage of Procured Wheat

As shown in Chapter 4, between two-thirds and three-quarters of the marketed wheat is procured by government institutions and stored until it is released to wheat mills. Apart from the amount of wheat retained by producers and stored by them for own consumption, the government bears the main responsibility for wheat storage. The stocks are held by the government to meet two related objectives. Firstly, the stocks are used to bridge the time lag between production and consumption. Such stocks are not held for more than one year. Secondly, there are longer-term stocks which are held in reserve to supplement the supply of wheat in years when the harvest is poor. Table 24 provides information on these matters.

The amount of wheat held by the government to bridge the period between two harvests is indicated by the size of the releases from the stocks. The table shows that this volume has remained relatively constant in recent years. However, the pre-harvest stocks show a rising trend, indicating a consistent government policy to build up buffer stocks to meet shortages due to bad harvests. The recent wheat exports suggest that the stocks held for this purpose are adequate.

The estimates of wheat losses, derived from the figures in the first four rows of the table, are not very accurate for individual years, but are valid for the seven-year period.<sup>2</sup> Thus it

<sup>2</sup>The original figures refer variously to harvest years and fiscal years which do not fully coincide.

Table 24

*Stocks, Procurements, Imports, Releases and Apparent Losses  
of Wheat (in thousand tons), in Recent Harvest Years.<sup>a</sup>*

	('000 tons)						
	1976-77	1977-78	1978-79	1979-80	1980-81	1981-82	1982-83
(A) Stocks <sup>b</sup>	417	728	255	347	685	1021	1572
(B) Procurement	2339	1842	1086	2376	2955	2989	3131
(C) Imports <sup>c</sup>	499	1052	2236	602	305	360	353
(D) Releases	2230	2581	2980	2742	2781	2786	2782
Estimated Stock; End of Harvest Year <sup>d</sup>	1026	1042	611	583	1164	1584	2274
Estimated Loss <sup>e</sup>	298	787	264	- 102	143	12	177

Source: Pakistan Economic Survey [2].

Notes: <sup>a</sup>From April to March.

<sup>b</sup>Measured in April, at the beginning of the harvest.

<sup>c</sup>Relates to fiscal year from July to June.

<sup>d</sup>This is the calculated stock at the end of the corresponding harvest year (A + B + C - D).

<sup>e</sup>Derived by comparing the calculated stock at the end of one harvest year with the actual stock at the beginning of the next year.

is meaningful to estimate the ratio of calculated losses to average stocks for the entire period.<sup>3</sup> In percentage terms, it is more than nine percent, which is very much higher than the officially reported loss rate of only one percent.<sup>4</sup>

Table 24 shows that, in 1982, post-harvest wheat-storage requirements by the government reached approximately 4,700,000 tons. On the other hand, covered godowns owned by the government had a capacity of only 3,500,000 tons. The storage capacity hired from the private sector added another

<sup>3</sup>The average size of wheat stocks over a harvest year has been approximated by the sum of the initial stock and half the sum of imports and procurements corresponding to that year.

<sup>4</sup>This figure is consistent with the estimated storage loss of 5.1 percent, reported in Chapter 8. Note that the latter figure refers to storage losses only, whereas the calculated losses comprise all types of losses.

300,000 tons. However, this still left a gap of 900,000 tons, which was made up, rather unsatisfactorily, by the use of raised platforms, railway platforms and tarpaulin coverings. Thus there is ample room for the construction of additional storage capacity to cut the wheat losses drastically. The recent steps taken by the government to increase storage capacity are therefore in the right direction. However, it is important that the government policy regarding storage facilities is consistent with its buffer stock and procurement policies. In this connection it may be noted that, in March 1983, the wheat stock of 2,100,000 tons had already reached a satisfactory level. This should have reduced the amount of wheat procured by the government so that the storage capacity needed in subsequent years for state-owned wheat would not exceed the pre-existing state-owned storage capacity of 3,500,000 tons. While this does not affect the desirability of expansion of wheat storage facilities, it does raise questions about the ownership and use of new facilities. More will be said on this in Chapter 10.

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## Chapter 9

### AN EVALUATION OF THE WHEAT PROCUREMENT AND DISTRIBUTION SYSTEMS

#### Merits and Demerits of the Present System

In recent years, wheat procurement and distribution by the government have dominated the wheat market in Pakistan. Measured in terms of the volume of wheat handled and its percentage share in the marketed surplus, the system has been a great success. Nevertheless, the system also suffers from several shortcomings, the impact of which has been magnified by the large size of the government operations. These matters, which have been described briefly in various parts of the foregoing chapters, are summarized here.

#### *Merits of the System*

(i) The great advantage of the present procurement system to the farmers is the income security that it provides to them. The price guarantee provided by the procurement price lifts part of the uncertainty to which wheat producers are subject due to the vagaries of weather and other exogenous factors on which they have no control. It also reduces the possibilities of exploitation by middlemen due to an unequal distribution of market information between farmers and traders. The producers (farmers), like the middlemen, know the procurement prices, which are uniform throughout the country.

(ii) The wheat procured immediately after the harvest is consumed mostly in far-away locations during months when supplies of wheat in the open market are relatively low. The present distribution system also provides the necessary transportation and storage services.

(iii) A part of the procured wheat is not distributed through the ration shops, but is sold in the open market when prices increase in the inter-harvest period. The effect of this policy is to dampen seasonal price fluctuations, which is in the interest of wheat consumers. Also, the market prices in urban areas cannot differ very widely from the price of wheat in the ration shops.

(iv) The price of ration flour is lower than its scarcity price. This price differential measures the implicit subsidy to the consumers of wheat. This subsidy will probably be positive even if adjustment is made for the lower quality of the ration flour as compared with that of the open-market flour. It may be for this reason that urban consumers use the ration shop facility rather intensively, that the consumers who do not have access to ration flour complain about this, and that ration-shop keepers attempt to obtain larger quantities than is officially permitted in order to sell the excess amount at a higher price in the open market. In other words, there is excess demand for the ration flour even though its quality is definitely lower than that of the open-market flour.

