Agricultural Marketing Strategy and Pricing Policy

edited by Dieter Elz

A World Bank Symposium
Agricultural Marketing Strategy
and Pricing Policy

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The World Bank
Washington, D.C.
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Preface

The collection and distribution of agricultural products, particularly food, is an important mechanism for redistributing resources, wealth, and power. The marketing of agricultural products can therefore be considered a tool of development policy and an instrument for regulating and executing development processes.

In many developing countries, however, marketing constraints are becoming increasingly problematic. Complex political, institutional, economic, and operational issues concerning agricultural marketing have made it difficult to develop a general framework for understanding how a marketing system in each country performs. There has been an ongoing debate about the extent to which agriculture’s poor performance has resulted from drought, coups, high energy prices, depressed export margins, and similar “exogenous shocks” and the extent to which it has resulted from policy decisions, particularly about pricing agricultural inputs and products and controlling the market system.

Governments have adopted policies that have to a varying degree controlled or influenced markets and market institutions. These policies have usually applied measures to restrict competition, control prices, restrict quantity, impose taxes, or provide subsidies. In addition, in many countries governments have taken on marketing functions and systems. These interventions have on the whole tended to exercise “control” rather than to increase the efficiency of distribution. These developments raise major questions about the most effective market system and the appropriate use of government and of private involvement in the market. Also, the government price controls have led to the view that agricultural prices, especially in Africa, have been “wrong” in that they have been too low and have been a dis-incentive to expanding production. The question of appropriate pricing of agricultural products is complex and very much at the heart of issues of markets and market efficiency.

World Bank and International Development Association (IDA) projects in agricultural marketing have tended to focus on a specific segment of the overall marketing system. Good roads or improved storage facilities do not by themselves lead to greater marketing efficiencies, however. Such improvements alleviate marketing problems, but they do not eliminate them. Furthermore, low-cost marketing systems are characterized primarily by a high degree of coordination between marketing stages rather than by isolated strengths in any one stage. In many developing countries this coordination is, unfortunately, lacking. Currently, there are no comprehensive guidelines for formulating and implementing it.

The Seminar

This publication was developed out of a seminar for senior agricultural marketing officials, which was held in Washington, D.C., May 6-17, 1985. The purpose of the seminar was to provide a forum for the discussion of important aspects of agricultural marketing, including marketing institutions, price formulation and policies, and the relation between agricultural marketing and the general economy. Domestic marketing was emphasized, but international trade was also discussed.

Agricultural marketing is a wide subject. To provide a focus for the seminar and the discussions, the program was structured around two main topics: marketing institutions and pricing policy, both of which are related to agricultural marketing. Specific subjects were selected within this framework, and for each subject an issues paper was
presented and then discussed. Several case studies were prepared to increase the understanding of the issues.

To enable participants of this seminar and others to continue the study of agricultural marketing and to widen the range of topics, two volumes of background reading were prepared and are available on request from the Economic Development Institute (EDI). In addition, participants prepared nine reports describing the pricing and agricultural marketing systems in their own countries; these are also available on request.

Twenty-eight participants, including one observer, from ten developing countries and one international institution attended the seminar. Participants were selected on the basis of two criteria. First, representatives were invited from countries that either could demonstrate their approach to agricultural marketing or would profit from the experiences of the others. The former category includes several African countries, in which governments have intervened and used semiautonomous marketing agencies extensively, and Asian countries, in which control is also common but public agencies compete more with the private sector than in Africa. Second, two or three persons were invited from each country, since price and institutional policies are usually determined by more than one person or agency.

There was a wide variety in marketing experience and decisionmaking authority among the participants. The seminar was a blend of marketing agency managers (9), government planning authorities (8), research staff (4), high-level marketing advisors to heads of state, including two permanent secretaries (4), and executives of farmers’ unions (2). The discussions reflected the varied backgrounds of the participants and ranged from countries’ experiences in planning and managing markets to emotional issues covering ideological differences in market organization and the participation of farmers in marketing decisions.

Main Findings

Each of the main papers generated wide-ranging and sometimes emotional discussion. Because of the nature of the topics, discussions sometimes overlapped. Several main issues emerged, however, which can be categorized as follows:

- Market development as an incentive to increase production and improve economic efficiency through specialized production in subsistence agriculture
- National food security through storage, trade, and market infrastructure development
- Market information systems
- Improving knowledge about international trade operations
- Managing agricultural marketing organizations
- Institution building, for example, the role of private traders, transnationals, cooperatives, and parastatals
- Organizing markets to meet consumers’ needs
- Organizing input markets
- Prices: incentives and disincentives, administered or free market prices in developing countries, the economic effects and the political importance of subsidies
- Macroeconomic issues affecting agricultural marketing, for example, foreign exchange rate fluctuations and capital transfers
- Solving marketing problems, for example, through market liberalization
- Belief systems and political realities that influence national marketing policy objectives
- Increased agricultural production, which changes marketing from domestic to international trade.

Organization of the Volume

This volume is designed for the person who reads from cover to cover as well as for the one who reads in bits and pieces. Each part stands on its own but is linked to the others. Except for Chapters 9 and 11, the papers were written especially for this seminar and have not been published elsewhere.

As indicated before, the discussion on major issues overlapped the boundaries of the individual presentations, and it would have been repetitive to present the ensuing discussion at the end of each paper. The discussions have therefore been summarized under the thirteen main issues that emerged during the seminar and that are listed above.
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Acronyms and Definitions

ADMARC Agricultural Development and Marketing Corporation (Malawi)
AFCT Agricultural Federation of Cooperatives of Thailand
AMA Agricultural Marketing Authority (Zimbabwe)
APC Agricultural Prices Commission (India)
BULOG National Food Grain Authority of Indonesia/National Logistics Authority
CBT Chicago Board of Trade
CCC Commodity Credit Corporation
c&f Cost and freight
CIDA Canadian International Development Agency
c.i.f. Cost, insurance, and freight
CLSS Permanent Inter-Government Committee against Drought in the Sahel (Burkina Faso)
c.q.d. Customary quick dispatch
DOLOG Regional Logistic Agency (Indonesia)
EC European Community
EPC Effective rate of protection
FADINAP Fertilizer Advisory, Development, and Information Network for Asia and the Pacific
FAO Food and Agriculture Organization of the United Nations
f.a.s. Free alongside ship
FCI Food Corporation of India
f.i.o. Free in or out
f.o.b. Free on board
f.p.a. Free of particular average
GAFTA Grain and Free Trade Association
GDP Gross domestic product
GMB Grain Marketing Board (Zimbabwe)
ICRISAT International Crops Research Institute for the Semi-arid Tropics
IDB Inter-American Development Bank
IFB Invitation for bid
IMF International Monetary Fund
IRRI International Rice Research Institute
KUD Rural marketing cooperative (Indonesia)
MEEC Ministerial Economic Coordinating Committee (Zimbabwe)
MOF Marketing Organization of Farmers (Thailand)
NAEGA North American Export Grain Association
NESDB National Economic and Social Development Board (Thailand)
NPC Nominal protection coefficient
OPVN Grain Board of Mali
PWO Public Warehouse Organization (Thailand)
SCIA Foreign Credit Insurance Association
UNIDO U.N. Industrial Development Organization
USAID U.S. Agency for International Development
USDA U.S. Department of Agriculture
Agricultural marketing is a very important but rather neglected aspect of agricultural development. Emphasis is usually placed on increasing food production, with the idea that this will both improve the nutritional status of the population and act as a base for rural development. Time and experience have shown, however, that markets do not develop automatically and that the lack of a well-functioning market can severely hinder the increase of production.

Furthermore, if the surplus resulting from increased production cannot be marketed, neither the farmer nor the country will benefit; they may even be hurt if costly resources must be used to produce output that is not sold. The fundamental objective of agricultural development should not be just to increase output but to increase net per capita and family income. Farmers can increase their incomes either by producing more by marketing the products better and getting a higher price.

To understand the workings and the problems of national markets today, it is essential to place the analysis within the context of the international economy, because recent dramatic changes in the nature of international trade and finance have fundamentally altered the way international and national economic forces interact. These changes include:

- A tremendous and unexpected increase in dependence on worldwide trade since the end of World War II. As an economy becomes more open, it is no longer possible to achieve goals with only domestic policy prescriptions.
- The emergence of a well-integrated international capital market, which has created new linkages between countries and has tied their monetary policies. Now the capital market, not trade, pushes currencies.
- The change from fixed to floating exchange rates and block-floating rates, which have had important implications for the commodity markets.
- The emergence of a great deal of disturbance in the monetary system.

There are several consequences of these changes. There is now a well-established link between a country’s monetary and fiscal policy and its agricultural markets and policy. This is a new development since about 1973. Before then agricultural policies and farm programs were relatively unaffected by monetary and fiscal policies.

Also for the first time there is a close link between the international financial and commodity markets, whereby changes in the relative values of nations’ currencies and the existence of tied or block-floating rates affect commodity prices and import and export competitiveness. As long as the present international monetary arrangements continue, the very unstable commodity markets will continue. Weather creates “supply shocks,” but now the unstable international monetary arrangements are creating supply and demand shocks in the market as well.

Market institutions to deal with risk and uncertainty are now more important than they were ten to twenty years ago, and there is a need for more analytical capacity to analyze all this.

In addition the instability in the commodity markets has been similar for both agricultural and industrial commodities, which reinforces the claim that the weather has not been the primary cause of instability. Primary commodities have, however, been more unstable than secondary ones, since they are less able to make the supply adjustments in the short run. The instability of the commodity markets means that long-run commodity agreements will be very difficult to enforce.

In most countries, agricultural planners have little or no
influence over monetary and fiscal policy. The agriculture sector, however, has had to carry the brunt of the adjustments made necessary, for example, by changes in the value of a nation's currency. These issues are too important to leave totally in the hands of the finance ministry.

When a nation devalues its currency, the prices of imported goods will rise, and it is important to manage the monetary policy so that there are changes in relative prices, but not general inflation.

Some countries feel that although devaluation increases agricultural exports, the prices of these products have dropped so that overall income does not increase. This is where the importance of technical change comes in. Production technologies for some commodities have changed very rapidly, and countries that have not adopted these changes have lost their competitiveness. Countries that invested heavily in agricultural research—such as India, Brazil, and Argentina—are now getting big returns.
Part I

Market Institutions
and
Marketing
Agricultural marketing includes all activities that are involved in transforming, storing, and transporting agricultural products to the domestic consumer or foreign buyer. Figure 1-1 illustrates a typical structure of domestic food markets based on three networks: ownership and form, transport, and storage. These functions are closely interwoven into the whole national economy and materially contribute to the economic and social development of a country. The extent of this contribution depends greatly on the stage of development of the national economy in general and on its agricultural sector in particular.

The Functions of Agricultural Marketing

In many developing countries agriculture has a dualistic structure divided into subsistence farming and commercial farming. Subsistence farming fulfills the basic needs of the farm family. The family may, however, purchase small amounts of inputs and consumer goods, which may include some foodstuffs for farmers who cannot grow everything they need. At the subsistence level, marketing is not essential for the agricultural sector to survive. This is in contrast to other sectors of the economy for which marketing is indispensable for existence and development. Each subsistence farm produces a variety of products to satisfy the many needs of the farm family. While the economy of this system is usually optimally organized to serve the individual farm family, production is often not efficient in a national sense, because the lack of specialization means that farmers generally do not use their comparative advantage to produce specific agricultural commodities for the market.

Commercial farming, in contrast, is responsive to demand and is characterized by the division of labor and by specialization. Such farms depend on markets not only to sell their products but also to provide the inputs necessary to produce a marketable surplus. The productivity of this subsector is higher than that of the subsistence subsector. Therefore the aim of a national agricultural policy should be to move farmers from the subsistence to the commercial level.

Agricultural marketing plays a significant role in enabling and encouraging increases in productivity. Since agriculture is an important sector in most developing countries, overall increases in national productivity must depend heavily on the contribution of agriculture. The efficiency of that sector can be improved through the marketing system in several ways. First, it can provide farmers with signals about products and crops in which to specialize. Second, although productivity increases in agriculture result to a great extent from improved input technologies, farmers will only use new technologies if they know about them and if the necessary inputs are available when needed; obviously, the marketing system can provide these functions. Third, while the marketing system can stimulate economic development, it is also driven by development elsewhere in the economy. For example, the share of the population employed in agriculture usually decreases with economic development, while the proportion of the population employed in other sectors, particularly in urban areas, increases. The marketing system thus not only must develop to handle a larger proportion of the total national food production, since the subsistence sector declines, but it also must adjust to handle a more complex distribution system, since the market chain is extended and becomes more diversified.

Note: The author thanks Caroline Hoisington and Nicholas Wallis for constructive comments and editorial assistance on the paper.
Interaction between Agricultural Marketing and the Economy

The marketing system makes a significant contribution to the general economy by adding value and by generating employment. This contribution grows as the scope of marketing expands. For example, in the United States, which has probably the most efficient agricultural marketing system in the world, the value added to farm products in 1982 through consumer marketing expenditures accounted for US$216 billion. Economic activity in the U.S. food and fiber system in that year required the services of about 20 percent of the entire national labor force, equivalent to about 22 million people. Tables 1-1 and 1-2 illustrate these statistics in more detail.

Agricultural marketing is greatly affected by population growth and urbanization, the rate of growth of agricultural production, and the stage of development of the general economy. Specific activities to improve agricultural marketing can be related to each of these development indicators, as Table 1-3 indicates.

Rapid population growth and the urbanization usually associated with it require improved and expanded infra-

### Table 1-1. Components of U.S. Consumer Expenditures for Domestic Foods, 1982

<table>
<thead>
<tr>
<th>Component</th>
<th>Expenditure (billions of dollars)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Consumer expenditures</td>
<td>299.1</td>
</tr>
<tr>
<td>Farm value</td>
<td>83.3</td>
</tr>
<tr>
<td>Marketing bill</td>
<td>215.8</td>
</tr>
<tr>
<td>Labor</td>
<td>96.7</td>
</tr>
<tr>
<td>Packaging materials</td>
<td>23.2</td>
</tr>
<tr>
<td>Transportation</td>
<td>14.7</td>
</tr>
<tr>
<td>Profits before taxes</td>
<td>13.1</td>
</tr>
<tr>
<td>Fuel and energy</td>
<td>12.4</td>
</tr>
<tr>
<td>Other</td>
<td>55.7</td>
</tr>
</tbody>
</table>

Table 1-2. Employment Generated by the Flow of Agricultural Products through the U.S. Economy, by Selected Activity, 1982

<table>
<thead>
<tr>
<th>Sector</th>
<th>Number of people (million)</th>
<th>Percent of total agricultural labor force</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agricultural production</td>
<td>3.1</td>
<td>13.8</td>
</tr>
<tr>
<td>Food processing</td>
<td>1.7</td>
<td>7.6</td>
</tr>
<tr>
<td>Manufacturing</td>
<td>4.1</td>
<td>18.2</td>
</tr>
<tr>
<td>Transport, trade, and retailing</td>
<td>7.7</td>
<td>34.2</td>
</tr>
<tr>
<td>Eating establishments</td>
<td>3.2</td>
<td>14.2</td>
</tr>
<tr>
<td>All others</td>
<td>2.7</td>
<td>12.0</td>
</tr>
<tr>
<td>Total</td>
<td>22.5^a</td>
<td>100.0</td>
</tr>
</tbody>
</table>

a. Equivalent to 20.4 percent of total labor force.


Table 1-3. Indicators of Improvements Needed in Agricultural Marketing

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Improvements needed</th>
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<tbody>
<tr>
<td>Strong population growth and urbanization</td>
<td>Development of infrastructure</td>
</tr>
<tr>
<td></td>
<td>Development of communication</td>
</tr>
<tr>
<td></td>
<td>Price and institutional adjustments</td>
</tr>
<tr>
<td>Insufficient growth of agricultural production</td>
<td>Improvement of logistics and production services, that is, supply of inputs credit, extension, and research</td>
</tr>
<tr>
<td>Different stage of development in low- and medium-income countries</td>
<td>Medium-income countries: processing industries and development of high-value foods</td>
</tr>
<tr>
<td></td>
<td>Low-income countries: increase production for subsistence and market</td>
</tr>
</tbody>
</table>

Generally speaking, four main groups of individuals influence the marketing system: producers, traders, trade supporters, and planners. A fifth group would be consumers, but their influence is considered a derived function that is executed through traders and trade institutions, and they are considered in Chapter 4. Table 1-4 lists the aims of the main interest groups concerning the marketing system and shows the wide diversity of their goals. The table illustrates a goal structure system for the individual groups involved in agricultural marketing, and the Appendix provides an example of how such a system can be imposed at the national level where the marketing relations are related to the overall national goals of independence, welfare, and social justice. These goals were chosen because they are frequently named as development objectives by developing countries. The Appendix shows how, starting from a general goal (independence, welfare, or social justice), four subgoals and development stages can be developed in consecutive order and how the achievement of one subgoal leads to the next one above it.

Agricultural producers are generally interested in maximizing their net farm income while reducing the risk of producing and marketing their production. Traders and their supporters, however, are interested in improving the efficiency of the exchange of goods. Planners and decisionmakers have social and political goals generally related to securing ample food supplies and expanding

Table 1-4. Specific Marketing Goals of the Individual Interest Groups

<table>
<thead>
<tr>
<th>Interest groups</th>
<th>Goals</th>
</tr>
</thead>
<tbody>
<tr>
<td>Producers</td>
<td>Secure subsistence production</td>
</tr>
<tr>
<td></td>
<td>Developed and guaranteed markets</td>
</tr>
<tr>
<td></td>
<td>Improved market position</td>
</tr>
<tr>
<td></td>
<td>Increased and stabilized prices for output</td>
</tr>
<tr>
<td></td>
<td>Stable supply and prices of inputs</td>
</tr>
<tr>
<td>Traders</td>
<td>Time- and cost-efficient purchasing</td>
</tr>
<tr>
<td></td>
<td>No trade restrictions</td>
</tr>
<tr>
<td></td>
<td>Reduced risk</td>
</tr>
<tr>
<td></td>
<td>High volume and profit</td>
</tr>
<tr>
<td>Trade supporters</td>
<td>Smoothly functioning market systems</td>
</tr>
<tr>
<td></td>
<td>General support of market exchange function (such as infrastructure and communication)</td>
</tr>
<tr>
<td>Trade planners and decisionmakers</td>
<td>Market interventions to stabilize prices</td>
</tr>
<tr>
<td></td>
<td>Secure food supply</td>
</tr>
<tr>
<td></td>
<td>Promotion of export sector</td>
</tr>
</tbody>
</table>

Note: Consumers form another group.

Source: Translated and adapted from BMZ, GTZ (1984), p. 44.
domestic marketing. As Table 1-4 indicates, the goals of the individual groups do not necessarily coincide. For example, while traders may want to eliminate trade limitations, decisionmakers may promote exactly the opposite, namely market interventions. These conflicts produce stresses and strains in the system and require both an understanding of its working mechanism and skill in balancing the interests of the individual groups.

Not only do the individual marketing interest groups face conflicts among each other, but they also face considerable problems in achieving their marketing goals, as shown in Table 1-5. Problems of economics and risk are common to all groups, but specific problems arise out of the market position of the individual groups. Producers face problems in bringing their produce to markets and therefore are often in a precarious situation in establishing and maintaining their market position. The efficiency of the marketing process itself is often a major problem for traders, while administrative issues are of concern to trade supporters. These last two groups are also concerned with improving working conditions. Decisionmakers, however, are concerned with the problems of incorporating marketing to contribute to achieving certain goals. These problems include issues of pricing, such as the relation between consumer and producer prices, inflationary trends, and exchange rates, as well as the overall problems of ensuring a sufficient quantity and acceptable quality of output and its delivery through the marketing system to the consumer.

Future Market Developments

Three major developments have influenced the market situation in the past and will continue to do so in future: expansion of the population, developments in production, and the large expansion in international agricultural trade.

Population Growth

In just over thirty years, between 1950 and 1984, world population nearly doubled, growing from 2.5 billion to almost 4.8 billion. This represents a yearly growth rate of about 2 percent. Although the rate of increase in growth is expected to decline, estimates by national and multinational agencies indicate that by 2000 the world population will reach about 6 billion (World Bank 1984, p. 2). Since 1950 population growth has been concentrated largely in the developing countries. Driven by falling mortality and

| Table 1-5. Potential Problems for Individual Interest Groups In Agricultural Marketing |
|-----------------------------------------------|-----------------|-----------------|-----------------|
| Producers | Traders | Trade supporters | Trade decisionmakers |
| Sales | Logistics | Administration | Supply |
| Lack of customers | Dispersed supply | Operational knowledge | Spatial distribution and transport |
| Lack of transport | Insufficient transport system | Operational structure | Storage |
| Lack of funds | Insufficient information | Conflict situations | Suitable processing |
| Lack of storage | Lack of facilities and services | Dependence on experts | Qualitative and quantitative losses |
| Market position | Working conditions | Working conditions | Prices |
| Isolated location, unsatisfactory market | Unfavorable conditions for competition | Regulations and external limitations | Absolute price level |
| Dependence on buyers | Lack of professional knowledge | Regulations and internal limitations | Relative price level |
| Little market transparency | Rigid trade legislation | Customs and informal trade practices | Price transparency |
| Small quantities of supply per producer | Political discrimination | Available information | Inflation |
| Economics | Economics | Economics | Economics |
| Subjectively determined low producer prices | Small marketing margins | Absolute and relative administrative cost | Productivity |
| Large supply in market overall | High direct costs | Commission structure and level | Credit |
| Lack of liquidity | High indirect costs | Profitability of marketing institutions | |
| Special risks | Special risks | Special risks | Special risks |
| Price fluctuations | Large price fluctuations | Personnel changes | Integration and concentration |
| Physical sales risk | Supply fluctuations | Political interference | Minorities |
| Insecure income | Insecure legal system | Corruption | External trade |
| Insecure input supply | Large physical losses | |

continued high fertility, the population rate rose about 2 percent a year in those countries. It peaked at 2.4 percent in the 1960s. It is now again around 2 percent a year because of a slightly greater decline in birth rates than death rates.

**Developments in Production**

This expansion in population demands large increases in food production and distribution. Within this framework two specific developments are likely to occur: real food prices for domestically produced and consumed stable foods are probably going to increase, and the movement of people from rural to urban areas is going to continue. While the former may provide incentives to farmers to produce more and thus increase the volume of marketing, the latter implies not only an increase in market volume but also a lengthened marketing chain. Stresses and strains on this chain will be enormous, as it is projected that the urban population will nearly triple between the early 1980s and 2000. In 1983 about 800 million people lived in urban areas. By 2000 that figure is estimated to reach 2.2 billion.

World agricultural production expanded 2.1 percent yearly during 1975–83 (Table 1-6). Since this increase was only slightly greater than the increase in population, the per capita calorie supply showed little or no change.

Increases in output have, however, varied considerably among regions, as Table 1-6 indicates. The supply situation in the developing countries deteriorated mainly in Africa. Prospects for improving the growth rates in the developing African countries, at least in the short run, are not very favorable. This implies that many of those countries are likely to depend heavily on the world market for part of their food supply. This dependence will be in the form of commercial trade, and, since most of these countries have very little foreign exchange, significant amounts will move as foreign aid. Port handling could be a significant bottleneck in moving these imports.

**Table 1-6. Expansion of World Agricultural Production**

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Developed</td>
<td>2.1</td>
<td>2.1</td>
</tr>
<tr>
<td>Developing</td>
<td>2.7</td>
<td>2.7</td>
</tr>
<tr>
<td>Africa</td>
<td>2.8</td>
<td>1.5</td>
</tr>
<tr>
<td>Latin America</td>
<td>2.9</td>
<td>2.7</td>
</tr>
<tr>
<td>Near East</td>
<td>2.8</td>
<td>2.2</td>
</tr>
<tr>
<td>Far East</td>
<td>3.0</td>
<td>3.5</td>
</tr>
<tr>
<td>Centrally planned</td>
<td>3.2</td>
<td>2.3</td>
</tr>
<tr>
<td>Average</td>
<td>2.6</td>
<td>2.1</td>
</tr>
</tbody>
</table>

Source: FAO, Production Yearbooks.

**International Trade**

The third major development that has characterized the world agricultural marketing situation has been the extraordinary growth in food exports from developed countries. Cereal shipments from developed to developing countries increased nearly fivefold from the early 1960s to the end of the 1970s (Mellor 1984). This resulted from the large expansion in commercial demand in the prospering countries in North Africa, the Middle East, Latin America, and Asia; large imports into the centrally planned countries, particularly the U.S.S.R., to develop their livestock industries; the increased demand caused by urbanization; and the virtual cessation of growth in per capita food production in many of the developing countries. Generally speaking, these trends will continue, and commercial international trade and foreign aid will expand further. The effective demand for food imports may decline in some countries, however, because in the past the income growth and the consequent rise in demand for food in several importing countries was partly debt-financed, and this cannot continue. Given the international debt situation, possibilities for debt-financed income growth may be considerably diminished in the future, which will moderate incomes and, in turn, the demand for commercial food imports by developing countries.

This brief overview of the future agricultural market situation indicates that agricultural production in developing countries will have to expand to meet the increasing food demand of the expanding population. Part of the increased supplies will come from foreign sources, either through trade or aid. The bulk of the supply, however, will have to be produced in the consuming countries. For the marketing system, this implies considerable increases not only in output to be handled, but also in inputs to be distributed, both internally and externally. Several steps will be needed to prepare the marketing system for this task.

**Alternatives for Future Agricultural Marketing Development**

The alternatives for improving agricultural marketing in developing countries depend very much on the specific situation in each country and, to a certain extent, on regional aspects. Figure 1-2 provides a conceptual framework for improving agricultural marketing systems. Generally speaking, they can be divided into physical and administrative activities and policy decisions.

**Physical and Administrative Activities**

The physical, administrative, and organizational activities that can contribute to improving agricultural marketing are summarized in Table 1-7. Some of these measures require little financial input to improve the efficiency of
**Figure 1-2. A Conceptual Framework to Improve Agricultural Marketing Systems in Developing Countries**

Agricultural marketing system = Institutional organization of all activities necessary to expand and distribute agricultural production

- Most of the impoverished population in developing countries lives in rural areas.
- Rural poor cannot be reached by "trickle down."
- Institutional constraints prevent development of small farmers.
- Overall development depends on performance in agriculture.

Neglected rural poor

Develop agricultural marketing

Expand functional internal markets

Institutional organization

Policy formulation

Situation

Objectives

Instruments

Participants

Marketing systems

Inputs
Organization of production
Distribution of output

Small farmers and the rural poor
Marketing institutions
Government
International organizations

Establish institutional prerequisites to transform semisubsistence agriculture and to integrate marketing of small farmers’ products into overall agricultural development.

Secure income for the rural poor.

Expand food production and secure basic nutrition.

Achieve spread effects through rural development.

**Policy Decisions**

Marketing policy alternatives are indicated in Table 1-8. Basically there are three kinds of development policies: growth-oriented, employment-oriented, and basic needs-oriented. Table 1-8 illustrates the policy profiles and their relation to agricultural marketing for growth-oriented and basic needs-oriented policies. (The discussion of these issues is based on BMZ, GTZ (1984), chap. 2.) The former were used during the 1960s while the latter were more characteristic of the later 1970s.

Growth-oriented development policies are basically directed toward promoting capital formation. They are based on the assumption that one of the major contributions agriculture should make is to generate and transfer...
Agricultural Marketing Policies and Development

Table 1-7. Alternatives for Improving Agricultural Marketing

<table>
<thead>
<tr>
<th>Kind of development</th>
<th>Improvements needed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Infrastructure</td>
<td>Development of large and rural markets, storage, processing industries, foods, communication, and information systems</td>
</tr>
<tr>
<td>Market organization</td>
<td>Development of state, parastatal, and private marketing organizations, such as marketing boards, cooperatives, and private trade Support and strengthening of self-help organizations, especially for smallholders</td>
</tr>
<tr>
<td>Market information and extension</td>
<td>Regular reporting and projection of agricultural marketing, especially prices and volume Development of marketing extension services for producers and marketing organizations</td>
</tr>
<tr>
<td>Agricultural market administration</td>
<td>Standardization and quality control Development of planning capacities Strengthening of professional competence of agricultural marketing administration</td>
</tr>
<tr>
<td>Training</td>
<td>Creation of training institutions and programs for people and organizations involved in marketing</td>
</tr>
<tr>
<td>Research</td>
<td>Market systems analysis Development of appropriate marketing technologies Demand and supply analysis Projections and market behavior</td>
</tr>
<tr>
<td>Credit</td>
<td>Smallholder supply and market credit Investment credit for marketing institutions</td>
</tr>
</tbody>
</table>


countries they were not based on the realities of the agricultural sector and its development. In most developing countries that sector consists of a large number of small farms, many of them engaged in subsistence farming, with a comparatively small involvement in marketing. Other sectors of the rural economy also did not benefit because they were too poor to constitute an economic force. To integrate the poor into such a force, they first have to be helped to improve their standard of living by satisfying their basic needs, such as education and health.

Agricultural policies oriented toward basic needs were developed that were based on the principle of participa-

Table 1-8. Profiles of Alternative Development Policies

<table>
<thead>
<tr>
<th>Growth-oriented</th>
<th>Basic needs-oriented</th>
</tr>
</thead>
<tbody>
<tr>
<td>Price policies</td>
<td></td>
</tr>
<tr>
<td>Food and input prices oriented on urban and industrial interests</td>
<td>Agricultural prices geared to increase self-sufficiency</td>
</tr>
<tr>
<td>Relative prices (output/input and input/output) oriented to efficient farms</td>
<td>Price policies aimed to create demand-oriented production structures</td>
</tr>
<tr>
<td>Market development policies</td>
<td>Relative prices according to demand necessities and technical potential of smallholders</td>
</tr>
<tr>
<td>Improved vertical integration of local, national, regional, and international markets, judged by efficiency, that is, minimizing transfer cost</td>
<td>Price policies geared to target group and typical market commodities</td>
</tr>
<tr>
<td>Credit policy and choice of technology</td>
<td></td>
</tr>
<tr>
<td>Disparate credit distribution and conditions</td>
<td>Emphasis on smallholder credit</td>
</tr>
<tr>
<td>Only production credit</td>
<td>Credit security through common responsibilities</td>
</tr>
<tr>
<td>Credit mainly for modern inputs</td>
<td>Consumption credit</td>
</tr>
<tr>
<td>Emphasis on labor-saving techniques, such as mechanization</td>
<td>Special credits for smallholders' simple technical advancement</td>
</tr>
<tr>
<td>Choice of institutions</td>
<td></td>
</tr>
<tr>
<td>Cooperatives and other top-down efficient self-help organizations</td>
<td>Smallholders require specific rural services to solve their supply and demand problems</td>
</tr>
<tr>
<td>Orientation toward efficient farmers</td>
<td>Participation and self-help geared toward direct need of target group to integrate it into production systems</td>
</tr>
<tr>
<td>Extension services aimed to increase absorptive capacity of rural sector for modernization guided from outside</td>
<td></td>
</tr>
</tbody>
</table>

Source: Translated and adapted from BMZ, GTZ (1984), p. 58.
Market Institutions and Marketing. They encouraged the rural sector to become involved in its own development process after enabling it to do so through better education, health, and so forth. Agriculture's contribution to overall economic development was to be based on the smallholder sector. It was recognized that this role constituted a major burden on the sector, and policies were designed to ease this burden through price incentives, credit, and better supply services in general. The function of marketing in such a policy system was to reduce marketing margins, to support self-sufficiency in food production through price and other incentives, and to improve the distribution of goods and services through improvements in infrastructure.

In the future agricultural marketing in developing countries will have to continue to concentrate on the smallholder subsector to benefit that sector and, through it, the rural poor. This requires that institutional prerequisites be established to transform semisubsistence agriculture and to integrate small farmer marketing into overall agricultural development. It also requires that farmers and the rural poor actively participate in the development process.

### Appendix. Examples of Goal Structure Systems for Agricultural Marketing

<table>
<thead>
<tr>
<th>A. General goal</th>
<th>National independence</th>
<th>Economic self-sufficiency with minimum dependence on external influences</th>
</tr>
</thead>
<tbody>
<tr>
<td>Main goal</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sector goals</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Corresponding</td>
<td></td>
<td></td>
</tr>
<tr>
<td>market goals</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- **Increased self-sufficiency**
  - higher or more stable domestic produce prices
  - efficient input marketing
  - competition through ensuring market entry

- **Diversification of production**
  - reducing production and market risks through
  - introducing new and complementary production technology
  - diversifying into specialized crops and livestock products
  - creating markets for new products

<table>
<thead>
<tr>
<th>B. General goal</th>
<th>Welfare</th>
<th>Increase real social product</th>
</tr>
</thead>
<tbody>
<tr>
<td>Main goal</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sector goal</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Corresponding</td>
<td></td>
<td></td>
</tr>
<tr>
<td>market goals</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- **Develop productive resources of technology**
  - introduce new technology
  - support innovative trade groups
  - provide investment incentives (credit, etc.)

- **Develop productive resources of labor**
  - improve the quality of labor
  - develop programs for traders
  - develop market advisory programs

- **Develop productive resources of capital**
  - support capital formation and efficiency, particularly in trader's community
  - increase demand for industrial farm inputs
  - transfer productive resources based on comparative advantage

<table>
<thead>
<tr>
<th>C. General goal</th>
<th>Social justice</th>
<th>Eliminate unequal income development and distribution</th>
</tr>
</thead>
<tbody>
<tr>
<td>Main goal</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sector goals</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Corresponding</td>
<td></td>
<td></td>
</tr>
<tr>
<td>market goals</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- **Stable agricultural prices**
  - increase market transparency
  - standardize products
  - develop storage
  - develop infrastructure
  - reduce marketing costs

- **Directing agricultural marketing**
  - improve economics of the distribution system
  - implement quality control and training
  - provide government market regulation through price support, supply, adjustment, and credit

- **High employment**
  - establish labor-intensive processing industries
  - support artisan and small-scale industries based on intermediate technology

*Source: Translated and adapted from BMZ, GTZ (1984), pp. 47-49.*
References


Alternative Agricultural Marketing Institutions

John C. Abbott

When many developing countries attained independence in the 1950s and 1960s, their governments inherited quite elaborate marketing institutions. Some had been set up by expatriate farmers to maximize returns from specialized crops. Others were initiated by the colonial authorities to cushion the effects on indigenous producers and consumers of sharp fluctuations in commodity prices.

During the next two decades a congruence of Marxist political views and the interests of development planners encouraged governments to take an increasing role in agricultural marketing. The potential role of indigenous private enterprise was largely ignored, and transnationals were denigrated.

In the 1970s the focus on rural development and equity stimulated appraisal of marketing mechanisms not only for their ability to move produce to the best available markets with the least waste and cost, but also for the consideration and assistance they gave to the smaller producers. These farmers are concerned mainly with whether they are treated fairly at the local buying stage, how much the marketing system helps and protects them against larger rivals in the same production area, and how much the system helps them to raise the quality of their output and to gain access to the techniques and inputs needed to achieve this on credit until sales proceeds come in.

Four broad organizational systems have been used to provide marketing and associated services for farmers in the developing countries.

- Independent private firms operating within some institutional framework, such as assembly and auction markets or exchanges, possibly with some mechanism for cushioning extreme price fluctuations
- Transnational companies using processing technology, economies of scale, and established market outlets
- Farmers' associations or cooperatives
- Marketing boards or other state agencies, including special area and development authorities.

The relative advantages of these alternative forms of enterprise for small farmers are summarized in Table 2-1.

The most favorable position for the small farmer has generally been to belong to a production and marketing contract system for a particular crop, which is organized by an enterprise with assured market outlets for the crop after processing. In this situation the farmer receives a full set of services on credit. The quality of the extension assistance provided far exceeds that available normally because it is tailored to the needs of a specific market outlet and the processes used. It is likely to be based on specific research and be backed up by the direct provision of seeds, pesticides, and fertilizer on credit, together with day-to-day advice on how and when to carry out production operations and to harvest and handle the product. Typically this kind of marketing service has been offered by a transnational, such as the British American Tobacco Company for tobacco, Unilever subsidiaries for oilseeds, Cadbury for cocoa in India, French associated companies for cotton in francophone Africa.

Only a few small farmers have obtained access to such contracts, however. For most the main buyer of their produce has been a private enterprise trader in their village or at a nearby market.

Many government policy initiatives have tended to direct farmers elsewhere, and they have tried mainly to establish cooperative or state enterprise marketing systems. These initiatives have been motivated by such determining factors as the political preferences of national leaders, a desire to appear to be doing something new quickly, and
lack of reliable information on the realities of market performance in their own countries. In his pioneering study Spinks (1970) observed that information counter to the official policy line was often suppressed or never channeled to decisionmakers.

External aid agencies tended to back up these preferences for much the same reasons and, in addition, for administrative convenience; they needed an official counterpart agency to which they could tie their aid or loan. International fellowships for advanced training in marketing went mostly to government officials, rarely to the sons of merchants. Aid resources were concentrated on government-sponsored marketing systems.

Awareness of the cost of maintaining these bodies in the face of declining government revenues and aid inflows since the recession of the early 1980s has since brought a new realism to this policy area. The alternative marketing structures are being reevaluated.

Indigenous Independent Private Firms

Individual private marketing enterprises are well adapted to provide a range of positive contributions toward marketing efficiency and economic development. They have demonstrated themselves well suited to take advantage of and exploit unforeseen opportunities and follow up new ideas and to start up and go a long way with very little capital. Private marketing enterprises are great builders of capital assets. Their operators tend to be economical, even parsimonious, in their personal expenditure, very careful in their business outlays, and stringent in their requirements of performance from salaried staff.

These enterprises operate at very low cost. Only staff who make a positive contribution to the enterprise are employed. Full use is made of family labor that is available at no cost. Outlays on equipment and other capital expenditures are commonly kept to the minimum and are delayed until proved indispensable.

Because decisionmaking is concentrated, these enterprises tend to show ready initiative and respond quickly to a changing situation. Family ties and kinship linkages can often be used to extend the marketing operation with high confidence and low risk. Where the infrastructure for marketing is at an early stage of development, reliable means of communicating information, sales commitments, and financial proceeds are important. A private enterprise has a continuous incentive to remain efficient, since without barriers to the entry of new firms, it will otherwise lose customers and go out of business.

There are several areas of marketing in which private enterprises tend to perform better than others. Perishable products vary in quality, tend to deteriorate quickly if not held in special storage or processed, and are subject to sharp changes in price in response to variable supplies, so enterprises marketing such products must be able to respond rapidly.

For livestock and meat, the variability of the product, the need for judgment in appraising quality and value and for care in handling to avoid losses gives an edge to direct decisionmaking. The predominance of private enterprise in the marketing of livestock and meat also reflects the reluctance of many people to come close to the realities of this trade.

Often the purchase of produce is combined with sales of farm inputs and consumer goods. When the quantities sold and bought by each customer are small and varying, considerable local knowledge, patience, and willingness to work for long hours and at many locations is needed. Prices may have to be adjusted at each transaction, and complex small-scale credit arrangements may have to be provided if such an enterprise is to serve its clientele well. Often only a family enterprise, with a wife or child minding a shop while the husband goes out on rural purchasing and sales rounds, can provide this service economically.

The new and highly specialized activities in marketing characteristically result from individual initiative and are not a planned development by a committee or a government department. Not all such initiatives are successful over the long run. Nevertheless, to shut the door to the exploitation of unforeseen opportunities by leaving no legal scope for private marketing enterprise is manifestly negative to progress.

Transnationals

Transnationals can make many contributions to marketing development and efficiency. In finance they are generally in a position to mobilize capital from the lowest cost sources. They can bring capital into a country directly to acquire land and facilities and provide a working base. They can also bring in equipment, improved seeds, strategic supplies, and skilled management and technology, for which foreign exchange would be needed in any event.

In applied technology, developing countries face the risk of selecting unsuitable designs and equipment and the problems of putting new plants into operation and maintaining them. Engaging an enterprise with demonstrated experience in applying a desired technology and in a position to keep it up-to-date is often the safest and, in the long run, least expensive way of acquiring it.

The qualified management of a transnational, who are experienced in the specific lines of product marketing, are an immediate advantage. Local personnel can learn much by working with them. The cost of maintaining expatriate managers will encourage the transnational to promote nationals into management positions as soon as they are sufficiently competent.

The transnational experienced in meeting quality standards can help a country overcome such barriers to successful marketing. It can also reduce quality risks to domestic consumers and help domestic agriculture produce raw materials with the required attributes.
<table>
<thead>
<tr>
<th>Marketing structure</th>
<th>Sales position of small farmers in relation to larger farmers</th>
<th>Sales position of small farmers in relation to buyers</th>
<th>Extension-type assistance</th>
<th>Provision of seeds or planting materials</th>
<th>Supply of fertilizer</th>
<th>Other credit</th>
<th>Government support required</th>
</tr>
</thead>
<tbody>
<tr>
<td>Indigenous, independent private firm</td>
<td>Bargaining weight can be used against small farmer</td>
<td>Advantage of access to alternative outlets</td>
<td>Advice based on local experience</td>
<td>May supply on credit</td>
<td>May supply on credit</td>
<td>Consumption credit often available in addition</td>
<td>Provide market infrastructure and information services; maintain competition and some price stabilization</td>
</tr>
<tr>
<td>Transnational marketing and processing enterprise</td>
<td>Equitable prices if a contract can be made</td>
<td>Dependent but secure if product quality requirements can be met</td>
<td>Can be direct and intensive</td>
<td>Direct supply on credit</td>
<td>Direct supply on credit</td>
<td>No</td>
<td>Should negotiate participation for small farmers and prices</td>
</tr>
<tr>
<td>Cooperative</td>
<td>Equal if operated successfully</td>
<td>Favorable if cooperative operates efficiently</td>
<td>Collaborate with government service</td>
<td>May arrange supply</td>
<td>Direct supply on credit</td>
<td>May supply where supported by cooperative bank</td>
<td>Continuing financial support, supervision and protection generally needed</td>
</tr>
<tr>
<td>Parastatal</td>
<td>Equal price if fixed at official buying station</td>
<td>Depends on access to buying station; may be subject to illicit charges; otherwise protected if product quality requirements can be met</td>
<td>Usually left to government service, but can be direct and intensive</td>
<td>Usually assistance rare, but direct supply on credit possible</td>
<td>Assistance rare</td>
<td>No</td>
<td>Major financial input or privileges usually required; insistence on measures to help small farmers at rural buying points</td>
</tr>
</tbody>
</table>
A close link with an enterprise that has established outlets in major import markets is a great advantage in maintaining market access for export sales. Experience shows that when prices drop, exporters with continuing distribution arrangements in the importing countries hold on to their market, while the independents lose out.

Brands carry great weight with consumers and with the wholesalers and retailers who serve them. An agreement to sell through the owner of an established brand enables the producer to share the benefits of the reputation and past promotions of the brand.

Export marketing is the field in which transnationals perform best. Here knowledge of the required technology, close familiarity with the requirements of import markets, and an established position are strategically important. Processed products sold by brand are a high priority, such as pineapples and instant coffee. Also favored are perishable products that can reach a distant market under integrated management and be sold by brand, such as bananas.

In marketing farm supplies, economies of scale favor transnationals, who can better develop and distribute higher-yielding seeds and poultry strains, as well as specialized livestock feed ingredients, and pesticides. Fertilizer, however, is not an important product of the transnationals. Although such companies helped promote its use, most developing countries now purchase by ingredient specification, and brand names are not significant.

In domestic marketing, the main opportunity for the transnational is in applying advanced technology and associated commercial management. This can be backed up using an established proprietary brand. For example, by introducing into Pakistan their technology for extracting valuable starch products from maize, one company expanded the cultivation of corn products greatly, which produced attendant benefits to agriculture.

Cooperatives

The marketing efficiency of a group of farmers is increased by selling together if they can benefit from economies of scale in the use of transport and other services through increasing the volume of a commodity handled at one time and raise their bargaining power in sales transactions.

Several specific conditions favor cooperative marketing: specialized producing areas distant from their major markets, concentrated and specialized production, homogeneous production and output for market and, groups of farmers dependent on one or a few crops for their total income.

Successful cooperative marketing is possible when several factors are present: local leadership and management, a well-educated membership, and members all belonging to one family group, with strong kinship ties or integrated by religion.

Although cooperative systems may not be able to match the cost efficiency of many private enterprises, they should be maintained as an alternative channel. They are well suited to assemble fairly standard, not-very-perishable products (such as coffee and cotton) for sale in preestablished markets in which the price risk is small and to distribute a fairly standard, not-very-perishable farm input (such as fertilizer), also where pricing is preestablished.

Thus the assembly of coffee for export has been a successful area of cooperative marketing in various African countries. The product is then generally channeled to a monopoly export marketing board, as in Kenya, Uganda, and Tanzania. The West Cameroon Cooperative Union exports arabica directly to France. The Windward Islands Banana Association works well as assembling agent for the Geest Company and sets prices based on independent observation of the destination market. Most of these assembly arrangements are reinforced by distance from the market and by official protection.

Fertilizer distribution is a classic activity of farmer cooperatives in Western Europe, North America, and Japan. In developing countries coffee, banana, and other cooperative systems combine fertilizer distribution conveniently with marketing the crop on which it is used. This constitutes a practicable basis for distributing inputs on credit. In India some 6 million tons of fertilizer are channeled to farmers annually through a cooperative system operated in parallel with private channels. The system is protected, however, since the government allocates to it about 40 percent of the total supply. A characteristic difficulty in this situation is inventory control. Decisions made centrally, by a federation for many member societies, for example, do not always provide the right fertilizer at the right place, at the right time, and in the right quantity.

A protected role as handler for the government or, for a marketing board, of some standard product does provide a base from which a farmers' cooperative with the necessary leadership can undertake a range of other activities to help its members, as evidenced in Korea and Taiwan.

Parastatals

These organizations are autonomous in day-to-day operations but are guided by government instructions. They are convenient vehicles for applying public capital, implementing government price policies, determining marketing policies, and assigning marketing monopolies.

Parastatal marketing bodies were advantageous in the 1960s and 1970s for three reasons. First, they moderated supply and price fluctuations in domestic markets by buying into, and selling from, buffer stock. The parastatal operating a buffer stock in parallel with other enterprises is specifically adapted to moderate fluctuations in market supplies and prices of products intended for domestic consumers. Most African, Asian, and Latin American countries have established such mechanisms to implement
minimum prices to producers of important food grains and to protect consumers against prices likely to cause hardship. Sharp variations in price can be caused by marginal surpluses and deficits; buying into a buffer stock some 5 to 15 percent of the marketed supply of the product concerned is normally sufficient to eliminate wide price extremes. Confining the operation to such proportions limits the capital and subsidy required from the government. It leaves the bulk of the trade to existing marketing enterprises, which generally are able to operate at lower cost because they have lower overheads and can select their transactions to match their resources and convenience.

Second, export marketing monopolies can obtain higher returns for the growers if they control enough of the total volume going to a particular market to be able to influence prices. The Cyprus Potato Board had done this very well within its own seasonal niche in the U.K. market. Since they control 40 percent of the export market for the long-staple varieties, cotton export monopolies in Egypt and Sudan manage well the markets they dominate. In Zimbabwe the benefits from maintaining high-quality standards for specific buyers have been demonstrated. Where buyer preferences are varied, a monopoly board may obstruct price signals from an industry seeking to adjust production to its requirements, as in Nigeria in the early 1980s. When the Commonwealth West African export monopolies were set up and sold together, they dominated the main import markets for cocoa, but this is no longer the case. Export markets for coffee are subject to the quotas of the International Coffee Organization. It is in exporting country's interest that its best quality coffee goes out in the quota. Thus some control mechanism is advantageous, but not necessarily a monopoly export board.

Third, monopolies in domestic markets are assigned to parastatals to concentrate sales of produce through a particular processing plant to justify the investment, to facilitate collection from small farmers of credit repayments and other dues, and to implement market separation programs by which higher overall prices can be obtained.

There are commodity marketing situations in which parastatals are common and others in which, for practical reasons, they have been found less convenient and effective. Major food grains, such as maize, rice, and wheat, have priority. Less "political" grains and pulses, including those often used by lower-income consumer groups, receive less attention because governments need to limit activities that might call for eventual subsidization. Coffee, cocoa, and cotton are typically sold by standard quality specifications and are widely handled by parastatals. Tea and tobacco, however, require direct examination of samples and are thus more often sold by open auction. Livestock and meat, perishable fruits and vegetables, and relatively perishable tubers also tend to be left aside and sold on the open market.

Constraints and Support Management

Each type of marketing institution has its own benefits and drawbacks, and each requires a different kind and level of support from the government.

Private Enterprise

The classic concern about a structure of private marketing enterprises is that they will collude to keep prices down to producers and up to consumers. Since the remedy for this situation is to introduce new enterprises, government policy should encourage the development of competing enterprises by facilitating access to information and to capital.

In many developing countries private marketing enterprises have been considered to be too numerous and too small. In an economy in which small-scale producers and low-income consumers are also numerous, however, small marketing enterprises have an important role. They tend to operate more economically than larger enterprises and provide services that would otherwise not be available. If conditions are favorable, some will grow to national scale.

A few private enterprises in Sudan used family and religious ties to push their shares of some commodity markets up to 80 or 90 percent. The capital they accumulated appears to have been ploughed back into family businesses, which then diversified into agricultural and industrial production. Because this was integrated through the marketing enterprise, it led to effective economic development.

Transnationals

The reservations of developing-country governments about transnationals have focused on the risk of becoming dependent on, and thus dominated by, them. A recent illustration was the concern over the proposed withdrawal of Gulf and Western from its major sugar and other operations in the Dominican Republic. In fact much of the steam has now gone out of the issue of transnational power. Because of the uncertainties of foreign investment in developing countries, the transnational have tended to shift from production to the sale of technology, management services, and marketing. The panorama of transnationals is now much wider and is no longer conspicuously U.S.-based, with its aura of neocolonialism. Many transnationals have their headquarters in other developed countries, such as Japan, and in some developing countries. In addition, the form of a transnational is becoming more varied and more flexible and includes banks, retailing firms, consulting firms, and training agencies. Overall, transnationals have learned to accommodate themselves more to the needs of the developing countries.

Transnationals are very subject to organized labor and political pressures, and alternatives are available to take
their place. Thus the situation has become one in which the government of a developing country can assess the benefits of transnational investment or collaboration and can then bargain over the terms.

**Cooperatives**

Marketing cooperatives are characteristically handicapped by the lack of their own capital, and by the necessity of group decisionmaking. These problems result directly from the democratic principles on which the cooperative is based. Capital shares cannot be large if all members, including small farmers, are to be able to subscribe to them equally. This means that most cooperatives depend on government finance for both fixed and working capital. Such capital tends to come on a standardized basis as a result of decisions made at a distance. There is little commitment by the members themselves. Group decisionmaking implies less enterprise and ability to respond to changing marketing opportunities. Directing committees of farmers often lack management and marketing experience, which reduces their willingness to offer an attractive salary and bonus to a paid manager. Such committees also can be diverted from their long-run interests by influential groups and local politicians.

Group direction and the democratic principle also tend to produce a system in which relatively complicated accounts need to be maintained. It can become a major preoccupation in environments where educational attainment is low and yet still not protect members against misdirection of funds.

There are several functions for which farmer cooperatives are well suited and situations that favor successful operation. Promotion of cooperative marketing irrespective of those parameters, particularly as a way to recuperate production credit, is likely to require government support that is too costly for the benefits achieved.

**Parastatals**

Autonomy in day-to-day operations is vital for an enterprise engaged in marketing. Although autonomous parastatals are certainly better suited to perform marketing operations than a government department, many are still tied too closely to civil service salaries and conditions of employment. It is possible to add staff, but many parastatals find it extremely difficult to terminate them. Management must be strong enough to overcome traditional attitudes and competing loyalties of staff as well as the depredations of politicians.

Subsidies for parastatals to stabilize food grains are often a continuing burden for governments. These can be kept down if the parastatal maintains a wider margin between the buying and selling prices and price differences for location, quality, and storage. Enterprises that already have an operating base can be employed as local buying agents since they would incur lower overhead costs than direct purchasing stations. The costs of buying a bag of maize in Kenya were recently estimated to be KSh4.80 shillings for private agents, KSh6.15 for direct buying, and KSh7.0 for a specialized cooperative.

If a parastatal is given a monopoly, it is in a favorable position to avoid losses that must be met by the government, but adequate checks on its efficiency are difficult to devise. In the absence of legal alternatives, producers and consumers will be obliged to use its services and will bear the burden of its costs. During 1971–79 the costs incurred by the monopoly board of Jamaica in marketing bananas in the United Kingdom averaged US$100 a ton higher than those for bananas marketed in Germany from Ecuador. In that market a national private enterprise was competing with two transnationals. A parastatal monopoly should be maintained only when it permits a certain marketing function to be carried out more efficiently than would be feasible otherwise.

Implications of the various types of marketing parastatals and cooperative systems that are given an official monopoly are set out in Table 2-2.

**Conclusion**

For two decades leaders in the developing countries were inclined to look elsewhere than to marketing enterprises for their mechanism of growth. Development planners held the stage. The bulk of external assistance went to provide physical facilities and to build institutions, mostly governmental. Now the balance is being redressed. Recognition of the potential role of private enterprise has come from experience with the limitations of state and cooperative bodies. After a long-standing bias in development circles against individual enterprise in its various forms, A. Adedaji, Executive Secretary of the United Nations Commission for Africa, declared in 1980 that the fundamental problems of development and economic growth in Africa resided in the shortage of indigenous entrepreneurs, who not only understand the dynamics of domestic and external markets but are also innovative about them. The need now is for policies designed to help these entrepreneurs flourish and make their own particular contributions to development.

Local conditions of economic activity may be decisive to an extent that has often been glossed over. Where family allegiances are the dominant tie and where the commercial infrastructure is uncertain, elaborate marketing enterprises cannot function effectively. Finding an appropriate balance and collaboration between the different forms of marketing enterprise will be the policy goal. These policies should be based on objective consideration of the characteristic attributes of the various types of enterprises, the advantages they offer, and the support they need from governments, the public, and each other to realize their potential.
Table 2-2. Implications of Parastatal Marketing Enterprises

<table>
<thead>
<tr>
<th>Type of marketing board (parastatal)</th>
<th>Responsibility assigned</th>
<th>Nature of government commitment</th>
<th>Financial implications</th>
<th>Effect on free market structure</th>
<th>Marketing and administrative skills required</th>
<th>Benefits for producers</th>
<th>Implications for domestic consumers</th>
<th>Conditions of implementation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Advisory and promotional</td>
<td>Undertake or commission promotion and research</td>
<td>Authorize compulsory charge on sales of products</td>
<td>Self-supporting as long as levy is accepted</td>
<td>Continues undisturbed</td>
<td>Low, specialized service can be hired</td>
<td>Improved sales returns should exceed cost of levy</td>
<td>None</td>
<td>Marketing centralized at port or processing plant</td>
</tr>
<tr>
<td>Regulatory</td>
<td>Control quality form and quantity of product offered on particular markets</td>
<td>Delegate powers of compulsion and to collect levy</td>
<td>Self-supporting as long as levy is accepted</td>
<td>Continues, subject to controls not discrimination between enterprises</td>
<td>Skills needed to assess benefits of actions envisaged and taken</td>
<td>Improved unit sales returns; quantities sold may be restricted on historical basis</td>
<td>May be confined to lower-quality grades at higher prices</td>
<td>Producers few and identifiable or produce passes through limited processing or export points</td>
</tr>
<tr>
<td>Stabilizing prices without trading</td>
<td>Establish prices paid to producers and possibly operate a reserve fund for this purpose</td>
<td>Delegate powers of compulsion and to collect levy</td>
<td>Self-supporting as long as levy is accepted</td>
<td>Wholesale operations continue free; purchasing from farmers subject to licence and may be crystallized</td>
<td>Skills needed to estimate appropriate price to farmers</td>
<td>Wholesaler purchasing price clearly established may be lower than on free market</td>
<td>More directly</td>
<td>Wholesale purchases relatively few and easily identifiable</td>
</tr>
<tr>
<td>Stabilizing domestic prices through buffer stock on a free market</td>
<td>Generally control or trading monopoly of imports and exports, implement a preannounced minimum price to farmers</td>
<td>Provide initial capital; guarantee for commercial credit; support import or export controls</td>
<td>Unlikely to cover own costs, so government must assign compensatory source of income or make up deficit</td>
<td>Free domestic trading continues subject to competition with board</td>
<td>High ability to estimate supplies and prospects; judgment in buying into and selling from buffer stock and skill in stock management</td>
<td>Announcement of guaranteed minimum price before planting facilitates production planning</td>
<td>Protected against very high prices by releases from buffer stock</td>
<td>Product easily storable</td>
</tr>
<tr>
<td>Export monopoly trading</td>
<td>Sole exporter of designated products and implement preannounced minimum price to farmers</td>
<td>Provide initial capital, guarantee for commercial credit support for export monopoly</td>
<td>Operating costs normally covered from margin allowed by price paid to farmers</td>
<td>Former exporters eliminated or required to act as agents for the board</td>
<td>Routine management skill required; initiative and judgment needed to exploit monopoly weight and to see new opportunities</td>
<td>Announcement of guaranteed price facilitates planning, but price may be low</td>
<td>More directly</td>
<td>Exports limited to a few points that can be policed</td>
</tr>
<tr>
<td>Domestic monopoly trading</td>
<td>Sole trader in designated products in defined domestic markets and implements minimum prices to producers</td>
<td>Provide initial capital, guarantee for commercial credit, support for monopoly</td>
<td>May incur trading deficits if capital and operating costs excessive or is badly managed</td>
<td>Former traders eliminated or required to act as agents for the board</td>
<td>Routine management required; initiative and judgment needed to see new opportunities</td>
<td>Preannouncement of a guaranteed price, but it may be low</td>
<td>Price of products sold likely to be higher than with a free market</td>
<td>Feasible to control evasion of monopoly</td>
</tr>
</tbody>
</table>
Bibliography


Obstacles to Liberalizing Agricultural Markets in Developing Countries

Elliot Berg

Governments everywhere have always been involved in agricultural markets, especially for staple foods, and undoubtedly always will be. What distinguishes the agricultural marketing situation in today's developing countries is the extent of the government role.

The Pattern of Market Controls

In many such countries the government attempts to impose a single-channel marketing system for outputs and inputs. Farmers are not legally permitted to sell to private traders but only to government agencies. Where private traders are legally allowed, trading is usually restricted, at least for importers, wholesalers, and indeed everybody except petty traders. Import licensing is almost always restrictive. Where traders are allowed to buy and sell, the period during which they may do so is sometimes specified; more often, they are required to buy and sell at official prices. Transport controls are also rife; official permits are sometimes required to transport more than a small amount of grain across district boundaries, and numerous roadblocks exist to enforce this and other control measures.

In most developing countries, national cereals or food boards try to stabilize producer and consumer prices by maintaining a regulatory stock (as well as a security stock in many cases). On the producer side the boards sometimes act as buyers of last resort to maintain a floor price. On the consumer side they aim to assure regular and affordable supplies, primarily to urban dwellers.

Single-channel marketing of inputs is also frequently imposed, although more indirectly. Input subsidies are widely prevalent, and usually only government agencies distribute these inputs at the subsidized price. Private provision is thus discouraged, except for illegal transactions involving resale or contraband.

Deficiencies in Market Controls

The objectives of most of these interventions are clearly desirable. But experience has revealed many inconsistencies and many deficiencies in execution. Slower growth since 1980 and mounting fiscal pressures have also forced many governments to reconsider whether some of these policies are affordable.

Thus the imposition of legal monopolies and monopolies has led to the emergence of parallel markets, which have come to absorb a growing share of marketed supplies in many countries. Effective control of prices has therefore rarely proved possible. Producer floor prices have not been effectively maintained except in a few cases; cereals boards have lacked money and storage to maintain these prices in good years. The cereals boards have become major absorbers of credit and budget resources. They run large deficits because they perform social services for which they are not reimbursed, they are forced to operate with too small a spread between official buying and selling prices, and they tend to be inefficient providers of marketing services.

Services to farmers have also not improved under these arrangements. Aside from general uncertainty about who they may or may not sell to, when, and at what price, farmers are often badly served with transport, farm inputs, and consumer goods. If they sell in the parallel market, they must pay a risk premium. Administratively determined quotas and ration systems inevitably give rise to abuse. Primary marketing is often legally monopolized by cooperatives, but these institutions are frequently weak,
poor, badly run, and more often than not regarded as 
instruments of the government.

Systems of input subsidies have also become expensive; 
despite growing budget allocations for subsidies, it proves 
difficult to meet demand at subsidized prices. The institutional 
arrangements for providing inputs have revealed persistent 
deficiencies—late delivery of agricultural chemicals, for example—and their basic shortcomings have become more apparent—inappropriate and wasteful nutrient mixes in fertilizers, farmers' lack of knowledge about 
economic use of inputs, inequities and corruption in distribution, and prevention of the development of private supply networks.

Moves toward Liberalization

For these reasons and others many governments have 
expressed interest in liberalizing agricultural marketing 
policies and institutions. Many have in fact been liberalized. In Bangladesh fertilizer distribution has been largely privatized. In Senegal and Mali marketing of coarse grains has been opened up legally to private traders. In Somalia the grain board’s monopsony was ended in the late 1970s, and by the mid-1980s the market for maize and sorghum was almost entirely privately organized and competitive. Marketing parastatals have similarly withdrawn in Zaire, and in 1983 a major reform removed the legal right of local officials to fix prices and control crop movements. Legalized private buying, selling, and transporting was introduced also in Madagascar in 1983. In at least six African countries input subsidies have been reduced, consumer prices are being decontrolled, and official producer prices have risen in real terms.

Nonetheless liberalization has spread rather slowly and in some countries it appears to be losing momentum. This is caused partly by the recency of the effort; rarely are reform programs more than five years old. But there is more to it than this. Some deep-rooted obstacles impede liberalization of agricultural markets, especially foodgrain markets.

Obstacles to Faster Liberalization

This chapter describes the most important and most 
general of these obstacles. Although the discussion has 
wide geographic relevance, it draws especially heavily on 
the experience in sub-Saharan Africa.

Vested Interests, Urban Bias, and Patronage

A common argument is that most developing-country 
governments are controlled by political elites with an 
urban bias, who want to advance the interests of their 
urban clientele. Since they favor industrialization policies 
and are anxious to prevent political unrest among volatile 
urban populations, they want a regular supply of cheap 
food for the cities. They therefore oppose liberalization, 
which would reduce the controls and subsidies that make 
the cheap food systems possible (Lipton 1976).

A variant of this argument is that controlled markets 
allow direct distribution of patronage, which politicians 
like. Administrative allocation of subsidized inputs, for 
example, provides local political and administrative 
authorities with powerful instruments for rewarding 
friends and punishing enemies. Targeting the distribution 
of subsidized food for political reasons provides the same 
results.

This patronage hypothesis claims to explain not only 
what is done, but how. Governments could subsidize food 
(including urban bias) by indirect means, for example, by buying 
and selling food on the open market or by import policies. 
This would help to liberalize markets, but it would not 
allow visible, direct allocation of patronage to political 
clients. This is why—the argument goes—political elites 
are reluctant to give up direct market controls, a reluctance 
that translates into opposition to liberalization.

This variant of the vested interest-urban bias argument has become quite popular in recent years. Some writers have elevated it to a general explanation of the agricultural 

This complex of vested interests, urban bias, and direct 
distribution of benefits certainly helps explain government 
policies in food markets. But there are reasons to question 
the weight commonly given to it, since some public policies 
are not consistent with it. Urban real wages have fallen in many developing-country cities in the past 
decade, notably in Africa. Almost everywhere the real wage 
attracted to higher-level posts in civil services has 
dramatically declined in the past twenty years. Terms of trade 
between rural and urban areas, as measured by the ratio of 
urban wages to official prices, have in many cases moved 
against urban areas in the past decade.

Urban bias, therefore, has not ruled out these pro-rural 
tendencies, and this is one reason to downplay it as an 
explanation of government behavior. Since there are many 
other more important factors impeding liberalization, 
the heavy weight that argument receives in explaining policy 
should be questioned. It is part of a general set of arguments that explain policy (and resistance to policy change) in terms of maximized political advantage of the elite. But subjective factors seem at least as important.

Perceptions, Values, and Fears about Markets

The intellectual environment in many developing coun-
tries is uncongenial to liberalization concepts. The prevail-
ing view among officials, university students and 
professors, and educated people in general is that food 
and related markets are highly imperfect and do not work 
well enough to protect producers from exploitation and
consumers from speculation. The trader is distrusted or despised, and the services provided by traders—their economic contribution—are generally demeaned. In West Africa they are sometimes called “bloodsuckers,” in Salvador, “coyotes.” Even where traders are allowed to operate, they have to be licenced or approved and their activities controlled by the authorities.

The degree to which this vision of how markets work corresponds to reality is—at the least—debatable. Many, probably most, studies of grain marketing performance have concluded that the markets are reasonably competitive. The structure of these markets, with their many buyers and sellers and multiple selling options for farmers, also suggests effective competition in most cases. But the reality is not what is relevant here; it is the perceptions or convictions. Most intellectuals and officials in developing countries do not share the common western technocratic view that, although they are imperfect and vary greatly from country to country, liberalized markets would be more efficient and more beneficial allocation devices than the alternative of public sector monopsony or monopoly with extensive administrative controls.

Another common element in developing-country worldviews is a belief in just prices. People often say that it is wrong for citizens who live in one part of a country to pay a drastically different price for basic staples than people who live somewhere else. This belief contributes to the ubiquitous policy of setting one official price for basic food throughout the country.

The same phenomenon exists for producers. Many governments fix a uniform national producer price for cereals. They also insist that parastatal agencies that supply inputs charge farmers everywhere in the country the same price for fertilizers, insecticides, and equipment. This is seen not only as a way to stimulate production in more remote, less-favored regions, but also as the right thing to do. In any event it conflicts with market-determined pricing systems in which prices are more closely related to costs.

Finally, there is a strong and general aversion to exporting food to neighboring countries through traditional, informal, or illegal channels. The fear is often warranted, since governments set prices independently and without close attention to market prices in nearby countries. Since market factors differ in each country, even in the same ecological zone, there are usually strong incentives to trade food across national frontiers. Exchange rate policies frequently add to these incentives. It is no surprise therefore that fear of leakage or drainage of food to neighboring countries is one of the most frequent reasons why governments are reluctant to allow open trading in food markets.

Small, Short-Term Gains in Efficiency

Proponents of liberalization base at least some of their case on the greater efficiency of open and competitive marketing systems and the positive incentives they produce. They argue that agricultural production will be stimulated and economic growth accelerated if markets are freer.

The effect of liberalization may not be very great, however, at least in the medium term, if the regulatory system has generated parallel markets that provide assured outlets for farmers at higher-than-official prices. The system of parallel markets may already provide reasonable marketing alternatives to the rural community, and official or legal liberalization may reduce costs by only a small amount compared with the risks of trade in the parallel market. Hence the efficiency gains from liberalization would be small at first, although equity gains would be immediate. Only later, when traders develop skills and the trading sector becomes more capital-intensive, will substantial efficiency gains be likely.

This obstacle is of rather a different order than the others considered here. It means only that reformers cannot in good faith promise large short-term efficiency gains from dual marketing systems in which there are large parallel markets. A structural adjustment to the official regulatory system has already occurred in such systems and may have reduced many of the allocative inefficiencies imposed by official policies.

Uneven Distribution of Benefits to Economic and Ethnic Groups

Governments and politicians are always concerned with who benefits from a given policy change. Beneficiaries will of course be different from case to case, depending both on the nature of the regulatory system and the liberalization device and on the economic and social structure of the country in question. On the economic side, farmers as a group will benefit, but, in a liberalized grain market, net sellers will probably benefit more than net buyers, and, unless balanced by targeted subsidy policies, farmers in disfavored regions will suffer while those in better-endowed areas will benefit. Traders will benefit, and, if entry is made freer, small traders will benefit relative to bigger, approved or licenced buyers. Lower-paid, noncivil-service wage employees (who often pay higher free market prices for their food) will benefit while civil servants, who previously had access to assured supplies of cereals at subsidized official prices, will be worse off.

In many developing countries, however, the economic or class distribution of benefits and losses from a liberalized grain market is a less critical factor than the ethnic and nationality distribution. In many parts of the world traders tend to come from a few specific, often foreign, ethnic groups, such as Chinese in Southeast Asia, Asians in East and Southern Africa, and Levantines in West Africa. But they are also often indigenous, such as the so-called Dioula in West Africa and the Kikuyu in Kenya. The fear that wealth and power will accrue to aliens or already-
powerful indigenous groups is one of the most fundamental reasons for resistance to liberalization in many countries.

Problems of Partial Reform

Efforts to create more open and competitive marketing systems usually proceed in a piecemeal fashion: laws are changed to make private purchase and sale legal, subsidies on inputs are reduced to allow private competition in input markets, restrictions on the prices at which traders can buy and sell are removed, rules about shipment of grain across administrative boundaries are clarified, and so forth. Such gradual change is often necessary for political reasons and may be desirable in any case, since it allows for experimentation and smoother transitions to new institutional arrangements. The success of a partial change often requires changes in other parts of the system, however, which the political authorities may be reluctant to make.

A good example comes from Mali. An important part of the grain marketing liberalization program in that country involves freeing up the market for rice. Marketed rice comes mainly from a parastatal, the Office du Niger, which provides inputs and extension services to some 30,000 farms, who grow irrigated rice and then buys the paddy for milling and sale in urban markets. The liberalization effort in Mali concentrated first on coarse grains; private marketing of millet and sorghum was liberalized in 1980, and the government tried to bring official grain prices closer to market prices. As part of a donor-financed program, the government pledged to liberalize paddy marketing as well.

The paddy marketing reform, however, has gone slowly. Some of the reasons are familiar from earlier discussion: fear that increases in the price of rice would hurt urban workers and force salary uses incompatible with needed budget restraint and with Mali’s agreement with the International Monetary Fund (IMF), fear that traders would buy rice to neighboring countries where prices are higher, and fear that poor peasants would be exploited by traders. In addition there were some concerns about the effect of liberalization on the system, especially the Office du Niger.

First, likely “upstream” effects of liberalized marketing were troublesome. Provision of extension, credit, and inputs to the growers is, and has been for many decades, linked to marketing the resulting crop. The costs of providing these services and the subsidies given to them are recovered by deductions from the proceeds of the paddy sold to the Office by the farmers. If the market were liberalized, farmers would sell to private traders for the much higher prices prevailing in the parallel market. But this would threaten the survival of the Office du Niger and the whole structure of institutions that supply inputs.

Similarly, there are “downstream” problems in this case. Rice is milled in large mills owned by the Office. For various reasons, small-scale mills are able to mill paddy more efficiently and hence sell rice more cheaply. A free market in paddy would therefore almost surely cause the larger mills to be liquidated, with the attendant loss of jobs.

A final aspect is the debt problem. If the Office du Niger were to be forced into liquidation, its debts would presumably have to be honored by government. This would raise the level and structure of central government debt, with possible implications for the survival of the IMF agreement. And in the longer run it would complicate the question of debt settlement within the public sector, since if the Office owes money to the Treasury and other government bodies, it is also owed money by other parastatals.

The point is obvious. Liberalization of paddy marketing requires decisions on these upstream, downstream, and financial consequences, and these are so complex and far-reaching that the government hesitates to take the first step.

Another example is more general and relates to interactions between subsidies and marketing competition. A standard recommendation of reformers is that the grain marketing boards abandon their legal monopolies or monopsonies and allow private traders and cooperatives and other agents to buy and sell freely. Defenders of the status quo resist these proposals on the grounds (among others) that the private traders will cream the market by buying and selling only where access is easy, costs are low, and profit margins are acceptable.

This prediction of trader response is certainly true; private agents cannot be expected to engage in unprofitable activities unless they are otherwise reimbursed, for example, by special subsidies. But the implication for the grain boards is perhaps more relevant: if the policy objective is to retain a public sector presence in grain markets, the grain boards will have to be compensated by the government for performing unprofitable social functions, such as buying and selling below cost in regions that are remote or have difficult access. Thus a marketing liberalization effort that involves competitive coexistence of public and private actors requires transformations in the way the public agencies operate, including a revision of existing subsidy programs and policies.

Technically Unworkable Reforms

In some cases reform proposals involving moves toward liberalization are inadequate in a technical sense and hence unworkable, even if the government wants to liberalize.

Mali again provides examples. A study financed by the World Bank proposed in 1976 that the existing legal exclusion of private traders from all marketing be changed to legitimize private trade at the retail level. Since the study recommended continued exclusion of private traders from wholesaling and from primary marketing, it can
hardly be regarded as true liberalization. Even the small changes it did propose such as legally authorizing the private trade in grain at the retail levels, were unworkable.

The control of the legalized retail trade would consist essentially of making sure that traders sell at official prices and that they sell “OPAM brand” (the Grain Agency) grain. The system would only permit the escape outside the OPAM circuit of a little grain and this only on local markets. The retail shops would buy their grain from OPAM. They would have no interest in selling below the official price. But they would have an interest in buying below OPAM’s wholesale price. The possibility would be limited by putting a brand name on the commodities.

This brand-name matter raises delicate problems. It seems that the short-term solution would be “micro-packaging” (micro-conditionnement), for example, packaging in 5- or 10-kilogram bags. But the costs of this operation, which would have to be done all over the country in order to avoid raising transport costs by making grain shipments obligatory, is high, at the same time that results are uncertain because of the difficulties of control.

We are forced to recognize that there’s a problem here: it will only be overcome when innovative actions will make OPAM’s services superior to those of traditional trade . . . (Cegos 1976).

In other words, they had no answer to this rather fundamental problem.

The Mali government rejected that proposal, and one of its own commissions put forward another set of recommendations. But these too suffered technical deficiencies that rendered them impracticable. The commission recommended that private traders be allowed to act legally at the wholesale level when harvests were good. When harvests were moderate or short, they would be restricted to retail sales. No private transport of cereals in excess of 1 ton would be allowed beyond the district level.

Implementation of this proposal would not only have entailed immense administrative efforts (controlling shipments between districts and somehow policing retail level sales) but also would have magnified uncertainty about who could buy and sell, since it would often be difficult to know until late into the rainy season what kind of crop would be decided. In any event, this contradiction will be resolved.

The Role of Donors

The final obstacle has to do with external players—the donor community. Donors are now more than ever concerned with policy reform, hence liberalization. This is truer of some donors than of others (the World Bank and the U.S. Agency for International Development, for example) and is a more general preoccupation in some regions than in others (Africa more than Asia, for example).

Donor assistance accelerates liberalization in two key ways. First, it provides resources to smooth the change and reduce its risks. This is the rationale for structural adjustment lending and programs using food aid as part of a reform program. Second, technical advice from donors also provides economic analysis and ideas about how to proceed with reform.

The donor’s role as agent of reform is offset to some degree by a number of negative aspects of the donor presence. First, different donor views on what should be done and how fast increase the difficulty of generating local consensus on reform objectives and strategies.

Second, donor procedures and capacities are not as well-suited for policy-based loans as they are for more traditional projects. Designing an effective, locally appropriate liberalization program in grain marketing is much different, and a great deal harder, than building a road or an irrigation system. It takes more time than visiting missions can normally give, it requires skills and experience that are rare, and it demands attention to administrative, institutional, and political factors that do not lend themselves to easy analysis or quick-fix solutions. When donors propose inadequately designed reforms, especially for policy-based lending, they can retard long-term change.

Finally, the availability of aid resources in nonproject form, such as balance of payments and budget support or counterpart funds generated by food aid, reduces pressures on governments to make needed policy changes. Such resources can sustain overvalued exchange rates and prop up dying parastatals. To mitigate this effect, much nonproject lending is now conditional on policy reforms, but the risk nonetheless remains real.

Conclusion

Given the scope of the difficulties in the way of liberalizing agriculture, it is not surprising that progress has been limited in extent and shallow in depth. To the contrary, it is surprising that there has been so much of it—from privatized fertilizer distribution in Bangladesh to freer
grain markets in Mali, Somalia, Madagascar, and Zaire, to reduced input subsidies in many places.

Better awareness of the nature of the barriers to change can make reform efforts more effective. Too often resistance to change is attributed to lack of political will, or vested interest. These are rarely irrelevant, but they may be less critical than other factors, especially ideas about how markets do or do not work, preoccupation with the ethnic distribution of the benefits of liberalization, and the need to consider the ramifications on the whole system of partial liberalizing steps. If these factors are confronted when designing liberalization programs, the probability of success will certainly increase.

Notes

1. In at least one country, however, market liberalization has had quite dramatic short-term effects on production. The Somalia government suppressed its monopoly on grain marketing in the late 1970s. Helped by other factors, (changes in land laws, allocation of some tractors and pumps to private farmers, and good rainfall), maize production boomed from a normal level of 100,000 to 120,000 tons in the late 1970s to 150,000 tons in 1981 and to 235,000 tons in 1983.

2. Large gains from risk reduction are conceivable. Transports in Niger in 1983 charged a 50 percent premium to carry cereals in the parallel market to cover the risks involved.

Bibliography


Improving Food Marketing and Delivery Systems

Kelly Harrison

Everyone is a consumer. In subsistence economies, consumers produce their own food. Only a few areas of the world, however, have climatic conditions that allow a wide range of food products to be produced. Even in those areas, farmers are still better-off if they specialize in products that they can produce most efficiently and trade them for other needs. The process of economic development involves geographic specialization of agricultural production and trade. It also requires increased agricultural productivity and the release of resources from agriculture to be used to produce nonagricultural goods. Development is driven by the increased specialization of labor, the exploitation of comparative economic advantage, and trade.

One result of this process is that rural people are inevitably drawn to cities or towns where production of nonfood items is concentrated. Another is that more complex marketing systems must be developed. As consumers move further away from the source of their food supply, someone is needed to purchase the products and bring them to the consumer.

Figure 4-1 illustrates the expected trend toward urbanization in various regions of the world. The urban population in developing countries is projected to increase by 1.5 billion, or 250 percent, between 1970 and 2000 (Middendorf 1978). The demand for marketing services in developing countries is therefore increasing rapidly.

Benefits from Improved Marketing Practices

Low productivity in food production is widely recognized as a major deterrent to development, but low productivity in marketing is also a deterrent. Marketing efficiency becomes more important as development necessitates greater investment of resources in marketing activities.

In most developing countries consumers spend at least 50 percent of their income on food. Lower-income urban families may spend as much as 70 to 80 percent of their incomes for food. Furthermore, approximately 40 to 50 percent of what the consumer spends on food goes for marketing services alone.

Obviously, reduced food marketing costs would greatly benefit such consumers. A 10 percent reduction in food prices would increase their purchasing power by 5 to 8 percent. When their incomes increase, developing-country consumers are likely to purchase more food. They can be expected to spend, on the average, about US$0.60 of every additional dollar earned on food. Thus, a 10 percent reduction in food costs would increase food purchases by 3 to 5 percent, with significant nutritional benefit. The increased demand would generate additional employment in agriculture and in the marketing system. The other 5 to 7 percent of the savings would be invested or, more likely, would be spent for nonfood consumer goods with resulting beneficial employment effects.

It is important for development plans to include strategies to effectively promote improvements in the marketing system. First, however, it is necessary to recognize that marketing firms provide an economically and socially valuable service. In most developing countries food marketing is dominated by private individuals or small companies. Parastatal food marketing enterprises, once perceived as an efficient way to market certain foods, are now being abandoned because of recognized inefficiencies.

This chapter explains the marketing process in a developing country, identifies the importance of efficient food marketing activities, and highlights the symbiotic relation between agricultural development and the development of efficient marketing systems.
Improving Food Marketing and Delivery Systems

Figure 4-1. Real and Projected Growth of the Urban Population in Various Regions, 1950-2000

Population (millions)

- Oceania
- Europe and the Soviet Union
- South Asia
- East Asia
- North America
- Latin America and the Caribbean
- Africa


a. Oceania comprises Australia, New Zealand, Melanesia, Polynesia, and Micronesia.


The Marketing System

Typical food marketing functions including buying from the farmer, usually at or near the farm, transport to non-farm consumption centers, stocking or storage until sold, processing or packaging, formulation of convenient assortments geared to consumer food requirements, and sale of appropriate assortments to consumers. In a developing country separate individuals or small firms often perform each of those functions for relatively few products (probably only two to three products in each marketing firm). As a result the marketing system is made up of large numbers of small private food marketing firms.

Types of Marketing Enterprises

Several types of food marketing institutions are found in virtually any country. The process starts with rural assemblers who buy from the farmer and sell to other assemblers or to wholesalers. In many cases more than one transaction takes place between the farm and the city wholesaler. The greater the physical distance, the greater the likelihood that several intermediaries are involved in the process. In some cases a processor may buy from the farmer or an assembler. Assemblers or processors may transport their own product, but they are more likely to hire a specialized transporter. Similarly, the assembler or processor may store the product for a time to obtain higher prices or may use the services of a specialized storage company. The assembler or processor will sell to a wholesaler or to a retailer, who provides the final assortment for the consumer. Clearly, several middlemen are involved as food makes its journey to the consumer. Most of those middlemen are so far removed from the consumer that they are totally unaware of the consumers' preferences or complaints. Farmers are certainly too far removed from the consumer to be aware of such things. Figure 4-2 illustrates how the main components in the food production and marketing system are related.

Marketing Infrastructure

Probably no other issue has greater effect on the ability of the average developing country farmers to profitably market their produce than the availability of an effective transport link to a place where buyers congregate. Construction of roads into rural areas can reduce marketing costs considerably because motorized vehicles can be used in place of human- or animal-powered vehicles, and the farmer can then transport and market more produce. Rural road construction using local community labor and simple tools and equipment injects money into the local economy and at the same time uses underemployed resources to improve the lives of local people. [A USAID loan to the Colombian government in 1975 is a good example. An evaluation of the project documented the opening of new markets for farmers in previously isolated areas. See Van Raalte and others (1979) and Beenakker and Lago (1983).]

Similarly, investments in improved air, rail, and water transport arrangements can reduce marketing costs. If conditions permit, rail and water transport are significantly more economical than road or air transport.

Assembly Markets

Farm products normally do not flow from the farm directly to the city. They are more commonly sold by the farmer in a local market where they may go to local consumers or to buyers who purchase products to be transported and sold in some other location. An assembly market may be nothing more than a place along the road or street where buyers and sellers customarily congregate. It may happen around the city square, as is common in Latin America, or it may be associated with some kind of public market structure.

In some countries, such as the Republic of Korea, organized auction markets provide an excellent way for farmers to offer their products to the highest bidder. In others, such as Costa Rica, potato farmers bring only representative samples of their produce to serve as a basis for negotiating with buyers who will pick the product up later. In still others, such as Jamaica, farmers consign their produce to marketing agents who sell on a commission basis.
Assembly markets play an important role in building inventories of heterogeneous supply to satisfy heterogeneous demand.

**Warehouses**

Warehouses are specialized physical facilities that constitute an essential part of a marketing system. They make it easier to move an adequate assortment of products and to build up and store temporary or permanent reserves. Specialized warehouses are frequently the most economical way to store grains and refrigerated products at key points in the marketing system. Appropriate location of these facilities is crucial, as is hard-nosed evaluation of effective demand for the storage facility. Operating costs must be carefully controlled.

Unfortunately, governments generally have poor records in building and operating storage facilities according to economic criteria. For example, government price support policies frequently operate to effectively preclude private sector ownership of grain stocks. As a result, the government becomes the owner of stocks and often loses money through poor management and inefficiencies.

An efficient mechanism for providing storage is to pass a law permitting owners of merchandise to place it in special privately owned warehouses but still to retain ownership of it. The warehouse operator issues a receipt that can be used as collateral for a loan against the inventory. The law may also require the warehouse operator to purchase a bond to assure return of the merchandise or monetary reimbursement.

Marketing businesses normally prefer to maintain only enough storage space for current sales inventories. Wholesalers are likely to carry somewhat larger inventories than retailers, but the well-managed wholesale business should not have more than two to four week's supply of any given product. Products to be stored for the long term should be placed in special facilities with lower overhead and lower carrying costs than wholesalers or retailers.

**Wholesaling**

Food wholesaling in most developing countries is extremely small scale and fragmented compared with that in more developed countries. Separate meat, fish, poultry, produce, and dry goods wholesalers compete for the attention and time of retailers. They operate on a cash-and-carry basis and have a relatively narrow line of goods. Because of the ineffectiveness of traditional wholesalers, food processors sometimes bypass them and distribute directly to retailers. As already mentioned, this traditional marketing structure involves massive numbers of individual transactions. In addition transaction costs are elevated by the need for personal inspection of predominantly unpackaged and ungraded goods.
Public Markets

Like production area assembly markets, public wholesale and retail markets (called bazaars in some regions) provide larger urban areas with a location where large numbers of rural assemblers, wholesalers, retailers, and even consumers can meet to exchange goods. In many large and rapidly growing urban centers these traditional public markets have been overwhelmed with congestion as the city has grown beyond the physical capacity of the market, such as in Mexico City; Kingston, Jamaica; and Seoul, Korea. Table 4-1 lists the major urban centers and the status of food wholesaling facilities.

These markets are usually dominated by fresh produce but may offer meats, dry and packaged groceries, clothing, and household goods. They can be a very efficient way to bring buyers and sellers together. But when the markets are overcrowded, they can increase marketing costs substantially and become a social eyesore and a focal point for crime and vagrancy.

Residential Stores and Street Vendors

Neighborhood stores and street vendors, a common type of marketing facility, bring the products to where the people live. They are the main sales outlet for staple and dry foods. The mobile street fairs of Brazil combine the residential store and street vendor concepts. They have been copied in Mexico City and Cali, Colombia. Vendors collectively move their stalls from one location to another on different days of the week. Consumers get convenient access to an assortment of food items, and the retailer gets exposure to more customers.

Although neighborhood stores and street vendors offer consumers convenience, they do not offer low prices. Their merchandise and procurement costs are often very high because they must purchase from wholesalers on a cash-and-carry basis and normally have a low sales volume. Larger-scale wholesalers that offer a broad variety of products could reduce these costs substantially, as they have in Europe and the United States.

Self service shops, supermarkets, and superettes, as well as hypermarkets, are a viable retail alternative in some middle- and upper-income areas. Prices are sometimes higher in such establishments not only because of inefficient wholesale supply practices but also because the stores themselves are more elaborate. Hypermarkets offer the advantage of one-stop shopping for a wide variety of products.

Several supermarkets can be grouped together into a chain of stores to reduce procurement costs. It is possible to develop common management practices and to spread certain overhead costs over larger sales volumes to reduce operating costs. All stores and the wholesale warehouses serving them can be under common ownership in a corporate chain, or a group of independent retailers can organize a cooperative wholesale organization to supply their individual stores. Another alternative is for a wholesaler to organize a voluntary chain of independent retailers.

Implications for Marketing Costs and Productivity

Typically, the food marketing institutions listed above are very small—one-person or -family operations. Since farmers are also typically very small operations, the number of transactions necessary to move a small quantity of product through the marketing system is quite large. There are usually many competitors in any situation. The intensive competition among marketing firms or individuals at any point in the channel, the limited vision of small-scale merchants, and their isolation from consumers make it extremely difficult to identify and introduce marketing improvements, such as packaging improvements and refrigeration. It must be recognized, however, that consumers may not be willing to pay for such marketing frills and refinements unless they reduce prices or visibly improve quality at the same price.

It is easy to see why the real marketing costs are substantial in the system just outlined. Transport costs must be covered as well as physical handling costs and a return on the labor of all the middlemen required to get the products to the consumer. Transaction costs (the cost of negotiating each of the millions of purchases and sales) are substantial, even though the economic return to any single middleman is normally below the minimum wage. Figure 4-3 illustrates the economic savings resulting from fewer transactions. Physical losses, an important factor in any country, are especially important in marketing systems in which unprocessed and unpackaged perishable foods predominate.

Although research in developing countries all over the world has shown that middlemen usually have ample justification for their margins, given the conditions under which they operate, most developing countries share the popular belief that middlemen are unnecessary parasites who provide no useful service and make exhorbitant profits through speculation and hoarding. Those vices exist among some middlemen, but it is not the rule.