The amounts of wheat and flour that pass through the government procurement and distribution systems make a decisive impact on the wheat market, i.e. on the behaviour of the many categories of the private traders identified in this study, on the prices offered to the producers and consumers of wheat, and on the size of the marketed surplus. The conditions which allow procurement in such large amounts must, therefore, be clearly understood. These are: (i) a competitive price level; (ii) a dispersion of procurement depots throughout wheat-surplus areas; and (iii) prompt payment by procurement centres to the suppliers of wheat. An interesting study by the Agricultural Prices Commission [2] shows that procurement centres in general tend to settle

Table 25

*Estimates of Wheat Requirements for Supplementary  
Provision of Consumers in Lowest Income Groups:  
by Province, Area and Monthly Income per head*

	Estimated Population (in thousands) by Monthly Income per capita		Average Provision (in kg per head) Through Own Farming and Wages in Kind		Required for Supple- menting to a Level of 140 kg per capita (in tons)	
	<Rs 50	<Rs 100	<Rs 50	<Rs 100	<Rs 50	<Rs 100
<i>Urban</i>						
Punjab	130	3,370	0	10	18,200	438,100
Sind	170	2,520	0	5	23,800	340,200
NWFP	360	940	5	5	48,600	126,900
<i>Rural</i>						
Punjab	3,150	15,760	55	90	267,750	788,000
Sind	2,420	7,160	85	100	133,100	286,400
NWFP	3,030	7,570	80	60	181,800	605,600
<i>Total</i>	9,260	37,320			673,250	2,585,200

Source: The Survey.

when an amount of Rs 2,400 million was spent on them, whereas the amount needed in 1970 was close to Rs 200 million. Two factors contributed in the past to a rise in the cost of these systems, viz. a sharp increase in the amount of wheat handled by the government and the large imports of wheat at prices higher than those of the domestically procured wheat. Now that wheat imports have virtually vanished, effort should be made to lower the administrative cost of these systems.<sup>4</sup> It should be noted in this connection that the consumers of wheat, not always the least privileged, have been subsidized heavily by a domestic wheat price which has remained significantly lower than the price of wheat in the world market. It is not easy to determine what the domestic wheat price will be if the domestic market is 'opened

<sup>4</sup>It appears that the costs of the procurement and distribution systems at the time of the Survey differed significantly from those obtaining in 1975. These costs were estimated to be Rs 1,740 million in 1976, but the input subsidies were approximately Rs 300 million and the transfer due to price protection was Rs 1,540 million.

up'; but a comparison of the domestic and international prices suggests that for 1982-83 a price rise of approximately Rs 15 per 40 kg, or Rs 375 per ton is a reasonable guess. There are good reasons to expect that such a price increase, coupled with the steps taken to subsidize consumption of flour by the rural (and urban) poor, will not excessively hurt the well-off consumers. Furthermore, the increase in the domestic prices of wheat will definitely benefit the wheat farmers. With a marketed surplus of slightly less than 45 percent of production, the amount involved is of the order of magnitude of Rs 1,750 million.<sup>5</sup>

On the other hand, farmers still benefit from the subsidy on fertilizer, although the magnitude of this subsidy has been brought down considerably since 1979-80, when the steep price increase of fertilizers in the world market had not yet been reflected in the domestic price. The size of the fertilizers subsidy to wheat producers is not known for 1982-83. However, a comparison of the domestic and international prices of fertilizers, on the assumption that an amount corresponding to about 50 percent of the fertilizers subsidies represents the input subsidies to wheat farmers, yields an estimate of the implicit resource transfer of Rs 350 million from tax-payers to wheat producers. Table 26 summarizes the magnitude and the direction of these implicit resource transfers. The table shows that consumers are the main beneficiaries of these measures. Wheat producers, on the other hand, contribute considerably more in terms of implicit transfers than they receive. This brief analysis agrees with the study by Gotsch and Brown [1].

<sup>5</sup>These figures exclude Baluchistan where approximately five percent of the population lives, and where the proportion of the poor, both urban and rural, is higher than elsewhere.

Table 26

***Estimated Resource Transfers between Taxpayers, Wheat Producers and Wheat Consumers due to Procurement/ Distribution System (in million Rupees)***

<b>Transfers</b>					
From ↓	To →	Taxpayers	Wheat Producers	Wheat Consumers	Transfers Paid
Taxpayers			350	930	1,280
Wheat Producers				1,750	1,750
Wheat Consumers					
Transfers Received			350	2,680	3,030

Source: The Survey.

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1. Gotsch, C., and G. Brown. *Prices and Subsidies in Pakistan Agriculture, 1960–1976*. Washington, D.C.: World Bank. 1980. (World Bank Staff Working Paper No. 387).
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## Chapter 10

### POLICY RECOMMENDATIONS

This chapter outlines a few policy recommendations that flow directly from the analysis presented in the preceding chapters.

#### Procurement Policies

Now that the wheat stocks held by the government have reached a satisfactory level of approximately 40 percent of the marketed wheat, the need to procure wheat for building up buffer stocks is much less now than before. It is no longer necessary to absorb as much as three-quarters of the marketed surplus, as used to be done in recent years, for regulating the wheat market. Note that the present study seems to suggest that the social cost of private wheat-traders is in the acceptable range, and that their market operations are not overly 'exploitative'.<sup>1</sup> Furthermore, with the attainment of self-sufficiency in wheat, an all-pervasive rationing system, geared to satisfying the wheat requirements of the entire urban population and a part of the rural population, is no longer required. A selective rationing system, carefully directed at the target group — viz. the urban

<sup>1</sup> However, note that this non-exploitative behaviour of the private traders is largely involuntary: the fixation of a procurement price which is widely announced by the government and is kept uniform throughout the country leaves very little room for exploitative behaviour on the part of the private traders.

months after the harvest, compensating for the storage costs incurred by the sellers, deserves serious consideration. Such a policy will help to reduce the procurement 'peak' by spreading the supplies of wheat to procurement centres more evenly over time.

### Policies Relating to Private Wheat-traders

Since farmers of the various categories appear to sell wheat to wheat buyers of different types, it is important to maintain the necessary diversity of trade channels. Furthermore, low-income households, especially in urban areas, tend to buy a considerably larger share of wheat and flour from both the open market and ration shops than that bought by the households with higher incomes.<sup>4</sup> The former depend more on an assured flow of the marketable surplus than the latter. Accordingly, every effort should be made to promote an efficient flow of wheat to deficit areas in times of relative scarcity through improved transportation and storage arrangements. Since in the presence of a procurement price the capacity of private wheat traders to exploit the consumers and farmers is severely limited so that they appear to perform their marketing functions rather well, there is not much reason to increase the existing level of state intervention in the wheat market.

If the public sector withdraws partly from the wheat market, provision needs to be made to allow private traders to increase their role. Credit is scarce among wheat traders and storage facilities in market towns are often inadequate. For these reasons, private traders are unlikely to succeed in handling much larger volumes of wheat if financial assistance is not provided to them. This assistance may take the form of (i)

<sup>4</sup> As noted earlier, the higher income groups, particularly in the urban Punjab, meet a substantial part of their wheat/flour requirement from "own farming". (See Chapter 7.)

increased availability of credit for use as working capital, especially to the 'marginal' trader in various categories and (ii) construction of improved storage facilities in areas where wheat trade is concentrated. In principle, the storage facilities should be offered at cost prices so that private traders will find it attractive to make use of them.

The important point to remember is that de-escalation of state intervention in the wheat market is limited by the manifest inability of the wheat traders to take on extra load. Paradoxically, without government help to the private traders, the wheat market will be destabilized by a precipitate government pull-out.

### Storage Policies

Wheat losses during storage are considerable and much of this waste can be cut down. Various policies to reduce the existing high level of wheat loss have been proposed. The strategy should be that those measures which promise to have the highest benefit-cost ratio are implemented first. Among these measures are the ones that have the effect of lowering wheat losses handled by these institutions. Efforts by state-owned institutions to convince other groups — farmers, traders, millers, shopkeepers, consumers — of the need to conserve wheat will be less than effective if they themselves are not careful enough in handling, storing and transporting wheat, wheat seed and wheat flour.

The size of the buffer-stocks of wheat, which stood at 2,100,000 tons in March 1983, was about 40 percent of the marketed wheat. Together with the possibility of imports, this level of stock should provide sufficient protection against a major harvest failure. It should also help the government to iron out cyclical seasonal price fluctuations in the wheat market.

A reduction in the wheat-procurement effort will require that information on the functioning of the wheat market be quickly furnished to all the relevant agencies — in particular to

small farmers. Such supervision can be exercised in a simple and effective way by storing wheat in modern, easily accessible silos, which allow a direct assessment of the total size and the dispersion of wheat supplies. If most or all of these silos are managed by the state, the monitoring of wheat stocks will be facilitated even further. However, this does not necessarily imply that private traders should also be forced to store wheat in state-managed silos; for that would lead to inefficiencies in the operation of those warehouses.

### Policies with Respect to Millers

There is probably still a considerable excess capacity among roller flour mills, with an installed capacity of more than 2,700 maunds per day (approximately, 100 tons per day). As such, the present policy aiming at restricting the installation of new milling capacity is correct. The existing excess capacity also explains why roller flour mills find it attractive to grind wheat into ration flour, even though their claim that a grinding margin of Rs 3 and Rs 3.5 per maund in the Punjab and Sind respectively does not cover milling costs may well be justified. Compared with a situation of no grinding activity at all, an order which covers more than the marginal costs is still attractive. Yet, the present practice of offering a "grinding margin" that is not sufficient to cover the cost of the milling operation should be abandoned, for the simple reason that it forces the millers to indulge in unlawful and harmful practices to make their operations profitable. Hence, the recent increase by the government in the grinding margin is also a step in the right direction, even though the new rate may still not fully cover the milling costs.

At present the government places order for grinding wheat into ration flour at very short notice and erratically. It will help the millers if such orders are placed in advance to allow an efficient management of the milling activity. Also, it may be useful to offer a regular supply of wheat to those mills which produce

good-quality ration flour. To facilitate testing of the ration-flour quality, the bags should be clearly marked with the name of the milling company.

### Wheat Rationing Policies

Although in recent years Pakistan has become practically self-sufficient in wheat, there is no ground for complacency on this score. Pakistan's agriculture is still much too dependent on the vagaries of weather. Also, the prevailing varieties of wheat in use in Pakistan are susceptible to diseases. The demand for wheat will continue to rise with population growth; and the demand for grains for use as feed will also grow. Assuming that a continued rise in wheat production will sustain the newly achieved self-sufficiency, it will be essential to fashion a new set of policies to meet the transition from wheat-deficit to a wheat-surplus situation.

Even if the existing self-sufficiency in wheat production is maintained, the need will still be there to provide assured supplies of wheat/ration flour to target groups, which need to be supported. Thus, it can be argued that the poorest consumers deserve continued government support in the form of subsidized flour, because their financial position does not permit them to afford even a subsistence diet at the going prices. Tentative estimates of the amounts required for a supplementary provision according to alternative poverty criteria have already been given in Table 25. These estimates include the needs of the rural poor. It should be noted that the wheat needs of the rural poor are typically lower than those of the urban poor because the former derive a part of their wheat requirement through "own farming" and wages paid in kind (wheat).

If a new wheat-rationing system aims only at the population with a monthly income of Rs 50 per head, the amount of wheat tentatively estimated to ensure a wheat consumption of 140 kg

per head per year will be approximately 675,000 tons. If the target group is increased to include the population with a monthly income of Rs 100 per head, the corresponding amount is approximately 2,600,000 tons. Of course, this amount need not be fully provided through an elaborate all-pervasive rationing system. A more 'selective' rationing system should be adequate because the consumers make use of the system mostly from October to March/April. Thus, the amount of wheat required for the operation of such a selective rationing system may not exceed 50–75 percent of the amount indicated in Table 25, i.e. between 340,000 and 500,000 tons on a narrow interpretation of poverty, and between 1,300,000 and 1,940,000 tons, on a broader interpretation.<sup>5</sup>

Clearly the costs of the ration system depend directly on the size of the target group and the size of the ration per member of that group. Another factor influencing the costs is the location of the population to be reached by the ration system. Specifically, the costs per client are likely to be higher in rural areas where the supply of ration shops tends to involve higher transportation costs. On the other hand, as the provision of wheat through own farming and wages in kind per family is, on average, much higher in rural areas than in urban areas, the flour ration per family in rural areas can accordingly be smaller.

Exclusive distribution to the poor will also be strengthened if ration shops are located in areas where the poor live. Finally, shorter intervals between purchases of ration flour may enhance considerably the effectiveness of the ration system.

The identification of the poor to be served by the proposed selective rationing system, and the exclusion of those from the system who are not eligible for the purchase of subsidized ration flour pose difficult problems. To meet them, *ad hoc* measures

<sup>5</sup>This figure also measures the implicit transfer of resources from wheat producers to wheat consumers, due to the low price of wheat in Pakistan.

will be necessary. For instance, it may be required that an application for ration card must be supported by a non-applicant. Also, it may be useful if the wheat-ration system is aligned with the (religious) distribution system of *Zakat*. Furthermore, it will be essential to have proper storage facilities at convenient locations to minimize the logistic problems of catering for the needs of a widely dispersed population.

Such a selective rationing system should involve the location of ration shops at places where the poor live and work. Also, the purchase of ration flour should be permitted much more frequently than once in two weeks as is the practice in the present system. In order to ensure that ration-shop keepers do not overcharge the consumers and to improve the quality of ration flour, ration-card holders should be allowed a wide choice between ration shops.<sup>6</sup> A closer supervision by a committee, including customers of ration shops, can effectively contribute to an improved functioning of a redesigned rationing system.

<sup>6</sup>Such a choice can be effectuated in urban areas only.

## Chapter 11

### CHAPTER-WISE SUMMARIES

#### Chapter 3: Production and Marketed Surplus of Wheat

1. The share of land under wheat falls with an increase in farm size.
2. Wheat yields tend to diminish somewhat as the size of owner-operated farms increases. An opposite tendency can be observed on tenant-operated farms.
3. Wheat yields vary widely with the quality of land: in the Punjab, in 1982, wheat yields per acre on irrigated non-saline land, irrigated saline land and rain-fed were approximately 23 maunds, 11 maunds and 7 maunds,<sup>1</sup> respectively.
4. The incidence of tenancy is much higher in Sind than in the Punjab or the NWFP. It has considerable effect on wheat disposal patterns.
5. Household size increases with the capacity to generate income.
6. The relative 'weights' of the many uses of wheat – e.g. own consumption, payments to labourers, feed and seed and marketed surplus – depend on the size of the farm, the quality of land and the tenurial status.
7. Specifically, the marketed surplus varies positively with farm size and the quality of land and varies negatively with the distance from the market.
8. Large farmers tend to sell wheat later in the post-harvest season than small farmers do.