It is true, however, that the large number of poorly educated, small-scale businessmen in the production and marketing system tends to perpetuate the status quo of the traditional practices that were developed for a less-urbanized and far-less-complicated food marketing system. The traditional government response has been to replace private middlemen with government-controlled marketing companies, to devise unworkable schemes for farmers to sell directly to consumers (a practice they cannot afford), or to organize farmer marketing cooperatives. Since such schemes usually prove ineffective and more costly than the traditional system, many governments are now trying to divest their subsidy-ridden state food marketing companies.
Table 4-1. The Growth of Large Cities and the Present Situation of Wholesale Markets in Developing Countries

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</table>

a. Forecast  
b. Present status of wholesale market: o = obsolete; p = new market planned; n = new market built or being built; ... no information available.  
Improving l'ood Marketmg and Uelieve Systems

Figure 4-3. How the Wholesaler Simplifies the Task of Supplying Retailers

10 retailers

1 full-service wholesaler

10 manufacturer's representatives

10 retailers

No full-service wholesaler

10 manufacturer's representatives

Note: This figure graphically demonstrates how the operation of supplying multiple retail outlets with the products of multiple manufacturers is simplified by the facilities of the wholesaler and the complications resulting from the absence of a wholesaler when retailers must obtain shipments directly from the manufacturers. This simple example shows only ten retailers and ten manufacturers, with one distributor as the middleman. Actually, a single distributor serves many hundreds of retail outlets and warehouses the products of scores of manufacturers. A figure showing 1,000 retailers and 100 manufacturers, with one distributor as the middleman, would need only 1,100 lines, but a figure showing the direct transactions between 1,000 retailers and 100 manufacturers with no wholesaler would be unimaginably complicated with 100,000 lines.

Source: FAO.

Modifying Structure and Behavior

Two institutions have been working continuously and intensively on agricultural marketing problems for more than twenty years. The Marketing and Credit Division of the Food and Agriculture Organization (FAO) and the Department of Agricultural Economics at Michigan State University in the United States have been involved in marketing studies and technical assistance in many developing countries. Their publications cover every aspect of the food marketing system. A review of their publications and experiences clearly indicates that marketing institutions can be improved by modifying their structure and changing the behavior (conduct) of individuals managing those institutions. Private businesses are the predominant marketing institution, and they should be helped to adopt more efficient methods, which in the aggregate will improve the overall efficiency of the food system.

The term “structure” refers to the physical infrastructure that supports marketing institutions, the government policies and programs supporting or hindering marketing institutions, and the mix of marketing institutions (types of marketing businesses) providing the marketing services. “Behavior” or “conduct” is defined as the mix of management practices used by the firms that provide marketing services. The word “firm” denotes any individual or group of individuals.

The approach espoused by the FAO and Michigan State University marketing groups is more positive and emphasizes efforts to modify the structure and conduct of marketing systems to reduce transaction costs, physical handling costs, transport costs, physical losses, operating costs, and risks and uncertainties.

To achieve these reductions, the business environment of the marketing firm and the marketing practices employed in that environment must be understood. Also necessary is a procedure for identifying practical ways to modify the structure and the behavior of marketing firms. Finally, there should be a sustained effort to implement the measures. The development tools will include changes in government policies and laws, education and training, credit, technical assistance, and research.

Improving Marketing Efficiency

Development planners commonly identify the following marketing problems in the agricultural sectors of developing countries:

- Speculation and hoarding by middlemen to the detriment of farmers
- Monopsonistic practices by middlemen
- Money lending by middlemen that ties up the farmer's crops at unfair prices
- Insufficient market information for farmers
- Lack of grades and standards.

These so-called problems, however, are really just symptoms of the marketing problem in developing countries. The cause of those symptoms goes much deeper, and it is the cause that must be attacked. Efforts to treat the symptoms have done little to improve the marketing system.

Improving Marketing Efficiency

Development planners commonly identify the following marketing problems in the agricultural sectors of developing countries:

- High marketing costs
- Too many layers of middlemen in the channel
- High physical losses
In developing countries probably the greatest barrier to improving marketing systems is the reluctance of governments to spend substantial amounts of money to develop marketing firms. As urbanization trends accelerate, marketing problems will continue and will be compounded until that official reluctance is corrected.

**Some Successful Programs**

The approach described above is being tried in several countries. Probably as a result of the current external debt crisis and the related need to reduce national budgets, numerous countries have decided to eliminate price controls, which are a manifestation of the bias against middlemen. Similarly, many countries have decided to divest the state-controlled marketing companies that were set up to replace inefficient middlemen. China is a notable example of a country reversing the policies of former years to encourage private marketing in the wake of unsatisfactory experiences with government control of certain marketing activities.

The Mexican government recently negotiated a US$100 million loan from the World Bank to create a special line of credit for financing innovative marketing activities by private firms. The program, called the Fund for Commercial Development, is being implemented by a newly created unit in the Mexican Central Bank. It includes resources for training, technical assistance, and research, as well as credit for financing marketing activities. One study financed by the program is a detailed analysis of the experience of neighborhood retailers and wholesalers with voluntary chains (Cook 1984).

Several countries have initiated programs to build new public wholesale markets. Both Brazil and Colombia have operating networks of new wholesale markets in their major cities. Mexico will use the new World Bank loan to finance a similar network. Seoul, Korea, is building a massive new food wholesale market and launching a major national study to identify other ways to improve the country’s food marketing system. The Jamaican Urban Development Corporation plans to remodel the four public markets and surrounding commercial areas in downtown Kingston to create a retail shopping mall for food and other consumer goods. A remodeled wholesale market will also be part of the complex.

Rural public markets, some doubling as assembly markets, have been built in several countries. In Jamaica new local markets have been financed under loans from the World Bank and the Inter-American Development Bank. The Diversification Program of the Colombian Coffee Federation has taken another approach. After experimenting with construction of new rural assembly markets, Federation officials decided to spend their resources on training and information to help form marketing cooperatives or private marketing corporations for coffee farmers and on technical assistance for fledgling food-processing companies. The Coffee Diversification Program has also helped local coffee grower cooperatives to organize self-service stores with a group buying and management improvement program.

With USAID assistance, Honduran farmers and exporters have recently organized an association to promote effective foreign marketing of agricultural products not traditionally exported. The program includes marketing training, technical assistance, and credit. It emphasizes creating commercially viable (that is, profitable) export businesses. The businesses do not have to be owned by farmers nor do they have to meet some other criteria. All that is necessary is that the businesses provide effective and efficient marketing arrangements for Honduran producers.

This is a sampling of some of the marketing improvement activities under way in a few countries. These programs are focusing on structural and behavioral improvements that can reduce marketing costs and risks. They represent a gradual move away from a negative view of marketing agents and a trend toward national country efforts to improve marketing efficiency and accessibility as a way to reduce consumer food costs and increase the farmers’ share of the food dollar.

**Bibliography**


Improving Food Marketing and Delivery Systems


The growth of agricultural production depends to a large extent on the timely and cost-effective supply of agricultural inputs, such as fertilizers, improved seeds, pesticides, agricultural machinery, tools, spare parts, and fuel, as well as on inputs for livestock production, such as concentrated feed and veterinary medicine. These inputs, particularly fertilizer, have increased considerably in the past and are expected to continue to increase in the future (Table 5-1). Easy access to these inputs at the farm gate, supported by adequate technical advisory services, is crucial for agricultural and rural development. As the requirements for agricultural inputs increase with agricultural development, growing attention has to be given to efficiency and convenience of supplies. The strategy for agricultural growth for developing countries, set out in Agriculture: Toward 2000 (FAO 1981) indicates that fertilizer use has to rise from below 20 million tons of nutrients in 1980 to about 80 million tons by 2000, and the number of tractors to be used from about 2 million to about 12 million (Figure 5-1).

General Aspects of Input Marketing

In many parts of Africa where physical shortages of inputs seriously affect agricultural output, the strengthening of input delivery systems is particularly urgent. The effectiveness of an input marketing system depends on several factors: the accurate assessment of demand, the efficient organization of input delivery systems, the efficiency of marketing enterprises, logistics and vertical coordination, promotion activities, prices, and incentives and credit.

Estimation of Demand

An accurate and timely assessment of the commercial demand for agricultural inputs is an important factor in ensuring that the farmer’s demand is met by timely supplies and that unsold inputs are avoided. Demand is affected by two main factors: the farmers’ knowledge of the economic benefits (that is, the cost-benefit ratio) of using inputs and their application and the extent to which the marketing and credit system makes it easy to buy inputs.

There is wide scope for increasing the accuracy of commercial demand estimates of agricultural inputs, and this would greatly enhance the effectiveness of input marketing. Often inputs have not arrived on time and therefore have had to be stored until the next season, which has resulted in high direct and indirect monetary losses. In some instances commercial demand has been overestimated, which has also led to financial losses. Once the demand has been estimated, arrangements have to be made to allocate foreign exchange, a serious limiting factor in many developing countries. Governments have to set priorities for foreign exchange, and also consider the extent to which inputs are provided under aid programs. To avoid the over or under supply of inputs, it is essential to coordinate adequately inputs imported on a commercial basis and those provided under aid programs.

Input Delivery Systems

Analysis of the input delivery organization’s performance should be based on a system approach that regards the individual links and functions as part of an integrated system. Manufacturers and importers, national and district wholesalers, and retailers perform the major functions, such as purchasing, storage, transport, distribution, and sales. There are various marketing systems in developing countries: competitive marketing systems, controlled marketing systems, and government distribution systems.

An essential feature of competitive systems is the free entry of firms or persons into the input distribution business at the wholesale and retail levels. The customer is
Table 5-1. Consumption Forecast for Fertilizer Nitrogen
(millions of tons of nitrogen)

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<td>11.4</td>
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<td>12.1</td>
<td>12.3</td>
<td>12.6</td>
<td>12.8</td>
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<tr>
<td>Central America</td>
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<td>2.0</td>
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a. Preliminary figures.
b. Oceania comprises Australia, New Zealand, Melanesia, Polynesia, and Micronesia.


Governments of many countries are committed to regional development programs, agrarian reform projects, or irrigation schemes. Most of these special projects are based on an integrated rural development approach, of which the coordination of extension, credit, and marketing (including input distribution) is a strategic feature.

Furthermore, in some instances it is felt that the free marketing system has not performed well. It is argued that the private sector is either not sufficiently innovative or charges excessive margins, especially when supplies are limited.

Government distribution systems have been set up in various African countries, such as Gambia, Nigeria, Tanzania, and Zambia. They are usually single-marketing channels without competition, with parastatal organizations distributing inputs. In some instances inputs are handled by specialized input marketing channels, or they form part of the parastatal produce marketing boards, such as the National Agricultural Marketing Board of Zambia and the Groundnut Board of Gambia, which distribute fertilizers and other inputs along with other agricultural produce.

In some parts of Africa the fragmentation of delivery systems has been a major problem and has led to higher operating costs. The coordination and integration of input and output marketing systems would result in economies of operation and improved customer services. The agricultural input trade, particularly at retail level, can be economically viable only if it is conducted in conjunction with that of other commodities. Village traders generally deal in various commodities and send their orders to wholesalers or importers, who supply the assortment of goods required and will also deal in agricultural produce. Thus, unit costs of marketing are minimized.

Input Distribution Enterprises

Inputs can be distributed by several kinds of organizations: private firms, cooperatives and farmer associations, or government enterprises.
The role of private wholesalers and retailers has often been criticized and its importance underestimated. Only recently has there been growing awareness of the potentially important role they can play if it is properly integrated into government policies. Private enterprises can be dynamic, progressive, innovative, and customer-oriented if they are supported by a stable and continuous policy that provides incentives. The private sector is particularly cost conscious and will provide services if farmers are willing to pay for them.

In many developed and developing countries, such as the Republic of Korea, India, and Kenya, cooperatives and farmer associations play a significant role in distributing inputs. The Cotia cooperative in Sao Paolo, Brazil, is a good example of a small, farmer-controlled, efficient cooperative, selling agricultural produce and supplying the inputs required. There have been many instances, however, where, because of management problems, political interference, lack of farmer participation, and inadequate backward and forward linkages, cooperatives have not lived up to expectation.

In theory government enterprises can perform marketing functions as well as private or cooperative marketing enterprises. Experience has shown, however, that parastatals suffer from lack of incentives, motivation, cost consciousness, and innovativeness, and that their performance must be reviewed regularly. In several parastatals the lack of proper cost accounting is particularly serious.

**Logistics and Vertical Coordinator**

The logistics (sea transport, unloading at harbor, transport, storage, and distribution to farmers) of inputs are crucial to an efficient input delivery system. The close vertical coordination of the major activities based on an accurate and timely information system is very important, as is detailed forward planning of purchases, sea transport, port handling, and inland transport. Each company or person involved must know months in advance what to do and at what cost. A continuous review of marketing costs and margins, as well as of input prices, has to be an integral part of the logistics operation.

It is often possible to use cost-effective modes of local transport and storage facilities. Advance transport planning provides an opportunity to use trucks that would otherwise return empty. Direct shipment to district wholesalers or retailers helps to reduce handling costs. The off-season use of storage facilities for agricultural produce, particularly at retail level, reduces storage costs. The application of the critical path planning method can be most useful in achieving timely and cost-effective supply.

Many rural development projects want to provide a package of inputs (fertilizer, seeds, pesticides, and tools) at the village level. An important concern for small farmers is adequate retail organization in handling the various inputs and agricultural produce. Retailers may be private or cooperative, located in country shops or at rural markets. The most important aspect is the convenience to farmers.

**Promotion and Advisory Services**

Government extension services are important in promoting new technologies. Because of the shortage of funds and transport, however, there are many constraints on organizing government extension services effectively. The potential role of the input retailer in promoting the application of inputs is often not fully recognized. Training retailers in how to apply inputs would help to make them effective agents of change. In many developed and developing countries the input wholesaler has developed effective technical advisory services for small farmers, which are operated directly through retailers. This has made a major contribution to the accelerated growth of agricultural productivity. The development of an adequate extension service through the marketing system should receive much higher priority in strategies for agricultural development.

An important aspect in organizing promotion programs is the systematic integration of the various governmental and nongovernmental organizations. The government of India's "National Agricultural Inputs Fortnight" campaign promotes the adoption and use of essential farm inputs, such as seeds, fertilizers, agropesticides, farm implements, water, and credit.

**Pricing, Margins, and Incentives**

Price policies determine not only consumption of agricultural inputs but also marketing organization, methods, and performance. Many governments feel obliged to control input prices to ensure stable prices to farmers, particularly when inputs are subsidized, to prevent traders from taking excessive margins, or to protect a domestic manufacturing industry operating at high cost. The degree of price control ranges from establishing ceiling prices to fixing prices and margins at each stage of distribution. There are important limitations to government price controls, however. It is often impossible to enforce fixed prices if they fall out of line with the realities of supply and demand; the market pressure to evade them then becomes overwhelming, a black market develops, particularly under conditions of inflation, and price policies have to be reviewed and adjusted accordingly.

A price equalization policy is often suggested to supply fertilizers throughout the country at the same price, regardless of the transport costs involved. This principle has been questioned in recent years, particularly because of higher transport and fuel costs. Transport cost pooling would cost farmers located near fertilizer points of origin more than the present transport costs and thus would
discourage the use of fertilizers where transport costs are low. The usefulness and degree of territorial pricing requires careful analysis of the costs and benefits.

Seasonal price differentiation and quantity rebates are other issues in price policies. For instance, seasonal price differentiation would even out seasonal demand for fertilizer when there is less pressure on transport. Volume discounts would encourage purchases by farmers' groups.

Marketing margins have been fixed to control prices under conditions of scarcity. When supply and demand are balanced it is questionable whether the fixed margins provide sufficient incentive to improve marketing and promotion services. This refers to retailers as well as to wholesalers, who have to finance adequate stocks and promotional and technical advisory services.

An important aspect in improving the performance of input marketing systems is the fine-tuning of incentives at each level of the marketing system. In competitive systems the market provides the necessary incentives, but there is much scope for strengthening the incentives or rewards and sanctions in administered, noncompetitive marketing systems. Rewards for innovative proposals, cost reduction, improved customer services, and good purchasing are important factors in improving the performance in administered input marketing systems.

**Financing Input Distribution and Revolving Funds**

Private or cooperative input marketing enterprises must have access to institutional credit to finance stocks and investment in storage and transport facilities. In many developing countries the need for short-, medium-, and long-term credit for input dealers is underestimated.

The availability of short- and medium-term credit to farmers for agricultural inputs, particularly in Asia and parts of Africa, has resulted from the extension of the rural banking system. Nonrepayment of loans and high delivery and recovery costs have been major problems, however. The absence of a branch network and bureaucratic procedures in loan application are still major constraints for small farmers in many developing countries. There are ways to overcome the lack of institutional credit, however.

• The branch network can be extended, where viable, and banks can be oriented more toward the needs of small farmers. Group loans, if properly handled, can reduce the risk of credit nonrepayment and can contribute to lower administrative costs. Where vertically integrated production for marketing systems are feasible, administrative costs of credit can be lowered. Input marketing enterprises may offer credit to farmers if the retailer has access to institutional credit. A village retailer, through close contacts with customers, may be able to judge the creditworthiness of the customers and ensure repayment.

A complementary way is to encourage farmers to save by promoting informal savings clubs. Such clubs in Zimbabwe buy fertilizer in cash, which enables the fertilizer company to reduce marketing costs.

The financing of input marketing infrastructure, as well as of credit to farmers can be facilitated by establishing farm input revolving funds, based on sales of inputs donated by bilateral or multilateral aid agencies. The organization and management of these funds, which are administered preferably by banks, often need to be improved.

**Training**

Trained personnel are needed to plan and implement input marketing policies and programs. Training strategies should distinguish among the several levels: input marketing planning at the national level and implementation of input marketing policies at the import or factory level, at the wholesale (national and district) level, and at the retail level. Each level of management and skill requires its own well-defined program of training tailored to specific target groups (Table 5-2).

At the national level training programs have to be institutionalized, and the input marketing enterprises should be encouraged to take major responsibility for training. The training content has to be identified clearly and should preferably be priced to avoid waste. Adequate attention should be given to training input retailers in the

<table>
<thead>
<tr>
<th>Table 5-2. <strong>Subjects for Training of Personnel</strong></th>
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<tr>
<td><strong>Responsible for Fertilizer Marketing</strong></td>
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<tr>
<td><strong>Type of personnel</strong></td>
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<td>Agricultural extension personnel</td>
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<td>Item</td>
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<td>------------------------------------------</td>
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<tr>
<td>Total marketing costs and margins</td>
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<tr>
<td>Storage</td>
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<tr>
<td>Bagging and handling</td>
</tr>
<tr>
<td>Losses</td>
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<tr>
<td>Taxes, levies, and so forth</td>
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<tr>
<td>Interest on operational capital</td>
</tr>
<tr>
<td>Others</td>
</tr>
<tr>
<td>Dealer's net margin</td>
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<td>Importers</td>
</tr>
<tr>
<td>Wholesalers</td>
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<tr>
<td>Retailers</td>
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<tr>
<td>Shares of marketing costs as of total</td>
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<tr>
<td>cost (excluding subsidy)</td>
</tr>
<tr>
<td>Import or ex-factory price</td>
</tr>
<tr>
<td>Retail price</td>
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<tr>
<td>Government subsidy</td>
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<tr>
<td>&quot;Real&quot; costs of fertilizers</td>
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Note: In 1983-84 public channel was used for India, Indonesia, Nepal and Sri Lanka and private channel was used for Philippines and Thailand. A different set of definitions was used compared with the years before; this has repercussions on bagging costs.

characteristics of the input commodities handled, in the recommended rates of application and use, in simple cost accounting, in financing, and in other marketing methods.

**Government Evaluation, Planning, and Monitoring Service**

It is essential to set up a small evaluation, planning, and monitoring service for input marketing as part of the government marketing department. The service would set well-defined objectives and targets and define the instruments to achieve the objectives most effectively. In other words, it would continuously review the marketing services to be sure they are provided with maximum efficiency and at minimum cost.

A regular evaluation of the preceding year's marketing performance, through comparing the actual outcome with the original plan, indicates the most critical factors to be considered. Such factors differ, of course, according to the individual situation and target groups and may include the timely availability of inputs, including adequacy of stocks and of support services (credit and extension), and cost effectiveness, including losses. Proper cost accounting and examination of the economic sustainability of the input delivery system are particularly important for parastatals, which operate on administered markets.

During the past few years, an FAO program has encouraged developing countries to conduct annual standardized surveys of marketing costs and margins of fertilizers. A continuous survey of cost accounting and review of options has been introduced in Asian countries by FAO and FADINAP (Fertilizer Advisory, Development, and Information Network for Asia and the Pacific) and has been initiated for Africa (see Table 5-3). These regular surveys are meant to create the required cost awareness, to improve cost calculation methods, and to promote the analysis of options for reducing marketing costs commensurate with the services required. A survey of the fertilizer marketing system in Zambia, carried out by FAO in December 1984, identified several shortcomings and possible annual savings of about US$10 million, which would be possible by streamlining marketing operations to reduce marketing costs by half.

The marketing, evaluation, and planning service also has to provide advice on the planned expansion or restructuring of the input marketing system. It should prepare a medium-term (three-to-five-years) input marketing development plan, which outlines future strategies, policies, instruments, investments, and training to strengthen input marketing systems. The government input marketing service should advise on the nature and degree of more integrated input delivery systems that are adequately linked with agricultural produce marketing systems, as opposed to the present practices of specialized, fragmented systems in some countries that are not cost- and service-effective.

**Issues in Marketing Fertilizers, Seed, Farm Machinery, and Pesticides**

The particular characteristics of each input and its market should be considered in efforts to improve the marketing process.

**Marketing Fertilizers**

Because fertilizers are bulk and precariously seasonal, they are difficult to market efficiently. Competitive systems appear to provide better services and are more cost conscious. Marketing systems administered by parastatals often have no proper cost accounting, and management is less cost conscious. Although marketing costs for fertilizers in Asian countries are about US$30 to US$40 a ton, in Africa they have been more than US$100 a ton in many instances. There is considerable scope for reducing costs in fertilizer marketing with better management, organization, and incentives. Efficient fertilizer marketing wholesalers are essential to organize the flow of inputs and take major responsibility for promotion. Costs can also be reduced by integrating and coordinating fertilizer marketing more closely with that of agricultural produce.

Another issue is how best to organize fertilizer retailing under different conditions: through village traders, rural markets, farmer groups, savings clubs (Zimbabwe), village groups or agricultural processing enterprises, or cooperatives. In some rural development projects service centers have been established, but they have faced problems of viability.

A further issue is the organization of technical advisory and promotion services through the marketing system. Greater efforts have to be made to train retailers in fertilizer application and marketing techniques. Margins should provide an incentive to organize such services.

**Marketing Seeds**

Marketing channels are a significant issue for this product. Government-controlled, single-marketing channels for seed have been unsuccessful in many developing countries in the past because of the usual problems (such as lack of incentives, and lack of qualified personnel) involved in operating government schemes. The alternative is to promote competitive multimarketing channels, closely integrated with other marketing systems for fertilizers or agricultural produce. There are many successful schemes in which seed is marketed and distributed through the private trade. The wholesaling company that organizes the distribution channels and supports the promotion programs plays an important role. Adequate attention has therefore to be given to promoting effective wholesaling companies.

Other issues concern policies of assessing effective demand for seed, pricing, marketing costs and margins,
quality control, certification of seed, logistics and promotion of improved seed, and government supervision and support. In some instances it has been argued that seed prices should reflect more the quality of seed and the benefits to be derived from applying improved seeds and that market forces should play a more important role in determining prices. It is not clear what would be the best type of organization at the village level to offer seed as a package of inputs and including credit.

**Marketing Farm Machinery and Tools**

Government tractor-hiring schemes in African countries have run into several difficulties and, after some time, have collapsed. Private operators, however, are more flexible and have greater incentives to provide competitive services.

The importer-wholesaler-distributor has to play an important role in supplying tools, farm machinery, and, in particular, spare parts on a continuous and efficient line. They have also to provide the necessary maintenance, repair, and training services through their distribution and contracted blacksmiths and mechanics. The farm mechanization system, including the manufacturer, distributor, retailer, and repair shops, including fuel supply and credit, should be considered as a whole, and the links integrated adequately.

Governments can play an important role in promoting an environment in which independent private and cooperative commercial farm machinery operation and repair services can develop. Support to dealer training is essential. The timely allocation of foreign exchange for spare parts and fuel is also essential. Other issues concern policies on pricing, margins, access to credit, and training.

**Marketing Pesticides**

Pesticide marketing necessitates specific additional requirements because of the toxic nature of the products involved. Traditionally, legislation was primarily meant to ensure the safe marketing of pesticides. It contained instructions on the precautions to be taken during storage and sale and, in that respect, also provided details on packaging and labeling.

Gradually the legislative control of pesticide sale and use has been considerably tightened to provide better protection for the users and consumers. Specific emphasis is also placed on pesticide residues. The residues may significantly affect the free trade and movement of agricultural produce.

A code of conduct on the distribution and use of pesticides has been developed by FAO. Again, it is primarily aimed at avoiding accidents from the use of these toxic products. In many developing countries appropriate pesticide legislation and, in particular, the means to implement it, is lacking.

**Questions for Policymakers**

The evaluation of an agricultural input marketing system has to determine whether the system is economically sustainable. That examination has to start with questions about the most critical constraints of input use as a basis for further analysis. Some of those constraints are discussed below and would normally serve as a starting point for assessing the efficiency of the system.

**Selected Critical Policy Issues**

**Pricing.** What changes in price policies are advisable to improve marketing performance, with particular reference to price equalization, discounts, international tendering, and subsidies?

**Marketing Channels.** What changes in marketing channel policies can be recommended, with particular reference to single or multicompetitive channel systems and the roles of indigenous private entrepreneurs or multinational companies at the wholesale and retail levels? What types of organization would provide more closely coordinated low-cost packages of marketing (input and output), including credit services for small farmers?

**Logistics.** What improvements to the logistics of delivery systems can be made, as, for example, forward planning, management, or improvement of physical infrastructure at the harbor, wholesale, or retail levels?

**Credit.** To what extent is subsidized institutional credit a precondition to input purchases? To what extent would it be offered more effectively through the marketing system? Is savings mobilization an alternative or a complementary measure?

**Promotion.** How best can government assist in organizing an effective promotion campaign?

**Training.** Who requires training, in what subject matter, and how can it be organized on a cost-effective basis?

**Government Monitoring, Planning, and Evaluation Service.** What should be the annual work plan of a government monitoring, planning, and evaluation service of input marketing? How can it be implemented or improved? How can the distribution of donated inputs be better coordinated with commercial inputs?

**Recommended Actions**

Based on an analysis of these parameters and others that may arise, plans and systems for distributing inputs
countrywide have to be designed. Recommendations for action should consider the available resources and should propose immediate, medium-term (three to five year), and long-term (ten year) goals.

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Trade and Pricing Issues of International Grain Marketing

Simon Pinniger

The principal commodities that make up the bulk of the international grain trade are wheat, rice, corn, oilseeds, barley, and sorghum. In 1984 the world produced approximately 1.3 billion tons of wheat and coarse grains. However, the world exported only 208 million tons, or 16 percent of the total production. The United States alone exported 100 million tons, or 50 percent. Of this 208 million tons, the U.S.S.R., Japan, and Western Europe accounted for almost 50 percent of the imports. The net cost and freight value of this exported grain is more than $60 billion. Grain is often purchased and sold many times as it proceeds along the food chain and the total value of the international grain trade is many times the net export value of approximately $60 billion (see Table 6-1).

The Dynamics of the International Grain Trade

This trade between net exporters (supply) and net importers (demand) constitutes the world’s trade in grain. The world’s most fundamental industry is food; it is big business and big money; it requires big politics and big government, it involves big risks, and it imposes very big responsibilities.

Climatic conditions have a major effect on the dynamics of the international grain trade. Droughts, floods, and frosts, for example, can cause sudden increased demand for basic foods, no matter what marketing policies are in place.

The same drought, floods, frosts, and also insect plagues in neighboring supply countries can also drastically reduce the exportable surpluses of supplying countries, irrespective of local marketing policies.

By the same token ideal growing conditions can produce bumper crops that can cause severe local oversupply, overload domestic storage and transport networks, and swamp even the best agricultural policies.

International and regional politics can also have a major effect on the dynamics of the international grain trade. The U.S. embargo of grain to the U.S.S.R. in 1980 was a notable example. It caused a massive pileup of grain in the United States and provided Argentina with a windfall opportunity to market its entire production. Political and ideological differences often prevent logical flows of grain across borders of neighboring countries. Climatic and policy factors continually change and continually influence the supply and demand forces of the grain trade.

Local infrastructural obstacles also affect demand. Each country is at a different stage of agricultural planning and development. Despite socioeconomic differences, most developing countries in the grain trade have generally very limited resources and are characterized by certain common structural and procedural deficiencies, such as:

- Rapid population growth
- Ineffective agrarian reform programs
- Structural balance of payment deficit
- Low productivity of crop and labor
- Lack of farmer education and technique
- Poor technology and equipment
- Lack of spare parts and maintenance
- Little or no fertilizer or pesticides
- Government policies that suppress prices
- Limited credit facilities
- Poor storage facilities
- High harvest loss and spoilage
- Primitive internal transport systems
- Primitive export or import facilities
- Rampant graft and corruption
- Domestic economic and political instability
- Insufficient investment capital
Table 6-1. Basic Facts of the World Grain Situation

(millions of tons)

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>World production</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rice (paddy)</td>
<td>399</td>
<td>411</td>
<td>423</td>
<td>450</td>
</tr>
<tr>
<td>Wheat</td>
<td>446</td>
<td>454</td>
<td>485</td>
<td>495</td>
</tr>
<tr>
<td>Coarse grains</td>
<td>720</td>
<td>786</td>
<td>793</td>
<td>696</td>
</tr>
<tr>
<td>All cereals</td>
<td>1,566</td>
<td>1,651</td>
<td>1,701</td>
<td>1,641</td>
</tr>
<tr>
<td>Developing countries</td>
<td>770</td>
<td>813</td>
<td>831</td>
<td>889</td>
</tr>
<tr>
<td>Developed countries</td>
<td>796</td>
<td>838</td>
<td>870</td>
<td>752</td>
</tr>
<tr>
<td><strong>World imports</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rice (milled)</td>
<td>13</td>
<td>11</td>
<td>11</td>
<td>12</td>
</tr>
<tr>
<td>Wheat</td>
<td>91</td>
<td>99</td>
<td>97</td>
<td>99</td>
</tr>
<tr>
<td>Coarse grains</td>
<td>102</td>
<td>102</td>
<td>89</td>
<td>89</td>
</tr>
<tr>
<td>All cereals</td>
<td>206</td>
<td>212</td>
<td>197</td>
<td>200</td>
</tr>
<tr>
<td>Developing countries</td>
<td>97</td>
<td>97</td>
<td>106</td>
<td>108</td>
</tr>
<tr>
<td>Developed countries</td>
<td>109</td>
<td>115</td>
<td>91</td>
<td>92</td>
</tr>
<tr>
<td><strong>Food aid in cereals</strong></td>
<td>8.9</td>
<td>9.1</td>
<td>9.2</td>
<td>9.8</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>10.4</td>
</tr>
<tr>
<td><strong>World stock</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rice (milled)</td>
<td>43</td>
<td>44</td>
<td>41</td>
<td>44</td>
</tr>
<tr>
<td>Wheat</td>
<td>98</td>
<td>106</td>
<td>121</td>
<td>132</td>
</tr>
<tr>
<td>Coarse grains</td>
<td>96</td>
<td>134</td>
<td>160</td>
<td>90</td>
</tr>
<tr>
<td>All cereals</td>
<td>237</td>
<td>284</td>
<td>322</td>
<td>266</td>
</tr>
<tr>
<td>Developing countries</td>
<td>101</td>
<td>105</td>
<td>105</td>
<td>122</td>
</tr>
<tr>
<td>Developed countries</td>
<td>136</td>
<td>179</td>
<td>217</td>
<td>145</td>
</tr>
<tr>
<td><strong>Stocks as percent of world cereal consumption (percent)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>16</td>
<td>19</td>
<td>21</td>
<td>17</td>
</tr>
</tbody>
</table>


- Underdeveloped private sector
- Adherence to traditional trade links
- Rapid population migration to the cities

In addition to these infrastructure problems, most of the developing countries that import grains finance them with exports of other primary (nongrain) commodities or loans against depreciating export earnings. Very often grain-importing countries depend heavily on the export of just one raw material (see Table 6-2). In times of drought, not only does the need for grain imports rise sharply, but often, at the very same time, the countries' sugar, cocoa, or coffee export production is seriously reduced by the same climatic problems. Even countries whose primary exports are nonagricultural, such as iron ore, bauxite, and even petroleum, find their only source of foreign exchange—and therefore their ability to import food—drastically reduced in the worldwide economic recession. Nigeria is a good current example; in 1985, in the face of plummeting oil revenues, it banned all imports of wheat and rice.

Consequently, the ability of countries to be physically and financially able to handle the imports of grain is equally important to the supply and demand situation as the exporting countries' ability to produce and ship grain. Importers will always be able to buy food if they have enough resources to afford the prices. Exporters will always be able to sell grain if the price is low enough for someone to afford it. Governments at all levels often overlook this fundamental point and try through policy to control or manipulate supply, demand, and prices.

The Mechanics of the International Grain Trade

The mechanical components of the international grain trade are varied and depend on the domestic and international marketing policies of each country. Some countries have highly visible government involvement, such as the Australian and Canadian Wheat Boards. In others, such as the United States, trade appear to be a totally private enterprise; but that does not preclude the U.S. government and its policy having a large and direct effect on U.S. agriculture.

How the Major Exporters Market Their Surpluses

The principal method of export marketing differs for each country or country group, as shown below.

<table>
<thead>
<tr>
<th>Country</th>
<th>Principal method of export marketing</th>
</tr>
</thead>
<tbody>
<tr>
<td>United States</td>
<td>Private exporters and growers associations</td>
</tr>
</tbody>
</table>
Canada  Government Wheat Board (using private export agents)
Argentina  Private or government export with sale registration with the Government Grain Board
Australia  Government Wheat and Barley Boards
European Community (EC)  Private exports with government levies or subsidies
Thailand  Private or government

The most efficient grain-producing country in the world is the United States. U.S. government policy is to not market grain in the commercial export and domestic markets. The U.S. government, however, can and does influence the domestic and export grain trades in many ways. Since the current international price of grain is close to, or below, the cost of U.S. production, the U.S. Department of Agriculture's Commodity Credit Corporation is, in effect, one of the world's largest acquirers of grain through its price support policy to American farmers.

Nevertheless, the U.S. grain trade is a very aggressive and very competitive industry that has evolved into a complicated labyrinth of single-function local firms, multinational vertically or horizontally integrated cooperatives, and private firms (see Table 6-3).

While there have been many advocates, as well as critics of each part of U.S. agricultural policy, the high degree of competition throughout the industry is considered the underlying factor in the industry's development and success.

Governments are also quite extensively involved in procuring grain imports. Many of the grain-importing countries centralize purchases through a quasi-governmental agency usually charged with securing supplies and stabilizing prices.

How the Major Importers Handle Their Import Requirements

The principal method of importing differs for each country, as shown below.

<table>
<thead>
<tr>
<th>Country</th>
<th>Principal method of importing</th>
</tr>
</thead>
<tbody>
<tr>
<td>U.S.S.R.</td>
<td>Government</td>
</tr>
<tr>
<td>China</td>
<td>Government</td>
</tr>
<tr>
<td>Japan</td>
<td>Government food agency for wheat and barley, Private for other grains</td>
</tr>
<tr>
<td>Europe</td>
<td>Private</td>
</tr>
<tr>
<td>Mexico</td>
<td>Government</td>
</tr>
<tr>
<td>Iran</td>
<td>Government</td>
</tr>
<tr>
<td>Iraq</td>
<td>Government</td>
</tr>
<tr>
<td>Nigeria</td>
<td>Private and government</td>
</tr>
</tbody>
</table>

Table 6-2. Dependence on Primary Commodities of Non–Oil-Exporting Developing Countries

<table>
<thead>
<tr>
<th>Country</th>
<th>Commodity</th>
</tr>
</thead>
<tbody>
<tr>
<td>More than 90 percent</td>
<td></td>
</tr>
<tr>
<td>Burundi</td>
<td>Coffee 91</td>
</tr>
<tr>
<td>Cuba</td>
<td>Sugar 89</td>
</tr>
<tr>
<td>Equatorial Guinea</td>
<td>Cocoa 72</td>
</tr>
<tr>
<td>Liberia</td>
<td>Iron ore 64, rubber 15, timber 10</td>
</tr>
<tr>
<td>Malawi</td>
<td>Tobacco 50, sugar 20, tea 17</td>
</tr>
<tr>
<td>Rwanda</td>
<td>Coffee 67, tin 17</td>
</tr>
<tr>
<td>Zaire</td>
<td>Coffee 94</td>
</tr>
<tr>
<td>Zambia</td>
<td>Copper 59, coffee 12</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Country</th>
<th>Commodity</th>
</tr>
</thead>
<tbody>
<tr>
<td>80 to 90 percent</td>
<td></td>
</tr>
<tr>
<td>Burma</td>
<td>Rice 43, timber 29</td>
</tr>
<tr>
<td>Kiribati</td>
<td>Phosphate 72</td>
</tr>
<tr>
<td>70 to 80 percent</td>
<td></td>
</tr>
<tr>
<td>Ethiopia</td>
<td>Coffee 62, hides/skins 10</td>
</tr>
<tr>
<td>Guyana</td>
<td>Sugar 34, bauxite 29, rice 10</td>
</tr>
<tr>
<td>Honduras</td>
<td>Bananas 28, coffee 23, timber 11</td>
</tr>
<tr>
<td>Nicaragua</td>
<td>Coffee 29, cotton 24</td>
</tr>
<tr>
<td>Papua New Guinea</td>
<td>Copper 37, coffee 14</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Country</th>
<th>Commodity</th>
</tr>
</thead>
<tbody>
<tr>
<td>60 to 70 percent</td>
<td></td>
</tr>
<tr>
<td>Central African</td>
<td></td>
</tr>
<tr>
<td>Rebublic</td>
<td>Coffee 29, timber 25</td>
</tr>
<tr>
<td>Chad</td>
<td>Cotton 61</td>
</tr>
<tr>
<td>Chile</td>
<td>Copper 46</td>
</tr>
<tr>
<td>Colombia</td>
<td>Coffee 49</td>
</tr>
<tr>
<td>Costa Rica</td>
<td>Bananas 25, coffee 25</td>
</tr>
<tr>
<td>Côte d'Ivoire</td>
<td>Cocoa 24, coffee 19, timber 14</td>
</tr>
<tr>
<td>Guadeloupe</td>
<td>Bananas 46, sugar 20</td>
</tr>
<tr>
<td>El Salvador</td>
<td>Coffee 57, cotton 10</td>
</tr>
<tr>
<td>Mauritius</td>
<td>Sugar 60</td>
</tr>
<tr>
<td>Nepal</td>
<td>Hides/skins 17, rice 15, cotton 13, timber 11</td>
</tr>
<tr>
<td>Paraguay</td>
<td>Cotton 37, timber 18</td>
</tr>
<tr>
<td>Solomon Island</td>
<td>Timber 35, copra 14, palm oil 12</td>
</tr>
<tr>
<td>Tanzania</td>
<td>Coffee 30, cotton 13</td>
</tr>
</tbody>
</table>

a. Country depends heavily on a single commodity.
b. Includes Nauru, Christmas Island, Ocean Island, Cook Island, and Western Samoa.
c. Refers only to the thirty-three nonfuel primary commodities included in the World Bank's price index.

How the More Competitive Importing Systems Work

The western Europeans and Japanese are considered by the international grain trades as the most cost-efficient buyers, importers, and end users. In most cases government buyers are considered the least cost-efficient, particularly in developing countries. There is now a clear trend for governments around the world to minimize their role in the international grain trade and to encourage those in private trade to become active participants.

In Germany, a private flour miller must estimate probable future demand for flour, and the stock feed manufacturer
Table 6-3. How the Competitive U.S. Supply System Works

- American farmers decide what and how much grain to plant.
- The U.S. government provides incentives or disincentives and minimum price guarantees in the form of deficiency payment. The government assumes repayment on farm loans, some of which is held in reserve.
- The weather and the farmer's technical competence determine what quantity and quality of crop will be produced.
- The U.S. banking system competes to lend and borrow funds for domestic production and domestic and international transactions.
- The insurance firms compete with premiums and extent of coverage.
- The market decides what prices the farmer will be offered for grain.
- Farmers and cooperatives decide when, how much, and to whom to sell.
- Local country silos compete for the farmer's or cooperative's grain.
- Brokers compete to find the best prices and provide the best market intelligence and other service to the grain buyers and sellers.
- Domestic flour mills and stock feed mills compete for the local grain.
- The inland road, rail, and river barge transport systems compete with each other to transport the grain locally and for export.
- Exporters compete with the domestic users to buy the grain from the cooperatives and up-country elevators.
- Export elevators compete for the most efficient loading operation.
- Shipowners compete for the international transport contracts.
- Stevedores compete for the right to handle the loading of each vessel.
- Exporters compete to sell the grain to other exporters, to overseas importers, or to speculators, whoever offers the best price.
- Other grain-exporting countries compete with the United States to sell their grain at the best price to importing countries.
- Speculators seek to profit by selling to other speculators or to actual exporters and importers.
- International trading firms compete with multiple or optional origins grains, not just U.S. grains.
- Individual trading offices of the same national or multinational firm compete with each other and are usually not restricted to trade “in-house.”

must forecast what the likely demand will be for its various stock feed formulas. Once the probable demand has been estimated, the next step is to study the supply aspect. Is it probable that local or international grain supplies will be very tight, and therefore prices will be higher? Are prices expected to remain constant, or will there be an oversupply and prices fall? What alternatives do the mills have? If local EC corn is too expensive, can U.S. yellow corn, or South African maize, or maybe even Chinese corn be a cheaper substitute? If corn prices rise dramatically, at what prices do sorghum or wheat become viable substitutes for corn to make stock feed? Computer programs now determine many of these answers. Once the decision of what, how much, and when to buy is made, the German flour or stock feed miller is free to purchase immediately.

In the United States and Germany the government does not determine the price of flour. It is a relatively competitive market, compared with that in many developing countries, whose populations cannot afford to absorb price increases as well as the more affluent western consumers.

The Components of Commodity Pricing

Although net exports and imports represent the world’s grain trade, they do not represent the total supply and demand situation. If the supply and demand situation had been satisfied by the world grain trade, there would not be any starvation in Africa, nor would there be a grain surplus in the United States and the EC.

Pricing brings global supply and demand into balance. For the 252 million tons of grain, valued at approximately US$60 billion (including freight and labor) that was exported in 1984, a price balance was found. The price was just high enough for the exporters to sell it and low enough for the importers to buy it. A mutually acceptable price balance could not be found for the remaining global grain so it was not traded.

The Pattern of Grain Prices during the Past Five Years

The price for each commodity has fluctuated greatly since 1980. The supply and demand situation for each of the different commodities has not been identical, and prices have not varied in unison. As and when the various grain markets were able to interrelate and compensate for each other, however, they all eventually found a balanced relation with each other (see Figure 6-1).

The most generally accurate barometer of the domestic and international grain market is the Chicago Board of Trade (CBT). How International Grain Prices Are Established

Neither the exporters nor the importers dictate the international price of grain. The local and international supply and demand situation establishes the price for each commodity.

On March 5, 1985, for example, the U.S. Department of Agriculture (USDA) reported three different prices for U.S. #3 yellow corn for April/May shipments.

- a) CBT, May corn futures closed at US$2.71 per bushel or US$107.42 per metric ton (39.638 bushels = 1 metric ton).
Figure 6-1. *U.S. Corn Prices, 1980–85*

- b) f.o.b. (free on board) the U.S. Gulf for April/May US$120.00 per metric ton.
- c) c.i.f. (cost, insurance, and freight) Rotterdam April/May US$133.00 per metric ton.