<sup>1</sup>A maund is 37.3 kgs.

9. The supply of good-quality wheat seed is inadequate at present. A very high proportion of seed still consists of wheat retained from the previous harvest.
10. There are only 3–5 percent of the farmers who engage in 'distress sales' to repair their weak liquidity position, but then have to buy wheat back from the market to meet own wheat consumption requirements.
11. Farmers with different sizes of farms use different trade channels.

#### Chapter 4: Wheat Traders and Wheat Trade

1. The present study identifies four types of private wheat-traders – viz. village shopkeepers, *beoparis*, commission agents and wholesalers – in terms of their marketing activities. These private traders are clearly distinguishable in the Punjab and in Sind, but not in the NWFP.
2. The wheat trade in the Punjab and Sind is dominated by the procurement system, which takes up three quarters of the marketed wheat. The functions of price formation, storage and long-haul transportation are largely performed by the State.
3. Pricing by private wheat traders in the Punjab and Sind is of the "retrograde" type – i.e. the purchase prices are set by subtracting an appropriate margin for their services from the sale price determined by other market actors.
4. In the NWFP prices of wheat in the entire trade chain – including the stage at which farmers operate – are 25–35 percent higher than in the Punjab and Sind.
5. Since prices are lower for small lots farther away from the market, small farmers tend to receive lower prices for their wheat than those received by large farmers.

6. Private traders in the Punjab and Sind achieve a high rate of turnover in their business.
7. Private traders do not seem to provide much credit to the farmers.
8. There is very little room for 'exploitation' of farmers by traders because of the existence of a widely announced procurement price. This is because, as a combined effect of the government's procurement policy and the fairly low-cost working of the private traders, the differential between the price of wheat obtained by farmers and the prices of wheat and flour paid by the consumers is, by and large, in the acceptable range.
9. Private wheat-traders are actively engaged in the collection, distribution and changing of lot size, and in short-haul transportation. They play a lesser role in price formation, long-haul transportation, credit provision and storage.
10. The wheat-trading pattern in the Punjab, and probably also in Sind, is triangular. The pattern is much less clear in the NWFP.
11. In the Punjab the bulk of the private wheat-trade is handled by *beoparis* and commission agents.
12. Procurement centres in the Punjab purchase more wheat from traders than from farmers.

#### Chapter 5: Operation and Profitability of Wheat-milling Activity

1. There are three technologies – viz. *chakkis*, modern grinding plants and roller flour mills – employed in wheat milling. Of these, *chakkis* and roller flour mills are more prominent than modern grinding plants.

2. There are three main types of commercial operations: private subcontracting, milling on own account and milling for the government.
3. There is considerable unused installed capacity, especially in the Punjab, among medium-sized (60–300 maunds per day) and very large mills (over 2700 maunds per day).
4. Millers tend to hold very small stocks.
5. Revenues vary by the type of commercial operation and province.
6. Costs vary (negatively) with size and also with province.
7. In terms of operational costs, *chakkis* cannot compete with roller flour mills but their product (flour) is highly valued for its superior taste and greater nutritional content.
8. Profitability rates estimated for the various types of commercial operations suggest that milling on “own account” is most profitable. On the other hand, milling for the government is the least profitable because the “grinding margin” paid by the government to the mills is too low to cover milling costs.

## Chapter 6: The Ration-shop System

1. The implicit subsidy on ration flour leads to malpractices by consumers and shopkeepers.
2. Actual sale prices of ration flour often exceed the officially set prices.
3. Purchases of ration flour per household in Lahore are considerably lower than in other cities.
4. Sale-proceeds from empty flour bags provide an important source of revenue to the ration-shop keepers.

5. Costs per unit of the ration flour sold, of which transportation and labour costs are the predominant elements, are sensitive to the amounts sold only at very low levels of sales.

## Chapter 7: Patterns of Wheat Consumption

1. Wheat is the largest item in household budget in Pakistan and will continue to be so for quite some time in the future in absolute terms even though its relative importance in the family budget may decline.
2. Consumption of wheat per head is higher in rural areas than in urban areas. It is also higher in the Punjab than in Sind or the NWFP.
3. Wheat consumption per head hardly increases with monthly incomes above Rs 150 per head, while the demand for wheat as feed may increase even more.
4. Among the poorest households in cities, food-grain consumption is probably insufficient to meet the subsistence requirements.
5. The relative importance of sources of wheat to the consumers varies considerably with province, area and income class:
  - in urban Punjab, high income classes meet a large proportion of their wheat requirements from own farming. This phenomenon is less strong in the urban areas of the other provinces.
  - all income classes in the urban Punjab meet a proportion of their wheat requirements through open-market purchases.
  - in urban Sind and the NWFP, however, ration flour and open market flour are much more important than open-market wheat.

- the poorest households in the cities do not profit fully from the wheat-rationing system.
  - in rural areas of the Punjab and Sind, “own farming” is the most important source of satisfying wheat requirements. The importance of this source increases with income.
  - except in Sind, the rural poor meet a considerable part of their wheat consumption requirements through wages paid in kind.
  - practically no ration flour reaches the rural NWFP. On the contrary, the rural consumers in the Punjab obtain ration flour. Here is an interesting example of a conflict between the stated policy objectives and what happens in reality.
  - in rural areas of Sind and the NWFP, wheat is hardly available to the consumers in the open market. On the other hand, the rural Punjab is well provided with open-market wheat.
  - rural consumers in Sind and the NWFP supplement their wheat supplies with “own farming” and wages paid in kind (wheat).
6. Even apart from the considerations relating to the purchasing power, poor households appear to be in a relatively disadvantageous position when acquiring wheat, because they obtain less wheat from own farming and because there are practically no ration shops in rural areas where the poor are concentrated.
  7. Wheat and flour prices vary with province and region.
  8. On average, consumers in the rural Punjab pay the lowest prices for wheat and wheat flour, while consumers in the rural NWFP pay the highest prices.

### Chapter 8: Wheat Losses and Wheat Storage

1. Wheat losses are, on the average, 15–17 percent of the harvest. Wheat is lost at different stages in the chain. The loss is 3 percent on the farm, 8 percent at the trade and milling stages, 1.5 percent during procurement and 4.5 percent at the hands of the consumers.
2. About one-third of the total losses are due to poor storage facilities. Storage improvements, adapted to the needs of the groups involved, are both economical and socially beneficial.
3. Stocks held by the government have recently reached a satisfactory level. If the volume of wheat procured by the state is reduced significantly, the present state-owned wheat-storage capacity of approximately 3,500,000 tons may well be adequate.

### Chapter 9: An Evaluation of the Wheat Procurement and Distribution Systems

1. Merits of the systems are:
  - it reduces risk due to price uncertainty.
  - it performs the important functions of storage and long-haul transportation of wheat and wheat flour to consumers.
  - it helps to reduce seasonal price fluctuations in the post-harvest period
  - it provides cheap flour to consumers.
2. The success of the procurement effort in the Punjab and in Sind is due to a competitive procurement price, relatively prompt cash payment for the procured wheat and the proximity of the procurement centres to the farms.
3. Closer supervision tends to improve the effectiveness of the procurement centres.

*APPENDIX*  
**QUESTIONNAIRE USED  
FOR THE SURVEY**

VILLAGE INFORMATION : SCHEDULE 1

<b>1. INTERVIEW INFORMATION</b> Investigator's Name <input type="text"/> Team Leader's Name <input type="text"/>		Date of Interview <table border="1" style="display: inline-table; width: 60px; text-align: center;"> <tr><td>Day</td><td>Mth</td></tr> <tr><td><input type="text"/></td><td><input type="text"/></td></tr> </table>		Day	Mth	<input type="text"/>	<input type="text"/>																																				
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<b>4. VILLAGE/DEH SIZE</b> No. of Hamlets/Goths <input type="text"/> Total Population <input type="text"/> No. of Households <input type="text"/> Total Farm Area (Acres) <input type="text"/> Canal Irr. Area ( " ) <input type="text"/> Problem Area ( " ) <input type="text"/> No. of Farm Households (Including Tenants) <input type="text"/> No. of Farm Labour Households <input type="text"/>		<b>5. VILLAGE MARKET ACTORS (No.)</b> Shopkeepers <input type="text"/> Beoparies <input type="text"/> Commission Agents <input type="text"/> Flour Mills <input type="text"/> - of which Power Operated <input type="text"/> <b>6. FARM MECHANISATION</b> No. of Tubewells <input type="text"/> No. of Tractors <input type="text"/> No. of Threshers <input type="text"/>																																									
<b>8. NO. OF FARMS ON OPERATIONAL BASIS</b> <table border="1" style="width: 100%;"> <thead> <tr> <th></th> <th>Owner cultivated</th> <th>Owner Cum-Tenant Cultivated</th> <th>Tenant Cultivated</th> </tr> </thead> <tbody> <tr><td>Small Farms (&lt; 12.5 Acres)</td><td><input type="text"/></td><td><input type="text"/></td><td><input type="text"/></td></tr> <tr><td>Medium Farms (12.5-50 Acres)</td><td><input type="text"/></td><td><input type="text"/></td><td><input type="text"/></td></tr> <tr><td>Large Farms (&gt; 50 Acres)</td><td><input type="text"/></td><td><input type="text"/></td><td><input type="text"/></td></tr> </tbody> </table>			Owner cultivated	Owner Cum-Tenant Cultivated	Tenant Cultivated	Small Farms (< 12.5 Acres)	<input type="text"/>	<input type="text"/>	<input type="text"/>	Medium Farms (12.5-50 Acres)	<input type="text"/>	<input type="text"/>	<input type="text"/>	Large Farms (> 50 Acres)	<input type="text"/>	<input type="text"/>	<input type="text"/>	<b>7. SCHOOLS</b> <table border="1" style="width: 100%;"> <thead> <tr> <th rowspan="2">Gr. Bys</th> <th colspan="2">Number</th> <th colspan="2">Enrollment</th> </tr> <tr> <th>Bys</th> <th>Grls</th> <th>Bys</th> <th>Grls</th> </tr> </thead> <tbody> <tr><td>5</td><td><input type="text"/></td><td><input type="text"/></td><td><input type="text"/></td><td><input type="text"/></td></tr> <tr><td>8</td><td><input type="text"/></td><td><input type="text"/></td><td><input type="text"/></td><td><input type="text"/></td></tr> <tr><td>10</td><td><input type="text"/></td><td><input type="text"/></td><td><input type="text"/></td><td><input type="text"/></td></tr> </tbody> </table>		Gr. Bys	Number		Enrollment		Bys	Grls	Bys	Grls	5	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	8	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	10	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
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<b>10A. LABOUR SHORTAGE AND WAGES</b> <table border="1" style="width: 100%;"> <thead> <tr> <th rowspan="2"></th> <th colspan="2">Permanent</th> <th colspan="2">Casual</th> </tr> <tr> <th>Peak</th> <th>Normal</th> <th>Peak</th> <th>Normal</th> </tr> </thead> <tbody> <tr><td>Prevailing Shortage</td><td><input type="text"/></td><td><input type="text"/></td><td><input type="text"/></td><td><input type="text"/></td></tr> <tr><td>- None</td><td><input type="text"/></td><td><input type="text"/></td><td><input type="text"/></td><td><input type="text"/></td></tr> <tr><td>- Slight</td><td><input type="text"/></td><td><input type="text"/></td><td><input type="text"/></td><td><input type="text"/></td></tr> <tr><td>- Severe</td><td><input type="text"/></td><td><input type="text"/></td><td><input type="text"/></td><td><input type="text"/></td></tr> <tr><td>Average Wages</td><td><input type="text"/></td><td><input type="text"/></td><td><input type="text"/></td><td><input type="text"/></td></tr> <tr><td>- Peak Season Rabi Crop</td><td><input type="text"/></td><td><input type="text"/></td><td><input type="text"/></td><td><input type="text"/></td></tr> </tbody> </table>			Permanent		Casual		Peak	Normal	Peak	Normal	Prevailing Shortage	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	- None	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	- Slight	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	- Severe	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	Average Wages	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	- Peak Season Rabi Crop	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<b>11. WHEAT MARKET</b> Cropped Wheat Area (Acres) <input type="text"/> Average Wheat Yield (Mnds) <input type="text"/> Estimated Wheat Output (Mnds) <input type="text"/> % Wheat Marketed <input type="text"/> No. of Farmer Selling Wheat <input type="text"/> <div style="text-align: right;">Acres)</div>		
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Wheat Village Price - Post-Harvest <input type="text"/> - Pre-Harvest <input type="text"/> Estimated Wheat Supplies To Village from Outside (Mnds) <input type="text"/> Share HYV Total Sales (%) <input type="text"/>																																											

**WHEAT PRODUCER : SCHEDULE 2**

Date of Interview Day Mth

**1. INTERVIEW INFORMATION**

Investigator's Name   
 Team Leader's Name   
 Farmer's Name

**2. LOCATION**

Village/Deh Name   
 Village Number   
 Hamlet/Goth Name   
 Tehsil   
 District

**3. HOUSEHOLD COMPOSITION**

	No.		No.
Adult > 10		Male Adults	
Children		Male Childn.	
Total		Total Male	

**4. FARM AREA**

	Acres		Acres
Owned Area		Self Cultd. Area	
Rented-in		Problem Area	
Rented-out		Canal Irr. Area	

**5. LABOUR**

	Farm Lab.	Permanent Hired Lab.	Casual Labour (Man Days)	Yearly Wage Per- manent Labour	Daily Wage Casual Lab.
	No.	No.	Paid Mutual Help	In Cash in Kind	In Cash In Kind
Rabi Season					
Kharif Season					

**6. AREA, OUTPUT, COST AND PRICES OF MAJOR CROPS ON THE BASIS OF SELF CULTIVATED AREA**

	Area (Acres)		Cost Per Acre (Rs)	Out- put (Mnds) 1981/82	Paid in Kind to Land Id. (Mnds)	Receiv- ed in Kind fr. Tent. (Mnds)	Sales (Mnds) 1981/ 82	Actual Sales Price Rs/ Mnds	Man Days Per Acre
	1981/82	Planned 1982/82							
Wheat									
Cotton									
Sugar-cane									
Rice									
Maize									
K. Fodder									
R. Fodder									
Orchard									
Other Crops (Specify) (1) ..... (2) ..... (3) .....									