### Chicago Futures versus F.O.B. Prices

The difference between the Chicago futures price and the f.o.b. Gulf price delivered in the U.S. Gulf is called the "basis" or "premium." The Chicago futures price of US$107.42 per metric ton for delivery at a Chicago terminal elevator compares with a U.S. Gulf price of US$120.00 per metric ton. Therefore, the basis or premium is US$12.58 metric ton, or US$0.32 more than or "over the May" futures price (see Table 6-4).

The futures market is highly sensitive to facts and opinions that may affect local and international supply and demand. The "basis" is made up of less volatile and more capital-intensive components. The basis can also include the cost of inland transport, elevation into elevators, storage, interest, and loading costs. Depending on the supply and demand situation, however, the basis can trade at less than the actual costs of its components. Buyers can also ask for other components to be included in the basis, such as minimum protein guarantees, load rate guarantees, special fumigation and stevedoring, and stowing and trimming of loading vessels.

On the average, the value of the basis is only about 10 to 15 percent of the total f.o.b. export price, while the futures contracts comprise about 85 to 90 percent of that price.

Only the basis is traded for much of the U.S. f.o.b. grain cargo transactions between U.S. grain-trading firms. Much of the U.S. grain trading is pure paper trading, however, with traders selling grain when they think the price is right.

### Table 6-4. Relation between Futures, f.o.b., and c.i.f. prices

(U.S. dollars)

<table>
<thead>
<tr>
<th>Description</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>CBT price of May corn futures contract</td>
<td>1.71 per bushel</td>
</tr>
<tr>
<td>f.o.b. Gulf price</td>
<td>107.42 per metric ton</td>
</tr>
<tr>
<td>Difference between futures and f.o.b. called &quot;basis&quot; or &quot;premium&quot;</td>
<td>12.58 per metric ton</td>
</tr>
<tr>
<td>f.i.o. (free in and out) Gulf to Rotterdam shipping cost</td>
<td>11.60 per metric ton</td>
</tr>
<tr>
<td>c.i.f. Rotterdam</td>
<td>135.66 per metric ton</td>
</tr>
</tbody>
</table>

Note: Conversion of bushels into metric tons: bushels \( \times 39.638 \). F.o.b. Gulf price includes stowing or trimming costs (US$0.02 per bushel) and Malathion fumigation cost (US$0.01 per bushel). During the five weeks between the calculations on March 5 and April 15, the net increase in May corn futures was US$0.10 per bushel, or US$4.00 per ton. The "basis," however, remained unchanged. The ocean freight rate from the U.S. Gulf to Rotterdam dropped US$0.40 per ton (the decline is not shown in the calculation).
and similarly buying grain when they feel the price is right. Most traders have no back-to-back business in mind when they trade grain. They are professional traders in the true sense of the word.

When a European importer or U.S. exporter with a cost and freight contract charters a ship to load the corn cargo purchased in April/May on March 5, the buyer nominates the ship to the company selling the grain.

The selling company, which quite possibly does not own an elevator and has no facilities to load ships, will then renominate the ship to another company, from which it has also purchased #3 yellow corn for April/May delivery. This renomination of the same ship from buyer to seller can continue many times over until eventually a grain seller with an elevator, with #3 yellow corn "in the house," and with a free berth to load the ship in April/May elects not to pass on the ship’s nomination to another grain seller, but to nominate the ship to its own export elevator for loading. All the grain traders between the buyer with the ship and the eventual seller with a loading elevator are considered "in the string" (see Table 6-5).

The transactions of all those parties in the string are considered paper trades. To facilitate all the paper work and speed up the final physical transaction, all those in the string settle up the respective price differences between each buyer and seller when the ship is nominated and before the vessel is actually loaded. No matter how many times a cargo has been brought and sold, the f.o.b. price and the c.i.f. price must be at the market level determined previously for it to be exported.

Most of the contracts within the string are settled up using the basis price only and do not involve exchanging futures contracts. In most cases only the shipper or importer needs to deliver or “give up” corresponding futures contracts to the actual exporter.

A common fallacy is that some grain companies have better quality grain than others. The example of a string in Table 6-5 demonstrates that in all but special exceptions, each grade of U.S. grain is considered completely homogeneous, and the actual loading elevator used purely random.

For this reason U.S. grain export contracts normally stipulate that weights, grades, quality, and protein are final at loading, as shown in the official certificates. In most cases a grain seller has no idea at the time of sale where and who will actually load the grain for export.

Table 6-5. Sample of a “String” on an f.o.b. Sale

|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|

Peavey’s grain elevator loaded 25,000 tons of soybeans on the MV Meraklis bound for Europe for the account of Deutsche Conti, who in turn, may well have had a c&f sale of soybeans to another German importer or end user.
The f.o.b. versus the c.i.f. Price

The difference between the $120.00 per metric ton f.o.b. price and the US$133.00 per metric ton c.i.f. Rotterdam price comprises ocean freight ($12 per metric ton) and insurance (US$1.00 per metric ton). Although insurance premiums are relatively stable, the cost of ocean freight can fluctuate markedly, depending on the international supply and demand situation for world wide shipping.

The peaks and valleys of the Chicago Board of Trade futures market do relate to the c.i.f. Rotterdam cash prices (See Figure 6-1), which is an international price reflecting similar quality grains from all origins.

To be competitive with the prices for U.S. and locally grown corn in Europe, it is necessary for Argentina, for example, to subtract from the c.i.f. Rotterdam price the cost of shipping from Argentina. Since the distance from Argentina to Europe is much longer and the size of ship that Argentina can load is much smaller, the cost of shipping was about US$10 per ton more. Consequently, to be competitive, the price of Argentine corn had to be US$110.00 per ton f.o.b. or about US$10 per ton cheaper than f.o.b. corn in the United States. During the Falklands conflict, this difference in freight costs widened because shipowners were nervous about having their ships trade in a war zone.

International Prices and What U.S. Farmers Are Paid for Their Grain

In a totally perfect supply and demand market, neither dictates to the other, but each influences the other and price brings the two into balance. The multinational nature and multiple sources of the major grain importers and exporters makes the international grain market an efficient translator of price. The international grain market is a relatively free market; it is, therefore, possible for supply and demand to be quickly and efficiently brought into balance, with a price that both importers and exporters consider the best price available to them. As shown in Figure 6-1, however, the grain markets are still very sensitive not only to supply and demand forces, but also to climatic and political forces, and prices can jump and fall dramatically in reaction to them.

Many economists contend that U.S. government support prices to farmers have historically become the world floor price for wheat, corn, and soybeans. Because the United States is such a large grain importer, its price policies, no doubt, influence international prices. The current policy of the U.S. government is to try to lower the support price to farmers so a truer market level can be found. In turn, this will permit U.S. grain to be more competitive in the international marketplace. These types of government support policies always seem much harder to dismantle than to enact.

Some Other Typical Government Policies That Affect Grain Marketing or Pricing

- Quotas: farmers may plant only certain areas.
- Set-asides: farmers are paid not to plant certain percentages of their crops.
- Price support: farmers are guaranteed a minimum price for grain.
- Price subsidies: farmers’ high cost of production is subsidized by the government, for example, in Saudi Arabia. The EC subsidizes grain exports by paying exporters a restitution.
- Price control: the government fixes the ceiling price at which producers can sell.
- Embargoes: for example, the U.S. government versus U.S.S.R., Nicaragua, or Cuba.
- Export or import quotas: such as on sugar, cocoa, coffee, and meat.
- Foreign exchange controls: national or IMF-type large devaluations.
- Credit programs: often a form of export subsidy, e.g. GSM, 102, 103, 500.
- Bilateral and multilateral food aid: for example the World Food Program PL 480, CEDA, and the Commodity Credit Corporation (CCC).

Without realistic local and international pricing mechanisms, world supply and demand will never balance out. Without the right price farmers will not grow wheat or grow it and deliver it to the government under a price support system, and without the right price flour millers will not be able to sell their flour or bread to consumers. That is why agricultural marketing and pricing policy is so important.

The international grain trade is too big and too complex to be controlled by any one exporting or importing country. The very large participants, such as the Chinese, the U.S.S.R., or the United States, can certainly have a significant short-term effect on the market, but none can single handedly control the international grain market. To protect their national interests, the smaller participants in the international grain trade must learn to operate quickly and efficiently in this volatile market.

Risk Management in Grain Pricing

Grain prices are affected by many factors: changes in weather, political decisions, economic developments, and foreign exchange rates, among others. These are difficult to predict for any participant, big or small, in the marketing system. Yet price changes, even small ones, can have a significant effect on the value of exporters’ sales and the cost of importers’ purchases.

This causes a great deal of consternation to everyone in the food chain. As an example, for every US$0.10 a bushel wheat prices go up on the CBOT, the Chinese must add another US$31 million of foreign exchange to their food
import bill (8.5 million tons × US$3.67 per metric ton). If
grain prices rose US$100 per ton for wheat in less than 12
months (as they did in 1972), China would need to add an
additional US$850 million to its import budget. This, in
turn, would have a dramatic effect on the international
exchange and currency rates, which would compound the
ultimate cost to all importing countries. Even for the much
smaller grain importers, the effect on the national budget is
enormous.

Exposure to these types of grain price fluctuations have
causen in the past (and will in the future) severe social,
economic, and political problems for every country on the
globe. Nevertheless, despite the enormous financial, politi-
cal, and socioeconomic exposure, countries that can least
afford losses are doing little or nothing to manage their
price risks. The governments of almost all developing
countries have left themselves totally to the vagaries of the
international commodity market. The total risk is impos-
sible to quantify.

Consequently a primary task for anyone in the food
chain is to minimize the risk of grain price fluctuations
with practical methods of risk management. Many govern-
ments have fallen, or been seriously weakened, by sudden
increases in food prices. Many private grain processors or
exporters have gone bankrupt because they misjudged or
misread the grain market. Many flour mills have gone out
of business because they were not competitive. Many
farmers have been ruined because the price of grain sud-
denly fell below the cost of their production. These
demises represent a loss of large investment and enter-
prise that no country can afford.

**Hedging with Futures**

The risks of the volatile grain trade are far too great for
any prudent, sophisticated firm or bank to take without
some sort of protection. No sensible stockholders would
permit investment in firms subject to such uncontrolled
risks. Likewise, most commercial banks would not lend
funds to companies in such an insecure business.

Consequently, a long time ago participants in the grain
trade had to find ways to minimize some of the risks
inherent in the grain business. For the more sophisticated
U.S., European, and Japanese participants in the grain
trade, the most common method of risk management
of grain pricing is called "hedging."

Risk management is without a doubt one of the most
important concepts in domestic or international grain
marketing. In an industry where profit margins have aver-
age less than US$0.02 a bushel, even a US$0.05-a-bushel
change in the price of the commodity—a price movement
not at all uncommon today—could more than wipe out a
transaction's potential profit. Given the large volumes
exporters handle, small, adverse price changes affecting
an unhedged position could actually jeopardize an
exporter's ability to stay in business. So the trader
"hedges" by giving up the opportunity for gain from favor-
able price changes to reduce the risk of catastrophic losses
from adverse price movements.

Because of hedging, grain trading is no longer a two-
step process of producing and selling, or buying and sell-
ing, or buying and consuming. A risk-managed, "hedged"
grain trade is a four-step process. A cash purchase is offset
by a futures sale; a cash sale is offset by a futures purchase.
The exporter's concern is with the basis (that is, with the
relation between prices, not with the flat price).

Because grain transactions are usually not back-to-back,
and traders are usually long or short grain, when traders
buy cash grain, they sell an equivalent amount of offsetting
futures contracts. Conversely, when traders sell cash grain,
they buy an equivalent amount of offsetting futures. This
hedging process, when inserted into grain marketing, is
designed to limit or manage the risk. In effect, the offset-
ting futures transaction becomes a temporary substitute
for the cash grain business the exporter will complete
later.

This risk reduction is possible because cash f.o.b. prices
and futures prices tend to move in parallel; these move-
ments are not perfectly linked, however, because cash and
futures markets reflect somewhat different factors.

Futures markets are centralized and visible public mar-
kets that instantaneously reflect the changing judgments
of buyers and sellers about the current value of grain to be
delivered in the future. As such, they provide a snapshot
that shows at any time the value participants here and
around the world attach to various grains. Not only are
U.S. grains priced in relation to U.S. futures market val-
ues; so too are grains from other exporting countries. U.S.
futures markets have become the price reference points
for world grain marketing.

Because the basis or difference in price between the
futures price and the cash f.o.b. price, changes from loca-
tion to location and over time, exporters who hedge do
not completely eliminate price risks. Rather they substi-
tute the cash price for the smaller, more predictable risk of
changes in basis price. In doing so, they convert a flat
price transaction to a basis transaction. For example, an
f.o.b. seaboard sale at US$3.10 per bushel might become
a sale at "US$0.32 over" a particular futures price by
hedging in that futures contract. Once this has been done,
exporters do not stand to gain or lose financially from
changes in flat price levels. Their objectives are to cover
their sale with cash grain at something less than their
basis.

In the above example, the exporter hopes to cover at
less than US$0.32 over the future price, which may or may
not turn out to be less than US$3.10 per bushel. The same
is true for purchases.

Futures trading does require a U.S. technical and finan-
cial operation able, and with authority, to act quickly to
hedge and protect a grain transaction. When the futures
market falls below the price of the futures purchased, the
various futures exchanges require an immediate deposit or margin call to cover the difference. When the market rises, these margins can be withdrawn at a commensurate rate.

Other Methods for Hedging

Futures are not the only way to minimize price risk. Another method is forward price-fixing mechanisms. This is possible when long-term purchase arrangements are made (often between two government entities) and where buyers may fix the price at set intervals or at their discretion. The actual price may be based upon an independently established market price, such as the c.i.f. Rotterdam market.

By regularly fixing the price of a portion of an importer’s annual requirement, at the end of the year an importer will know that it purchased at the average market price for the year. This is a better, risk-managed operation than the price roulette practiced by many countries today.

Foreign Exchange and Grain Pricing

In addition to supply and demand forces, another major factor in determining grain pricing is the foreign currency exchange rates. Since the foreign exchange market is a different and even more complex market than the grain trade, it really deserves review as a totally separate topic.

The international foreign exchange market is much larger than the grain trade, but there are several similarities between the two. Today currencies are treated and traded in the same way as any other homogenous commodity. The foreign exchange market is subject to the sudden large and mercurial price fluctuations typical in the grain markets. It is a highly sophisticated worldwide market in which government and private traders hedge transactions or speculate. Foreign exchange contracts in many currencies are purchased and sold for spot or future delivery.

Most international grain transactions are concluded for payment in U.S. dollars. An Argentine exporter must usually factor into the grain price the prevailing exchange rate between the peso and the U.S. dollar to calculate a selling price. A Japanese importer must convert dollars to yen at the prevailing exchange rate to establish the local purchasing cost. Any fluctuation in the exchange rates of any other grain-exporting or -importing country can totally change the competitiveness of the price and even the origin of the grain.

The recent high value of the U.S. dollar, compared with most of the other currencies of the world, provides a good illustration of the effects of foreign exchange fluctuations on the international grain trade. Notwithstanding the supply and demand forces that are depressing the prices paid to U.S. farmers for grain to historic lows, the strong U.S. dollar made it more difficult for U.S. grain to compete with other exporting countries in the international market. For example, a weaker exchange rate for the peso allows the Argentine exporter to discount his U.S. dollar price for Argentine grain while still receiving the same or more pesos locally.

For grain importers, if the U.S. dollar is strong compared with their particular currency, they must sell more local currency to their central bank. The central bank in turn must either try to trade other local currency for U.S. dollars in the international foreign exchange market or draw down foreign exchange reserves.

All of the hard-earned gains or savings from the most shrewd international grain trading can be lost many times over due to the vagaries of the foreign exchange market. For this reason, foreign exchange hedging is an intricate component of grain pricing, hedging, and risk management.

When most grain transactions are concluded, both buyer and seller lock-in or fix the exchange rate used in their respective price calculations. This is usually done by contracting with a government or private financial institution to purchase or sell U.S. dollars at a fixed exchange rate.

To trade grain successfully, either as a buyer or a seller, it is essential to follow the foreign exchange markets closely and to protect prices of grains from currency fluctuations.

Especially in cases where a significant proportion of a country’s foreign exchange is earned or spent on grain, the value of grain imports or exports in turn has a noticeable effect on the value of the local currency and its rate in the international foreign exchange market.

Financing and Grain Pricing

International grain pricing can not be discussed without mentioning financing. Since the international grain trade is so competitive, the key to successful buying or selling often boils down to financing.

The major types of financing used in the grain trade include:

- Cash against documents: no credit
- Commercial short-term credit: 30, 60, 90, or 180 days
- Government-to-government medium-term credit: 1 to 3 years
- Government-to-government long-term credit: up to 40 years
- Government-to-government credit guarantee: GSM 102
- Government relief programs: ccc Whitten Fund
- Direct grants: economic support funds
- Barter and counter trade transactions
- Government-to-private credit guarantees: Exim Bank, Foreign Credit Insurance Association
- IMF Compensatory Food Financing Facility
To buy or sell grain efficiently, it is essential to keep abreast of all the various financing options available. All public and private resources available should be used to increase the amount and terms of available credit. It is also essential that the most favorable credit be used first.

Intelligence about the Grain Market

Market intelligence, sound analysis, and rapid decision-making are essential to the grain business and noticeably absent among many of the developing countries. Raw market intelligence is quite inexpensive and easy to obtain. To stimulate competition, the U.S. government requires reporting of all major grain transactions and then publishes this market information for the trade. Government publications, research, and data are readily available without charge from the principal grain supplying countries; such as the U.S. Department of Agriculture, Canadian Wheat Board, Australian Wheat Board, European Commission, as well as member country ministries of agriculture, the National Grain Board, and Central Bank of Brazil. International institutions, such as the United Nations and the Food and Agriculture Organizations, also produce useful statistics and commodity forecasts.

Many developing countries have not developed their own local market intelligence capability, despite the probable substantial losses involved by not doing so. Although it is impossible to quantify with any precision, a poorly timed purchase—a product of misinformation—it can result in a loss of many dollars a ton in grain prices.

Some commodities, such as wheat flour, white maize, rice, and soybean oil, are primarily destined for immediate human consumption. Other commodities, such as yellow corn, sorghum, feed wheat, rye, barley, and soybean meal, are predominantly used for livestock consumption, which in turn, becomes a part of human consumption patterns.

Depending on supply and demand and the resultant pricing of the various grants, there is a certain interchangeability between some of these commodities. Obviously, it is not possible to interchange rice for wheat to make flour for bread, but, depending upon the relation of their prices, corn, sorghum, wheat, rye, barley, and millet can be interchanged for livestock feed.

Government and private grain traders must obtain up-to-date and comprehensive market intelligence from many various sources to participate effectively in the grain trade. They must also be able to properly analyze and translate the information into decisions on when and how much grain to buy or sell.

Suggestions for Possible Improvements

The agricultural and food policies of most importing governments are centered around the desires to secure source(s) of food and to minimize the risk of major and sudden price increases or decreases. The following general policy, mechanical, and technical suggestions may help governments to achieve these objectives. Obviously not all suggestions are applicable in all cases.

Improving Policy

- Critically compare and judge the local (public or private) performance with that of the international grain market continually; annual reviews are not enough.
- Hold agencies and officials responsible for food imports or exports responsible for their performance.
- Have access to up-to-date and accurate grain market intelligence.
- Employ qualified and experienced grain audit personnel who are independent from the agricultural marketing entities, to properly analyze the grain market intelligence and to objectively judge the performance of government or private traders.
- Be prepared to correct demonstrated deficiencies, including replacing incompetent or corrupt public or private officials and even abolishing or changing ineffective agencies.
- Allow private importers or exporters to compete along side quasi-government institutions. Whichever system produces the better prices, credit, or other terms should handle the transaction. Competition forces efficiency.
- Take advantage of the highly competitive nature of the international grain trade by accepting and comparing the market intelligence, information, suggestions, and criticisms of competing international grain-trading firms.
- Create an environment that allows those responsible for commodity merchandising (public or private) to act quickly when the grain market or price requires immediate action.
- Protect the national interest but resist the temptation to interfere with the technical intricacies of the complex grain trade. Each additional term or condition stipulated by government regulation adds to the final cost of imports or exports. The more conventional a grain transaction is, the more cost-efficient it will be.
- Encourage importers and exporters of commodities to work efficiently and reward those that do implement efficiencies and cost savings.
- Protect the country’s international credit standing. Countries notorious for poor payment performance do not achieve the best grain prices, that is, those with the least price padding or protection.
- Coordinate food purchases with the availability of foreign exchange. No grain purchases, private or government, should be authorized unless foreign
exchange is positively available to pay for the pur-
chase at the precise time stipulated in the con-
tact.

• Use all sovereign, diplomatic, and political
resources to obtain the most and best credit terms
available in the world, and use the most favorable
credit facilities first.

• Permit and encourage private ownership, financ-
ing, and management of improvements in the food
chain, if, for reasons of policy or resources, the
government is not able to implement these
improvements itself.

• Be flexible to new approaches to finance imports
or exports, such as counter-trade or barter, even if
these innovations emanate from the private sector.

**Improving the Mechanics of Trade**

• In the past many governments and private buyers
have purchased their commodity imports in the
local capital and in the simplest form, that is, a
cost and freight (c&f) delivered to the buyer’s port.
Primary exports are often also sold on the simplest
basis, that is, f.o.b. without transport. This is often
the most expensive way to purchase or sell, and it
also costs the buyer considerable logistical con-
straints. Buyers may need to speed up or delay
shipment because of internal logistical problems
but cannot because they do not control the ship-
ning.

• By purchasing c&f, the buyer is forfeiting all the
logistics flexibility to the seller, whose primary
objective after concluding the sale is to conform to
the contract at the cheapest cost and to cash the
buyer’s letter of credit as soon as possible. With
the proper expertise, information and decision-
making, buyers can regain much better control
and flexibility of imports, both in price and logis-
tics. For this reason practically all the largest pur-
casers and importers usually purchase grain
f.o.b. and handle the shipping themselves sep-
arately. This includes the governments of the
U.S.S.R., China, and the major commodity
houses, such as Cargill (Tradax), Continental
(Finagrain), Garnac (Andre), Bunge, and Louis
Dreyfus.

• Engage professional outside assistance, such as a
procurement agent and establish closer relations
with major commodity trading firms to train and
improve the countries’ professionalism in the
international grain market.

• Every grain importer or exporter, no matter how
large or small, should make the same technical
decisions that are now made by the largest and
most sophisticated traders, exporters, and
importers. The types of decision to be made are:

- Should the product be purchased c.i.f., c&f,
f.o.b., f.a.s. (free alongside ship), extrack,
excharge, flat price, basis price, or futures?

- Should food supply be guaranteed by a govern-
ment-to-government agreement or through pri-
ivate agreements with a fixed or deferred price?

- Should the grain be purchased in bulk, poly or
jute bags, drums (what gauge), containerized,
 barged lash, seabee, and so forth?

- What contract form should be used, should a
loadrate guarantee be obtained, and what char-
ter party form or liner booking note is most
beneficial?

- From what origin should the commodity or
equipment be purchased? What is the technical
difference in the same commodity produced in
different countries?

- What grade of commodity should be purchased?
What alternative grades are available at a sav-
ings?

- Can the transaction be financed through a bar-
ter or counter trade?

- What financing is available, such as GSM 102;
GSM 5; PL 480; Title I, II, or III; AID; CIDA (Can-
dian International Development Agency); EC re-
terstitutions, IDB? How can an importer qualify?
What new credit facilities have recently been
introduced?

- Should the shipping be handled by a contract or
affreightment, consecutive voyages, single voy-
age, space charter, period or voyage time char-
ter, bareboat charter, conference tariff, national
flag tonnage, joint venture, or outright purchase
of ships?

- What type of vessels, bulk carriers, tween-deck-
ers, liners, tankers, barges, or self-dischargers
should be used to transport the cargo?

- What shipping terms should be used? Full-berth
terms, full-liner terms, free-in, free-out, gross-
load, gross-discharge, c.q.d. (customary quick
dispatch), or what combination of these terms is
best for the importer or exporter?

- Should the insurance be covered shipment-by-
shipment or under an open policy, for basic
marine, f.p.a. (free of particular average) with or
without average, all risks, or warehouse to ware-
house, and with what deductible?

- Is the ship’s berth deep enough or long enough
for the most economical ship?

- What technical specifications of loading or dis-
charging equipment should be purchased?

- What storage arrangements need to be made:
lease, buy, or build? How much storage is neces-
sary?

The decisions for all these choices need to be reviewed
constantly, since the commodity and equipment and ship-
ping market and the importer's logistics fluctuate daily. Those responsible for the economical and efficient imports or exports of grain need to have, or have access to, the facilities, staff, experience, and good standing in the market to help make these decisions.

**Improving the Technical Aspects of Trade**

- If large quantities of grain need to be purchased or sold, do not disclose the total quantity to be traded.
- Use public tenders, such as those held in the U.S. government's P.L. 480 program, to engender the most confidence in the grain trade for the integrity of the selling or purchasing process.
- Award contracts to the lowest bidder without negotiation to eliminate favoritism and promote competition.
- Include all the variables in the invitations for bids (IFBs) and highlight any special terms and conditions, such as
  - Buyer
  - Commodity (type and grade and options)
  - Quantity
  - Tolerance (whose option)
  - Delivery (whom, when, where, and speed)
  - Price unit
  - Payment (how, when, and where)
  - Credit guarantees (P.L. 480, GSM 102)
  - Documentation for payment
  - Bonds (bid and performance)
  - Contract pro forma
  - Special conditions or preferences
  - Tender (time and place)
  - Validity of offers.
- Disseminate IFBs to the trade by electronic means such as telex or telex via electronic means; use Commodity News Wire and Reuters wire services.
- Time IFBs not to coincide with other major tenders, or adjust timing to avoid significant market dates such as announcements of USDA production estimates or new crop deliveries that may run late.
- Advertise the IFB and first commodity shipment period adequately.
- Consider optional origin commodities or grades whenever possible; for example, can cheaper Argentine wheat be used instead of U.S. or French wheat?
- Use internationally recognized contract forms, such as NAEGA (North American Export Grain Association) II or GAFTRA (Grain and Feed Trade Association) forms, which inspire confidence and equity for both buyer and seller and encourage lower prices.
- Hold grain tenders in the United States or Europe to facilitate participation and thereby to encourage the most competition.
- Hold grain tenders and make awards during the hours the U.S. futures exchanges are closed to minimize the bidder's risk and promote the best possible price bids.
- Eventually tender for the "basis" only and cover the futures separately to reduce the bidder's risk and promote the most aggressive price competition.
- Tender for f.o.b., freight, c&f, and c.i.f. prices simultaneously to permit documented evidence for the cheapest landed price.
- Abolish national flag requirements when a viable merchant marine does not exist.
- Abolish so-called freight taxes, lighthouse dues, in-bound freight taxes, and so forth, which increase the landed price.
- Process foreign exchange applications and letters of credit immediately to avoid shipping delays, detention, and demurrage charges.
- Handle bid and performance bonds in a conventional manner, using conventional percentages, such as 2 percent bid bond and 5-percent performance bond. Release bid and performance bonds quickly after contract terms have been complied with.
- Present and settle demurrage, despatch, or quality claims quickly.
- Arbitrate commercial contractual disputes, immediately and independently.
- Eliminate commodity samples as part of the tender requirements.

All these technical items will help lower the cost of imports or increase the prices obtained for exports. Unfortunately, many of these points are not addressed by developing countries when purchasing grain.

**References**


Several factors have made the supply and price of rice a critical issue for the government of Indonesia. It is the preferred food of much of the population. It provides half of their calorie and protein intake and is a source of income for more than 12 million farm families. Production is uneven geographically and seasonally. Substantial redistribution over time and place as well as additional imports have been needed to maintain a steady supply to consumers. In 1984 the population was almost 160 million and was spread over wide distances with difficult communication and transport. During the 1950s and 1960s regional shortages were frequent, and retail prices soared. Large-scale trading in rice had long been in the hands of ethnic Chinese. Policies to exclude them in the 1960s left a gap, since indigenous Indonesians still had to learn marketing skills and build up capital and experience.

After the general political and economic disruption resulting from the attempted communist coup in September 1965, the new government's three major development objectives were stability, growth, and equity. It set out to eliminate the major causes of the spiraling inflation which was most evident in the fast rising price of rice, the basic food grain. It was in this situation that BULOG was established in 1967 as the single agency to purchase rice for the government and in 1968 was made the sole importer.

Objectives

BULOG's objectives as established over the succeeding period were to

- Stabilize supplies and prices to consumers in the larger urban centers to limit the disturbing effects of fluctuations on the cost of living
- Promote increased domestic production and improve the income of small-scale producers
- Provide rice for the armed forces and the civil servants
- Maintain reserve stocks to ensure food security.

It was also required to safeguard price stability for some other products, such as maize, wheat, and sugar. These were not new responsibilities for government in Indonesia. There has been official intervention to ensure adequate supplies of rice for strategic consumption groups since colonial times. Action proceeded under various names with several organizations involved.

Since rice had by far the dominant role in BULOG's activities this chapter concentrates on its functions in rice marketing.

Operations

The policy of definitive floor and ceiling prices for the most common rice varieties, which was set in 1969, reversed the historic pattern of targeting purchases to meet the government's own distribution needs, that is, to supply civil servants and the army at the least cost. Supplies would be acquired from the domestic crop when the farm floor price was threatened. Deficits would be covered by imports. Support purchases by BULOG grew at an uneven pace because of fluctuations in the size of the annual crop. Between 1970 and 1981 it ranged from 160,000 tons of milled rice equivalent in the drought year of 1972 to more than 2 million tons in the bumper crop year of 1981. Import needs fluctuated inversely with the domestic crop, which required BULOG to organize its own crop sur-
Table IA-1. The Rice Operations of BULOG

<table>
<thead>
<tr>
<th>Year</th>
<th>Paddy Production (thousands of tons)</th>
<th>Milled Rice Production (thousands of tons)</th>
<th>Total Production (thousands of tons)</th>
<th>Domestic Procurement (thousands of tons)</th>
<th>Imports of Rice (thousands of tons)</th>
<th>Stocks at Year End (thousands of tons)</th>
<th>Rice Equivalent</th>
</tr>
</thead>
<tbody>
<tr>
<td>1970</td>
<td>20.9</td>
<td>37</td>
<td>12,740</td>
<td>493</td>
<td>960</td>
<td>530</td>
<td>960</td>
</tr>
<tr>
<td>1971</td>
<td>20.9</td>
<td>37</td>
<td>13,310</td>
<td>617</td>
<td>490</td>
<td>531</td>
<td>490</td>
</tr>
<tr>
<td>1972</td>
<td>20.9</td>
<td>37</td>
<td>12,780</td>
<td>160</td>
<td>730</td>
<td>168</td>
<td>730</td>
</tr>
<tr>
<td>1973</td>
<td>29.9</td>
<td>37-45</td>
<td>14,170</td>
<td>263</td>
<td>1,660</td>
<td>579</td>
<td>1,660</td>
</tr>
<tr>
<td>1974</td>
<td>23.5-30.4</td>
<td>42-52.5</td>
<td>14,810</td>
<td>530</td>
<td>1,070</td>
<td>847</td>
<td>1,070</td>
</tr>
<tr>
<td>1975</td>
<td>41.6</td>
<td>68.5</td>
<td>14,720</td>
<td>539</td>
<td>670</td>
<td>625</td>
<td>670</td>
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<tr>
<td>1976</td>
<td>58.5</td>
<td>97</td>
<td>15,360</td>
<td>392</td>
<td>1,280</td>
<td>541</td>
<td>1,280</td>
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<tr>
<td>1977</td>
<td>68.5</td>
<td>110</td>
<td>15,180</td>
<td>424</td>
<td>1,960</td>
<td>512</td>
<td>1,960</td>
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<tr>
<td>1978</td>
<td>71</td>
<td>110</td>
<td>16,771</td>
<td>866</td>
<td>1,840</td>
<td>1,185</td>
<td>1,840</td>
</tr>
<tr>
<td>1979</td>
<td>75</td>
<td>119.5</td>
<td>17,080</td>
<td>331</td>
<td>1,930</td>
<td>783</td>
<td>1,930</td>
</tr>
<tr>
<td>1980</td>
<td>85-95</td>
<td>140-158</td>
<td>19,270</td>
<td>1,585</td>
<td>2,030</td>
<td>1,667</td>
<td>2,030</td>
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<tr>
<td>1981</td>
<td>105</td>
<td>175</td>
<td>21,300</td>
<td>2,014</td>
<td>525</td>
<td>2,217</td>
<td>525</td>
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<tr>
<td>1982</td>
<td>120</td>
<td>195</td>
<td>22,170</td>
<td>1,836</td>
<td>300</td>
<td>1,746</td>
<td>300</td>
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<tr>
<td>1983</td>
<td>135</td>
<td>214</td>
<td>23,462</td>
<td>971</td>
<td>1,160</td>
<td>1,612</td>
<td>1,160</td>
</tr>
</tbody>
</table>

Source: Mears (1985).

The operations of BULOG from 1970 to 1983 are summarized in Table IA-1. The steady increase in the announced floor prices is primarily a measure of inflation in the Indonesian currency. However, after the sharp increase in revenues from oil following the price rises in 1973 and subsequently, the government was able to put more funds into incentive pricing and so to stimulate the use of high-yielding inputs to expand domestic production. This, together with favorable growing conditions, brought production nearly into balance with consumption requirements in 1981 and 1982.

The scale and direction of rice distribution by BULOG is shown in Table IA-2. Even with an excellent crop in 1980, it was still necessary to inject more than 1.85 million tons

Table IA-2. Milled Rice Distribution by BULOG, 1970–83

<table>
<thead>
<tr>
<th>Year</th>
<th>Open Market Operations (thousands of tons)</th>
<th>Government Servants, Including Military (thousands of tons)</th>
<th>Social Distribution and Miscellaneous (thousands of tons)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1970</td>
<td>229</td>
<td>711</td>
<td>151</td>
</tr>
<tr>
<td>1971</td>
<td>226</td>
<td>677</td>
<td>112</td>
</tr>
<tr>
<td>1972</td>
<td>419</td>
<td>651</td>
<td>84</td>
</tr>
<tr>
<td>1973</td>
<td>703</td>
<td>661</td>
<td>67</td>
</tr>
<tr>
<td>1974</td>
<td>315</td>
<td>658</td>
<td>112</td>
</tr>
<tr>
<td>1975</td>
<td>423</td>
<td>654</td>
<td>91</td>
</tr>
<tr>
<td>1976</td>
<td>888</td>
<td>662</td>
<td>89</td>
</tr>
<tr>
<td>1977</td>
<td>1,703</td>
<td>635</td>
<td>80</td>
</tr>
<tr>
<td>1978</td>
<td>1,224</td>
<td>586</td>
<td>92</td>
</tr>
<tr>
<td>1979</td>
<td>1,802</td>
<td>660</td>
<td>101</td>
</tr>
<tr>
<td>1980</td>
<td>1,859</td>
<td>639</td>
<td>90</td>
</tr>
<tr>
<td>1981</td>
<td>1,183</td>
<td>684</td>
<td>92</td>
</tr>
<tr>
<td>1983</td>
<td>864</td>
<td>1,396</td>
<td>136</td>
</tr>
</tbody>
</table>

Source: Mears (1985).
into the market to maintain the desired retail ceiling price. In part this was because the low retail price desired by the government to temper other inflationary pressures created a large additional market demand for rice. Between 1970 and 1980 rice consumption per capita rose from 110 to 134 kilograms. These quantities, added to the usual distribution, brought BULOG's total rice distribution in 1980 to a record 2.75 million tons. The value of all BULOG's purchases and sales during the same period exceeded Rp1.5 trillion (US$2.3 billion). Domestic purchases plus imports ranged around 10 percent of annual domestic production, and increased to 17 percent in years of particularly short production.

Organization

Figure IA-1 shows the broad framework of BULOG's organization, which is divided into three major functional groups: procurement and distribution, administration and finance, and inspection and control. The twenty-seven regional branches, called DOLOGS (Regional Logistic Agencies), are organized similarly and communicate directly on technical matters with their functional bureau in BULOG and with the BULOG chairman for administration and policy. The ninety-two sub-DOLOGS, which are branches of DOLOGS, are located in the districts and have warehouse facilities and procurement and distribution staffs. In early 1983 there were 542 government-owned warehouse units plus 1,394 units rented by BULOG from the private sector. The staff of experts and the Center for Research and Development, with its technical experiment and training station at Tanbun near Jakarta, all report directly to the BULOG chairman. BULOG and DOLOG employed more than 5,300 people in mid-1982, of which 1,700 were warehouse staff, and 371 were college graduates.

Figure IA-1. The Organization of BULOG

Figure IA-2. The Policy of Intervention in Rice Markets

The policy behind BULOG's intervention for rice is summarized in Figure IA-2. This policy was developed to help imperfect markets function over widely separated areas and to stabilize consumer and producer prices at desired levels, with a minimum of direct marketing by the government. A farm floor price for common varieties is announced before the planting season begins. In 1976–77 price levels were designed to maintain a ratio of 2.2:1 between the increase in the value of output and the increase in the cost of the corresponding inputs. Ceiling prices reflect regional consumer purchasing power as well as distribution costs. The ceiling permitted in deficit areas recently has been Rp10 per kilogram higher than in self-
Table IA-3. Trends in the Floor and Ceiling Prices of Paddy and Rice, 1976-77 to 1981-82
(riupiahs per kilogram)

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
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</thead>
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<tr>
<td><strong>Floor price</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Paddy</td>
<td>68.50</td>
<td>71.00</td>
<td>75.00</td>
<td>85.00</td>
<td>95.00</td>
<td>105.00</td>
<td>120.00</td>
</tr>
<tr>
<td>Increase (percent)</td>
<td>17.09</td>
<td>3.65</td>
<td>5.63</td>
<td>13.33</td>
<td>11.76</td>
<td>10.53</td>
<td>14.29</td>
</tr>
<tr>
<td><strong>Government purchase price</strong></td>
<td></td>
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<tr>
<td>Paddy</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Through cooperatives (KUD)</td>
<td>69.50</td>
<td>72.00</td>
<td>77.50</td>
<td>88.00</td>
<td>100.00</td>
<td>111.00</td>
<td>128.00</td>
</tr>
<tr>
<td>Margin</td>
<td>1.00</td>
<td>1.00</td>
<td>2.50</td>
<td>3.00</td>
<td>5.00</td>
<td>6.00</td>
<td>8.00</td>
</tr>
<tr>
<td>Through noncooperatives</td>
<td>69.50</td>
<td>72.00</td>
<td>77.50</td>
<td>88.00</td>
<td>98.00</td>
<td>108.00</td>
<td>123.00</td>
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<tr>
<td>Margin</td>
<td>1.00</td>
<td>1.00</td>
<td>2.50</td>
<td>3.00</td>
<td>3.00</td>
<td>3.00</td>
<td>3.00</td>
</tr>
<tr>
<td><strong>Milled rice</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Through cooperatives (KUD)</td>
<td>108.00</td>
<td>110.00</td>
<td>119.50</td>
<td>140.00</td>
<td>158.00</td>
<td>175.00</td>
<td>195.00</td>
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<tr>
<td>Margin</td>
<td>-</td>
<td>1.85</td>
<td>8.64</td>
<td>17.15</td>
<td>12.86</td>
<td>10.76</td>
<td>11.43</td>
</tr>
<tr>
<td>Through noncooperatives</td>
<td>108.00</td>
<td>110.00</td>
<td>119.50</td>
<td>139.00</td>
<td>156.00</td>
<td>172.50</td>
<td>191.00</td>
</tr>
<tr>
<td>Margin</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td><strong>Ceiling price</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Milled Rice</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Region I</td>
<td>125.00</td>
<td>127.50</td>
<td>140.00</td>
<td>175.00</td>
<td>200.00</td>
<td>215.00</td>
<td></td>
</tr>
<tr>
<td>Increase (percent)</td>
<td>4.17</td>
<td>2.00</td>
<td>9.80</td>
<td>25.00</td>
<td>14.29</td>
<td>7.50</td>
<td></td>
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<tr>
<td>Region II</td>
<td>135.00</td>
<td>135.00</td>
<td>145.00</td>
<td>180.00</td>
<td>200.00</td>
<td>220.00</td>
<td></td>
</tr>
<tr>
<td>Increase (percent)</td>
<td>4.00</td>
<td>0.00</td>
<td>7.41</td>
<td>24.14</td>
<td>11.11</td>
<td>10.00</td>
<td></td>
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<tr>
<td>Region III</td>
<td>140.00</td>
<td>140.00</td>
<td>150.00</td>
<td>185.00</td>
<td>205.00</td>
<td>235.00</td>
<td></td>
</tr>
<tr>
<td>Increase (percent)</td>
<td>7.69</td>
<td>0.00</td>
<td>7.14</td>
<td>23.33</td>
<td>10.81</td>
<td>14.63</td>
<td></td>
</tr>
</tbody>
</table>

Source: BULOG (1982).

Figure IA-3. BULOG Market Intervention for Paddy and Rice

- Military and civil servants
- Special government distribution
- Private consumers
- Retail markets
- Government agencies
- DOLOG task forces
- Private wholesalers
- Coop and private authorized distributors
- Imports
- DOLOG (BULOG)
- Cooperatives
- DOLOG task forces
- Millers and traders
- Farmers

Note: _______ private channels, _______ BULOG (DOLOG) intervention.
sufficient areas and Rp20 per kilogram higher than in surplus areas. Trends in floor and ceiling prices are shown in Table IA-3.

The resulting pattern of marketing channels to urban consumers is shown in Figure IA-3. Figure IA-4 shows the distribution of rice through these channels in 1981–82. Much larger quantities of rice are consumed in the areas where it is produced, either by farm families or after passing through local market channels. Prices in local markets are influenced by BULOG because its floor price for standard qualities is available from the KUDS at their village headquarters. BULOG in turn guarantees the KUDS a profitable price (ex-cooperative warehouse) for these stocks in processed or unprocessed form. The residual private marketing channel is shown on the right of Figure IA-3. Private traders tend to purchase mainly high-quality rice at prices above the floor price or poor-quality rice at sacrifice prices.

To help maintain income stability during inflation for employees in critical activities, BULOG distributes rice directly to government agencies for military and civil service personnel, for large government enterprises, and for emergencies. The annual quantities are rather stable, about 1.4 million tons in 1982–83. These distributions have been maintained even though the inflation rate has been low in recent years, since they assure a partial annual turnover of stocks.

Large but variable quantities of rice are distributed through authorized private and KUD distributors to keep market prices from exceeding desired ceilings. These market operations have ranged from 226,000 tons in 1971 to almost 2 million tons in 1980.

Marketing costs and margins for 1978 on rice bought by BULOG in the Krawang production area and sold in Djakarta about 70 kilometers away are shown in Table IA-4. By-products of milling remain with the miller. The subsidy amounted to 27 percent of the retail prices on paddy and 11 percent on milled rice. Major cost items were interest charges and transport costs (averaged over all movements).

The Financing of BULOG

A sound financial basis is essential if BULOG is to support floor prices and hold sufficient stocks to keep retail prices from exceeding ceilings. It is able to take credit from the
BULOG does not handle cash in its supply and distribution activities. Imports are paid for by opening letters of credit for the supplier. BULOG's domestic procurement agents pay the farmers in cash. For this purpose, the KUDs are financed by the Bank Rakyat Indonesia; private traders use their own funds. Upon receipt and survey of purchases, BULOG then pays its agents by bank transfers. Supplies are released to distributors only after evidence of prior payment at the bank to a DOLOC account. The key to availability of bank funds at the right location at the right time for BULOG and its agents lies in careful logistical planning and transfers of BULOG and KUD funds between banks by letters of credit in anticipation of needs. Similarly, for DOLOC routine or emergency operations, funds are transferred by letters of credit from BULOG's account according to specific budget allocations.