Wheat Price in Village: March  June  at Mandi March  June

Actual Harvest Date of Wheat: Week  Month

**7. WHEAT INPUTS ON SELF CULTIVATED AREA BASIS**

	Amount per Acre	Unit	Price P/U	Per Acre Cost
<b>Seeds</b>				
<b>Fertilizer</b>				
- Urea				
- DAP				
<b>Pesticides</b>				
<b>Ploughing</b>				
- Bullock		Number		
- Tractor:				
- Owned		Number		
- Rented		Number		
<b>Irrigations</b>				
- Canal		Number		
- Tubewell:				
- Owned		Number		
- Rented		Number		

8. WHEAT AVAILABILITY AND DISPOSAL (1982/83)8A. WHEAT AVAILABILITY

Wheat Stocks at Hand	Mnds	Received for—	Mnds
Before Current Harves*	<input type="text"/>	Services Rendered.	<input type="text"/>
Planned Wheat Purchases	<input type="text"/>	Total at Hand Before Sales	<input type="text"/>
for Consumption.	<input type="text"/>	— From Whom	<input type="text"/>
Planned Wheat Purchase for Seed	<input type="text"/>	— From Whom	<input type="text"/>

8B. WHEAT DISPOSAL (Mnds)

Payment in Kind (Wheat Only)	Mnds	Wheat Retained for Seed	Mnds
— To Farm Labour	<input type="text"/>	Wheat Retained for Feed	<input type="text"/>
— To Artisans	<input type="text"/>	Wheat Exchanged	<input type="text"/>
— For Threshing	<input type="text"/>	Expected Storage Losses	<input type="text"/>
— For Other Services	<input type="text"/>	For Religious Obligations	<input type="text"/>
Wheat Already Sold	<input type="text"/>	Wheat Planned for Consn.	<input type="text"/>
Wheat Planned for Sale	<input type="text"/>	Planned Sale Date. Week	<input type="text"/> Mth <input type="text"/>

9. WHEAT SALES

	Village Beopari	Coope- rative	Village Shopkee- per	Own Landlord	Commissn. Agent	Procure- ment Centre	Other Farmers
Mnds.	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Price (P/Mnds)	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
	Wk Mth	Wk Mth	Wk Mth	Wk Mth	Wk Mth	Wk Mth	Wk Mth
Date of Deal	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Date of Del.	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Date of Pment.	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>

9A. MARKETING COST PER MND. OF WHEAT IF APPLICABLE

Transport <input type="text"/> Rs/Md, Commission Fee <input type="text"/>	Deductions <input type="text"/> Seers Mrkt <input type="text"/> Rs/ %, Octroi <input type="text"/> Rs/Md Chrgs. <input type="text"/> Md
---	---

10. FARM WHEAT STORAGE: Type  Capacity Mnds. 11. OTHER SOURCES OF INCOME

	Rs			Rs	
	Monthly	Yearly		Monthly	Yearly
Remittances Overseas	<input type="text"/>	<input type="text"/>	Sale Tubewell Water	<input type="text"/>	<input type="text"/>
Remittances Town	<input type="text"/>	<input type="text"/>	Tractor Rent	<input type="text"/>	<input type="text"/>
Livestock	<input type="text"/>	<input type="text"/>	Thresher Rent	<input type="text"/>	<input type="text"/>
Poultry	<input type="text"/>	<input type="text"/>	Income from Orchard	<input type="text"/>	<input type="text"/>
Cash Land Ren.	<input type="text"/>	<input type="text"/>	Other Income	<input type="text"/>	<input type="text"/>

12. OTHER COSTS: Livestock , Poultry , Orchard , Cash Land Rent 13. SOURCES OF FINANCING  
1981/82 CROP YEAR

	Input Supplier	Beoparis	Agent	Miller	Bank	Coop.	Rel. Frnds	Own
Amount (Rs)	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Duration Loan (Mnth)	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Oblig. Sale Produce	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Cost of Loan (Rs)	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>

Loan For: (1)  (2)

14. MAIN PROBLEM:

MILLERS SCHEDULE 3

		Date of Interview		Day	Mth
				[ ]	[ ]

**1. INTERVIEW INFORMATION**

Investigator's Name [ ]

Team Leader's Name [ ]

Name of Mill(er) [ ]

**3. GENERAL INFORMATION**

Private Mill [ ]

No. of Competitors [ ]

Energy Used\* [ ]

Households Served [ ]

\*Bullock = 1  
Diesel = 2  
Electr. = 3

**2. LOCATION**

Town/Village/Deh Name [ ]

Village Number [ ]

Hamlet/Goth Name [ ]

Tehsil [ ]

District [ ]

**4. CAPITAL**

	Value (Rs)	Credit (Rs)
Land	[ ]	[ ]
Buildings	[ ]	[ ]
Machines	[ ]	[ ]
Transport	[ ]	[ ]

**5. LABOUR UTILIZATION**

	Family Lab. (Man Years)	Permanent (Man Years)			Casual (Man Days) Average P/Month
		Managerial	Technical	General	
Number	[ ]	[ ]	[ ]	[ ]	[ ]
Wage	[ ]	[ ]	[ ]	[ ]	[ ] (p/day)

**6. MILLING OPERATION**

	Average Per Month	Peak Period Per Month	Own Account 1981/82 (year)	Subcontracting 1981/82 (year)
Milling Capacity Mnds/Day [ ]	[ ]	[ ]	[ ]	[ ]
Amount Milled [ ]	[ ]	[ ]	[ ]	[ ]
- Aata (Mnds)	[ ]	[ ]	[ ]	[ ]
- Maida (Mnds)	[ ]	[ ]	[ ]	[ ]
- Suji (Mnds)	[ ]	[ ]	[ ]	[ ]

**7. SUBCONTRACTING MILLING CHARGES**

	(Rs)	(Rs/Mnd)
Cash Charges per Mnd (Rs)	[ ]	[ ]
Kind Charges per Mnd (Seers)	[ ]	[ ]
	Govt Subcontracts	Private Subcontracts

**8. OWN ACCOUNT MILLING**

**8A. WHEAT PURCHASES FROM: 1981/82**

	Farmer	Beopari	Com. Agent	Wh. Saler	Govt. Org.	Imp. Wheat
No. of Suppliers	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
No. with Permanent Rel.	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
Quantity (Mnds)	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
Transactions (No)	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
Price - High (Rs)	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
Price - Low (Rs)	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
Peak Perd. of Supplies: Fr.	[ ] to [ ]	[ ] to [ ]	[ ] to [ ]	[ ] to [ ]	[ ] to [ ]	[ ] to [ ]
Grading Done	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
Advance Purchases %	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
Credit Extended (Rs)	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]

**8B. STORAGE UTILIZATION**

	Own (Mnds)	Storage Type*	Rented in (Mnds)
Storage Capacity	[ ]	[ ]	[ ]
Average Storage Utilization	[ ]	[ ]	[ ]

\*House = 1  
Bin = 2  
Open = 3

9. COST STRUCTURE PER MAUND

	In Rupees Per Maund	
	Wheat	Wheat Flour
Handling Charges <i>Mandi</i>		
Agent's Commission		
Gunny Bags		
Storage Costs		
Fumigation		
Octroi		
Trucking Costs		
Railway Freight		
Interest Charges		
Energy Costs		
Total Processing Costs		

10. OPERATIONAL LOSSES (SEERS PER MAUNDS)

Transport of Wheat		Processing		Transpt. W. Flr.	
Storage of Wheat		Storage Wheat Flour		Tot. Losses p/md	

11. FLOUR SALES PER MONTH (AVERAGE)

	Middlemen			Govt <i>Aata</i>			
	<i>Aata</i>	<i>Mandi</i>	<i>Suji</i>				
Average Sales (Mds)							Indicate
Price p/Mnd.							Month Number
Peak Period of Sales*	From	To	From	To			

12. OTHER PRODUCTS MILLED

Products	Purch. Price Rs/Mnd	Sales Price Rs/Mnd	Aver. Monthly Production (Mnd)	Peak Period	
				From	To

13. SERVICE AREA

	Name	Consumers Served	Mnds of <i>Aata</i> Released	Mnds of <i>Maida</i> Released
Local Town				
Other Town 1				
Other Town 2				

14. GOVERNMENT REGULATION ATTA

**No Restriction = 1	Price Ceiling (Rs/Mnd)	
District Boundary = 2	Production Ceiling (Mnd)	
Provincial Boundary = 3	Compulsory Production - for Government	
	**Movement Restrictions Wheat	

15. OTHER ACTIVITIES OF MILL OWNER


16. WHAT IS YOUR MAIN PROBLEM AS A MILLER

## MIDDLEMEN SCHEDULE 4

		Date of Interview	Day	Mth
		[ ]	[ ]	[ ]

**1. INTERVIEW INFORMATION**

Investigator's Name [ ]

Team Leader's Name [ ]

Middleman's Name [ ]

**3. ACTIVITIES**

**3A. TYPE (Circle What Applicable)**

1. Retailer

2. Wholesaler

3. Commission Agent

4. *Beopari*

5. Village Shopkeeper

6. Procurement Centre

**2. LOCATION**

Town/Village/Deh Name [ ]

Village Number [ ]

Hamlet/Goth Name [ ]

Tehsil [ ]

District [ ]

**3B. PRODUCTS TRADED**

☐ Farm Inputs  
☐ Wheat  
☐ Wheat Flour

(Specify)

Indicate Importance Product in Decreasing Order 1, 2, 3, 4

**4. SPECIALISATION (Circle What Applicable)**

1. Full Time Activity [ ]

2. Part Time Activity [ ]

Specify Secondary Activity

[ ]

**5. OPERATIONS WHEAT (Flour 1981/82)**

<p><b>5.1 Own Investment in Wheat Trade</b> [ ]</p> <p><b>5.2 Credit Received</b> [ ]</p> <p><b>5.3 Quantity Handled</b></p> <p>– Own Account [ ]</p> <p>– On Commission [ ]</p> <p><b>5.4 Purchase Price (p/Md)</b> [ ]</p> <p><b>5.5 Storage Utilization</b></p> <p>Own (Mnds) [ ]</p> <p>Rented-in (Mnds) [ ]</p> <p>Rented-out (Mnds) [ ]</p> <p>Storage Cost p/Mnd [ ]</p>	<p><b>5.6 Labour Utilization</b></p> <p>Family Members (Man Years) [ ]</p> <p>Permanent Labour ( ) [ ]</p> <p>– Wage per year [ ]</p> <p>Casual Labour (Tot. Man Days) [ ]</p> <p>Wage Per Day [ ]</p> <p><b>5.7 Transport Cost P/Mnd</b> [ ]</p> <p><b>5.8 No. of Clients Served</b></p> <p>– Own Account [ ]</p> <p>– On Commission [ ]</p> <p>Credit Given (Rs) [ ]</p> <p><b>5.9 Operational Area*</b> [ ]</p>
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\*One Village = 1 More than one Village = 2  
Mandi/Town = 3 Whole District = 4 Whole Province = 5

**6. WHEAT TRADE ON COMMISSION**

**6.1 TRADED FOR (Specify by Actor Type\*\*)**

	No. of Clients	Amount (Mnds)

**6.3 General Discription Wheat Trade 1981/82 Crop.**

	Commission Rs/Mnd	Desi Wheat	Mnds	Price p/M
		Mexi Pak		
		Imported		
		Aata		
		Maida		
		Suji		

**6.2 TR..DED TO (Specify by Actor Type\*\*)**

	Clients	Amount	Commission

\*\* Actor Types Like Farmer, Village Shopkeeper, *Beopari* Commission Agent, Village Miller, Wholesaler, Large Mill, Cooperative, Procurement Center.

7. WHEAT TRADED ON OWN ACCOUNT

7A. WHEAT PURCHASES FROM(Specify by Actor Type)

	Number Purchases	Volume (Mnds)	Price Rs/Mnd	Bargaining	Preference	Number of Established Relations	Credit Rel.	Payment Mode

7B. WHEAT SOLD TO (by Actor Type)


8. AVERAGE TIME BETWEEN DEALS/DELIVERY/PAYMENT IN WEEKS

	Average Weeks Between Deal-Delivery	% Share of Deals with Payment Before Delivery	Average Weeks Between Delivery-Payment	% Share Written Contracts
Seller to Middleman				
Middleman to Buyer				

9. COST STRUCTURE PER MAUND

In Rupees per Maund

	Wheat	Wheat Flour
Handling Charges <i>Mandi</i>		
Agnet's Commission		
Gunny Bags		
Storage Costs		
Fumigation		
Octroi		
Trucking Costs		
Railway Freight		
Interest Charges		
Energy Costs		
Total Processing Costs		

10. OTHER TRANSPORTATION

	Type	Cost P/Mile	Average Miles Per Month	*Indicate
Own Transport				Donkey = 1
Hired Transport				Camel = 1
				Van = 2
				Truck = 3

11. OTHER ACTIVITIES OF MIDDLEMAN

Rabi Season: (Specify)		Kharif Season: (Specify)	
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12. GOVERNMENT REGULATIONS

Price Ceiling *Aata*

Movement Restriction\*\*


\*\*No Restriction = 1, District Boundary = 2, Provincial Boundary = 3.