### References


<table>
<thead>
<tr>
<th>Table 1A-4. BULOG Rice Marketing Costs and Margins, April-October 1978 (percentage of retail price)</th>
<th>Bought by DOLOC as paddy</th>
<th>Bought by DOLOC as milled rice</th>
</tr>
</thead>
<tbody>
<tr>
<td>Received at farm gate</td>
<td>83.9</td>
<td>83.9</td>
</tr>
<tr>
<td>Assembly to KUD</td>
<td>1.2</td>
<td>1.2</td>
</tr>
<tr>
<td>Floor price to farm at KUD</td>
<td>85.1</td>
<td>85.1</td>
</tr>
<tr>
<td>Milling</td>
<td>2.9</td>
<td>2.9</td>
</tr>
<tr>
<td>KUD margin</td>
<td>2.8</td>
<td>0.1</td>
</tr>
<tr>
<td>Cost to DOLOC at KUD</td>
<td>87.9</td>
<td>88.1</td>
</tr>
<tr>
<td>Milling</td>
<td>4.2</td>
<td>—</td>
</tr>
<tr>
<td>Survey fee</td>
<td>0.4</td>
<td>0.2</td>
</tr>
<tr>
<td>Transport and handling</td>
<td>7.8</td>
<td>3.0</td>
</tr>
<tr>
<td>Movement between warehouses</td>
<td>2.8</td>
<td>2.4</td>
</tr>
<tr>
<td>Sack</td>
<td>6.0</td>
<td>2.9</td>
</tr>
<tr>
<td>Storage, paddy</td>
<td>2.3</td>
<td>—</td>
</tr>
<tr>
<td>Storage, milled rice</td>
<td>0.8</td>
<td>0.8</td>
</tr>
<tr>
<td>Losses</td>
<td>2.2</td>
<td>0.8</td>
</tr>
<tr>
<td>Interest and bank charges</td>
<td>6.1</td>
<td>6.1</td>
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<tr>
<td>Administration</td>
<td>2.7</td>
<td>2.7</td>
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<tr>
<td>Total</td>
<td>123.4</td>
<td>107.1</td>
</tr>
<tr>
<td>Subsidy</td>
<td>(27.5)</td>
<td>(11.2)</td>
</tr>
<tr>
<td>Wholesale or retail margin</td>
<td>4.1</td>
<td>4.1</td>
</tr>
<tr>
<td>Retail price</td>
<td>100.0</td>
<td>100.0</td>
</tr>
</tbody>
</table>

**Note:** For rice bought at Krawang and distributed in Djakarta.

**Source:** Information received from BULOG.

Central Bank up to the current value of stocks in the pipeline. To provide further security the Finance Department of the government makes payments from agency budgets directly to the Central Bank for the rice provided to government personnel and the army under contract.
Part II

Price Policy
Food Marketing and Price Policy

C. Peter Timmer

The literatures on agricultural marketing and agricultural price policy are found on separate shelves of the library. Until the early 1970s research on agricultural marketing focused almost entirely on institutional aspects of the marketing functions—the transformation of agricultural products in space, time, and form through storage, transport, and processing—with relatively little concern for the role of prices in those functions. In the early 1970s marketing research, especially the work of William O. Jones at Stanford, began to focus on the relation between the price data collected at each stage of marketing transformation and the economic efficiency with which the transformations were carried out. This relation inevitably raised broader issues about factors influencing price formation. Consequently, efforts to judge the efficiency of marketing systems from the analysis of prices have begun to push marketing research into the arena of price policy (Jones 1972; Timmer and others 1983).

From the other direction, research on trade and subsidy policies that are used to influence domestic commodity prices relative to border, or international, prices has blossomed in the past decade, as renewed emphasis was placed on the level of incentives required for farmers to adopt new agricultural technologies and practices (Schultz 1978). Although the principles and static effect of trade and subsidy policies are relatively straightforward, attempts to implement such policies and measure their dynamic and disaggregated effects had to confront the reality of a domestic marketing sector that actually bought, stored, moved, processed, and sold commodities. Often the government simply co-opted these activities under its own control and used parastatal marketing agencies to carry out the requisite tasks. As a result efforts to implement price policies required one of two things: either an understanding of the domestic marketing institutions and actors or the bureaucratic skills and capacity to carry out the tasks directly. Analysis of price policies cannot get very far in an empirical setting without knowledge of the domestic marketing sector.

The Roles of Marketing and Markets

These two directions of research are converging and are ripe for integration. To integrate these topics, it is useful to distinguish between marketing functions and the role of markets where price formation occurs. The technical, or engineering, functions of marketing must be carried out whether or not a country uses markets as the arena for the transactions. These engineering functions are storage, transport, processing, and the physical transfer of ownership of commodities. No necessary relation to prices is implied in carrying out these functions, although an agreed terms of exchange is at least implicit when transferring ownership. In a market economy this terms of exchange is explicitly the price of the commodity or service.

A major role of markets is price formation. When an equilibrium is struck between supplies forthcoming to the market and demand for those supplies, the prevailing price clears the market. The simple supply-demand models of price formation in closed, and static markets become considerably more complicated when intermarket trade, especially international trade, is permitted and when intertemporal factors, which can influence both supply and demand at any given time, come into play. Price formation has three important components: the determination of the domestic price of a commodity relative to its

Note: I would like to thank Carol F. Timmer for both substantive and editorial advice.
and FoodMarketing

Figure 7-1. The Links between Food Price Policy and Food Marketing

Functions of markets and marketing
- Storage
- Transport
- Processing
- Exchange ownership
  - Marketing output versus home consumption
- Price formation
  - Price level relative to border price and to other commodities
  - Price stability
  - Price margins over time, space, and form (efficient price formation matches costs of storage, transport, and processing to respective price margins.)
- Allocation of resources based on price signals
  - Supply (farm incomes)
  - Demand (nutritional welfare)
  - Efficient resources allocation

the stability of domestic prices, influences price margins and the allocation of resources. The price margins in turn influence private and public decisions about food marketing activities. How efficiently these activities are carried out is determined by comparing the costs of storage, transport, and processing with the price margins actually generated in the various commodity markets. How efficient these markets are in matching costs with price margins during competitive price formation then determines whether the allocation of resources in a market economy generates an efficient outcome. It is no exaggeration to say that the links between price policy and food marketing activities take the food policy analyst to the very core of an economy and to the most basic issues concerning the consequences of market organization for economic efficiency and income distribution.

The Effect of Price Policy on Markets

Considerable attention has been devoted in the past decade to the effect of price policy on domestic agricultural markets and their participants. Recognition is now widespread that price interventions are among the most potent short-run policy instruments available to governments to influence consumer welfare, producer incomes, and the economy of rural areas (Timmer and others 1983; Meier 1983; Tolley and others 1982). Considerable controversy remains over the long-run effect of price policy, especially of using trade barriers to protect farm incomes (Johnson 1985). The effect of agricultural price policy interventions can be analyzed from five separate perspectives (Timmer 1983).

Static Partial Equilibrium Analysis

The traditional “price policy analysis” of modern welfare economics traces the short-run, static effects on consumers, producers, the government budget, and the efficiency losses of changes in a single commodity market. Aggregate supply and demand parameters permit income transfers to be calculated in the context of a given “border” price and a host of other assumptions. This is what the economics profession means by price policy analysis.

A simple example is shown in Figure 7-2. A subsidy is introduced to reduce the domestic price $P_2$ below the world price $P_w$. In the static, aggregate world shown in the illustration, consumer welfare is increased by the area $adjf$, farmer incomes are decreased by $acgf$, a budget subsidy is required of $bejg$, and there are efficiency losses for producers of $bcg$ and for consumers of $def$. From the viewpoint of marketing, the only important changes are likely to flow from the changes in the volume of imports, from $Q_2Q_3$ to $Q_2Q_4$, and from the relative switch from domestic to imported supplies. Clearly, a marketing sector that is primarily oriented toward bulk supplies in rural areas...
and moving them to cities will face a rather different task when imports displace much of the rural markets. An even more difficult reorientation would be required if the policy change were in the other direction: removing the subsidy to raise domestic prices to their world levels. The response of the domestic marketing sector in actively seeking out rural supplies for the urban markets is then a major factor in determining the success of the new incentive price policy in stimulating farm production. The link between price policy and marketing begins to become apparent.

This effect of “pure” price policy on marketing, where neither stability nor price margins are affected, depends mostly on the effect of the price changes on trade. This effect is summarized in Figure 7-3, which shows the effects on income transfers, efficiency losses, and trade flows of policies that raise or lower domestic prices relative to world prices for either imports or exports. One rather startling implication of the diagram is the relative ease with which price policy can switch a commodity from the import to the export side of the ledger and vice versa. Such switching is very common—rice in Japan, wheat in Europe, corn in Indonesia—and has obvious and important implications for the tasks to be performed by the domestic marketing sector.

Four other aspects of price policy analysis also need to be incorporated if the static, aggregate analysis illustrated above is not to be seriously misleading.

Disaggregated Analysis

A similar type of analysis can be conducted with disaggregated consumption and production parameters. The intent of such disaggregated analysis is to identify which particular income classes adjust their production and consumption. In setting food price policy, a major concern is to measure the extent to which consumer groups with marginal or inadequate caloric intake may be pushed significantly below the margin if food prices rise or to measure their increased food consumption above a nutritional minimum if food prices are heavily subsidized. On the production side, farms and farming systems of different sizes and types have significantly different responses to changes in the price of individual commodities. The results of this analysis are also useful for participants in the marketing chain, since knowing the whereabouts of new market supplies and customers is a vital piece of commercial information.

Border Prices

Another extension of price analysis examines the meaning and efficacy of the border price, which serves as the standard for welfare comparisons. Domestic prices higher than the border price usually generate revenues for the government treasury and force consumers to “transfer” income to producers. When domestic prices are kept

Figure 7-2. Price Formation with a Subsidy on Imports

Figure 7-3. Summary of the Effects of Price Policy
lower than border prices, subsidies must be paid from the government budget, and producers "transfer" income to consumers. In both instances allocative inefficiencies, or "dead weight" losses, are also incurred. Clearly, whether price policies are "taxing" producers or consumers hinges fundamentally on how domestic prices relate to the border price, that is, the price at which the commodity can be delivered to the country's port from international markets.

In one sense this border price is a very specific and "knowable" number. Several international commodity trading houses are willing to provide quotes for appropriate qualities and delivery terms. Such quotes are the border prices. These quotes, however, fluctuate widely from month to month and year to year. Even though a country can have a stable and "fair" price policy when averaged over an extended period, it may appear alternately to tax and subsidize consumers and producers simply because international prices fluctuate greatly. A strong rationale exists for not having domestic price policy follow closely such international price fluctuations. If they do not, what international price should be used as the border price for analyzing the effect of price policy interventions? Each country is likely to answer this question in a manner that depends on its own internal financial flexibility and domestic preferences for price stability. It is important to recognize that the answer is not mechanical and that the effect of price policy interventions cannot be calculated with a fixed set of formulas. This concern for the proper relation between the domestic and international price of a commodity is a key topic of debate in most food planning agencies.

Macroeconomic Effects

Macroeconomic effects are a broader concern of price policy analysis. Although food price policy in particular is seldom considered as part of macroeconomic policy, in many poor countries with large rural sectors or simply a large fraction of personal income spent on basic food commodities, the macroeconomic consequences of changes in food prices are quite significant. The obvious effect is through the size of the government budget devoted to price subsidies, but the effect on the foreign exchange balance might also be quite important when changes in food prices alter the volume of imports or exports. Countries with significant industrial sectors producing behind tariff barriers for domestic consumption can also experience Keynesian fluctuations in employment when food prices change. Higher food prices, for example, force consumers to increase the share of the budget devoted to food and reduce purchases of other goods and services supplied by domestic industry and workers. If the reduced domestic demand cannot be compensated by increasing exports, widespread unemployment and reduced national income can result.

Dynamic Consequences

The last but perhaps the most important additional aspect of price policy is its dynamic effect. If high food prices induce technical change, for instance, the static analysis may provide seriously misleading estimates of the actual welfare transfers between producers and consumers and the ultimate effect on the government budget. Price policy can induce changes in land tenure or in the choice of production technology. The distribution of income can change not just between producers and consumers but within rural areas as well through indirect effects on hiring patterns and rural wages. Cheap food might have consequences for health and nutrition in the long run that are not captured by the static analysis. Because some of these consequences could make the difference between life and death, actually measuring them raises serious methodological problems.

The dynamic consequences of price policy on the food marketing sector can also be important. If a government agency is set up to implement the price policy, its competitive stance in relation to the private sector will strongly influence the structure of marketing participants. Direct government involvement also alters the capacity of the system to respond to local changes in production or demand, to stimulate the production of new commodities or processing techniques, and to provide efficient signals to all participants in the economy about the long-run opportunity costs of their production and consumption decisions. For all of these reasons, the dynamic effects of food price policy interventions are likely to dominate the static effects, and thus the analysis of food price policy interventions is much more an intuitive and artistic exercise than a scientific process reproducible by any analyst newly set to the task.

When the broader aspects of food price policy are considered, especially those that introduce concerns for price stability and dynamic effects, the links to marketing activities become quite strong. Price stabilization schemes, for example, almost inevitably attempt to control rises in seasonal prices by enforcing ceiling prices. In countries concerned about farm incentives, floor prices are usually also a part of price policy. Concerns for regional equity frequently lead to pan-territorial pricing, which has major implications for determining the parts of a country in which a private marketing sector can operate profitably. When price policies are designed in real settings, their implementation carries into the marketing arena.

The Effect of Price Policy on Marketing Activities

Most food and agricultural price policies are designed to influence price margins as well as price levels, although the subsequent effect on marketing participants is usually not carefully considered. Each of the three basic market-
ing activities—storage, transport, and processing—is influenced by price policy, although storage decisions are usually most affected in the short run. This section looks especially at the influence of price policy on commodity storage decisions and the role of public agencies relative to private traders in this activity.

**Storage**

The introduction of a ceiling price as the specific manifestation of a price policy obviously affects the expectations about future prices of a private trade who purchases commodities at harvest for later sale when prices are higher. If the ceiling is effectively enforced only in urban markets through supplies of imported grain distributed by a national logistics agency, the private sector will leave much of the task of provisioning urban markets to the public sector (a task examined below). But what happens to grain marketing in rural areas?

This question is addressed by Figure 7-4, which shows a schematic framework that has been used successfully in several settings (Timmer 1974; Pinthong 1978). The horizontal axis shows time from one harvest to the next, and the vertical axis measures rice prices. Urban prices are determined by rural prices plus a constant marketing margin $M$, until the urban ceiling price $P_U$ becomes effective, at which time the public marketing agency must assume primary responsibility for providing rice supplies to urban markets.

In rural markets prices are free to rise to cover the full costs of storage, even when they exceed the urban ceiling price. If they rise far enough, for example, by the marketing margin $M$, it becomes profitable for private traders to ship rice from urban markets back to the rural areas. In this setting, the urban ceiling price sets a rural ceiling price higher by the margin $M$ rather than lower by the margin $M$. Such a pattern of price formation requires a break in physical links between rural and urban markets, and this break occurs from $t_1$ to $t_2$ and from $t_3$ to $t_4$.

Without the price policy, urban prices would continue to rise until the new harvest begins at $t_2$ and a constant margin would separate rural and urban prices all year long. The price policy has a dramatic effect on the structure of rice marketing; it changes the participants in urban marketing from entirely private to significantly public, and it reverses the traditional flow of rice from rural to urban areas.

The relative balance between private and public sector marketing agents can be seen even more clearly in a model that focuses specifically on the urban food market but in which both a floor price $P_F$ and a ceiling price $P_C$ are defended by the public logistics agency. The model was originally designed to understand the effect of alternative margins between $P_F$ and $P_C$ in Indonesia.

The model is shown in Figure 7-5. The left graph presents the "base case," with no price policy interventions. Seasonal prices thus reflect the full costs of storage, starting at $P_i$ when harvest at time 0 is completed and rising to $P_H$ when harvest at time 1 begins. The horizontal axis is scaled to reflect the size of the harvest sold for storage, $H$, so that areas represent total revenues. The rectangle $H P_F$ is gross revenues to farmers, and the dotted triangle represents total storage costs paid by consumers. If storage costs per unit are equal to $P_H - P_L = S$, this total storage bill for consumers is $TS = \frac{1}{2} H S$.

The right graph shows the results of introducing a policy of floor and ceiling prices which benefits both producers and consumers. The floor price is higher than the previous harvest price ($P_F > P_i$), and the ceiling price is lower than the previous preharvest price ($P_C < P_H$). Although farmers and consumers receive equal price benefits farmers have much larger total gains, since their price gain applies to their total sales, whereas consumers' gains apply to only a small fraction of their purchases. Consumers' total costs are in fact higher because of the higher starting point for prices. Different price assumptions could, of course, alter this distribution of benefits.

Two important consequences flow from implementing the price policy shown on the right side of Figure 7-5. First, since the unit storage costs $S$ represent real economic resources, a government subsidy must be paid to the food logistics agency responsible for carrying out the floor and ceiling price policy. This might be an explicit line item in the government budget, or it might come through subsidized interest rates, access to government-owned warehouses at low rates, and so on. But the figure shows that this subsidy can be a quite substantial share of total storage costs. The government subsidy incurred is $G_S = T_S Q^2$, where $Q$ equals the proportion of total storage costs calculated in a particular way.
Figure 7-5. The Effect of Price Policy on the Role of the Private Marketing Sector and the Size of Government Subsidies

**No Price Policy**

<table>
<thead>
<tr>
<th>Price</th>
<th>Storage costs paid by consumers</th>
</tr>
</thead>
<tbody>
<tr>
<td>$P_H$</td>
<td></td>
</tr>
<tr>
<td>$P_1$</td>
<td></td>
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</tbody>
</table>

- **Gross revenue to farmers**
- $S = \text{full seasonal price rise equal to storage costs. Total storage costs } T_S = \frac{1}{2} HS$

**Policy of Floor and Ceiling Prices**

<table>
<thead>
<tr>
<th>Price</th>
<th>Storage costs paid by government subsidy equal to $G_s$</th>
</tr>
</thead>
<tbody>
<tr>
<td>$P_D$</td>
<td></td>
</tr>
<tr>
<td>$P_c$</td>
<td></td>
</tr>
</tbody>
</table>

- **Added revenue for farmers**
- $Q = 1 - \frac{(P_c - P_T)}{S}$
- $P + G = H$
- $G_s = T_S Q^2$

- **Government procurement and storage for later distribution to control ceiling price $P_c$**

**Note:** The horizontal time axis is scaled to the amount of harvest ($H$) marketed for storage, so areas represent total revenues.

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...not covered by the seasonal rise in prices. $Q$ can be thought of as the proportional "squeeze" on any private traders attempting to store rice for later sale at a profit, and $QS$ equals the "squeeze" per unit of commodity.

It is perhaps surprising that the total government subsidy required to implement the floor and ceiling price policy is a function of the square of the proportional squeeze rather than a linear function, but the result is intuitively clear from the figure. The result is extremely important, for it means that policy efforts to benefit both farmers and consumers by squeezing the marketing margins will require subsidies that rise with the square of the squeeze on the margins. Such unexpectedly rapid increases in subsidy costs often catch logistics agencies and finance ministries unprepared and result in failure to implement fully the announced floor and ceiling price policies. Such failures immediately affect the expectations of all market participants—farmers, traders, and consumers—and can rapidly lead to speculative activity, which further limits the government's efforts to set prices.

This effect on private traders conveys the second important message in Figure 7-5. With no price policy, the private sector will carry the full burden of buying and storing grain provided its full costs of storage, including returns to capital, risk, and managerial skills, are covered. Competition among private traders is required to prevent the accrual of monopoly profits and the exploitation of farmers and consumers.

Does the government provide such competition when it introduces floor and ceiling prices? It does if $P_c - P_T$ reflects the full competitive costs of storage. Figure 7-5 shows what happens if the permitted seasonal price rise is less than competitive costs. The government agency itself must then carry out the marketing activities directly, and its task is directly proportional to the price squeeze $Q$. Within the simple analytics of Figure 7-5, the government agency must thus procure and store for distribution a share of the marketed harvest equal to $Q$, the price squeeze. When $Q = 0$, the private sector does all the marketing; when $Q = 1$, the government must do it all. There can be no clearer example of the dramatic effect of price policy on food marketing.

**Transport**

There are similar ramifications when price policy has spatial dimensions. Floor or ceiling prices that are implemented uniformly over a wide geographic region are sure to directly affect the role of the private sector in transporting commodities from areas of low prices to areas of high prices and in earning a profit from the spatial arbitrage. With uniform floor prices, the relatively favored areas close to points of final demand will be serviced by the private sector, and more distant areas will be left to be handled at high cost by the government agency. Since such agencies seldom have operating costs lower than those of the private sector, these long-distance activities will require subsidies.

An analogous point holds when a uniform price floor is announced for all qualities of a commodity, but retail prices reflect differences in quality. Again the government agency will end up defending the floor price by buying the lowest quality offered of the commodity. It usually incurs
higher storage costs than the private trade because low quality implies high moisture content and insect damage, which cause substantial losses in storage.

Price policy can also affect directly the regions of a country that are competitive with imports. For a given cost of production, the landed import cost (after tariff or subsidy) minus transport costs from the producing hinterlands traces out a "competitive contour" beyond which domestic production will incur higher total costs in supplying consumption needs in the port than will imports. Such contours determine the nature and direction of marketing activities. As prices vary because of policy changes, the location of the contour shifts as well. Traders must then adapt their marketing activities; they must go further inland in search of supplies if the import price rises, and they are restricted to areas nearer the port if prices fall.

Some price policies are so powerful that they can change the direction as well as the distance for food marketing. If import prices are low enough or subsidies large enough, it becomes profitable to market grain from the ports to the producing hinterland, and thus immense competitive pressures are put on domestic producers. A budget crisis or a currency devaluation can sharply alter these prices and thus raise incentives to farmers and provide profitable opportunities to market domestic grain in the port cities. Switching the whole direction of flow of a country's marketing system, however, is no easy task. Advance notice to the private traders and considerable time to adjust will be needed before efficient marketing can be expected.

**Processing**

Price policy probably has relatively smaller effect on processing activities than on storage or transport, but even here the effects can be significant. Figure 7-6 is a flow diagram of factors influencing the choice of technique in rice milling, a choice that has dramatic consequences for rural employment, the efficiency of conversion between paddy and milled rice, and the quality of rice available to consumers (Timmer 1972). The factors in the shaded hexagons are influenced by government policy, either directly, as with farm and retail price policy, or through policies affecting the macro prices: foreign exchange rate, wage rate, and interest rate. The analysis assumes that a private milling sector will make investments based on equipment that minimizes costs. Figure 7-6 shows the information needed and the calculations necessary to make such a decision to invest.

What is the role of rice price policy in the decision? In the first instance the absolute level of price for the output from the mill determines the value of "saving" rice through greater technical efficiency. Since greater technical efficiency can be obtained only from more capital-intensive equipment, the effect on the choice of technique and hence on employment is clear.

At the next level, the government-determined margin between the farm price and the retail price directly influences which mills can survive. Hand pounding and small mechanical rice mills, for example, with their low technical efficiency, quickly succumb to negative value added as the margin between paddy price and milled rice is narrowed.

Last, the foreign exchange rate also turns out to be a key variable in the analysis. Since more capital-intensive milling equipment has a higher import content, its cost is a direct function of the exchange rate. Devaluation, for instance, raises the relative cost of capital equipment to labor and shifts investment decisions toward more labor-intensive techniques. But the foreign exchange rate also directly affects the price of domestic rice relative to imports. If domestic price policy is influenced by this relative relation, even in the longer run, offsetting forces will influence the choice of technique when the exchange rate changes. The net result is still likely to favor greater labor intensity when devaluation comes, but the effect is clearly quite complicated.

An additional factor might also relate price policy to the choice of technique. If one aspect of price policy is to formalize and enforce quality standards in terms of milling output, more sophisticated mills with better potential quality control will have a significant advantage. If the price differences reflecting quality differences are wide enough, the labor-intensive facilities can be put out of business. Premature quality standards can thus have a negative effect on welfare. The difficult task for analysts of price policy is knowing when to introduce quality standards and enforce them with price policy.

**Implications for Policy Analysis**

The perspective developed here creates a real problem for policy analysts, for it asks them to be aware of indirect and roundabout consequences of price policy for the agricultural marketing system. Like Food Policy Analysis (Timmer and others 1983), it requires analysts to understand the macroeconomic and general equilibrium consequences of food policy initiatives, be they changes in pricing, program, or investment. Marketing systems are characterized by complicated links among sectors and participants, many of them based on trust and fragile expectations. Even subtle changes in policy, especially with respect to prices, can substantially alter the trust and expectations, with ramifications felt throughout the entire marketing system by all participants—producers, consumers, traders, and the government.

**Approaches to Modeling**

Three responses are possible to such complexity. First, analysts can attempt to model the entire agricultural marketing system and capture in quantitative terms all the
important behavioral relations that hold the system together. Although it is probably desirable to attempt such modeling to develop the methodological tools of the profession, the results are unlikely to have much significance for policy. Establishing empirical relations through statistical techniques requires that decisionmakers have faced historically the policy environment being analyzed and that their behavior be accurately recorded. Since this has rarely been the case, only rough approximations between statistical techniques and actual experiences are possible. In just those circumstances in which insights from policy analysis are most sought, the underlying data on, and the understanding of behavior of, all market participants are the sketchiest.

The opposite approach to modeling the effects of price policy is to recognize the inherent complexity of marketing systems even in developing countries and to adopt the market paradigm as a direct guide to policy. In this world, where markets always function efficiently, the best policy is no policy. Domestic food prices are set by border prices plus or minus internal marketing costs (depending on whether the country is importing or exporting), and there is no price policy to analyze. Of course, the consequences of moving from an existing policy to a free trade policy remain a legitimate subject of inquiry, but, once established, free trade with a competitive private marketing sector eliminates the need for price policy analysis.

An intermediate approach between these two extremes
recognizes that markets do not work perfectly but that the world is too complex to model with any precision either. Policy analysis then seeks to find socially beneficial interventions into domestic price formation without attempting to identify optimal policies through quantitative modeling. This approach requires a dual analytical perspective, one coming from the national level, where price policy interventions are designed, implemented, and evaluated; the other from the field level, where the structure, conduct, and performance of the marketing sector itself is analyzed. The analyst has to merge these two approaches into a coherent story, one which simultaneously provides insight into how marketing participants are likely to respond to a change in price policy and which reflects the broader consequences of the price changes for welfare and resource allocation.

The Use of Marketing Price Ratios

This type of analysis is best done by building from the simple to the complex. Accordingly, the analyst can start by gathering data that will permit several key price ratios to be constructed. The price ratios described below reveal the structure of a country’s marketing system relative to its price environment. Perhaps more important, assembling a historical record of these ratios will show how the price environment has changed and how the system responded to it. Comparing the ratios across countries (or regions) indicates whether significant differences can be related to alternative marketing structures. The following ratios and comparisons serve as a starting point.

Compare the domestic price for a commodity with the border price for the same commodity, converted at the existing exchange rate. This price ratio, often termed the nominal protection coefficient (NPC), provides the easiest and most direct comparison of how competitive domestic prices for a commodity relate to imports or exports. It suggests whether price policy favors producers or consumers. Large divergences in either direction usually indicate whether the government must play a substantial direct role in marketing the commodity. These simple interpretations can be altered if the current foreign exchange rate is significantly overvalued (an issue for a broader food and macro policy appraisal) or if the structure of input costs for producing the commodity is also out of line with border prices. This is examined with the next ratio.

Compare the domestic price for a commodity with the prices for key inputs, especially for fertilizer if the commodity is a food- or feedgrain. The ratio of grain price to fertilizer price eliminates the need for exchange rate conversions and thus permits direct comparisons across countries. Figure 7-7 is an early example from the 1970s that shows the significance of this ratio. The combination of both output and input prices presents a more complete appraisal of price incentives to producers than the nominal rate, as in the ratio above, and hence comes closer to indicating the effective rate of protection (EPC). Accurate EPCs, of course, require full information on the structure of input costs and value added by commodity. Especially for grains, the simpler output-input price ratio provides a great deal of comparative information in a single number.

**Figure 7-7. Relation of Relative Price of Rice to Fertilizer and Fertilizer Application per Hectare, about 1970**

![Graph showing the relation of relative price of rice to fertilizer and fertilizer application per hectare.](image)

**Note:** $F/H = -82.4 + 551.45P$  
$R^2 = 0.85$.  
$(-1.4) (6.3)$

Comparing the domestic price of commodity $i$ relative to commodity $j$ (for example, wheat to corn, or sugar to rice) with the same relative price in international markets. This indicates the possible distortions that could be built into domestic food systems, since there is substantial potential to substitute commodities for each other in production systems and end use. Significant inefficiencies in patterns of land use (for example, too much sugar, not enough corn) and end uses (sugar used for alcohol production) can sharply affect economic growth rates and patterns.

The three ratios just discussed relate domestic prices to international prices, at least for comparison. Three internal marketing price ratios provide considerable insight into competitiveness and performance of the domestic agricultural marketing sector.

Seasonal price ratios, which relate the average monthly high (preharvest) price to the average monthly low (harvest) price, reveal the size of the margin available to those who store commodities. If the margin is very low, a price ratio of 1.1 to 1.2 over an eight-month seasonal price rise, for example, the government is almost certainly squeezing private traders with its price policy. If the margin is large, 1.6 to 1.8 for the same period, for example, either profits or storage costs are high. The analyst can quickly check whether it is the storage costs that are high by determining interest rates for storage loans to the private sector and the size of physical losses. For example, interest rates of 3 percent a month plus storage losses of only 2 percent a
month yield a compounded eight-month price rise from these two costs alone of nearly 50 percent, or a seasonal price ratio of 1.5. This ratio provides analysts important insights on what questions to ask and what data to gather when examining the efficiency of storage activities.

Spatial price margins provide similar insights. The price of a commodity in rural areas relative to its price in central markets indicates how well connected the two markets are and what this connection costs. Although quite sophisticated models are now available for testing the efficiency of spatial market connections (Ravallion 1983; Timmer 1984), this simple ratio, when compared with readily available data on transport costs, can direct the analyst to important marketing issues. Is there evidence of informal barriers and taxes between rural and urban markets? Are roads in such disrepair that commodity flows are risky and high cost? Is the truck fleet badly maintained or unable to get fuel and spare parts? Alternatively, if the ratio is very low, are private market traders being squeezed out of business by government policy?

The processing price ratio compares the price of the processed commodity with that of the raw commodity (for example, milled rice, wheat flour, or maize meal with paddy, wheat, or maize). Appropriate ratios for these two commodity forms can be established at least roughly by referring to countries in which processing is technically efficient and subject to intense competition, for example, the United States, Europe, or Japan. Domestic ratios that diverge widely from such international ratios suggest that high losses occur in processing or that limited capacity and restricted barriers to entry permit high profit rates. As noted earlier, the appropriate degree of technical efficiency is a matter for economic analysis, and itself depends on price policy. Barriers to entry in processing, however, are frequently a direct result of government licensing and trade policy. Monopoly profits are often earned where such policies exist, and substantial improvements in economic efficiency and income distribution could result from a policy that promotes more vigorous competition.

This concern for a policy of competition emphasizes a broader theme of this chapter. Prices determined in competitive markets provide the signals that are essential to the awesome task of coordinating millions of otherwise unconnected decisionmakers in an economy. But the welfare consequences of all those decisions depend critically on how well the decisions reflect the social opportunity costs of the resources used to implement them. Competitive markets ensure that no price distortions are caused by monopoly profits or manipulations, which frees policymakers to worry about other potential sources of market failure and the consequences of competitive markets for income distribution. Both tasks are easier if significant resources are not being drained from the economy by high-cost, protected producers free from competitive pressures and if the ghost of monopolistic middlemen can be exorcised by actively promoting a competitive and low-cost agricultural marketing system.

Price policy is a major instrument in designing a policy of competition and in building a competitive marketing system, but it is an important beneficiary as well. When price policy does not have to enforce competition, it can use competitive forces to achieve goals other than efficiency, especially price stability and income distribution. Markets are the most effective way governments have to reach the multitudes of decentralized decisionmakers, whose day-to-day decisions dictate whether an economy develops or not. But markets are not ethereal concepts; they are simply the locus of traders' behavior as they respond to the price signals they see and pass on to their fellow participants.

Although agricultural marketing and price policy are separate topics, for traders and marketing agents they are two sides of the same coin. As economies grow and become more interdependent domestically and internationally, the role of prices as signals to coordinate activities among marketing participants becomes progressively more important. The task for the policy analyst has become commensurately more complicated, but at the same time a broader range of new options has opened up to policymakers to provide an economic environment conducive to rapid and equitable growth.

Note

1. The formal proof is also straightforward. By standard geometry \[ G_1 = \frac{1}{4} G (QH, QS). \] By the rule of similar triangles, \[ QS = QH = \frac{1}{4} QS. \] So \( G = QH. \) Substituting \( G = \frac{1}{4} (QH)QS) = \frac{1}{4} HSQ. \) Since total storage costs \( T = \frac{1}{4} HS, G = T/Q. \)

References


Pricing and Marketing Policies to Intensify Rice Agriculture: The Example of Thailand

Gerald O'Mara

This chapter focuses on the rice pricing policy of Thailand, broadly conceived. The policy has been important to the success of Thailand's development during the past thirty years, but changes in the relative availability of resources threaten the viability of the present policy. Thus, a shift to a new development strategy for agriculture emerges as an important condition for continued development.

The Importance of Rice

Thailand's agricultural sector accounts for a quarter of total gross domestic product (GDP), 60 percent of all exports, and 70 percent of employment. During 1960-75 the sector performed exceptionally well and was able to achieve a growth rate exceeding 5 percent annually. Since 1975, however, growth has slowed to about 3.5 percent annually. This deterioration resulted primarily from an increasing shortage of land suitable for agriculture. Earlier growth had been achieved mostly through expansion of the cultivated area. When good accessible land became scarce, however, poorer quality land was cultivated, and yields at the extensive margin on farm holdings decreased to the point of nonprofitability, given prevailing prices. If the growth of Thailand's agricultural sector is to regain some of its previous momentum, crop production must be both intensified through greater use of purchased inputs and diversified into higher-value products.

The focus of this chapter is on rice for several important reasons: it is the heart of the agricultural sector and accounts for 40 percent of agricultural GDP and 30 percent of agricultural exports, it accounts for more than one-half of the calories in the Thai diet, and is therefore the wage good most affecting the cost of living for the Thai consumer, and rice-growing households constitute 98 percent of the 4 million farming families in Thailand and account for 55 percent of the national population and 66 percent of the labor force.

Problems with the Present Policy on Rice

Pricing and marketing policy for rice is particularly important when viewed in a historical context. Since World War II taxation of rice exports has performed several critical functions: it has transferred income from the farmer to urban employers and government, it has kept prices low to urban consumers, it has functioned as an important source of development financing, it has kept wages low, and it has buffered domestic rice prices from international price shocks. However, decades of such taxation and, as a consequence, the lower price for rice received by farmers have inevitably kept the intensity of input use (and thus paddy yield) at a low level. Such a disincentive to intensification was an acceptable tradeoff because exportable surpluses could still be generated from new lands, and, coincidentally, when surpluses began to contract in the mid-1970s, irrigation development came to fruition in the central (Chao Phya) region.

Now that suitable new land for rice is essentially exhausted, new irrigation development has slowed, rice revenues are no longer an important source of government revenues, and, there is an anticipated softening of the world rice market in the longer term, Thailand can no longer afford the efficiency losses from rice taxation.

This analysis indicates that:

- The export taxation of rice constitutes an important disincentive to intensification.
- In relation to the limited benefit (in improved income for farmers), government price support programs (especially the purchase of rice or paddy
to maintain target farm prices above world market levels) have been both ineffective and very costly, with subsidies amounting to nearly US$100 million per year or about 30 percent of the procurement price.

- The government's distribution of fertilizer has not only been costly (with subsidies equivalent to US$10 million per year or about 35 percent of the wholesale price) but has not substantially increased the intensity of fertilizer use. Instead, it has seriously jeopardized the viability of many private dealers and, consequently, the ready availability of fertilizers to farmers at a competitive price. Urea, the most cost-effective source of nitrogenous fertilizer, has been discriminated against through past protection of the fertilizer production industry and import duties of about 17 percent.

The International Rice Market

Rice is the world's single most important food grain and provides more than 50 percent of the calories in the diets of 1.6 billion people and more than 25 percent of the calories for another 400 million. Asia produces and consumes 90 percent of the world rice crop. World rice production increased from 215 million to 411 million metric tons between 1961-62 and 1981-82. Only 3 to 5 percent of production enters international trade, however, with most of the Asian crop either consumed on farms or within a short distance of where it is produced. World trade in rice increased from 6.5 million to only 13 million tons between 1962 and 1982, and just maintained its share of world production. The export side of the world market is highly concentrated, with Thailand and the United States accounting for 45 percent in recent years. These two countries plus China, Pakistan, and Burma normally account for about 70 percent of world exports. The import side of the market is less concentrated, with many countries importing relatively minor quantities (Swaminathan 1984 and USDA 1982).

Since an estimated 35 percent of Asian rice is produced on rainfed land, international price levels and the volume of world trade depend critically on the vagaries of the Asian monsoon. Consequently, international prices exhibit wide short-term fluctuations, as Figure 8-1 shows. Given the importance of rice as a wage good in many Asian countries, many governments find it undesirable to transmit the large fluctuations in world prices to domestic markets, and efforts to buffer domestic prices from international price shocks are widespread in both importing and exporting countries. For this reason the international market is difficult to analyze, since both buying and selling are constrained by national policies that often exacerbate the very instability they seek to buffer.

![Figure 8-1. Prices of Rice, f.o.b. Bangkok, 1950–80](image)


Rice Pricing in the Thai Economy

The history of rice policy in Thailand has been summarized superbly by Siamwalla (1975) and Bertrand (1980). Several important aspects of policy do deserve emphasis, however. First, although Thailand has exported rice for well over a century, significant export taxation of rice has occurred only since World War II. Second, while the objectives of rice taxation appear to have received differing priorities over time (for example, the revenue objective has diminished in relative importance), the policy has normally aimed both to stabilize prices and to keep prices down. Thai rice prices have consistently been among the lowest in Asia. Third, apart from early use of multiple exchange rates and sporadic use of quantitative controls, the policy has operated by driving a tax wedge between domestic and world prices.

The key to understanding Thai rice policy is a firm grasp of the implications of the dual role of rice as a commodity. As the source of over half the calories in the Thai diet, it is the preeminent wage good. As the largest source of export earnings, it is the cornerstone of trade and development policy. Thus, it is the principal commodity price used to determine simultaneously both the internal and external terms of trade. Put differently, the price of rice is an important determinant of the urban real wage, the direction and magnitude of intersectoral transfer of savings, the rate of agricultural development, and the levels of rural welfare, intersectoral labor migration, and foreign exchange earnings.
Changes in the price of rice have various effects both within the rice sector as well as on other markets. The direct effect on household consumption of an increase in the rice price would normally not be more than a slight shift in consumption to other substitutes; that is, its substitution effect as a staple is usually limited. The income effect on rice demand is usually negative and low. Estimates of the price elasticity of demand (the percentage change in consumption arising from a 1 percent change in price) range from −0.3 to −0.6.

For household supply, the income effect is the increase in net revenue for each unit of rice produced. For the subsistence producer the income effects for supply and demand cancel each other out. Hence only farmers who either sell or buy rice will experience a net effect on their income. Rice producers will, however, have a positive substitution effect, which can be short run or long run in nature, the latter being characterized by shifts from other land use only after a long delay (because of the need, for example, to terrace and contain with low dikes). Existing supply price elasticities for Thailand (measured by econometric methods) range from 0.2 to 0.4.

A corollary to the income effect is the wealth effect, which is felt by landowning farmers. This effect corresponds to the capitalized value of the increase in land rent on paddy land resulting from the price increase. The wealth effect will be significant only for price increases that are expected to be permanent. For this reason, the land prices may rise only after an increase in the price of rice is accepted as permanent. The wealth effect occurs for all owners of paddy land, irrespective of whether they are net sellers, net purchasers, or pure subsistence farmers. However, net purchasing or subsistence farmers can only realize the wealth increment by selling their land. Thus significant increases in the price of rice may cause land to be consolidated into larger units. Small farmers who are net purchasers on average would clearly have the strongest incentive to sell land.

In the multimarket and macroeconomic effects of an increase in rice prices, the most interesting spillovers occur through the labor market. The existing literature is quite clear about the responsiveness of Thai labor markets to real wage differences (Bertrand and Squire 1980). The decrease in the urban real wage for unskilled labor caused by an increase in the price of rice will reallocate labor between sectors reducing rural-to-urban migration (or even possibly reversing the flow for a large price increase). The induced decrease in additions to the urban labor supply will tend to drive up nominal urban wages for unskilled labor until an equilibrium is reached between the urban and rural markets. The net long-run effect of the price increase on urban real wages is not clear, since theoretically it depends on relative intensities of factor substitution and the extent of resource reallocation in several markets. However, the problem can be assessed by quantitative simulation with a price-endogenous, multisector, macroeconomic model. Since the construction of such a model is not a trivial task, it is fortunate that one already exists: the SIAM II model built by the National Economic and Social Development Board (NESDB) in collaboration with the World Bank. Amranand (1983) has reported the results of rice price policy experiments using SIAM II for a range of assumptions regarding the elasticity of export demand for Thai rice and finds that the short-run reduction of a 5 percent reduction in ad valorem export duty reduced the urban real wage of casual labor by only 0.8 percent. When time for labor reallocation was taken into account, the urban real wage of casual labor increased by only 0.2 percent. The net effect on GDP and overall consumption was also positive, as was the effect on investment. The SIAM II simulation experiments suggest that urban real wages are unaffected by an increase in the price of rice and that the mechanism of adjustment is a reallocation of labor such that nominal wages adjust upward to hold real wages constant. Also, the increase in nominal wages means decreased returns to capital for urban employers, which suggests that employers are the real urban beneficiaries of rice export taxes.

Thailand and the International Rice Market

The issue of the degree of power, if any, that Thailand can command in the world rice market has been central to the policy debate over rice export taxation. There is some evidence that the motives for export taxation were initially to stabilize the domestic price at a low level (to keep the real cost of public employment low) and to generate revenue. Subsequently, because some felt that Thailand had significant market power, concern over the optimal tariff level arose in the 1960s. Kridakara (1970) and Usher (1967) asserted that the internal rice trade was competitive and that the export elasticity of demand was very high in the short run (approximating the infinite elasticity of the competitive model). This claim was derived from the argument that the world market is essentially competitive and that Thailand has a very small share (about 3 percent) of world production. Given such a premise, it is easily shown that the incidence of export taxation is borne by the farmers. Critics of this position argue that the wide variability of national rice prices demonstrates that national policy measures are keeping the international rice market from behaving competitively. Rather, they argue, a better indicator of Thailand's market power is its share of total world exports.

The econometric evidence on the export price elasticity of rice for Thailand is mixed. Tsuji (1982) reported an elasticity of 1, which implies that marginal revenue has been driven to zero. Wong (1978) estimated an elasticity of 4 and computed an optimal export tax of 25 percent, the optimal export tax rate being that which will maximize revenues for Thailand. Both of these estimates, however, were derived from short-run models that assumed no
countervailing response to export taxation by importing countries. This turn-the-other-cheek response by purchasers is a necessary assumption of the usual argument for an optimal tariff, and its empirical relevance is open to question in a market dominated by national policy restrictions on both sides of the market. In particular, 26 to 50 percent of Thai exports have been government-to-government sales, and the negotiating environment for bilateral bargaining may likely shift adversely against a seller who consistently drives a hard bargain. The obvious response of the rice importer to exploitative market power is to establish policy measures to expand domestic production and reduce the dependence on imports. The emergence of high-yielding dwarf varieties in the late 1960s certainly facilitated such a strategy. The evidence on the Thai share of world rice exports, which declined from an average of 25 percent in the 1950s, to 10 percent in the mid-1970s, and to slightly less than 20 percent in recent years, may be partly consistent with this conjecture on the countervailing response. These factors indicate that Thailand does not necessarily have strong market power in the world rice market. This is also partly validated by actual rice trade practices, especially the tendency for exporters to hold proportionately larger stocks than average when export taxation is high followed by proportionately smaller stocks when taxes are low.