13. WHAT IS YOUR MAIN PROBLEM AS A MIDDLEMAN

RATIONSHOP : SCHEDULE 5

Date of Interview Day Mth

1. INTERVIEW INFORMATION

Investigator's Name

Team Leader's Name

Name Ration Shopkeeper

2. LOCATION

Town

Tehsil

District

3. SUPPLIES

Quantity Purchase  
Per Month in Bags (No.)

Purchase Price Per Bag (Rs)

Weight of Bag (kg)

Price of Bag (Rs)

Sales Price

4. DISTRIBUTION AREA (NAME): 

No. of Official  
Cards Holders

No. of Competing Rationshops

5. DELIVERIES OF AATA TO CARDHOLDERS PER MONTH DURING

Period	Peak Period		Low Period		Average
	From <input type="text"/>	To <input type="text"/>	From <input type="text"/>	To <input type="text"/>	
No. of Clients	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Amount Delivered (Mnd/Month)	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Maunds in Storage per Month	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>

6. OPERATIONAL COSTS PER MONTH

Transport Cost (Rs)  Shop Rent (Rs)

Hired Labour (Rs)  Other Cost (Rs)

7. OTHER PRODUCTS HANDLED

Sugar, Mnd (P/Month)

Specify Others "

8. OTHER ACTIVITIES RATIONSHOP KEEPER

(Specify)

9. WHAT IS YOUR MAIN PROBLEM AS A RATIONSHOP KEEPER

CONSUMERS : SCHEDULE 6

Date of Interview Day Mth

**1. INTERVIEW INFORMATION**

Investigator's Name   
 Team Leader's Name   
 Consumer's Name

**3. HOUSEHOLD COMPOSITION**

Adults > 10 <input style="width: 60px; height: 20px; border: 1px solid black;" type="text"/>	Male Adults <input style="width: 60px; height: 20px; border: 1px solid black;" type="text"/>
Children <input style="width: 60px; height: 20px; border: 1px solid black;" type="text"/>	Male Childn. <input style="width: 60px; height: 20px; border: 1px solid black;" type="text"/>
Total <input style="width: 60px; height: 20px; border: 1px solid black;" type="text"/>	Total Male <input style="width: 60px; height: 20px; border: 1px solid black;" type="text"/>

**2. LOCATION**

Town/Village/Deh   
 Village Bunker   
 Hamlet/Goth Name   
 Tehsil   
 District

**4. AATA PURCHASES**

No. of Purchases   
 Per Month   
 Average Quantity   
 Per Purchase (Seers)

**5. SOURCES OF WHEAT/WHEAT PRODUCTS PER MONTH**

	Wheat		Aata		Maida	
	Quantity (Mnds)	Price (P/Mnd)	Quantity (Mnds)	Price (P/Mnd)	Quantity (Mnds)	Price (P/Mnds)
Own Farming	<input style="width: 60px; height: 20px; border: 1px solid black;" type="text"/>					
From Wages in Kind	<input style="width: 60px; height: 20px; border: 1px solid black;" type="text"/>					
Purchased From:						
Farmer	<input style="width: 60px; height: 20px; border: 1px solid black;" type="text"/>	<input style="width: 60px; height: 20px; border: 1px solid black;" type="text"/>	<input style="width: 60px; height: 20px; border: 1px solid black;" type="text"/>	<input style="width: 60px; height: 20px; border: 1px solid black;" type="text"/>		
Village Shopkeeper	<input style="width: 60px; height: 20px; border: 1px solid black;" type="text"/>	<input style="width: 60px; height: 20px; border: 1px solid black;" type="text"/>	<input style="width: 60px; height: 20px; border: 1px solid black;" type="text"/>	<input style="width: 60px; height: 20px; border: 1px solid black;" type="text"/>		
Miller	<input style="width: 60px; height: 20px; border: 1px solid black;" type="text"/>		<input style="width: 60px; height: 20px; border: 1px solid black;" type="text"/>	<input style="width: 60px; height: 20px; border: 1px solid black;" type="text"/>		
Ration Shop	<input style="width: 60px; height: 20px; border: 1px solid black;" type="text"/>		<input style="width: 60px; height: 20px; border: 1px solid black;" type="text"/>	<input style="width: 60px; height: 20px; border: 1px solid black;" type="text"/>		
Middleman	<input style="width: 60px; height: 20px; border: 1px solid black;" type="text"/>	<input style="width: 60px; height: 20px; border: 1px solid black;" type="text"/>				
Retailer (Free Market)	<input style="width: 60px; height: 20px; border: 1px solid black;" type="text"/>	<input style="width: 60px; height: 20px; border: 1px solid black;" type="text"/>	<input style="width: 60px; height: 20px; border: 1px solid black;" type="text"/>	<input style="width: 60px; height: 20px; border: 1px solid black;" type="text"/>	<input style="width: 60px; height: 20px; border: 1px solid black;" type="text"/>	<input style="width: 60px; height: 20px; border: 1px solid black;" type="text"/>

**6. OCCUPATION AND INCOME**

Occupation Head of Household  Year Family Income

**7. EXPENDITURES PER MONTH OF HOUSEHOLD**

	Rupees P/Month
Total Food	<input style="width: 170px; height: 20px; border: 1px solid black;" type="text"/>
Rice	<input style="width: 170px; height: 20px; border: 1px solid black;" type="text"/>
Meat	<input style="width: 170px; height: 20px; border: 1px solid black;" type="text"/>
Vegetables	<input style="width: 170px; height: 20px; border: 1px solid black;" type="text"/>
Milk	<input style="width: 170px; height: 20px; border: 1px solid black;" type="text"/>
Sugar	<input style="width: 170px; height: 20px; border: 1px solid black;" type="text"/>
Ghee	<input style="width: 170px; height: 20px; border: 1px solid black;" type="text"/>
Fruits	<input style="width: 170px; height: 20px; border: 1px solid black;" type="text"/>

**8. CHANGE IN CONSUMPTION OF WHEAT (Products)\***

1. Same Consumption as last year
2. Decreasing Consumption
3. Increasing Consumption

**9. QUALITY OF AATA \***

- |                 |  |                                       |
|-----------------|--|---------------------------------------|
| Rationshop Aata | <ol style="list-style-type: none"> <li>1. much worse</li> <li>2. worse</li> <li>3. equal</li> <li>4. better</li> </ol> | In<br>quality<br>than free<br>market. |
|-----------------|--|---------------------------------------|

\* Encircle Number Applicable.