Probably a more important long-run effect of export taxation has been the disincentive to invest in new technology or new productive capacity that a large tax wedge creates. This is true at all levels the farmer confronted with risky and expensive new techniques, fertilizer producers or importers considering capacity increases, and so on. Thus a large tax tends to create a dynamic comparative disadvantage. The international evidence on rice yields shows Thailand lagging significantly behind other Asian producers. Because application of methods from modern genetic and molecular biology have produced high-yielding new varieties rice yields outside Thailand have increased more in the past two decades than in the preceding 7,000 years. Although it may not be the whole story, a strong case can be made that Thai public policy has minimized the effect of this unprecedented technical change on Thai farmers. The response of policy tradeoffs, below. Although Thailand has not suffered unduly from this lag in technology transfer because expansion of land under cultivation has increased production, this strategy will be increasingly difficult to implement.

Price Intervention in Rice Agriculture

Taxation as a Way to Extract an Investable Agricultural Surplus

In the early stages of development, an economy is primarily agrarian. It follows from this that the agricultural sector must be the major source of domestic savings for the investment in the infrastructure and nonagricultural production facilities necessary to achieve economic development. That is, an investable surplus must be transferred from the agricultural sector. One common way to do this is through taxation (either explicit or implicit). If the agricultural sector is producing an exportable surplus, then export taxation is often preferred for administrative efficiency and convenience. By depressing the domestic price through a tax wedge the terms of trade are turned against agriculture, and, if the agricultural export is the wage good (rice), this may reduce the wage bill of employers in the nonagricultural sector and thus increase profits (and presumably investment). In addition, the revenue from the tax will give resources to the government that may be invested in much-needed basic infrastructure.

In addition to direct taxation, agricultural exports may be taxed indirectly by any policy measure that depresses the foreign exchange rate from the rate that would otherwise prevail. During the years just after World War II a system of multiple exchange rates was used to accomplish most of the export taxation in Thailand. The policy of multiple exchange rates was abandoned in 1955, and the present system of export taxes was erected. Over the years, however, a variety of tariffs on nonagricultural imports have been imposed to protect industrialization based on import-substitution. In the absence of these tariffs, nonagricultural imports would have been significantly greater and, consequently, so would the equilibrium foreign exchange rate. The difference between the equilibrium foreign exchange rates with and without the import tariffs on nonagricultural goods is a measure of the implicit taxation on agricultural exports.

Just after World War II, revenue from rice export taxation averaged about 25 percent of total government revenue. By the late 1970s the share of rice taxation in revenues had dropped to less than 4 percent. From 1947 to 1981 taxation of rice through multiple foreign exchange rates and direct taxation has ranged from 22 to 66 percent of the world (f.o.b. Bangkok) price. This has kept domestic prices substantially below world prices, which has significantly reduced real wage costs to nonagricultural employers. Thus both the direct taxation of rice and the implicit taxation through import tariffs have stimulated import-substituting industrialization and have constituted the principal mechanism by which an agricultural surplus was transferred to nonagricultural development purposes.

Evidence on the effect of import tariffs on Thai industrialization is provided by Faber and Kennes (1982), who used THAM, a price-endogenous, multisector, macroeconomic model of Thailand with a fully developed agricultural sector. The experiments simulated the response of the Thai economy to a reduction of import tariffs on nonagricultural commodities from an average of 50 percent in 1980 to zero in 1989. When compared with a base case experiment in which no policy changes were assumed, the
growth rate of GDP remained the same, but the share of agriculture in GDP increased to 31 percent (compared with 18 percent in the base case). The large increase in agriculture's share when tariffs are reduced signals a significant reallocation of resources. During 1980-89, the growth rate of agriculture was 8.6 percent a year in the tariff reduction case, compared with 3.9 percent in the base case, and nonagricultural growth was 5.5 percent compared with 6.9 percent in the base case. Although the dramatic resource reallocation indicated by these experiments may well be exaggerated (the nonagricultural sector in the model is quite simple), the results nevertheless imply significant implicit taxation of agriculture by means of import tariffs.

Considering the quite heavy taxation of rice in Thailand (both explicit and implicit) in recent decades, the size and nature of the supply response of farmers is of some interest. During 1960-80 the area planted to paddy increased from 37 million to 60 million rai, while yields barely increased. During the same two decades rice yields more than doubled in many countries in the most explosive technical advance in the 7,000-year history of rice cultivation in Asia. Thus the increase in Thailand's paddy production from 10 million tons in 1962 to 17.8 million tons in 1982 was generated almost entirely by expanding the area under cultivation, in sharp contrast with the increase in intensity that occurred in almost all other producing nations. Although conditions were somewhat less favorable to intensification in Thailand than in some other countries, the disincentive created by the heavy burden of taxation clearly accounts in significant part for the failure of Thai yields to increase in an era of extraordinary technical advance. Since the increase in cultivated acreage resulted very largely from bringing new lands under cultivation, Thailand was most fortunate to possess unutilized land. The existence of this land made feasible several decades of heavy taxation of agriculture, especially rice production which permitted a significant agricultural surplus to be transferred to the development process. Now that the era of area expansion in Thailand is drawing to a close, agricultural policy must shift dramatically.

### The Structure of Rice Taxation

Significant export taxation of rice in Thailand is a post-World War II phenomenon. In the immediate postwar period (1947-55) rice exports were taxed implicitly through a multiple foreign exchange rate system. This approach was abandoned in 1955, and two taxes were introduced that are still the basis for rice export taxation: an ad valorem tax on the f.o.b. price (presently 2.5 percent) administered by the Ministry of Finance and a specific tax, the rice premium, administered by the Ministry of Commerce. Before 1975 revenue from the rice premium went to the Ministry of Finance for inclusion in the general government budget, but since 1975 all revenue from this tax has gone to the Farmer's Aid Fund. In practice, the rice premium has been varied to stabilize domestic prices at a low level and therefore has been the heaviest tax. In addition to the ad valorem and specific taxes, a rather complicated tax called the reserve ratio requirement was introduced in 1962 to provide supplies of cheap rice to special groups, such as civil servants. This tax, which is administered by the Ministry of Commerce, specifies that for every ton of rice exported, the exporter has to supply to the government a certain amount of rice of a given quality at a price below the domestic market price. The reserve ratio (or "cheap") rice was made more widely available (but still in limited quantities) in a period of rising prices (1966-68) to urban consumers, primarily in Bangkok, through special shops. The cheap rice distribution to urban consumers was significantly expanded in the 1970s, although in a period of market stress (1973-74) mismanagement led to shortages and a brief ban on rice exports. Bangkok received two-thirds of the total reserve ratio rice distributed by the Public Warehouse Organization (Pwo) through the Internal Trade Department to special shops between 1974 and 1980, and rice distributed by Pwo represented 60 to 75 percent of the rice consumed in Bangkok (Siamwalla and others 1981). Outside of Bangkok cheap rice distribution was less than 6 percent of urban consumption.

When world rice prices dropped sharply in 1982, the reserve ratio requirement was abolished, but history suggests that a return to more normal rice prices may induce political agitation in Bangkok and cause this tax to be revived. The depressed condition of the world market has also prompted the government of Thailand to decrease significantly the rice premium tax (the current export taxation of rice is about 5 percent of the f.o.b. price), but this reduction is in line with a long-standing policy of stabilizing domestic prices, albeit at a low level. The combination of the reserve ratio requirement and cheap rice distribution in urban areas provides a price instrument for varying urban rice consumption. The difference between the government-designated price and the free market price is a consumption subsidy that may be varied to control urban demand, at least in Bangkok, while varying the reserve ratio provides the finance for cheap rice distribution.

### The Objectives of Rice Policy

In accordance with the logic of revealed preference, the government's actual policy performance regarding rice will be taken as the actual objectives of the policy instruments. Thus the decline in the share of rice taxation in total government revenues from around 25 percent just after World War II, to 14 percent in 1960, and currently to less than 2 percent reflects a similar decline in the importance of rice taxation in mobilizing public savings.
In contrast, the remarkable stability of domestic rice prices in real terms argues for the continued importance to the government of price stability for the wage good. Table 8-1 presents data on real domestic prices during the turbulent years for rice prices from 1970 to 1982. All prices are within 20 percent of the mean, and in eight out of thirteen years prices were within 10 percent of the mean. This is no small achievement in an era of large price shocks and rampant, worldwide inflation.

The evidence of a policy preference for low rice prices is supported by the prevalence of export taxation, which averaged almost 40 percent of the f.o.b. price for thirty-five years. Less obvious is the revealed preference for a special consumption subsidy for Bangkok consumers in addition to that provided by export taxation and the tariff structure. This is difficult to defend on grounds of either equity or efficiency and remains an anomaly probably because of the heavy concentration of civil servants in Bangkok. There is also evidence of a political constituency for a policy of supporting farm-level rice prices, which is examined below. This shift is relatively recent (initially in 1973–74 and particularly after 1979–80), and it reflects a real shift in the strength of the rural polity versus the urban one. However, the policy objective of price supports and the interventions aimed at supporting farm-level prices have been conspicuous failures.

**Price Support Programs for Rice**

Price support at the farm level for paddy was initiated in 1966–67 at below-market prices. It was only in 1969 that the government began its attempts to influence farm-level prices through purchases of paddy at above-market prices.

**Table 8-1. Average Domestic Wholesale Price of Domestic Rice**

<table>
<thead>
<tr>
<th>Year</th>
<th>Current prices (bahts per kg)</th>
<th>Constant 1982 prices* (bahts per kg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1970</td>
<td>2.10</td>
<td>6.31</td>
</tr>
<tr>
<td>1971</td>
<td>1.75</td>
<td>5.22</td>
</tr>
<tr>
<td>1972</td>
<td>1.90</td>
<td>5.41</td>
</tr>
<tr>
<td>1973</td>
<td>2.74</td>
<td>6.77</td>
</tr>
<tr>
<td>1974</td>
<td>3.76</td>
<td>7.46</td>
</tr>
<tr>
<td>1975</td>
<td>3.78</td>
<td>7.13</td>
</tr>
<tr>
<td>1976</td>
<td>4.06</td>
<td>7.36</td>
</tr>
<tr>
<td>1977</td>
<td>4.05</td>
<td>6.82</td>
</tr>
<tr>
<td>1978</td>
<td>4.46</td>
<td>6.96</td>
</tr>
<tr>
<td>1979</td>
<td>4.57</td>
<td>6.48</td>
</tr>
<tr>
<td>1980</td>
<td>5.74</td>
<td>6.81</td>
</tr>
<tr>
<td>1981</td>
<td>6.71</td>
<td>7.06</td>
</tr>
<tr>
<td>1982</td>
<td>5.45</td>
<td>5.45</td>
</tr>
<tr>
<td>Mean</td>
<td></td>
<td>6.557</td>
</tr>
<tr>
<td>Standard deviation</td>
<td>0.752</td>
<td></td>
</tr>
<tr>
<td>Coefficient of variation</td>
<td>0.115</td>
<td></td>
</tr>
</tbody>
</table>

a. Deflated by the consumer price index for the urban areas of the whole country.

Source: World Bank data.

Since the volume of purchases has been, and remains, a small fraction of total production, all attempts in the intervening years have failed. Table 8-2 summarizes the evidence on market prices, support prices, and government procurement since 1969. Even the relatively large combined purchases by the Marketing Organization of Farmers (MOF), the PWO, and the Agricultural Federation of Cooperatives of Thailand (AFCT) in recent years have been too small to affect market prices significantly.

The apparent hidden premise behind these efforts at raising farm-level prices (while simultaneously depressing domestic wholesale prices by taxing exports) is that rice marketing is inefficient and monopolistic and that government intervention through rice purchases will raise farm-level prices by squeezing profit-laden marketing margins. This premise is contrary to the substantial evidence that rice marketing in Thailand is efficient and that reducing the export tax will raise farm-level prices more than will the price support program (see "Comparing the Effectiveness of Past Policy Instruments," below).

Price support programs through crop procurement became important only recently when the Thai government launched its "target price" program for paddy in 1980–81. The primary objective was to increase prices to farmers earlier in the marketing season and thus stabilize as well as increase their overall incomes. The cost of these programs, however, (especially those administered through the PWO and MOF) do not justify the rather nominal benefits to the rice farmer.

The most important price support program was the purchase of rice by the PWO through bids at the mill level (mainly in the early marketing months of December through March) so that target farm prices for paddy could be achieved. Complementary measures were taken in terms of an export quota (later rescinded) and government-to-government export contracts geared for delivery in early harvest months to create an "artificial demand" for rice. Private exporters were also "required" to have extra stocks on hand in the early harvesting months. The MOF, which used to be the agency involved in price support operations, resumed their direct purchase of paddy from farmers in the second year (1981–82). The AFCT, partly in conjunction with the BAAC, also initiated schemes to store farmers' paddy and to sell to the PWO or the Foreign Trade Department on their behalf.

Preliminary analysis of the PWO program indicates that losses (revenues minus costs) during the three years ending October 1983 have been about B6 billion (US$262 million). This is equivalent to a loss of about US$88 per ton of rice procured (about 32 percent of the average procurement price), most of which represented inordinate carrying costs. The main beneficiaries of this $88-per-ton subsidy are essentially the rice millers and warehouse owners who store the rice for the PWO. An assessment of the effect on the farm shows that the PWO price support program itself has had little effect in improving farm prices.
Table 8-2. Prices Received by Farmers, Minimum Guaranteed Price, and Government Procurement of Paddy

<table>
<thead>
<tr>
<th>Year</th>
<th>Farm price* (US$ per ton)</th>
<th>Support price b (US$ per ton)</th>
<th>Ratio of farm to support prices</th>
<th>Deflated farm prices c (bahts per ton)</th>
<th>Amount procured d (thousands of tons)</th>
<th>Procurement as percentage of production</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>By MOF</td>
<td>By PWO</td>
</tr>
<tr>
<td>1969-70</td>
<td>45</td>
<td>63</td>
<td>72</td>
<td>933</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>1970-71</td>
<td>36</td>
<td>63</td>
<td>57</td>
<td>728</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>1971-72</td>
<td>47</td>
<td>54</td>
<td>87</td>
<td>927</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>1972-73</td>
<td>76</td>
<td>-</td>
<td>-</td>
<td>1,316</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>1973-74</td>
<td>105</td>
<td>-</td>
<td>-</td>
<td>1,473</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>1974-75</td>
<td>109</td>
<td>137</td>
<td>79</td>
<td>1,460</td>
<td>249</td>
<td>-</td>
</tr>
<tr>
<td>1975-76</td>
<td>100</td>
<td>130</td>
<td>77</td>
<td>1,282</td>
<td>37</td>
<td>-</td>
</tr>
<tr>
<td>1976-77</td>
<td>104</td>
<td>110</td>
<td>94</td>
<td>1,228</td>
<td>15</td>
<td>-</td>
</tr>
<tr>
<td>1977-78</td>
<td>118</td>
<td>118</td>
<td>100</td>
<td>1,277</td>
<td>4</td>
<td>-</td>
</tr>
<tr>
<td>1978-79</td>
<td>123</td>
<td>132</td>
<td>93</td>
<td>1,205</td>
<td>187</td>
<td>-</td>
</tr>
<tr>
<td>1979-80</td>
<td>145</td>
<td>167</td>
<td>88</td>
<td>1,203</td>
<td>1,084</td>
<td>-</td>
</tr>
<tr>
<td>1980-81</td>
<td>167</td>
<td>170</td>
<td>98</td>
<td>1,217</td>
<td>-</td>
<td>1,807</td>
</tr>
<tr>
<td>1981-82</td>
<td>140</td>
<td>182</td>
<td>77</td>
<td>n.a.</td>
<td>139</td>
<td>1,840</td>
</tr>
<tr>
<td>1982-83</td>
<td>145</td>
<td>160</td>
<td>91</td>
<td>n.a.</td>
<td>525</td>
<td>640</td>
</tr>
</tbody>
</table>

n.a. Not available.
a. Average farm price for the first grade paddy calendar year (second year shown).
b. Minimum guaranteed price 100 percent, first grade.
c. Deflated by cost of living index for Bangkok; 1970 = 100.
d. MOF, Marketing Organization of Farmers; PWO, Public Warehouse Organization, APCT: Agricultural Federation of Cooperatives of Thailand.
e. Includes purchase made directly by the government in earlier years.

Source: FAO Committee Commodity Problems, Intergovernmental Group on Rice (1983), and Bank of Thailand (updates).

compared with world market factors and government reduction of export taxes. Similarly, the MOF program (which became particularly large in 1982-83) has essentially reached the same types of beneficiaries, because the MOF also had most of its purchases primarily in rented private storage. Since there was almost no way to monitor the stocks, the private sector could use the MOF's paddy stocks as part of their working stocks (as was the case with the PWO rice). Thus the "artificial demand" effects were negated. The publicized price increase in the 1980-81 program came essentially from external market effects. The APCT program has not been assessed in much depth, but primary beneficiaries have been cooperative members and cooperative mills; beneficiaries also tend to be in less-accessible areas compared with those of the MOF program.

The sources of funds for the PWO program are a US$262.0 million loan (25 percent from the Bank of Thailand at 5 percent annual interest and 75 percent from commercial banks at the prime rate) and the Farmers Aid Fund, which is mainly derived from the rice premium. The MOF and APCT price support buying operations are primarily from the Farmers Aid Fund, the former being given B550 a ton and the latter B374 a ton (through the Cooperative Promotion Department). The actual costs for the MOF are B350 a ton. Thus, for every ton it "handles" under the program, the MOF makes a "profit" of B200. In effect, the MOF functions more as a financial intermediary than as a marketing organization. If indirect subsidies (such as interest-free working capital for the MOF and premium exemptions for its exports) were to be taken into account, the total procurement subsidy would be at least B1,000, or US$44 per ton of paddy (equivalent to 30 percent of the procurement price).

Hence the price support programs essentially subsidized the traders' or millers' working capital and resulted in dubious transfer payments. Because the MOF stocked very little of the procured paddy but funneled it straight into the market system, large losses through deterioration and pilferage were avoided (unlike the PWO, which also undertook its marketing and storage operations). In terms of their effect on farm prices, if export tax distortions were discounted, these programs did not achieve their objective of significantly influencing the farm price early in the marketing season compared with the new world market (f.o.b. price). Hence world market conditions have been the overwhelming determinant of farm prices, and the apparent success of the 1980-81 PWO program is essentially due to this reason.

In conclusion, the price support programs, especially that of the PWO, exact too high a cost from government to justify the rather nominal benefits to the farm sector. The rationale of the price support system (that is, creating an artificial demand early in the marketing season) has generally not worked because the marketing system is by and large efficient. Intrasessional price differences, for example, are generally not sufficient to generate large profits. Hence substitute mechanisms (government purchase and distribution) have not done, and are unlikely to do, better. These obstacles should be removed to free competition at both the export and domestic marketing levels.
Rice Marketing Efficiency and Price Transmission

By and large, agricultural marketing in Thailand (especially for the major export crops of rice, maize, cassava, and rubber) is competitive and efficiently managed by the private sector. Competition at the central and terminal market levels of the major export commodities in Thailand is generally sufficient to keep margins at a reasonable level. Access to market towns or mills and the extent of farm surpluses are also important in determining the farm-gate price. With more than 25,000 rice mills scattered throughout Thailand and a widely dispersed network of traders, rice marketing is generally competitive.

Differences in marketing margins and farm-level prices occur mainly because of cost factors. In rice, for example, the higher margins in the north and northeast compared with the central region reflect higher transport costs, resulting from the relative location from the main retail and export market (Bangkok), and the relative density of the rice mills.

Although margins may differ among regions, differences also occur among commodities, with the efficiency with which commodity prices are transmitted from the export level to the farm level being related to the extent of government intervention in pricing policy. In general, high price transmission coefficients and smaller profit margins have been observed among the commodities that face fewer pricing and marketing interventions (such as maize and cassava) compared with those that have been traditionally well regulated (especially rice and sugar). These results point to the fact that movement toward a freer trade regime provides for better marketing efficiency and more effective participation in world markets (Pinthong 1977).

Comparing the Effectiveness of Past Policy Instruments

Variation of export taxes has been a more effective instrument for stabilizing prices than has direct price support. Manipulating the export tax (specifically its reduction as a price wedge) has also proven to be more successful in raising farmers prices than the price support program. This has been confirmed by simulations of the Siam II model, which showed that benefits from removing the export tax far outweigh the costs when compared with rice purchase programs. Such a result is not surprising, because, as can be shown by analyzing the link between export taxes and farm prices, the effect of an export tax reduction is likely to be multiplicative.

Historical evidence (1977–82) of the direct link between rice export tax changes and wholesale prices indicates this multiplicative effect; a B1 reduction in the tax, on average, resulted in a nearly B3 increase in the wholesale price. According to Pinthong (1977) the middlemen seem to charge only in terms of absolute margin, which means that marginal changes in the Bangkok price are transferred in a more than proportionate amount to the farm-price level.

Currently, from an average paddy production of 18 million tons, the surplus over farmers' own consumption is about 11 million tons. Of this surplus, an estimated 10 million tons is non-glutinous paddy, with approximately 5 million tons being exported and 5 million tons being consumed by households. Since the total surplus production gains from an export tax reduction, a B1 reduction for a ton of non-glutinous rice exported directly benefits another ton of rice surplus consumed domestically. Hence a B1 per ton reduction of the export tax, given the nature of its transmission, is associated with more than B2 of improvement in value for rice.

Policy Tradeoffs to Increase Intensification

It was shown above that the policy of keeping domestic rice prices low has suppressed normal price incentives for intensification. As a consequence, the remarkable international transformation of rice production technology induced by the new high-yielding varieties has had only a minimal effect on rice cultivation in Thailand. The policy of cheap rice made good sense when Thailand had surplus land available, since increasing land under rice cultivation, rather than increasing output per unit of land, was an efficient strategy for both increasing rice production and diverting an agricultural surplus to development purposes. Now that good cultivable land has become scarce, however, increasing rice production to feed Thailand's growing population and to generate export earnings will require a change of strategy.

The Present Status of Intensification in Rice Production

The present status of intensification in rice cultivation in Thailand can be assessed by comparison with other rice-producing economies in Asia. The most important indicators of intensification are the level and rate of change in paddy yields. Table 8-3 indicates that by 1979–81 paddy yields in Thailand were the lowest among the major rice-producing economies of Asia. This yield was associated with one of the lowest rates of fertilizer use, the lowest area planted to modern rice varieties, and the most unfavorable price ratios of fertilizer to paddy. Furthermore, Thailand had the lowest increase in paddy yields during the 1960s and 1970s. Since the economies compared include several with agroclimatic conditions very similar to those of Thailand (such as Bangladesh, Burma, Indonesia and Malaysia), the pronounced lag in intensification in Thailand is clearly not caused significantly by special environmental conditions. Bangladesh and Burma, for example, have flood plain conditions like Thailand's, but despite their lower irrigation rate their yields are higher than Thailand's, because fertilizer and paddy prices are...
Table 8-3. Intensification Indicators for Major Asian Rice-Producing Economies

<table>
<thead>
<tr>
<th></th>
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<th></th>
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<td>1.95</td>
<td>17</td>
<td>19</td>
<td>13</td>
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<td>25</td>
<td>12</td>
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<td>3.65</td>
<td>47</td>
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<tr>
<td>Indonesia</td>
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<td>59</td>
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<td>42</td>
<td>3.25</td>
<td>78</td>
</tr>
<tr>
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<td>71</td>
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<td>Taiwan, China</td>
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<td>4.62</td>
<td>27</td>
<td>-12</td>
<td>304</td>
<td>1.34</td>
<td>n.a.</td>
</tr>
<tr>
<td>Thailand</td>
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<td>1.85</td>
<td>11</td>
<td>58</td>
<td>18</td>
<td>3.35</td>
<td>9</td>
</tr>
</tbody>
</table>

n.a. Not available.
a. Rice irrigation rate = (irrigated harvested area/total harvested area) × 100,
b. Based on IRRI compilation. It is probably underestimated since a large proportion of farmers keep their improved seeds and sell them to their neighbors.


Increasing the Use of Fertilizers and Agropesticides

Fertilizers. Increased fertilizer use is one of the most promising avenues to increased rice yields in Thailand. The most popular fertilizer now used is ammonium phosphate (16-20-0 fertilizer), which is applied almost exclusively to rice. Ammonium sulfate is applied mainly to sugar and rice, while various other compound mixtures are used for tree crops (especially rubber). Unlike in other Asian countries, urea is little used in rice farming in Thailand compared with ammonium sulfate and compound fertilizer; in Asia, the average ratio of ammonium sulfate to urea used is 1:10, but in Thailand it is 10:1.

Comparisons of three-year average periods from 1970 (average of 1969–71) to 1982 (average of 1981–83), show that the growth rate in fertilizer use has slowed considerably since the early to mid-1970s (Table 8-4). Although the planted area has grown nearly 2 percent annually since 1978, the intensity of fertilizer use has apparently declined. Given the importance of intensification in Thail-

Table 8-4. Apparent Fertilizer Consumption, 1969–83

<table>
<thead>
<tr>
<th>Year</th>
<th>Annual fertilizer use (thousands of tons)</th>
<th>Average annual growth (percent)</th>
</tr>
</thead>
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<td>Average 1969–71</td>
<td>271.8</td>
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<td>Average 1972–74</td>
<td>405.5</td>
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<td>Average 1975–77</td>
<td>646.0</td>
<td>5.7</td>
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<tr>
<td>Average 1978–80</td>
<td>763.3</td>
<td>1.6</td>
</tr>
<tr>
<td>Average 1981–83</td>
<td>800.0</td>
<td>4.1</td>
</tr>
</tbody>
</table>

promotion by private dealers. In assessing the overall constraints to fertilizer use on paddy, improvement in the fertilizer-to-paddy price ratio, while very important, is not the most critical constraint to fertilizer use; cropping risks are. Farmers adapt their cropping behavior according to the risks they face. Under conditions of irregular and insufficient rainfall (commonly found in the northeast) and in frequently flooded or deep water areas (the lower central region), fertilizer use is largely restrained because of difficult growing conditions for rice. However, most farmers who produce a surplus of rice respond to changes in the price ratio fertilizer-to-paddy.¹

Urea is the cheapest source of nitrogen for plant growth. It is also the only fertilizer subject to significant import duty in Thailand. Because the government intends to tax the industrial use of urea but is yet unable to separate its use as fertilizer from that used by industry (essentially the production of monosodium glutamate), it has decided to tax all urea imports at nearly 17 percent, except for those of the Thai Central Chemical Company, which has a large fertilizer mixing plant. For several areas, such as areas of the Central Plan that show low probabilities of response for phosphorus and potassium, a switch from ammonium phosphate (ammophos) to urea (even without removing the 17 percent import duty), could more than double farmers' incremental benefit-cost ratios. More important, the use of urea as top dressing is not very widespread, (interest-free working capital for the formation of compound fertilizers), urea consumption is estimated to be only about 10,000 tons, compared with the present fertilizer use of 800,000 tons.²

The promotion of greater urea use is handicapped by two other important obstacles. First, the heritage of past protection of nitrogenous fertilizer plants, which began production in 1966, gave rise to the subsequent monopoly control of straight nitrogen fertilizer imports from 1968–74. In addition, compound fertilizers (particularly ammophos) were promoted by importers to get around the ban, and, because of the increased demand for ammophos, an ammophos mixing plant was built in 1975. Hence, when use of low-cost straight fertilizers, such as urea, became important in other countries, their use in Thailand was artificially restrained to such an extent that when protectionist measures were removed in the mid-1970s, private vested interest in promoting compound fertilizers and the established loyalties to compound brands meant that there would have been little gain in promoting urea. Second, there was little experimentation and promotion of urea use on farmers fields by the government until about six years ago. Except for the rigidities implied by the established brand loyalties for ammophos, another widely touted constraint—market control and the manipulation of fertilizer prices by fertilizer firms—has not been a significant problem since the mid-1970s.

The government's fertilizer distribution operations through the MOF were set up to moderate the tendency of firms in the late 1960s and early 1970s to manipulate prices and to provide subsidized fertilizer to encourage greater use of inputs. The MOF presently distributes fertilizer at its Bangkok wholesale cost and provides subsidized credit for its target beneficiaries (farmer groups and individual small farmers). Its moderating function has essentially become unfair competition in that, by distributing 55 percent of all ammophos and by subsidizing ammophos by as much as 50 percent in some locations in recent years, private sector profits have been seriously squeezed. With numerous firms already out of the market, there is a real danger that they could all be out of business except for one or two large firms. Since these firms would also be the main suppliers to the MOF, an oligopoly situation could result. Uncertainty regarding the government's fertilizer policy will lead to unstable stocking, pricing, and delivery—all detrimental to increasing fertilizer use. Furthermore, since many fertilizer dealers are also agrochemical dealers, compensatory pricing of agrochemicals to reduce their losses from fertilizer will likely worsen. Such unhealthy trends cast strong doubts on the usefulness of the MOF's distribution role.

The MOF's distribution program is directly costing the government (that is, the Farmers Aid Fund) about B46 million (US$15 a ton) for approximately 130,000 tons distributed yearly (World Bank data). If indirect subsidies (interest-free working capital for the MOF and efficiency losses) are included, the MOF's fertilizer subsidy would be close to US$75 a ton (nearly 35 percent of the wholesale price), no more than half of which would, in any case, reach the farmer. Preliminary analysis also indicates that, of the subsidies that do reach the farmer, more than 85 percent flow to provinces with a higher concentration of irrigation projects. Field surveys have shown that the subsidies benefited mainly members of farmer associations and larger better-off farmers. Furthermore, although the quality of the MOF fertilizer distributed (virtually all ammophos) is good, deliveries were often delayed because of a requirement to use the government's Express Transport Organization. Finally, because the subsidized fertilizer distributed is not closely tied to specific extension programs, yields have not improved substantially.

AGROPESTICIDES. Use of insecticides and fungicides on farms has also stagnated since 1978. Only herbicides appear to have experienced increased usage, especially in 1980 and 1981. The former trend may be attributed to similar reasons as for fertilizer, that is, the slowed growth of dry-season irrigation areas and adverse rice-pesticide price ratios that resulted from accelerating import prices (especially in 1979 and 1980) and lower rice prices (since 1981). Although accelerating import prices have impinged on profit margins for the formulators and distributors, unlike for fertilizers, there has been comparatively little government intervention to compound the problem. The rising trend in herbicide use, in sharp contrast, provides
an interesting lesson for encouraging the use of other cash inputs.

Despite the higher prices of herbicides, their use has substantially increased because of expanded rubber cultivation and the successful introduction of a new rice technology (broadcasting of pregerminated seeds instead of transplanting) in some irrigated areas in the central region. This technology increases gross margins over those of transplanted rice by about 20 percent (essentially through savings in the labor costs), but it requires a substantial increase in the use of herbicides, since mechanical and hand weeding are not feasible. With sufficient demand from farmers, private companies have responded, with timely stocking and promotion.

Effects of Rice Tax Reform on Rice Supply and Welfare

In appraising the effects of existing price policy it is important to base the comparison on a period in which world prices were close to their long-run trend level. As has been shown, the policy objectives of low and stable prices have dictated that the level of export taxation, especially the rice premium, be adjusted with changes in world prices to achieve these ends. Currently, world prices are very low and, accordingly, export taxes have been adjusted downward to low levels by historical standards. Unless the underlying policy objectives are changed, however, when world prices return to more normal levels, so will the level of export taxation. Thus, the effects of rice tax policy reform must be considered in the context of normal world market condition. For this reason, this analysis is based on data from 1976-78, when world prices were relatively close to the long-run trend.

Effect on Efficiency. An analysis of the transmission effects indicates that changes in prices resulting from changes in the rate of export taxes are, by and large, efficiently translated to the farm level. The relevant question is, what is the likely effect on the production response of paddy farmers? The evidence from past analyses, an assessment of monitoring studies in the Chao Phya area, and farm model simulations for the upper north and the northeast may be summarized as follows:

- Significant response and intensification may be expected in wet-season rice areas of the upper central and north regions, where farmers tend to be very commercialized and grow more than one major crop on the farm (Dowling and Krongkaew 1983).
- Dry-season yield and corresponding fertilizer use are highly correlated with changes in paddy prices. Therefore, a significant intensification response is likely in all dry-season irrigated areas (Weatherhogs and Judd 1984).³
- A lesser but still significant supply response (primarily through the area planted) may also be forthcoming from the more risky rainfed areas. Calculations based on farm model simulations for the northeast indicate a supply elasticity of 0.3; that is, a 10 percent increase in paddy price will induce a 3 percent increase in average production for the whole region.
- A positive macroeconomic effect on both agricultural sector output and GDP can be expected, as shown by a simulation of the SIAM II macroeconomic model of Thailand. This result holds for all plausible values of the price elasticity of export demand for Thai rice.
- The broad income distributional implications of rice pricing intervention (as indicated by a SIAM II simulation of the elimination of the 5 percent ad valorem tax) show rice surplus farmers gaining and net rice consumers losing in the short run. Given time for resources to be reallocated, however, unskilled labor in both urban and rural locations recovers its original purchasing power through increased nominal wages.
- An additional long-term gain would be a decreased rate of growth in the urbanization of the Bangkok metropolitan area, with corollary benefits of decreased congestion costs and less investment required in urban infrastructure, compared with the growth expected under the present policies.

Income transfer burdens from government intervention in rice markets have different implications for producers in various regions or subregions. The extent of benefits would depend on farm endowment, family size, location of opportunities for off-farm employment, but by and large the surplus farmer will directly benefit most.

Effect on Welfare. The effect of rice taxation on family welfare and rice production for selected farm household types in the northeast and upper north regions was analyzed using programming models of household production-consumption decisions (O'Mara and Le-Si 1985). These regions or subregions were selected because they comprise rice farmers who form the bulk of the rural poor in Thailand. The objective was to assess the effect of variation in land quality, farm size, and family size on the welfare effect of, and the supply response to, rice policy. The analysis specified three farm sizes and three family sizes, although these differed between regions, with land quality remaining a regional variable. Price effects were simulated over six price intervals. Many experiments were done for households specific to individual provinces (changwats), but variation within regions is sufficiently small to discuss the results in terms of representative regional farm and household types.
It is important to distinguish between short-run and long-run effects where the latter allows sufficient time for labor markets to adjust fully. Short-run welfare effects were determined by calculating Laspeyres and Paasch price indexes, which in most instances were sufficient to establish whether the change in nominal income improved welfare. For the northeast the calculations on the welfare effect were clear-cut. For all family sizes and price intervals, small farmers are worse off with an increased rice price. For almost all family sizes and price intervals, large farmers are better off with the price increase. For medium-size farms, small- and medium-size families are better off, while large families are worse off. The reason for this pattern of welfare change is quite simple: farm households that are net purchasers of rice are worse off, and farm households that are net sellers of rice are better off. Thus, for medium-size farms, small- and medium-size families are net sellers, while large families are net purchasers.

For the upper north, the calculations on the welfare effect are more varied. This reflects the increased opportunities in this region for profitable resource reallocation resulting from a change in the price of rice, but the underlying reasons for the pattern of welfare changes are the same. Thus, small-size families on small farms can become net sellers over some price intervals, while medium- and large-size families on small farms remain net purchasers. This circumstance explains the pattern of welfare effects on small farms. For medium- and large-size farms, the welfare effect is usually positive (that is, they are, or become, net sellers) for all family sizes over most price intervals. One distinct difference between the patterns of the two regions is that all farm and household sizes in the upper north have a welfare loss over the lowest price interval. The reason is that at such low prices, rice cannot compete effectively with other alternative crops, and all families become net purchasers of rice.

In summary, for both regions, approximately 40 percent of farm households would suffer a short-run welfare loss if the price of rice is increased. For the longer run, evidence from multisector macroeconomic analyses suggests that the real wage for unskilled labor is invariant to the price of rice. This implies that short-run welfare losses by net purchasing, small farm households will diminish toward zero in the longer run.

Effect on Supply. The supply response was measured in terms of arc elasticities over the same set of price intervals. For the northeast the supply response of small farms is zero everywhere, and medium-size farms have positive elasticities over only the two lowest price intervals. Only small- and medium-size families on large farms have positive elasticities over a significant range of prices. This pattern makes sense in the context of the northeast, with its overwhelmingly rainfed farming. 70 percent of land in the wet season devoted to rainfed paddy, and a highly variable rainfall pattern that makes intensification risky. In contrast to the northeast, small farmers in the upper north have positive elasticities at low and very high prices for all family sizes. A similar pattern holds for all family sizes on medium-size farms, while families on large farms have positive elasticities over virtually all price intervals. This sharp behavioral contrast with that of farmers in the northeast results from the richer set of production possibilities that a significant irrigation capacity provides for farmers of the upper north.

Overall supply elasticities were calculated from the estimates for farm and household sizes using an appropriate set of weights. These calculations indicated for the northeast an average elasticity of about 0.9 for the three lower price intervals and 0.3 for the upper three price intervals. Similar calculations for the upper north yield an average elasticity of 2.0 for the lower three and 0.3 for the upper three price intervals.

These results point out not only the importance of farm endowment but also the often critical effect of family size in determining the status of surpluses or deficits and thus the welfare and supply response characteristics. Besides population control, off-farm income and migration opportunities that permit the reduction of family size from large (seven) to medium (six) in the northeast can generate greater supply response on the larger farm.

Given the importance of surplus generation on welfare and supply response, the extent of net surplus or sales is a critical indicator of the primary short-run benefits of export price changes. Based on the 1975–76 Socioeconomic Survey (Thailand, National Statistics Office 1978), the central region and lower north subregions, both of which account for nearly 70 percent of rice sold in Thailand, are likely to gain the most. Only in the mid-central and east-central subregions do 70 percent or more of the rice-growing families produce a surplus. In the poverty regions of the northeast and upper north 70–80 percent of farm households suffer a short-term loss because they do not normally produce a surplus. These households may recover the loss in the longer run, however, if labor markets become fully adjusted.

Combining Tax Reform with Price Stabilization

Since the cheap rice policy is inconsistent with a policy of price incentives for intensification (at least in the short run), the government may opt for either one but not both of these objectives. Thailand's changing relative resource endowment will sooner or later induce the government to adopt a strategy of intensification. However, the policy preference for a stable domestic price for rice, the major source of calories in the Thai diet, clearly remains as strong as ever. Therefore, the question of the compatibility of rice tax reform with rice price stability naturally arises.

Significant rice tax reform is quite consistent with reasonable stability in the domestic price of rice. However, this proposition is open to question and a demonstration
is needed. Tax reform will not improve the incentive for intensification unless it increases the average farm-gate price for paddy, that is, it decreases the average level of export taxation. Given the wide fluctuations in the world price of rice shown in Figure 8-1, however, stable domestic prices will not be possible without export taxation (or its equivalent with other instruments) designed to buffer domestic prices from international price shocks. The question is how to combine the two objectives in a policy that achieves both at satisfactory levels.

The objectives of improved incentives for intensification and domestic price stability can be combined in a policy that automatically introduces taxes or subsidies only when the world price exceeds or falls short of certain thresholds and only for as long as the world price continues to remain beyond these thresholds. The proposed decision rule is:

- Determine the expected or long-run trend price by an ordinary least-squares regression that estimates the expected world price (5 percent broken white rice, f.o.b. Bangkok) as a function of a low-order polynomial of time (say, of order 1 to 3).
- Let \( P_{w,t} \) and \( P_{t} \) denote, respectively, the deflated dollar values in a period \( t \) of the observed world price and the long-run trend price estimate obtained from the fitted polynomial function of time obtained above. Define the threshold variables as:

\[
P_{t}^+ = P_{w,t} + a \text{ SEE}
\]
\[
P_{t}^- = P_{w,t} - a \text{ SEE}
\]

where \( \text{SEE} \) is the standard error of estimate of the least-squares estimator of the long-run trend price obtained in the first step, and \( a \) is a policy parameter.

- Let \( e \) denote the current foreign exchange rate (in U.S. dollars) and \( O_v \) be an estimate of the degree of overvaluation (which may be negative) of the exchange rate. The export tax policy rule is:

\[
\text{If } P_{w,t} > P_{t}^+ \text{ impose tax } t = \left( P_{w,t} - P_{t}^+ \right) e \left( 1 - O_v \right)
\]

\[
\text{If } P_{w,t} > P_{t}^- \text{ pay subsidy } = \left( P_{t}^- - P_{w,t} \right) e \left( 1 + O_v \right)
\]

\[
\text{If } P_{t}^- \leq P_{w,t} \leq P_{t}^+ \text{ neither impose a tax nor pay a subsidy.}
\]

Given the potential volatility of world prices, the time periods used in the rule ought to be at least as small as a quarter year and might well be months. The rule is completely automatic and is deliberately symmetrical so that policymakers will show prudence and restraint in setting the policy parameter \( a \). If a policymaker makes \( a \) a very small to generate more tax revenues from above-trend prices, a corresponding liability for subsidy payments is incurred when world prices are below the trend. It was necessary to include an adjustment for overvaluation of the exchange rate, since an overvalued currency is a common way of implicitly taxing exports. Without the adjustment the intent of the policy rule could easily be defeated by failure of macroeconomic management. In practice, the inclusion of this adjustment will not be overt but would be built into the decision rule automatically. Similarly, in terms of the actual export price level (that is, \( P_e \) or \( P_d \)) to use, because the Bangkok wholesale price is technically a better series, the threshold values can be calculated by adding a standardized marketing margin to the Bangkok wholesale price.

To test the working of the rice tax policy rule, 1982 constant dollar world prices for 1950–82 (plotted in Figure 8-1) were used to derive an estimator for the long-run trend price (Siamwalla and others 1981). The policy parameter \( a \) was set equal to one, and, lacking a time series for the degree of overvaluation of the baht, this estimate was arbitrarily set to zero for all years. Using the export tax policy rule, the domestic wholesale prices that would have prevailed during 1970–82 had the government been following the automatic policy rule were calculated. These calculations necessarily assumed that the actions of the government had no effect on the prevailing world price—a harmless assumption whatever the true export elasticity of demand for Thai rice might be since the rule called for taxes in only two years. The results from these calculations are presented in Table 8-5. The automatic

<table>
<thead>
<tr>
<th>Year</th>
<th>Indicated tax or subsidy (%)</th>
<th>Observed domestic wholesale price (bahts per kilogram)</th>
<th>Automatic policy rule domestic wholesale price (bahts per kilogram)</th>
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<td>1970</td>
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<td>7.27</td>
</tr>
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**Table 8-5. Comparison of Proposed Policy with Historical Policy**

(constant 1982 prices)

**Note:** Deflated using consumer price index for the whole country.

**Source:** Table 8-1 and author's calculations.
The existing policy broke down and a ban on rice exports was imposed between August and November 1973. For this reason, the averages and standard deviations under the two policies being compared were also computed excluding those years, as these are the relevant statistics for a fair comparison of policies.

The results with 1973–74 excluded show that the automatic policy rule yields an average price of 10.02 bahts per kilogram, or 56 percent greater than the 6.42 bahts per kilogram yielded by the historical policy. Similarly, the standard deviation of prices under the automatic policy rule of 1.28 bahts per kilogram is 12.8 percent of the average price under this policy, while the standard deviation of 0.74 bahts per kilogram of the historical policy is 11.5 percent of the average price under that policy. Thus the proposed automatic policy rule yields an average price that is at least one-half greater, while keeping the variation in prices acceptably close to the variation under the historical policy. Moreover, this example is only illustrative. By varying the policy parameter \( a \), the variation in domestic prices can be reduced, although at the cost of decreased incentive for intensification. While this enables the policymaker to set the tradeoffs, the purpose of the decision rule is to ensure an automatic policy response and thus reduce the disruptive interplay of strong vested interests.

The calculations in Table 8-5 indicate that subsidies would have been paid in only two out of the thirteen years. Since these were a relatively small proportion of export value, the resulting increases in government expenditure would have been less than 1 percent of the historical expenditures. Although this indicates that financing subsidy payments would have required only marginal adjustments in government budgets, there remains some concern that an exceptional disturbance in the world rice market (significantly greater than those occurring in the past decade) might require a fiscally onerous level of subsidy payments. To analyze this question, short-run (that is, transitory) disturbances are distinguished from long-run (that is, many years) ones. Short-run shifts in world export supply are largely due to exceptionally good or bad harvests in the major producing countries. When such events occur, supplies offered or demanded in the world market can shift abruptly by several millions of tons. When world export supply increases for this reason, the automatic price stabilization policy requires government to pay what could conceivably be quite large subsidies. If the disturbance is seen to be temporary (through a season), however, there is nothing to prevent the government from buying up domestic supply and holding it as stocks. This action will reduce the total supply offered on the world market and choke off the decrease in the world price. As the world price level recovers from the temporary disturbance, the government can dispose of the stocks on the world market. In this way, the government can substantially reduce subsidy costs under an exceptional but temporary disturbance. Although accumulating stocks requires finance, if the stocks are sold after the world price recovers, the investment is largely self-liquidating.

A long-run disturbance, which is highly unlikely, should not require exceptionally large subsidy payments, since the trend price itself is decreased by sustained low world prices. Such a disturbance would require a relatively high level of subsidy payments over several years, however. Such a scenario can only occur if there was a technical breakthrough (for example, a super HYV) that is widely adopted and can significantly reduce costs in many producing countries and if supply shortfalls resulting from bad harvests in major producing countries failed to occur for a series of years. This case has a very low probability of occurrence.

There remains the issue of the long-run effect on the world export market of the increase in rice supply if rice export taxation is eliminated in Thailand. For simplicity, zero export taxes or subsidies on rice are assumed because of the automatic price stabilization rule. This assumption should have no effect on calculating the long-run effect. If there is an estimated 50 percent increase in farmgate price for rice and if the econometric estimates of the price elasticity of supply are 0.3 to 0.4, the increase in domestic rice supply would be 15 to 20 percent on average. For a similar increase in retail prices, price elasticity of domestic demand of -0.4, and an existing ratio of domestic demand to domestic production of 0.75 are assumed, the increase in price will release 15 percent of existing production for export. Thus the exportable supply increases by 30 to 35 percent. If the world export market share to Thailand is estimated to be 25 to 30 percent and the average export supply of other countries is held constant, the increase in the long-run world export supply is 7 to 10 percent. A long-run elasticity of world export demand of -0.4 implies a decrease in average world price of 17 to 25 percent. These calculations have necessarily been rough, but they have conservatively neglected the effect of lower prices on the supply from higher-cost producers and the effect of growth in population, income, and domestic demand. They clearly indicate, however, a significant increase in Thai export earnings from rice and sustained price incentives to Thai rice farmers for intensification, given substitution of the proposed automatic price stabilization rule for existing rice export tax policy.

**Recommendations**

Changes in the relative availability of resources dictate a new strategy for agricultural development that emphasizes intensification. Present rice pricing policy is inconsistent...
with this strategy, and, to rectify the situation, four pricing and marketing initiatives should be considered.

First, the government should abandon its present system of rice export taxes. The export taxes have increased the availability of domestic rice and have kept prices at a lower level than would otherwise prevail. They have, therefore, been an important disincentive to intensification. Rice export taxes include the 2.5 percent ad valorem export tax, the rice premium (a specific levy, which is frequently changed), and the rice reserve ratio requirement (which was eliminated in May 1982 but could be reimposed when world prices return to more normal levels). Since world prices are currently at very low levels and export taxes have been similarly reduced to low levels (currently about 5 percent of the f.o.b. price or 9 percent of the farm price), eliminating these taxes now would not introduce a serious price shock to the cost of living in Thailand.

Second, to buffer domestic rice prices against large fluctuations in world prices, the following automatic and symmetrical system of temporary taxes and subsidies should be introduced in place of the present system of export taxes:

- Impose a temporary specific export tax when the world price exceeds a certain threshold above the long-run trend; the tax should prevent domestic prices from rising above the threshold and should be eliminated when world prices drop below the threshold.
- Pay a temporary export subsidy when the world price drops below a certain threshold which is determined symmetrically with the upper threshold in relation to the long-run trend price; the subsidy should prevent domestic prices from dropping below the threshold and should be eliminated when world prices rise above the lower threshold.
- Neither impose an export tax nor pay an export subsidy when world prices do not exceed the upper threshold nor drop below the lower threshold.

Both the export tax and the export subsidy should be administered at the level of the exporter for ease of implementation and administrative efficiency. Both this analysis and the analyses of other students of rice markets in Thailand indicate that rice marketing is efficient and that the effects of both taxes and subsidies would be transmitted to farmers.

Third, to be consistent with the above recommendations and to rectify the unfair advantage and the compromising effect on export cost efficiency, exemptions from payment of the rice premium (for government-to-government trade through the Department of Foreign Trade) should be eliminated.

Fourth, because of the high cost relative to the nominal benefits to farmers, the Pwo and the MOF should cease their rice or paddy purchasing and distribution operations under the present Price Support Program, and the MOF should phase out its distribution of subsidized fertilizer. The experience of the rice procurement program, in particular, shows that any attempt to raise prices against the world price trend is futile and wasteful and should not be attempted in the future.

These four measures will play a critical role in encouraging agricultural intensification of rice. Other key complementary measures require:

- The removal of the 17 percent import duty on urea fertilizer
- Government promotion of fertilizer use (particularly urea) jointly with the private sector, as an integral part of production packages
- The improvement of quality control mechanisms for fertilizer, agropesticides, and improved seeds.

Although these initiatives are likely to directly improve incentives to, and the income of, surplus-producing farmers, they are not expected to be critical in improving productivity in areas of more limited agricultural endowment, such as the less-fertile and drought-prone areas of the northeast. In such areas the amount of rice sold by most farmers constitutes only a small proportion of total production. Hence, pricing policy cannot be relied upon as a direct income enhancement tool in the poverty areas. Other measures, such as those being pursued under the government's Poverty Areas Development Program, will be more directly relevant. In the longer term, with the rise of urban real wage rates, income would also increase for the barely subsistence farmers on marginal lands, who constitute the incremental labor force migrating to urban or more commercialized areas. In the meantime, programs that can enhance nonfarm employment opportunities, reduce family size, and increase potential surpluses on the farm should receive top priority.

Notes

1. Nonprice factors are important even for surplus farmers under irrigated conditions. The monitoring studies of the Chao Phya Irrigation Project area show substantial differences in the level of fertilizer application, which arise from differences in the stage of irrigation development, the incidence of diseases and pests, and the lag in the adoption of new technology.

2. Of the 30,000 tons of imported urea consumed, about two-thirds is being used to manufacture monosodium glutamate. Of the estimated 10,000 tons used for agriculture, nearly 80 percent is probably used for vegetables.

3. The Chao Phya Project monitoring studies show that as irrigation development phases in new areas under dry-season rice, farmers use greater quantities of improved seeds and fertilizers, often irrespective of changes in the price ratios of paddy to fertilizer. This illustrates the fact that the reduction of cropping risks through irrigation alone could also provide the incentive to use more purchased inputs.

4. The estimator so derived is \( P_\alpha = 762.665 - 3.947t, t = 50, \ldots, 82, \) with SEE = 123.4

5. Even for short-term disturbances, if a favorable climate is experienced in all rice-growing countries simultaneously, major traditional exporters are unlikely to flood the world market at once (to make world
prices plummet) because of the adverse effects on revenue. Deficit rice growers, such as Indonesia and Bangladesh, would tend to carry over their stocks, and probably the only potential exporters who may be less concerned about the revenue effects would be Pakistan or India. Hence, even for the short term, a doomsday scenario of plunging world prices is unlikely.

References


Determining Administered Prices for Foodgrains in India

J. S. Sarma

Agricultural price policies and allied instruments evolved in India because of the shortages and excess demand during World War II (India, National Commission on Agriculture 1975). Procedures for procuring and distributing major foodgrains were introduced, and statutory maximum prices were fixed, although they were not strictly enforced. Assurances were given for government purchases of foodgrains at fixed prices in the event of precipitous fall in prices. Minimum prices were announced for wheat, jowar, rice, and maize in 1954–55 when prices started falling sharply (Chopra 1981). However, the foundation for a sound agricultural price policy and for a system to determine producer’s prices of major foodgrains and maximum wholesale and retail prices was laid in 1964 following the recommendations of the Foodgrains Prices Committee, known also as the Jha Committee (India, Department of Agriculture 1965). Agricultural price policy in India was oriented more toward consumers’ interests at least until the mid-1970s.

The basic objective of the agricultural price policy in India is to evolve a balanced and integrated price structure that meets the overall needs of the economy and protects the interests of both producers and consumers. The policy is designed to help attain the growth and equity objectives of economic development plans.

Types of Administered Prices

In considering the issues of price determination, three types of administered prices can be distinguished: support, procurement, and issue prices. The support price is the predetermined fixed price, which is generally announced at the sowing time and at which the government agrees to buy all the grain offered for sale. These prices guarantee farmers that, when production is excessive and the market is glutted, prices of their produce will not be allowed to fall below a certain level. Farmers’ decisions regarding the areas to be sown depend, however, on the actual prices realized for the previous crop and their expectations for the coming season. The procurement price is generally fixed and announced at the start of the marketing season. It is the price at which the government agencies procure the grain for storage from the producers directly or in the market. These prices are generally higher than the support prices but lower than the free market prices in normal years.

The government releases foodgrain stocks to “fair price shops” for distribution to the poorer sections of the population at issue prices. The issue prices are invariably higher than the procurement prices. They are not high enough, however, to cover marketing expenditures, including storage costs, interest, transport, and handling charges. They are fixed to serve a social purpose by providing food to the poor at prices lower than those prevailing in the open market. Whenever procurement prices are raised, a question arises of whether and to what extent the increase is to be passed on to the consumers. An increase in the issue price affects the levels of living of the people engaged in the other sectors of the economy, and, where wages are linked to the cost of living, the wages also will have to be raised. If the issue prices are not raised, the implicit food subsidy to be borne by the government increases. The total budgetary burden of the foodgrain operations in India has risen to a staggering Rs7 billion (US$700 million) a year (Krishna and Chibber 1983).

In addition to the above-mentioned administered prices,

Note: The author is grateful to R. Ahmed, Chandra Ranade, Ram Saran, and H. L. Chawla for their helpful comments on an earlier draft of the paper.
when the minimum prices are determined by statute, they are designated statutory minimum prices, as for jute and sugarcane. Maximum control prices have sometimes been fixed for foodgrains to prevent profiteering.\textsuperscript{3}

The Agricultural Prices Commission

The Agricultural Prices Commission (APC) which was set up in 1965 on the recommendation of the Jha Committee, advises the government on how to achieve the objectives of its price policy. Its terms of reference specifically indicate that it may, while recommending the price policy and the relative price structure, keep in view: "(a) the need to provide incentive to the producer for adopting improved technology and for maximizing production; (b) the need to ensure rational utilization of land and other production resources; and (c) the likely effect of the price policy on the rest of the economy, particularly on the cost of living, level of wages, industrial cost structure, etc." (India, Ministry of Food and Agriculture 1965, appendix).

Under these terms of reference, the APC is required to suggest nonprice measures to help achieve these objectives. The initial terms of reference were amended in March 1980 to require the APC to consider the changes in the terms of trade between the agricultural and nonagricultural sectors in recommending procurement or support prices (India, Ministry of Agriculture 1980a).\textsuperscript{4}

The APC is headed by a distinguished economist and is made up of three other members: two economists and a third with farming experience. It is assisted by a small technical staff and is advised by a panel of farmers.

Criteria for Determining Prices

In recommending an appropriate price level for a commodity, the APC is guided by factors such as the prices fixed in the previous year, trends in market prices, the demand and supply situation, the latest available estimates of cost of production and changes in the prices of inputs since the cost studies were completed, the likely effect on the cost of living, and the general price level.\textsuperscript{5} Of these factors, the most important is the cost of production; unless the fixed prices cover costs, there is no incentive to increase production. The main problems are which concept of cost to adopt and which items to cover in the total cost. The APC takes into account the total cost which covers all expenses of cultivation and the imputed value of inputs, such as the rental value of owned land and the interest on fixed capital. Various other issues, such as the principles of evaluation and allocation (in the case of joint costs) to be adopted in determining the costs, also need to be resolved. Questions are often raised whether the managerial cost and cost of transport to the market should be included in the costs of production. A Special Expert Committee on Cost of Production Estimates (Sen Commit-
varietal differences, prices are also determined for standard varieties, and prices for others are indicated in terms of price differences based on past relations. Often varietal differences are more important for cash crops than for foodgrains.

**How the APC's Recommendations Become Policy**

The APC generally submits its recommendations in reports, which contain the rationale behind the suggestions. The recommended prices are referred by the Central Department of Agriculture and Cooperation to the state governments and are ordinarily discussed at special conferences. The views of other central departments or ministries, such as food, commerce, industry, finance, and economic affairs and the Planning Commission are also taken into account in formulating the final policy, which is then considered by the Cabinet Committee on Economic Affairs before decisions are made and announced.

**Instruments for Implementing Price Policy**

The government relies on the instruments of procurement, public distribution, and buffer stocks to implement its price policy.

**Procurement**

In the early 1950s domestic procurement formed a little less than 50 percent of the total public distribution of foodgrains in India. Subsequently, except in good crop years, imports were relied on to meet domestic requirements. During 1961–63, domestic procurement was around one-eighth of the public distribution, and up to 1964, the procurement was confined to states with surpluses. The operations were extended to states with deficits during the drought years and thereafter. Moreover, until the mid-1960s the objective of procurement was not to even out the supplies between good and bad years but to redistribute the limited supplies from producers to consumers within a crop year, especially when the production was short. When the output of foodgrains, particularly wheat, began to increase in 1967–68 because of the adoption of the new technology based on high-yielding varieties of seeds, the situation began to change. The proportion of domestically procured foodgrains rose continuously, and, by 1978 imports were stopped altogether.

There are four main systems of procurement: monopoly procurement, graded levy on producers, levy on millers and traders, and preemptive or open market purchases (Saran 1971). The choice of a particular system depends on the structure of production, the infrastructure development including the marketing system, the nature of the food situation, and, above all, the administrative setup and experience of the state government. The system adopted also varies over time. For example, wheat and coarse grains are procured through preemptive or open market purchases (except in Maharashtra for jowar) and this is facilitated by the regulated markets for these commodities. For paddy, which is traded in the milled form, a levy on millers and traders is operationally more convenient. When the food situation was more acute, monopoly procurement and graded levy were imposed in many of the rice-producing states, particularly those that were in deficit; currently only the Kerala State has a graded levy on producers of paddy. Table 9-1 specifies the systems used to procure rice or paddy in each state in 1981–82. Cereals are procured mostly by the field staffs of the Food Corporation of India, State Civil Supplies Corporations or Departments, cooperative marketing agencies, and so forth.

Procurement from domestic production may have to be accomplished at prices that are slightly below the prevailing market prices; the balance of the marketable surplus in such cases is sold in the open market at prices that are higher than what they would have been without procurement. It is therefore “a fair assumption that the weighted

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<th>Table 9-1. Systems of Procuring Rice or Paddy in Rice-Producing States during Kharif Season, 1981–82</th>
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average price received by the producer from the sale of the levy and the nonlevy portions of marketable surplus may not be less than the price he would have received in the absence of the levy (India, National Commission on Agriculture 1975).

**Public Distribution**

The public distribution system is an essential component of the government's food management policy. The system functions through a network of ration shops and fair price shops. When the food deficits were large, statutory rationing was instituted to cordon off areas of high purchasing power, such as the big cities, so that they did not exercise their enormous pull and draw supplies from the rural areas. The system also catered to the needs of the working classes in the industrial areas and big cities. After the food situation improved, statutory rationing was withdrawn, except in the Greater Calcutta-Asansol industrial belt. Most of the country is covered by about 300,000 fair price shops, more than three-fourths of which are located in or around the rural areas. Under the system of informal rationing or fair price shops, a certain minimum amount of the foodgrains required by the vulnerable sections of the population is met at reasonable prices. The people then can purchase the rest of their requirements in the open market. Nearly 660 million people had access to fair price shops or ration shops at the end of 1981. Approximately 14.8 million tons of foodgrains were distributed under the public distribution system in 1982, an average of 1.2 million tons a month. This included sales to Roller Flour Mills and the quantities distributed under the Food for Work Program, which has since become the National Rural Employment Program. The direct sale of wheat to Roller Flour Mills for conversion to flour prevents these mills from making bulk purchases from the open market, which would cause a bullish effect on the market.

**Other Measures**

To facilitate the procurement of foodgrains and to prevent undue price increases, restrictions were imposed on the movement of grains from one zone to another. Most often each state formed a zone. In some cases, however, a group of adjoining states was formed into a zone, and in others a few contiguous surplus districts formed a zone. The zones were different for rice, wheat, and coarse grains. Because the food situation eased, most of the zonal restrictions were withdrawn by 1978–79. Other measures taken to help implement the food policy include regulation of private trade, bank credit advances against foodgrains stocks, and a ban on forward trading in grains.

**Buffer Stocks**

Since fluctuations in agricultural production tend to cause instability in supplies and consequently in prices, adequate buffer stocks are maintained. They are built out of internally procured grain supplemented by imports in years of shortfalls in production. There is a conceptual distinction between buffer stocks and operational stocks, although there is no physical distinction. Since there are two main crop seasons in India (and in some parts even three crops), market arrivals, government procurement, disposed through the public distribution system, and the level of government stocks vary from month to month.

There are several arguments against building up large buffer stocks: much capital is locked up in stocks, large investments are needed to construct storage facilities, operating costs are high, and stock may deteriorate unless there is adequate turnover. A technical group set up by the government recommended a limit of 12 million tons of buffer stocks over and above the pipeline stocks needed to run the public distribution system, which may vary from 3.5 million to 3.8 million tons on April 1 and 8.2 million to 8.8 million tons on July 1 (India, Department of Food 1976). The Sixth Five-Year Plan, however, envisages building up a buffer stock of 15 million tons of foodgrains to minimize the effect of weather fluctuations on availability and price (India, Planning Commission 1981).

**The Food Corporation of India**

The principal institutional agency through which food procurement and distribution policies are implemented is the Food Corporation of India (FCI), a public sector undertaking, which was set up in 1965. It handles all purchases, storage, and distribution operations for the central government and some of the state governments. Import trade and exports of cereals (when given as loans or grants to countries in need) are also handled by the FCI. In addition, some states have Food and Civil Supplies Corporations or cooperative marketing agencies, which make the purchases and sales on their behalf.

**Price Policy for Commodities Other Than Foodgrains**

Besides foodgrains, the APC also advises the government on the price policy for cotton, jute, sugarcane, tobacco, potatoes, onions, groundnuts, rapeseed, mustard, soybean, and sunflower seed. These prices often act as minimum support prices. The principles adopted for determining prices for these crops are similar. Additional considerations include the relation between the prices of raw materials and manufactured products, price behavior in international markets, and so forth. Since the agencies that procured these commodities were not as effective in
dealing with foodgrains, the Cotton Corporation of India and the Jute Corporation of India were established to ensure fair prices to the producers of these crops. The proportion of the crop handled by them was initially small, although in recent years this proportion has increased. Government intervention has also helped to stabilize the prices of potatoes and onions at harvest time in 1983 and 1984.

For sugarcane, statutory minimum prices are fixed. The actual prices payable by factories to farmers are higher. For sugar, dual pricing arrangements are in vogue. Under these arrangements, a certain proportion of the output is procured by public agencies or agencies designated by the government at prices linked to statutory minimum prices, while the remaining supplies are disposed of by the factories at market prices. The supplies procured by the government are distributed at fixed prices through approved public distribution channels.

Lessons from the Indian Experience

It is difficult to summarize in a paragraph the lessons from the Indian experience of formulating and implementing agricultural price policy. Incentive prices in the form of minimum support prices are an essential prerequisite to the success of agricultural production programs that are based on the adoption of high-yielding varieties. At the same time, high prices alone cannot be relied on to increase the production of foodgrains, especially where there are shortages across the board. To effectively implement price support policies, adequate institutional arrangements for purchasing quantities offered for sale at that price are necessary. At the same time, the foodgrain needs of the vulnerable sections of the population would have to be met through appropriate public distribution systems. These supplies may have to be sold at prices below the economic cost, which implies subsidization.

Procurement and public distribution are closely interrelated and are in fact two sides of the same coin; a public distribution system can be effectively maintained through domestic procurement of grain at reasonable prices, and quantities procured through price support operations find an outlet through the public distribution system. To even out the supplies between good and bad years and to ensure stable prices, buffer stocks are essential to prudent food management. No doubt large buffer stocks are expensive to operate, but these costs have to be weighed against the gains to society in terms of mitigating the hardships caused by unstable supplies and prices. Imports do not provide the complete answer in bad crop years, particularly in countries with foreign exchange constraints. In India, two organizations, the APC which advises on the formulation of price policy, and the Food Corporation of India, which implements procurement, distribution, and buffer stock policies, play very prominent roles in managing food policy.

Notes

1. By this time it would be possible to estimate the size of the crop and also include any increases in input prices that occurred after sowing.

2. In a good crop year in surplus states, free-market prices would have been lower if it were not for government purchases; after the surplus is mopped up, the market prices tend to be higher than the procurement prices.

3. Maximum control prices have not been fixed for cereals in the past few years. When the prices rise exorbitantly high in any area, it signals the government about the scarcity conditions, which need to be met by rushing larger supplies through the public distribution system to that area.

4. Under the amended terms of reference the commodities to be covered by the APC include paddy or rice, wheat, jowar, bajra, maize, ragi, barley, gram, urad, moong, soybean, sunflower seed, rapeseed, mustard, cotton, jute, and tobacco.

5. The cost data are being collected under the Comprehensive Scheme, which is studying the cost of crop cultivation and is operated by the Directorate of Economics and Statistics. In sixteen states the agricultural universities continuously plan and conduct field investigations that consider the cost components, including human labor; bullock labor; machine labor; all material inputs, such as manures, fertilizers, seeds, insecticides, and pesticides; irrigation; diesel; and power and also fixed costs, including interest on capital and the rental value of land. The cost of human labor covers the imputed value of the family labor. (India, Ministry of Agriculture 1982).

6. The price support level in this approach, as adopted in the United States is related to a historical average price received for the commodity and the index of price paid by the farmers, so that the purchasing power of the commodity remained more or less constant.

7. However, the APC takes into account changes in the index of prices of commodities that are sold by the agricultural producers and those paid by them, both in relation to agricultural inputs and to the main items of consumer goods in their consumption basket.

8. Preemptive purchases of wheat were made when the procurement tended to be extremely low because of two or three successive years of low production. The general approach is that most of the procurement, particularly of wheat, is voluntary.

9. There has to be a system of public distribution to supply reasonable quantities of foodgrains at reasonable prices, particularly to vulnerable sections of the population. Procurement from domestic production also has to be done at reasonable prices which may have to be lower than the market prices in certain years.

10. There is a distinction between statutory rationing and informal rationing. In the statutorily rationed areas, the open market is legally barred from purchasing, and the government is responsible for supplying specific rationed quantities to consumers. In the informally rationed areas, the open market can legitimately function (India, Department of Food 1966).

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Government Intervention in Agricultural Markets and Pricing

Malcolm D. Bale

Studies on agricultural pricing and trade policies in developing countries were conducted to provide support for World Bank operations in those regions. The experiences of five countries—Colombia, Jamaica, Nigeria, Pakistan, and the Philippines—are considered archetypical. These studies were synthesized to examine why agricultural performance differs among countries and to identify policies that inhibit the development of agricultural systems in developing countries. A number of aspects emerge as common constraints to the efficient organization of the sector. These constraints will usually be found in one form or another, to a greater or lesser degree, in most developing countries, although the severity of their effect varies from country to country. Further, the constraints are interrelated. The decision to implement a certain public policy towards agriculture virtually guarantees that other seemingly unrelated public policies must be adopted. Thus policymaking has a certain lock-step nature to it. Three main issues were addressed in these studies:

- Is the incentive system structured to promote or retard agricultural output?
- What is the effect of governmental trade and price interventions on output, farm income, consumer income, and government revenue?
- How does agricultural policy synchronize with industrial policy and with the broader macroeconomic policies of the country?

Countries and Issues

The countries studied are Colombia, Jamaica, Nigeria, Pakistan, and the Philippines, because, as archetypes, they represent the economic characteristics and stages of development of many developing countries. (The specific country studies are listed in the bibliography.)

Nigeria, a low-income oil exporter, typifies the problems of a developing country in which petroleum earnings have vastly changed the economic environment. A greatly overvalued exchange rate penalizes agricultural exports and makes food imports cheaper than domestic substitutes. In Pakistan, a low-income developing country, the agricultural pricing issues revolve around guaranteed support prices for its major agricultural crops. The Philippines, a lower-middle-income, oil-importing nation, is representative of countries in transition from being large importers of basic foodstuffs to being agriculturally self-sufficient. Agricultural issues center on the uneven treatment of export agriculture compared with import-replacement agriculture. Jamaica, a middle-income developing country, is both a food importer (mainly cereals) and a food exporter (mainly tropical products). The movement of intrasectoral prices in favor of domestic agriculture and the monopsonization of exports through marketing boards appear to be primary factors causing the overall decline in agriculture during the 1970s. Finally, Colombia represents an economy attempting to diversify its agriculture for export. The government is concerned especially with the optimal mix of exports and the efficient administration of agricultural prices. The lessons learned from these studies are discussed below.

Direct Government Intervention

Massive intervention by government in the production, pricing, and distribution of food occurs in all the countries studied. Aspects of government intervention give rise to internal price distortions for domestic products and between domestic and international prices of the same product, and these distortions have serious allocative and efficiency implications on the economy. The policies of
intervention are rooted in a model of development in which it is thought desirable, in the interests of growth and development, to skim excess resources from agriculture and direct them toward industry under the assumption that such a diversion of agricultural surplus does not reduce agricultural output.

There are several motivations behind many agricultural price interventions. First, by domestic price controls or by export taxes on food commodities, food prices can be kept artificially low to benefit politically powerful urban populations; this is the so-called "urban bias" in policymaking. Second, by government procurement and resale of staple foods, mainly to the poorer segments of the population, an element of social policy (income distribution) can be accomplished. Third, in some cases, intervention is justified on the grounds of market failure or externalities, although a perceived externality is often misidentified, or the intervention justified by the externality is an inappropriate one. Fourth, when export taxes are levied, the government secures an important source of revenue despite the resulting effect on output-led growth.

In Pakistan, for example, the government sets a "support price" at which it will buy wheat. The government buyers resell to ration shops at a fixed low price, which essentially sets the upper limit of the open market price. Until 1981 the "support price" of wheat was as much as 60 percent below the border price. In recent years, the margin has narrowed to around 30 percent below the border price, and in the past two years it has approximated the border price. Likewise, Pakistan sets "support prices" for paddy and milled rice so that the price of Pakistani rice between 1973 and 1983 averaged 35 percent below the border price. This has led to underproduction of the commodities. In the Philippines a parastatal organization is the sole buyer and seller of sugar. Because of its pricing policy in 1974–82, it has been estimated that producers received only 77 percent of the world price of sugar, while consumers paid only 69 percent of the world price. Similarly, the various levies and taxes of the coconut parastatal are equivalent to an export tax of 22 percent on copra exports, which has had a negative effect on export earnings. In Nigeria, because of the licensing of groundnut exports and an export ban on rice, domestic prices for both have been held approximately 20 percent below border prices in recent years, while in Jamaica, where statutory marketing boards control exports and thus prices, the implicit tax on producers between 1970 and 1979 has been calculated to be 17 percent for sugar, 28 percent for cocoa, 36 percent for coffee, and 42 percent for bananas.

Table 10-1 shows the average mispricing of major agricultural crops between 1980 and 1982 for the countries studied. The percentage by which the domestic price of crops diverges from the border price is large: it varies from 7 to 164 percent, averages 49 percent, and is over 100 percent in two cases.

The effects of policies that impose "tax" burdens or that

<table>
<thead>
<tr>
<th>Crop</th>
<th>Domestic price (Average 1980–82)</th>
<th>Border price (Average 1980–82)</th>
<th>Percent difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Colombia</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wheat</td>
<td>1,711</td>
<td>1,093</td>
<td>57</td>
</tr>
<tr>
<td>Corn</td>
<td>1,635</td>
<td>924</td>
<td>77</td>
</tr>
<tr>
<td>Soybeans</td>
<td>2,621</td>
<td>1,668</td>
<td>57</td>
</tr>
<tr>
<td>Jamaica</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sugar</td>
<td>192</td>
<td>320</td>
<td>-40</td>
</tr>
<tr>
<td>Cocoa</td>
<td>1,869</td>
<td>4,062</td>
<td>-54</td>
</tr>
<tr>
<td>Coffee</td>
<td>619</td>
<td>917</td>
<td>-32</td>
</tr>
<tr>
<td>Nigeria</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Maize</td>
<td>319</td>
<td>130</td>
<td>145</td>
</tr>
<tr>
<td>Rice</td>
<td>365</td>
<td>318</td>
<td>15</td>
</tr>
<tr>
<td>Groundnuts</td>
<td>332</td>
<td>309</td>
<td>7</td>
</tr>
<tr>
<td>Sorghum</td>
<td>307</td>
<td>116</td>
<td>164</td>
</tr>
<tr>
<td>Pakistan</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wheat</td>
<td>138</td>
<td>160</td>
<td>-13</td>
</tr>
<tr>
<td>Rice</td>
<td>157</td>
<td>297</td>
<td>-47</td>
</tr>
<tr>
<td>Basmati rice</td>
<td>338</td>
<td>718</td>
<td>-53</td>
</tr>
<tr>
<td>Cotton</td>
<td>1,085</td>
<td>1,397</td>
<td>-22</td>
</tr>
<tr>
<td>Philippines</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rice</td>
<td>26</td>
<td>28</td>
<td>-7</td>
</tr>
<tr>
<td>Copra</td>
<td>18</td>
<td>23</td>
<td>-24</td>
</tr>
<tr>
<td>Sugar</td>
<td>220</td>
<td>268</td>
<td>-18</td>
</tr>
</tbody>
</table>

Note: All prices are rounded to the nearest whole number and are adjusted for quality and location, so that the two prices for each commodity are comparable. The percent difference indicates the percent of border price that crops are undervalued (negative values) or overvalued (positive values) as a result of various government interventions. Typically, export crops are undervalued, thus keeping domestic prices of those crops low, and import-competing crops are overvalued, thus stimulating domestic production of those crops.


underprice agricultural products are numerous and serious. Since farmers are sensitive to prices, they respond to producer prices that are lower than the international opportunity cost by producing less; consequently, farm income is lowered, and this in turn has adverse implications for the rural poor. Policies that hold down farm prices also affect the rate of adoption of new technology, the level of use of modern inputs, and the growth of agriculture. Farm labor then declines, which aggravates rural-to-urban migration problems. Further, because of reduced farm output, disadvantageous pricing policies also limit the quantities of agricultural products available for export and hence stifle foreign exchange earnings.

The underpricing of agricultural products increases domestic consumption; consumers are better off, but at the expense of producers. Again, export receipts are reduced, because increased consumption leaves a smaller residual for export than if food is priced closer to its border price or opportunity cost. Also, there is a deadweight (efficiency) loss resulting from the misallocated resources caused by the price intervention. The cost to
countries in lost output, lost export revenues, and inefficiency and the redistribution caused by the policy are given for selected countries in Table 10-2. For example, in the Philippines, because of pricing policies causing a divergence between farm price and border price of copra, production is reduced by 52 percent, exports are reduced by 76 percent, farm income for copra is reduced by 83 percent, and foreign exchange earned from copra exports is reduced by 41 percent. Likewise, in Jamaica pricing policies for bananas have reduced production, export earnings, and farm income by 11, 12, and 16 percent, respectively, compared with their level if prices approximated border prices.

Often, in the face of stagnating agricultural performance caused by discriminatory pricing policies, government policymakers attempt to stimulate agriculture through subsidies for agricultural inputs. Although these subsidies are often costly because of their financial burden on an economy, they are even more costly because they tie up scarce human resources to administer such programs, most of which have the further disadvantage of being proven ineffective in stimulating agriculture. When there is forced allocation of subsidized credit, such as in the Philippines at various times, banks lend to their largest, most creditworthy client farmers or to agroprocessing or marketing organizations that have collateral. The resulting paradox is that the availability of agricultural credit to smaller farmers actually declines. Likewise, fertilizer subsidies have been ineffective at stimulating production. Because fertilizer can be used for various crops, targeted fertilizer subsidies fail. In Nigeria, because of the excess demand for fertilizer at the subsidized price, rationing results, and a secondary market, either internal or external (through smuggling), flourishes. Finally, the selected inputs that are subsidized typically constitute a small proportion of the total cost of production (less than 20 percent). Lowering them by even quite large amounts has a rather minor effect on the net returns to the farmer.

A consequence of intervention in the product market is that restrictions must be placed on international products and their substitutes to defend the domestic pricing policy. If domestic food prices are held below prices obtainable on international markets, domestic producers will clearly prefer to export. If domestic prices artificially exceed world prices, then imports will dominate the domestic market. Thus once the decision is made to establish domestic prices at levels different from border prices, governments must simultaneously control and regulate the trade of those products and their substitutes. Often, rather than placing tariffs or export taxes on products, parastatal marketing organizations are established and given broad regulatory authority and monopoly power in the purchase, resale, import, and export of their products. The National Sugar Trading Authority in the Philippines, the Banana Company of Jamaica, and the Agricultural Marketing Institute in Colombia, are examples. Proceeding as instruments of policy, they often become powerful policymaking authorities. The record in developing countries is clear.

Table 10-2. Output and Monetary Effects of Pricing Policies in Selected Countries on Selected Agricultural Products

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Wheat</td>
<td>Sugar</td>
<td>Bananas</td>
<td>Cocoa</td>
</tr>
<tr>
<td>Production (thousands of metric tons)</td>
<td>71</td>
<td>301</td>
<td>69</td>
<td>3.5</td>
</tr>
<tr>
<td>Exports (imports) (thousands of metric tons)</td>
<td>(467)</td>
<td>132</td>
<td>33.1</td>
<td>1.2</td>
</tr>
<tr>
<td>Change in production in absence of price distortions (percent)</td>
<td>-19.7</td>
<td>5.9</td>
<td>11.3</td>
<td>16.9</td>
</tr>
<tr>
<td>Change in exports (imports) in absence of price distortions (percent)</td>
<td>(12.2)</td>
<td>6.0</td>
<td>12.0</td>
<td>17.0</td>
</tr>
<tr>
<td>Change in farm income in absence of price distortions (percent)</td>
<td>-28.8</td>
<td>6.9</td>
<td>16.4</td>
<td>21.2</td>
</tr>
<tr>
<td>Change in foreign exchange in absence of price distortions (percent)</td>
<td>13.3</td>
<td>5.9</td>
<td>12.2</td>
<td>17.2</td>
</tr>
<tr>
<td>Deadweight (efficiency) loss as result of price distortions (US$ millions)</td>
<td>2.7</td>
<td>8.8</td>
<td>0.2</td>
<td>0.8</td>
</tr>
</tbody>
</table>

Note: Numbers in parentheses indicate imports. The table is interpreted as follows: in Jamaica, because cocoa is underpriced to farmers by 54 percent (Table 12-1), Jamaican cocoa farmers reduce their output by nearly 17 percent from what they would produce if they were paid world prices for their cocoa. Jamaican exports of cocoa are reduced by 17 percent, farm income from cocoa is reduced by 21 percent, and foreign exchange earnings from cocoa decline by 17 percent, which results in an efficiency loss of US$0.8 million.

that parastatals are usually much more concerned with their own well-being and, to a lesser extent, with the welfare of domestic consumers than with the interests of farmers or the rural sector. In other words, parastatals often exploit their statutory monopoly power by having marketing margins that are larger than would result under a competitive marketing system and by underpricing farm products to maintain cheap food prices for consumers.

Indirect Government Intervention

Not only do governments intervene directly to determine levels of food output, consumption, and prices, but they also intervene indirectly in ways that may be even more deleterious to agricultural production. Rarely do policymakers appreciate the relation between the food sector and other sectors of an economy. It is often not recognized that macroeconomic policy and sector-specific policies directly affect agriculture. Of particular concern is the extent to which resources such as labor and capital are bid away from agriculture by protected domestic manufacturing. In the Philippines, for example, the average net effective rate of protection for manufacturing is 15 percent, whereas the equivalent figure for agriculture is −13 percent. By protecting the manufacturing sector, agriculture is disadvantaged in several ways. To the extent that agricultural inputs are domestically produced under a protective umbrella, the cost of agricultural inputs increases, which lowers farm returns and makes agricultural exports less competitive on the international market. The dynamic effects of reduced investment and slower adoption of new technology on growth clearly compound the static effects and, over time, dominate them. Further, to the extent that resources such as labor and capital are bid away from agriculture by protected domestic manufacturing, agriculture either must pay more for or lose resources previously available to it.

A further side effect of a protected manufacturing sector is that the set of tariffs and quotas on imported manufactures defends an overvalued exchange rate. In a distortion-ridden economy, trade deficits held in check by protecting domestic industry allow the value of the domestic currency in relation to its trading partners' currencies to be maintained at a level higher than would prevail under a freer commercial regime. An overvalued exchange rate means that both exports and duty-free imports are undervalued. This situation places agriculture in developing countries in double jeopardy, since the agricultural sector is a major source of export revenue, yet sizable quantities of food products are also imported. For example, the Philippines exports copra and sugar while it imports wheat and feedgrains, Jamaica exports bananas and sugar while it imports rice and wheat, and Nigeria exports groundnuts and cocoa while it imports maize and rice. When export products and import-competing products are undervalued, the effect on production, consumption, and growth is identical to the case in which exports are taxed and imports are subsidized: there is underproduction and overconsumption of the goods. Jamaica provides an interesting case in point. In part because of misaligned exchange rates during the 1970s, the growth of agricultural exports stagnated or turned negative while imports of basic duty-free goods, artificially cheapened by the overvalued exchange rate, put pressure on the domestic production of traditional staples of root crops and plantains.

The extent to which currencies are misaligned in the five countries studied is not widely understood by policymakers, and certainly the effect on agricultural output is not generally appreciated. For example, in the Philippines during most of the 1970s the exchange rate was overvalued by an estimated 25–30 percent, in Jamaica during the early 1980s by 35 percent, in Colombia in the early 1980s by about 25 percent, and in Nigeria during 1980–84 by 44 percent. When margins of less than 5 percent determine the outcome of a sale or a profit, the effect of implicit taxes of these dimensions on domestic agriculture is devastating on output, foreign exchange earnings, and resource allocation.

The results of the studies show that misaligned exchange rates have played the prime role in inhibiting agricultural performance; they are the single most powerful disincentive to agriculture in these countries. While industrialization has been stimulated by exchange rate policies, industrial growth is occurring atop a narrow and unsustainable base, since it is not necessarily efficient. Agriculture, however, has responded to these policy-induced disincentives by growing at a reduced rate, so that many countries are importing more food or reducing their agricultural exports. While the theory of development economics has now gone beyond strategies that emphasize industrialization to the neglect of agriculture, policy in developing countries has yet to catch up.

In examining the extent and types of price intervention in agriculture in developing countries, one cannot help but be struck by their limited successes, the unconvincing reasons given for their introduction, and the frequent neglect of viable market alternatives. The state of the agricultural economies in developing countries is conclusive proof that, while market failures are sometimes discernible, the ability of governments to intervene effectively is limited and that governmental (or parastatal) failure is pervasive.

Problems in the Policymaking Process

There are several institutional problems in the policymaking process that are common across the five developing countries studied; these to a large extent explain the ineffectiveness or failure of government price intervention, even when intervention may have been needed. First, in
formulating policy, undue emphasis is given to short-run problems and policies, and insufficient or no attention is given to policies that would enhance the long-term performance of the food sector. Within ministries of agriculture, few, if any, resources are devoted to devising a coherent plan for the future direction of the sector. Too often, public decisionmaking in agriculture can be more accurately characterized as "crisis management" than as "forward planning." The result is that, in the name of public policy, a series of ad hoc and internally inconsistent decisions are implemented in response to transitory problems. Although the problems may quickly subside, the policies tend to remain and self-perpetuate despite the demise of their original rationale. Thus a chain of ad hoc policies obscures any notion of the long-term direction of agriculture. A plethora of unnecessary and counterproductive controls results. To be fair, there is a genuine tension in public policy between short-term questions of food availability and the implementation of incentives to solve these problems in the long run. Agricultural policymakers must contend with the inevitable tradeoffs, however, and it is not evident that this is being done in any of the countries studied.

In response to criticism of policies biased in favor of the short term, agricultural policymakers claim that concern with the everyday well-being of their sector and, in some cases, its survival is their first priority; that in such contexts future planning is a luxury they cannot afford. But this argument misses the point inasmuch as the future performance of agriculture and the need for quick ad hoc solutions to emerging crises in agriculture is largely a function of policies now being put in place. Thus, to minimize the need for crisis management in the future, it is important to create a policy environment now that fosters a healthy and structurally sound agricultural sector in the future.

Another frequent obstacle to the long-term formulation of agricultural policy is the absence of mid-level ministerial personnel capable of providing the supporting analysis or policy overview. Although this is expensive, it may be worthwhile for ministries of agriculture to engage expatriate personnel until such a void can be filled with local nationals. This course of action is showing promise in some countries, such as the Philippines.

Public decisionmaking in the food sector is usually decentralized among several ministries or agencies that act independently. As a result, planning for the agricultural sector is discontinuous rather than unified, the spillover effects of one agency's policy decisions on others' policies are not considered, and unintended side effects within the sector are not identified. In Jamaica, for example, there are more than 100 public entities dealing with agriculture, ranging from six ministries with various divisions up to the parastatal marketing organizations, to the National Water Authority. Five ministries and an equal number of parastatals in the Philippines are responsible for various parts of the agricultural sector. The decentralized decisionmaking apparatus is not a problem as long as the areas of jurisdiction are independent. But that is not the case. Decisions made by one agency have implications that affect, directly or indirectly, aspects of agriculture beyond the obvious ones. It is, therefore, important that a mechanism be established so that ministries affecting agricultural performance collectively participate in formulating agricultural policy.

Conclusions

The predominance and pervasiveness of market interventions by government is striking. There appears to be a deep distrust in, or lack of tolerance for, market mechanisms. The market mechanism is seen as a dangerous Gulliver that must be tied down by numerous threads of control. This approach gives rise to dirigist solutions that are cumbersome to administer and costly to the nation in both pecuniary costs and efficiency losses. The common practice of political price setting (or administered prices) implies a redistribution of wealth. Typically, the direction of the redistribution is from rural producers to the more politically powerful urban consumers. But given the starting position of many developing countries, the important economic issue is improving producer incentives while perhaps targeting programs at particularly low-income households. In this policy dilemma, the interests of producers and consumers need to be reconciled. Often, consumer interests are too heavily weighted. Policymakers are well advised to remember that the social costs of today's below-market food prices are reflected in tomorrow's dependency on food imports and lethargic agricultural performance.

Among planners there is increasing agreement that if prices are to be administered, they should be related to the international opportunity cost of the product; that is, international prices should provide the standard against which domestic prices are set. This does not necessarily imply that prices should change daily, but that, over time, there should be a correspondence between domestic and international prices.

A clear requirement for a vigorous agricultural sector is an appropriate price environment. With the increasing use of off-farm inputs as agriculture develops, the need for an appropriate pricing policy for inputs increases. This means not only pricing fertilizer, farm chemicals, and tractors at their international opportunity cost, but also abstaining from protecting, through trade barriers, domestic industries that may never become competitive, yet bid inputs away from agriculture. With the increasing adoption of new agricultural technology, especially high-yielding seed varieties, the use of complementary inputs becomes more essential. To deny or restrict their use by a discriminatory pricing policy has a proportionately larger negative effect
on agricultural output than when traditional seed varieties were grown.

To optimize resource allocation across sectors, it is also apparent that different sectors need to be treated more equitably. Implicit taxation of agriculture and implicit or explicit subsidies for manufacturing and agroprocessing need to be minimized, if not eliminated. A realistic exchange rate policy must also be in force. The implicit taxation of agriculture through an overvalued exchange rate appears to be the single most powerful disincentive to agriculture in the five developing countries examined. Farmers need incentives to adopt new technology and to expand production. Pricing policies that reflect international opportunity costs provide the best guide to resource allocation and investment decision. In short, more outward-looking and open policies are required.

Establishing such an environment on the basis of the status quo requires a strong national commitment and broad agreement on common goals. In most cases, the compartmentalized policymaking structure within various ministries is inappropriate for solving such complex and interlocking problems. A strong centralized office able to orchestrate the coordination of policies and to achieve the cooperation of competing ministries is needed.

Bibliography


Marketing and Price Incentives in African and Asian Countries: A Comparison

Raisuddin Ahmed and Narendra Rustagi

Agriculture in developing market economies is generally organized on the basis of private ownership. The economic environment of farmers operating in these market economies is believed to exert significant influence on the efficiency of resource utilization and the pace of growth in production. The prices of outputs and inputs are generally the principal focus of price policies that are consciously adopted to create a favorable economic environment. The emphasis on prices is understandable. Given a fixed volume of marketing and no other changes, a rise in the prices of output would increase profit directly and proportionately, and a rise in the prices of inputs would similarly decrease profit by a proportion depending on the weight of the input on the cost of production.

Introduction

An incentive mechanism operating through profit motivation is, however, not limited to traditional pricing policies based on macroeconomic instruments for changing output prices (for example, controlling trade and exchange rate policies). Quite a number of other factors exist—sometimes termed nonprice factors—that very effectively influence farm profitability, resource allocation, and production levels. Technological progress, which implies a declining cost of production per unit of output, enhances profit if prices are not proportionately depressed by the supply effects of technological progress. Efficiency of marketing institutions, including infrastructural facilities, determine the extent of price differences between consumers and producers at one or different periods of time and therefore influence farm-level incentives. Farming systems that determine the relation of reward to factors of production with the institutional arrangement can also affect producers’ incentives.

This chapter examines the domestic marketing institutions and their influences on the prices received by producers and paid by consumers in various developing countries. Specifically, spatial price spreads, intertemporal price gaps, and regional price differences in selected African and Asian countries are measured and compared. The chapter also attempts to identify the underlying causal factors for these differences, which then form the focus of corrective policies.

Backgrounds of the Selected Countries

Any study involving comparative analysis requires a precaution against drawing lessons from an inappropriate comparison. If countries are in different stages of economic development, then a comparison of certain economic performances among such countries could cause the wrong causal factors to be identified. Similarly, if a country possesses some unusual characteristics that could influence a comparative analysis, such factors need to be considered in drawing conclusions based on intercountry comparisons. To be aware of, if not to mitigate concerns related to, these two conditions, some background information on the countries selected for the study is presented.

Five countries from Africa and four countries from Asia are covered in the study. Of the African countries, Kenya, Tanzania, and Malawi represent East Africa; Nigeria represents West Africa; and the Sudan represents North Africa. Of the four Asian countries, two are from South Asia (India and Bangladesh), and two are from Southeast Asia (Indonesia and the Philippines). These countries were selected because of the diversity in the operation of their market forces and the availability of data. Although the lack of necessary data was a serious constraint in carrying
out the study to its required depth, the reliability of African data is a far more serious problem than its availability.

Some relevant country indicators are presented in Table 11-1. Agricultural gross domestic product (GDP) constitutes only a quarter of total GDP in Nigeria and Indonesia because oil revenues dominate the national income of these two countries. Bangladesh and Tanzania, however, represent economies with more than half of their GDP originating in agriculture. In the rest of the countries agriculture contributed 30 to 40 percent to GDP in 1981. In general, the African countries appear to depend somewhat more on external trade than the Asian countries. Proportions of exports and imports in GDP appear to be higher in Africa than in Asia. As is well known, land-labor ratios are higher in Africa than in Asia. Indonesia and the Philippines represent the fastest growing agricultural sectors in Asia, and Kenya, Tanzania, and Malawi represent the same among the selected African countries. Nigeria is the only country with a negative growth rate in agriculture. Among the selected countries, the 3.0 percent population growth rate in African countries is higher than Asia’s 2.3 percent.

The structure of agricultural organizations is also quite different for the two continents, at least with respect to the dichotomy of large and small farms. In the Asian countries family farms vary widely in size and include some that produce for markets and some only for home consumption. Comparable farms in African would be classified as small. In addition, African agriculture includes a large proportion of estate farms or large-scale mechanized farms that are owned and operated by the public or private sectors. The production and marketing of agricultural products under estates or large farms is substantively different from smallholder agriculture. Malawi, in particular, follows a strategy for faster growth in agricultural production through investments in large-scale farming, but this involves a substantial cost to smallholder agriculture. In general the Sudan and Nigeria practice a more liberal approach to private trade than the countries of East Africa. Similarly, in the Asian countries private trade participates more vigorously in domestic marketing than in the African countries. The marketing arrangement in each study country is briefly discussed below.

**Kenya**

The major commodities produced in Kenya are maize, wheat, beans, coffee, tea, cashews, and sugarcane. Parastatal organizations buy, transport, and sell the foodgrains and export crops. These organizations originated in the marketing policies developed by European producers to exclude African producers and traders from export markets. The National Cereal and Produce Board controls the marketing of most cereals as a public monopolist, and private trade is illegal. This monopolistic position is further enforced for maize, for example, by restrictions on movements of grain between surplus and deficit districts. Although these restrictions have been recently relaxed to some extent, the practice has not been completely abandoned. Nevertheless there is a thriving illegal parallel market, particularly in the primary level. About 60 percent of the maize marketed by smallholders on the primary market level is handled by private traders in the informal parallel market. The legal public monopoly in marketing and the associated restrictions impose implicit transaction costs for farmers, which, if they could be accommodated in the estimated real prices, would show that the real prices received by farmers are lower than the announced prices.

**Tanzania**

The main crops in Tanzania are maize, wheat, paddy (rice), coffee, cashews, cotton, and sisal. In the past private trade was banned, and marketing was controlled by cooperatives or by parastatals. Cooperative marketing was a populist movement that became the backbone of the struggle for independence in the 1950s. After independence the cooperatives expanded from 172 in 1952 to more than 2,500 in 1974 because of direct government intervention. They were dissolved in 1976.

As early as 1966, the government realized that the marketing costs of the cooperatives were increasing and that the cooperatives were unable to contain these losses. In 1969 the Ministry of Agriculture observed that the cooperative marketing services employed excess resources, particularly labor; paid excess rates for service; and lost produce in handling, storage, and transit.

To reverse this trend, the entire marketing function was turned over to public parastatals. These marketing parastatals were to purchase agricultural products directly from villages and transport, process, store, and sell such products to urban consumers. Costs continued to rise, however, because parastatals suffered from mismanagement and operational losses. In response to the growing awareness of the operational deficiencies of parastatals, a commission to investigate the possibility of reinstating cooperatives was appointed in 1980. It strongly recommended reestablishment, therefore preparations and planning for a transition from the crop authorities were undertaken. Legislation approving the reformation of cooperatives was introduced in 1982 and executed.

**Malawi**

The main commodities produced in Malawi are tobacco, groundnuts, maize, and cotton. The Agricultural Development and Marketing Corporation (ADMARC), a parastatal, plays a significant role in both marketing smallholder produce and supplying inputs. Smallholder produce is marketed through ADMARC; the private traders, which includes small dealers; and the Farmers Trading Company, a pri-
<table>
<thead>
<tr>
<th>Country</th>
<th>Percent of GDP (1977)</th>
<th>Exports (2)</th>
<th>Adult literacy (percent) (3)</th>
<th>Total area under cultivation (thousands of hectares) (4)</th>
<th>Area under irrigated cultivation (thousands of hectares) (5)</th>
<th>Population, 1981 (persons per square kilometer) (7)</th>
<th>Share of Agricultural GDP (percent) (13)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kenya</td>
<td>34.0</td>
<td>32.1</td>
<td>50</td>
<td>58,265</td>
<td>2,275</td>
<td>17,148</td>
<td>8.86 (1979)</td>
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<tr>
<td>Malawi</td>
<td>35.6</td>
<td>26.3</td>
<td>28</td>
<td>11,848</td>
<td>2,320</td>
<td>6,369</td>
<td>9.76 (1980)</td>
</tr>
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<td>Nigeria</td>
<td>26.6</td>
<td>30.2</td>
<td>30</td>
<td>92,377</td>
<td>30,385</td>
<td>79,680</td>
<td>12.6 (1980)</td>
</tr>
<tr>
<td>Sudan</td>
<td>20.9</td>
<td>12.8</td>
<td>20</td>
<td>250,581</td>
<td>12,417</td>
<td>18,901</td>
<td>7.54 (1981)</td>
</tr>
<tr>
<td>Tanzania</td>
<td>27.7</td>
<td>20.6</td>
<td>66</td>
<td>94,509</td>
<td>5,160</td>
<td>18,510</td>
<td>5.06 (1977)</td>
</tr>
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<td>Bangladesh</td>
<td>14.5</td>
<td>5.8</td>
<td>26</td>
<td>14,400</td>
<td>9,089</td>
<td>25,701</td>
<td>6.31 (1977)</td>
</tr>
<tr>
<td>India</td>
<td>6.1</td>
<td>5.3</td>
<td>36</td>
<td>328,759</td>
<td>164,960</td>
<td>697,974</td>
<td>56.65 (1980)</td>
</tr>
<tr>
<td>Indonesia</td>
<td>19.9</td>
<td>21.7</td>
<td>62</td>
<td>190,435</td>
<td>18,047</td>
<td>150,520</td>
<td>8.50 (1978)</td>
</tr>
<tr>
<td>Philippines</td>
<td>22.5</td>
<td>19.3</td>
<td>75</td>
<td>30,000</td>
<td>9,920</td>
<td>50,525</td>
<td>42.64 (1981)</td>
</tr>
</tbody>
</table>

Private organization. ADMARC also decides on the prices of inputs and outputs, which are announced before the cropping season. The policy of panseasonal and panterritorial pricing is followed. The Grain and Milling Company is another parastatal half-owned by ADMARC. It obtains maize from ADMARC or directly from estates, it imports wheat, and it sells maize meal and wheat flour to wholesalers licensed by ADMARC.

ADMARC purchases all marketable cotton and tobacco grown on customary land or public land. It has the sole right to wholesale small farmers' products and to import and export all grains. Private traders are allowed to operate under licenses from ADMARC and to assemble grain in certain areas.

Sudan

The main commodities produced in the Sudan are cotton, sorghum, groundnuts, wheat, and sesame. In the Sudan more than 98 percent of the total cotton area is managed by the public sector. The cotton trade was nationalized in 1971, reportedly to maintain reasonable price levels by protecting tenants from the devastating effects of foreign traders and to establish a strong government body able to survey cotton markets and explore new outlets for Sudanese cotton as well as to maintain traditional ones.

Wheat imports are controlled by the government; the government also procures wheat from producers in publicly managed irrigation projects. Private traders market mainly smallholder wheat produced in the north. Publicly procured wheat is distributed in urban areas through private millers and bakers at prices fixed by the government. All other crops, including imports, are generally marketed by private traders.

Nigeria

The main food crops grown in Nigeria are maize, rice, millet, and cow peas; palm oil, rubber, cocoa, groundnuts, cotton, and hides are its major exports. Important food crops are marketed through private trade and public marketing boards. The Grain Marketing Board has gradually been reducing its activities, and in 1983–84 the Board bought no grain at all at the producer price. In contrast, the Cotton Board buys 100 percent of the seed cotton crop, which is now consumed entirely by domestic manufacturers; the Cocoa and Palm Produce Board buys nearly 100 percent of the cocoa and palm kernel crops for export; and the Rubber Board buys about 60 percent of the rubber crop, also for export.

India

Wheat, rice, cotton, jute, oilseeds, pulses, and sugarcane are the main crops grown in India. Indian exports and imports of foodgrains are conducted exclusively under public management. In domestic markets private trade in foodgrains is allowed; a short experiment in nationalizing the wholesale trade in foodgrains was attempted and abandoned in 1973–74. India has occasionally restricted the movement of foodgrains across states and sometimes district boundaries. Private trade operates with few restrictive and regulatory measures in domestic and external trades in nonfoodgrain agricultural products.

The principal institutional agency through which food procurement and distribution policies are implemented is the Food Corporation of India (FCI). It handles all purchases, storage, and distribution operations on behalf of the central government and some of the state governments as well. In addition some states have food and civil supplies corporations or cooperative marketing agencies, which make purchases and sales on their behalf. The FCI distributes foodgrains through ration shops and fair price shops run by state governments. Sometimes the FCI releases supplies through private trade to arrest a rising open market price. Procurement from farmers is handled through both direct purchase from farmers and indirect purchase from private agents.

Bangladesh

Rice and jute are the two main agricultural products of Bangladesh. The structure of agricultural markets, including public marketing arrangements in Bangladesh, is similar to that of India. The government holds a monopoly on external trade in foodgrains, and private trade operates freely in conjunction with public procurement and distribution of foodgrains. However, the government is now playing a larger role in stabilizing prices in the free market by selling foodgrains on the open market. The government supports the price of rice through a network of purchasing centers throughout the country and licensed private agents, who are also private grain traders. Foodgrains are distributed through a rationing system primarily in urban centers. The marketing of jute is also dominated by private trade, although a publicly operated corporation buys and sells jute in the domestic and export markets.

Indonesia

Foodgrains are marketed in Indonesia also through a mixture of private trade and public system, where public policies dominate the conduct of private trade. The Indonesian government marketing agency, BULOG, imports all foodgrains, procures foodgrains from farmers to support prices, and stores and distributes grains to consumers through open market sales. Private trade is encouraged in all tiers of domestic trade. For example, when BULOG purchases paddy in remote rural areas where it has no storage facilities, it transfers such purchased grain to private trade for transport and delivery to BULOG's main storage facili-
ties. Similarly, milling of paddy by private millers and sale of grains at retail, wholesale, and primary markets are encouraged within a carefully delineated range of prices maintained by BULOG.

**Philippines**

Like the other Asian countries in this study, private trade plays a major role in food grain marketing in the Philippines—perhaps an even more dominant role than in the others. The National Food Authority is the public agency for market intervention. It has an exclusive monopoly in the export and import of foodgrains. This marketing body operates in the domestic market by procuring foodgrains from farmers at a support price and selling foodgrains to consumers at the open market to maintain a ceiling price. Foodgrains are often procured and sold through private traders working as agents of the public marketing agency.

**The Analytical Framework**

**Market Structure and Prices**

Market analyses include identification of appropriate prices and underlying factors that cause differences in prices across space and time and between producers and consumers. Marketing functions in agricultural commodities begin on farms and in villages. The village market is the primary conduit for delivering products from farmers to higher-level distributors, processors, and consumers. Wholesalers generally establish their shops around towns and large cities that are connected by infrastructural facilities. They buy products from intermediate traders and millers, as well as through agents who procure commodities from primary markets. Wholesalers in turn sell to retailers, who distribute products to consumers. Wholesalers also sell to exporters or export directly to foreign markets. Thus there are generally many market places and marketing channels in a country.

Consequently, there are many prices and marketing margins for an agricultural product in a country. Averages of prices or margins that provide the principal variables for price policy analysis must properly reflect the diversities in weights and quality of products. Thus, usually it is the weighted average rather than the arithmetic average price that should be used in price and marketing analyses. Failure to pick up appropriate average prices or average marketing margins may produce erroneous conclusions. For example, in an exercise to estimate demand and production elasticities of fertilizers from time series data for 1965-78 in Bangladesh, an econometric model generated an insignificant price coefficient with an improper sign when simple average prices of rice were included as an explanatory variable. When an average price weighted for different varieties and for different regions instead of a simple average was used in the model, the proper sign for the price coefficient emerged and the coefficient was highly significant. (Ahmed 1980). Similarly, there are fifty to sixty wholesale markets for rice in Bangladesh with the margins between farms and wholesale markets ranging from 5 to 35 percent of wholesale prices. A border price based on a marketing margin related to one marketing channel (as is the current practice in that country) may thus be incorrect.

The nature of competition in various market places and marketing channels is also an important determinant of prices. Markets must be integrated for a valid aggregation of demand and supply schedules commonly used in price policy analysis. When trade links exist between markets, the differences in prices among them are generally explained by the marketing costs, which may consist of transport costs; processing costs, if the commodity at the farmgate differs in form from the commodity obtained by consumers; government taxes; the profit margin of market functionaries; and the transaction cost, including any risk premiums.

Differences in transport costs, particularly among countries, are explained by the differences in infrastructure and the distances of market points. The profit margin of traders could be larger than normal if the market is not competitive. If the market is competitive, the transport cost and normal profit will always fully account for price differences.

When various markets are not well integrated, and thus there are no trade links among markets, price spreads recorded among such market points can be much larger than the traditional estimates of marketing margins that represent only points where trade links are operative. Price spreads and marketing margin statistics can therefore be expected to exhibit different patterns in Asia than in Africa, primarily because of differences in infrastructure but also because of trade practices.

Seasonal differences in prices are considered to be a function of storage costs (costs of physical storage and interest costs on working capital) and the profits of traders in the storage business. Since storage involves uncertain future prices in relation to present prices, some element of risk is involved in trade. Traders may lose in one year and gain in another, but over the years an average number would earn a normal profit if the market were competitive. Similarly, in a cross-section of traders, some would lose while others would make a profit; the average would tend to show normal profit in a competitive market. The degree of competition is therefore a crucial factor, and the profit margin is an indicator of competitiveness.

Public marketing and administrative pricing greatly influence price developments. If public marketing is only partially effective because of inadequate budgets and if there are movement and trade restrictions on private marketing, differences in regional, seasonal, and producer-consumer prices could be much greater than what could be explained by marketing costs. Moreover, public trade
could be costlier than private trade, and, if the government passes this increased cost on to producers and consumers, the price spread could be unduly large. Public trade would tend to substitute for private trade if this action on pricing reduces regional and seasonal price differences to the extent that private trade finds this price difference too low to move and store products. If public trade is effectively supported by an unlimited budget to subsidize marketing costs, however, the government could largely reduce the gap between producer and consumer prices and between regional and seasonal prices, to the benefit of producers and consumers alike.¹

**Prices and Margins Analyzed in This Report**

Producer prices in the report generally relate to prices at a primary market or to farmgate prices. The producer price could be a market price or an administered price determined by government. Most producer prices used in this study are market prices except for a few East African countries in which public monopoly precludes a free market price. If a parallel market price was available and considered, however, it was reflected in the average. At the terminal markets there are retail prices for domestic consumers and export prices for foreign consumers (on an f.o.b. basis). Administered prices at the retail level (such as ration prices) are not considered in any estimate of price spreads.

Quality, particularly as it relates to processing, was examined before a price statistic was used in the analysis. For example, farm prices are often for paddy, but retail prices are for cleaned rice. In comparing retail and producer prices of rice in this example, the rice price equivalent of the paddy price was estimated by using a conversion factor and milling cost.

The estimates of the marketing margin and regional and seasonal price spreads, as presented in this study, represent central tendencies or averages for a country. Proportions of marketings in various regions or markets were used as weights in such a procedure. This procedure was not followed systematically in all cases, however, because often the necessary data were not available.

**Spatial Spreads in Prices**

Two categories of spatial prices are considered. Price spreads between the producer and consumer ends of a product market represent a category in which the market margin is equivalent to the spread in prices at the two ends. The other category of spatial spreads reflects the differences in prices at various regional markets at a particular time. This second category of price spreads may include differences that go beyond the explanations provided by the marketing margin. The marketing margin and spatial price spreads are the same where the two price points are integrated by a functioning market or trade link. A spatial price spread could represent a price difference between two points having no functioning trade link between them. This is what is known as a nonintegrated market. Therefore the regional price spreads in some respects indicate the lack of market integration when compared with marketing margins.

The two types of spatial spreads in prices in foodgrain markets of the nine countries are presented in Table 11-2 and Figure 11-1. The statistics in the table as well as their graphic representation clearly show that farmers in Africa receive a smaller proportion of the price paid by final users of marketed foodgrains than do farmers in Asia. In general the average producer prices expressed as a percent of terminal market prices in the Asian countries vary from 75 to 90 percent; the comparable figures for Africa range from 30 to 60 percent. Farmers in Africa receive a share of the final value of a foodgrain product that is almost half of the share received by their Asian counterparts. The shares received by farmers also vary by commodity. For example, in African countries rice offers a relatively large share of final value to producers compared with other foodgrains. This is primarily because the production of rice in most African countries is concentrated in specific locations, which means that marketing of rice is not as costly as for foodgrains that are scattered geographically. But the differences in the shares received by producers among countries of a region are moderate although this difference is sharper among African than Asian countries. Farmers in Nigeria and the Sudan, the West and North African countries, appear to share about 55 to 60 percent of the price paid by final users of foodgrains, whereas farmers of Malawi, Kenya, and Tanzania, the East African countries, received only about 35 to 50 percent of the price paid by consumers.

The regional price differences within each country are again larger in Africa than in Asia (Table 11-2 and Figure 11-2). On average, regional prices of foodgrains in Africa differ from one another by a multiple of two to three (that is, the low price in one region could be only a third or a half the amount of the high price at another region).² One important aspect of price spreads is that the absolute size of the regional price spread is significantly larger than the marketing margin (the producer-consumer price spread) in Africa. This implies that many markets may not be linked with one another in African countries because of high transport costs resulting from poorer transport and communication infrastructure or government restrictions. In the Asian countries the regional price spreads are quite close to the marketing margins, which indicates that the markets scattered over various regions are probably well integrated with one another. Although it is quite conventional to derive a conclusion on market integration from a set of data as is done here, the conventional practice of using correlation among prices as a measure of

<table>
<thead>
<tr>
<th>Country</th>
<th>Commodity</th>
<th>Weights (by production)</th>
<th>Regional spread (^a) (percent)</th>
<th>Weighted average</th>
<th>Producer-consumer price spread (^b) (percent)</th>
<th>Weighted average</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kenya</td>
<td>Maize</td>
<td>30.0</td>
<td>30.0</td>
<td>42.0</td>
<td>42.0</td>
<td></td>
</tr>
<tr>
<td>Malawi</td>
<td>Maize</td>
<td>21.9</td>
<td>31.2</td>
<td>48.2</td>
<td>49.6</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Rice</td>
<td>21</td>
<td>68.2</td>
<td>55.1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nigeria</td>
<td>Maize</td>
<td>14</td>
<td>35.6</td>
<td>54.5</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Rice</td>
<td>6</td>
<td>72.9</td>
<td>57.0</td>
<td>58.9</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Sorghum</td>
<td>80</td>
<td>45.9</td>
<td>59.8</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sudan</td>
<td>Sorghum</td>
<td>92</td>
<td>48.2</td>
<td>61.2</td>
<td>61.2</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Wheat</td>
<td>81</td>
<td>52.1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tanzania</td>
<td>Maize</td>
<td>76</td>
<td>25.7</td>
<td>38.2</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Rice</td>
<td>10</td>
<td>61.3</td>
<td>56.6</td>
<td>41.4</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Sorghum</td>
<td>14</td>
<td>35.5</td>
<td></td>
<td>48.1</td>
<td></td>
</tr>
<tr>
<td>Bangladesh</td>
<td>Rice</td>
<td>76</td>
<td>75.0</td>
<td>79.0</td>
<td>79.0</td>
<td></td>
</tr>
<tr>
<td>India</td>
<td>Rice</td>
<td>54</td>
<td>69.8</td>
<td>82.0</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Wheat</td>
<td>38</td>
<td>65.9</td>
<td>79.5</td>
<td>81.0</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Sorghum</td>
<td>8</td>
<td>63.5</td>
<td>80.0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Indonesia</td>
<td>Rice</td>
<td>76</td>
<td>71.9</td>
<td>84.0</td>
<td>84.0</td>
<td></td>
</tr>
<tr>
<td>Philippines</td>
<td>Rice</td>
<td>70</td>
<td>82.7</td>
<td>87.0</td>
<td>82.4</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Maize</td>
<td>30</td>
<td>64.2</td>
<td>77.3</td>
<td>71.5</td>
<td></td>
</tr>
</tbody>
</table>

\(^a\) Regional spread = \(\frac{\text{lowest price}}{\text{highest price}}\) \times 100

\(^b\) Producer-consumer price spread = \(\frac{\text{producer price}}{\text{terminal market price}}\) \times 100

*Source*: Constructed from secondary sources listed in the References.
integration is often unreliable. The issue of market integration and price transmission will be taken up later.

**Seasonal Spreads in Prices**

There are generally two types of variations in agricultural prices: the annual variations (price fluctuations between years) and the seasonal variations (within a year). The seasonal variations are examined here. The average spreads in seasonal prices (measured by the lowest price as a percentage of the highest price) for selected countries and commodities are shown in Table 11-3 and Figure 11-3. As with regional price differences and marketing margins, the spread in seasonal prices is also wider in the African countries than in the Asian. But the difference between the two groups is smaller for seasonal prices than for either the regional prices or the producer-consumer price margins. The causal factors for the spatial and seasonal price spreads are examined later.

**Finding the Differences in Price Spreads and Their Implications for Policy**

Although the previous analysis suffers from a general deficiency of data, some useful conclusions about the major causal factors and implications for policy may be drawn from a broad comparative analysis. As indicated in

**Table 11-3. Spreads in Seasonal Prices in Selected African and Asian Countries, 1975-80**

<table>
<thead>
<tr>
<th>Country</th>
<th>Commodity</th>
<th>Seasonal price spreads (lowest price as a percentage of the highest price)</th>
<th>Weighted average price for cereals</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kenya</td>
<td>Maize</td>
<td>49</td>
<td>49</td>
</tr>
<tr>
<td>Malawi</td>
<td>Maize</td>
<td>55</td>
<td>56</td>
</tr>
<tr>
<td></td>
<td>Rice</td>
<td>60</td>
<td></td>
</tr>
<tr>
<td>Nigeria</td>
<td>Maize</td>
<td>70</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Rice</td>
<td>68</td>
<td>71</td>
</tr>
<tr>
<td></td>
<td>Sorghum</td>
<td>72</td>
<td></td>
</tr>
<tr>
<td>Sudan</td>
<td>Sorghum</td>
<td>51</td>
<td>53</td>
</tr>
<tr>
<td></td>
<td>Wheat</td>
<td>71</td>
<td></td>
</tr>
<tr>
<td>Tanzania</td>
<td>Maize</td>
<td>51</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Rice</td>
<td>56</td>
<td>51</td>
</tr>
<tr>
<td></td>
<td>Sorghum</td>
<td>50</td>
<td></td>
</tr>
<tr>
<td>Bangladesh</td>
<td>Rice</td>
<td>74</td>
<td>74</td>
</tr>
<tr>
<td>India</td>
<td>Rice</td>
<td>81</td>
<td>80</td>
</tr>
<tr>
<td></td>
<td>Wheat</td>
<td>78</td>
<td></td>
</tr>
<tr>
<td>Indonesia</td>
<td>Rice</td>
<td>87</td>
<td>87</td>
</tr>
<tr>
<td>Philippines</td>
<td>Rice</td>
<td>82</td>
<td>81</td>
</tr>
<tr>
<td></td>
<td>Corn</td>
<td>78</td>
<td></td>
</tr>
</tbody>
</table>

Source: Constructed from secondary materials listed in the References.

the beginning, the differences in price spreads between two points in different countries that have an active trade link can be explained by the following marketing costs: transport costs for spatial spreads or storage costs (including interest on working capital) for seasonal spreads; taxes; other transaction costs, if any; any loss in weight during transport or storage; and profit (as a residual of prices after meeting costs).

**Taxes and Profit Margins**

Taxes on foodgrains vary from 3 to 10 percent of price in the African countries and from 2 to 5 percent in the Asian countries. Unlike export or cash crops, foodgrains in most countries are not taxed at the point of the external trader. Most of these taxes are internal local taxes. Loss in weight during storage or transport is probably not much different in the two regions. Similarly, differences in the profit margin realized by trading agencies are probably not substantially different between the countries of Africa and Asia. Information on the amount of profit in the marketing margin is scanty for the African countries, however. A few studies in Kenya, Malawi, and Nigeria indicate above-normal profits in maize trading only in certain segments of the marketing channels and in certain geographical regions that are primarily disadvantaged by unusually poor infrastructure. Even in these cases profits were not more than 20 to 30 percent of price, and it was not clear that such profits could be sustained in all years; a normal rate of profit in trade of agricultural products in South
Asia is generally believed to be about 15 to 20 percent of price. Therefore differences in trade profits explain only a small part of the differences in price spreads between the selected countries of Africa and Asia. Thus only transport (or storage) costs and other transaction costs involved in the marketing channel remain to explain most of the differences in spatial and seasonal prices between the African and Asian countries. These are both directly related to the level of infrastructural development and the nature of public intervention in marketing.

**Marketing and Infrastructure**

The more sparse populations of most African countries (15 to 30 persons per square kilometer) compared with that in most Asian countries (500 to 750 persons per square kilometer) and the more underdeveloped state of the general infrastructural facilities in Africa compared with that in Asia imply a higher marketing cost and general backwardness of agricultural marketing in Africa. Although every country may have special needs for transport and communication facilities, a good road network is generally required to move goods and people in most countries. The extent of road networks in the nine countries is shown in Table 11-4. The African countries have developed road networks to a density of 0.01 to 0.11 kilometers per square kilometer of land area compared with 0.30 to 0.45 kilometers of road per square kilometer of land area in the Asian. Moreover only about 10 percent of the roads in Africa are paved compared with about 35 percent in Asia. In terms of railways and river transports, Asian countries are also better off. The wider dispersion of dirt roads. Port and communication facilities, a good road network is generally required to move goods and people in most countries. The extent of road networks in the nine countries is shown in Table 11-4. The African countries have developed road networks to a density of 0.01 to 0.11 kilometers per square kilometer of land area compared with 0.30 to 0.45 kilometers of road per square kilometer of land area in the Asian. Moreover only about 10 percent of the roads in Africa are paved compared with about 35 percent in Asia. In terms of railways and river transports, Asian countries are also better off. The wider dispersion of production centers and the longer distances to be covered in shipping agricultural products in Africa compared with Asia imply certain modes of transport and costs of marketing.

Generally speaking, goods in the primary markets in Africa are collected through head loads, donkeys, bicycles, and, to a lesser extent, animal-drawn carts, whereas head loads, animal carts, boats, rickshaws, buses, and pickup trucks are the modes of transport in the primary markets in Asia. Transport between regions and markets is provided primarily by trucks and railways in Africa; in Asia, motorized river vehicles, boats, various types of pickups, and even animal-drawn carts also perform such transport services. The diverse modes of transport in Asia have made Asian marketing costs not only cheaper but also less import intensive. The import content of marketing costs in Kenya and Tanzania is about 50 percent compared with an estimated average import intensity of only 17 percent in Indonesia and Bangladesh.

Case studies as well as economic logic indicate that small-scale transport has considerable economic advantage over shorter distances, whereas large-scale transport is more economical over longer distances. To realize economies of scale from large-scale transport, however, an adequate volume of goods must use such a transport system. It has been argued that African countries generate a smaller volume of marketable surplus in foodgrains compared with Asian countries and that therefore the economies of scale that reduce marketing costs in transport cannot be exploited as effectively in Africa.

The statistics on marketable surplus of foodgrains in the selected African and Asian countries in Table 11-5 do not indicate that the marketable surplus is smaller in Africa than in Asia. In fact the data tend to show the opposite. The sharper dualism in African agriculture compared with Asian has its implications for marketing costs, however. In most African countries large mechanized farms (including estate farms and state farms) operate side by side with small peasant farms. The marketable surplus in the large farms is very high (about 70 to 75 percent), while peasant farms generate a small marketable surplus (about 10 to 20 percent). Large farming sectors generally have their own means of transport for delivering products directly to secondary or terminal markets, and thus they receive a higher market price than is possible for peasants, who hire transport services only occasionally. For the residual peasant sector the transport services become thinner than would be the case with a system in which the large-scale and peasant sectors combine to provide marketing services, as in Asia.

In Asia there is less dualism in production and marketing. This structural difference, as well as differences in some marketing policies between Asia and Africa have contributed to a larger degree of specialization in transport services in the former than in the latter. Thus in many African countries truck owners combine transport provi-

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**Table 11-4. Road Network in Selected African and Asian Countries and the United States, 1976-78**

<table>
<thead>
<tr>
<th>Country</th>
<th>Density of total road networka (kilometer per square kilometer of area)</th>
<th>Percentage of paved road</th>
</tr>
</thead>
<tbody>
<tr>
<td>Botswana</td>
<td>0.02</td>
<td>9.5</td>
</tr>
<tr>
<td>Congo</td>
<td>0.02</td>
<td>6.5</td>
</tr>
<tr>
<td>Ethiopia</td>
<td>0.03</td>
<td>28.0</td>
</tr>
<tr>
<td>Kenya</td>
<td>0.09</td>
<td>9.7</td>
</tr>
<tr>
<td>Malawi</td>
<td>0.05</td>
<td>12.2</td>
</tr>
<tr>
<td>Mali</td>
<td>0.01</td>
<td>11.1</td>
</tr>
<tr>
<td>Nigeria</td>
<td>0.11</td>
<td>40.2</td>
</tr>
<tr>
<td>Senegal</td>
<td>0.07</td>
<td>23.0</td>
</tr>
<tr>
<td>Upper Volta</td>
<td>0.06</td>
<td>5.1</td>
</tr>
<tr>
<td>Zaire</td>
<td>0.06</td>
<td>1.5</td>
</tr>
<tr>
<td>Zambia</td>
<td>0.05</td>
<td>13.0</td>
</tr>
<tr>
<td>Bangladesh</td>
<td>0.35</td>
<td>32.0</td>
</tr>
<tr>
<td>India</td>
<td>0.41</td>
<td>38.8</td>
</tr>
<tr>
<td>Indonesia (Java)</td>
<td>0.41</td>
<td>37.2</td>
</tr>
<tr>
<td>United States</td>
<td>0.67</td>
<td>85.0</td>
</tr>
</tbody>
</table>

a. A road network includes primary highways, secondary roads, and dirt roads.

Source: International Road Federation (1980).
marketing structures, as reflected in the operation of public marketing and private trade, must also play a significant role in explaining the difference in the marketing margin of foodgrains between the countries of Africa and Asia.

### Public Intervention and Marketing Costs

As described earlier, public intervention in foodgrain marketing is widespread in all countries, but there is a significant difference between Asia and Africa, particularly East Africa. In the selected Asian countries private trade is not only allowed to operate side by side with public trade but is also encouraged through various market development activities. Western Africa (Nigeria and the Sudan) closely resembles Asia in foodgrain marketing. Private trade is allowed to operate in both countries with minimal hindrance, although market development assistance to private trade is quite insignificant in these countries compared with that in their Asian counterparts. In contrast, East African countries are well known for their restrictive measures against private trade through public monopolies in foodgrains.

Public marketing affects the overall marketing margin both directly and indirectly. The direct effects arise from the relative inefficiency of government marketing compared with private trade and the inadequacy of public resources to support public marketing. The difference in efficiency between public and private marketing (high public marketing costs) may not be shifted directly to producers and consumers if the government has adequate resources to take the burden on itself, as in Indonesia. But this is not generally possible for most developing countries. Data on marketing costs in public parastatals are difficult to obtain; nevertheless, it is widely known that such costs are generally much higher than comparable costs in private trade. Labor cost is the largest component of marketing cost. A high proportion of the labor costs in parastatals is for formally educated employees. In private trade most workers and managers acquire on-the-job skills without much formal education. Thus a marketing study in Kenya indicates that most of the traders in the primary market are illiterate (Schmidt 1979). In the secondary markets about 16 percent are illiterate, and about 70 percent have studied up to the levels between the fourth and eighth grades. The salary scales for the same level of skill could be higher in private enterprise than in public organizations, but the effect of economizing on the use of formal skills would make private trade less expensive than public trade because of labor costs. Skilled labor is more scarce in Africa than in Asia. Moreover, wage rates are generally two to five times higher in Africa, even though average labor productivity is lower.

The indirect effect of public intervention on spatial price spreads, including producer-consumer price differences, is considered to be larger than the direct effect. These indi-
rect effects can be traced to a variety of reasons related to public operation in foodgrain marketing.

Numerous and diverse transaction costs are imposed on traders and farmers by public marketing and trade controls in the domestic channels. These costs generally originate from rules, regulations, and the practices of public agents. Public marketing often operates within an environment of licensing and prohibition of private trade. Getting a license or avoiding a prohibition involves considerable explicit and implicit costs. Although systematic studies of transaction costs are rare, some marketing studies in eastern Africa indicate that transaction costs necessary to overcome trade restrictions and get legal protection are as high as 15 to 20 percent of the marketing margin. Restrictions on marketing make it difficult for private trade to benefit from economies of scale. Instead of using trucks or railways for transport, traders use buses or small taxis to avoid movement restrictions. If public marketing is involved in any part of the marketing channel, the practice of payment by checks to farmers and traders and the arbitrary assessment of product quality generally result in considerable transaction costs for farmers and traders.

Empirical evidence of the relative efficiencies of public and private trade are rare, although public trade is widely believed to be costlier. Prudencio compared the free trade of Benin with the marketing monopoly of the Nigerian marketing board for palm oil and found that the cost differences in the two systems are such that farmers receive 11 percent less for palm oil in Nigeria than in Benin. A study in Kenya also indicates that storage and interregional marketing costs are 15 to 25 percent higher in public than in private trade (Schmidt 1979).

A large amount of diverse and scattered information was used to assess the contribution of various causal factors (including the effect of public trade) in the overall difference in marketing costs between the nine African and Asian countries. Because of the nature of the data, the results, shown in Table 11-6, can be considered only indicative, although the indications are believed to be close to reality.

The figures in the table clearly point out that differences in transport and associated costs constitute the largest cause of the different marketing margins between Africa and Asia. Nevertheless the share of residual transaction costs associated with the indirect consequences of public trade and the small but significant tax component in the different marketing margin together represent a proportion almost as large as transport.

### Policy Implications

The policy implications of the decomposition analysis of the marketing margin are quite clear. Improving infrastructural facilities could greatly increase incentives for both producers and consumers. A second major area needing improvement is public policies in agricultural marketing. Although most improvements in infrastructure take a long time, reforms in public marketing policies can produce results in a relatively short time in Africa.

A strategy of infrastructural development that gives priority to areas in which actual or potential growth in production is large is an obvious policy choice. To some extent a sharply dualistic agricultural sector has exerted a natural influence in some African countries, so that infrastructural development has been concentrated primarily in areas in which production is concentrated. Thus Sudanese agriculture is dominated by several irrigation projects (including Gezira) and mechanized rainfed agriculture in areas in which most of the Sudan's infrastructural investment has occurred. This strategy has resulted in a low marketing cost for agricultural produce grown in these areas. The marketing cost of cotton in Gezira is only about 12 percent of the cotton price at Port Sudan. Similarly, Malawi has been pursuing an agricultural production strategy focused on large-scale farming in the south, where infrastructural investment has received priority. Although this has resulted in a relatively low marketing margin for farms, the negative effect on the small-farm peasants primarily located in the north has been countered by public marketing. Giving priority to infrastructural investment on the basis of large- or small-scale farming is not desirable on the grounds of distributive justice. But for the sake of efficiency in allocating infrastructural resources, small-scale or peasant farmers should be organized or restructured to generate enough business to meet the critical minimum required for efficient use of infrastructural facilities.

In the second policy area, the question of public marketing appears to be enmeshed with some of the consequences of infrastructural backwardness and agricultural dualism. There is little doubt that public intervention has contributed to the large marketing margin and price spreads (implying disincentives to both producers and consumers) in Africa. But this intervention seems to have

<table>
<thead>
<tr>
<th>Table 11-6. Shares of Causal Factors in Different Foodgrain Marketing Margins between African and Asian Countries</th>
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<tbody>
<tr>
<td>Factors</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>Taxes</td>
</tr>
<tr>
<td>Transport and associated costs</td>
</tr>
<tr>
<td>Profit</td>
</tr>
<tr>
<td>Transaction costs (residuals)</td>
</tr>
<tr>
<td>Total</td>
</tr>
</tbody>
</table>

**Source:** Estimated on the basis of information from Kenya and Malawi in Africa and Bangladesh and Indonesia in Asia.
been motivated partly by conditions arising from occa-
sional (as well as locational) market failures. Several fac-
tors are responsible for this. First, underdeveloped
infrastructure tends to encourage farmers to be indepen-
dent of the market. Second, large- and small-farm dualism
is so sharp in Africa that large farms tend to vertically
integrate marketing and production. This leaves a very
thin market for the small, peasant sectors who are not
large enough for efficient marketing. The thin market is
generally an unstable market. Development of an efficient
exchange system, economies of scale, and service provi-
sion become very difficult and uncertain in thin markets.
Ironically, public intervention in marketing designed to
rectify the problems associated with market failures fur-
ther accelerates the process of thinning, which makes the
problem complex. Although a wholesale dismantling of
public parastatals in Africa is perhaps an irresponsible
prescription, few will disagree that public marketing in
these countries needs to be substantively reduced and
improved. It thus seems logical that Africa needs to follow
a path of gradual transition to private trading through
selected public intervention in marketing, continuous
efforts to develop markets, and a heavy commitment to
properly formulated infrastructural development. The cen-
tral element of this approach is that private trade should
be allowed to work freely. Market development policies
involving improved legal and physical facilities and flow of
information should be another component of this transi-
tion. Direct public marketing may be limited to areas in
which backward infrastructure makes agricultural income
and production low and uncertain and in which it is neces-
sary to maintain secure stocks of foodgrains.

Summary

The economic environment in which farmers operate in
developing market economies exerts a significant influ-
ence on the efficiency of resource utilization and on the
pace of growth in production. Domestic marketing struc-
tures, including private as well as public trading institu-
tions, are the principal elements of this environment of
incentives. The difference between prices paid by final
consumers and those received by primary producers and
the intertemporal and spatial gaps in prices reflect the
structure and efficiency of the market. The effectiveness of
a macroeconomic policy instrument in providing incen-
tives to producers or consumers depends quite signifi-
cantly on the operation of the domestic market.

This chapter has examined the producer and consumer,
spatial, and seasonal price spreads in nine African and
Asian countries. These price spreads were decomposed to
identify the causal factors underlying the differences
between the regions. The decomposition analysis of mar-
teting margins and spatial price spreads help to identify
strategic policy variables and measure the extent to which
farm prices can be raised and consumer prices lowered by
changes in market institutions. The countries studied—
Bangladesh, India, Indonesia, Kenya, Malawi, Nigeria, the
Philippines, the Sudan and Tanzania—represent a wide
spectrum of public intervention in foodgrain marketing,
budgetary resources, infrastructural facilities, and the
growth in agricultural production.

The analysis of price spreads showed that farmers in
Africa receive a smaller proportion of the price paid by
final consumers of foodgrains than do the farmers in Asia.
The average producer price, expressed as a percentage of
the terminal market price, ranges from 75 to 90 percent in
the Asian countries; the comparable figure for the African
countries is 35 to 60 percent. These estimates vary for
different food commodities. Within Africa, farmers of
Nigeria and the Sudan (West and North Africa) appear to
share about 55 to 60 percent of the price paid by final
users of foodgrains, whereas farmers of Malawi, Kenya,
and Tanzania (East Africa) generally receive only about 35
to 50 percent of the final price.

Regional price differences are again larger in Africa
than in Asia. Regional price differences in Asian countries
seldom exceed 70 percent. The absolute size of the
regional price spreads is significantly larger than the mar-
teting margin (the producer-consumer price spreads) in
Africa, which implies that many markets may be poorly
integrated. In Asia the regional price spreads are quite
close to estimates of the marketing margins, which indi-
cates a more closely integrated market.

The spread in seasonal prices is also wider in Africa than
in Asia. However, these price differences are smaller than
either the regional or producer-consumer price margins
between countries in the two regions.

To deduce sensible policy conclusions from the analysis
of price spreads, the underlying causes for different price
spreads have to be properly identified. The decomposition
analysis of marketing margins showed that transport and
associated marketing costs explain 39 percent of the dif-
ference in marketing margins between African and Asian
countries. A different incidence of taxes explains only 9.4
percent of the difference, and profits explain only about
24.5 percent. The rest of the difference in marketing mar-
gin (27 percent) is explained by other transaction costs
associated with public marketing. The implications for the
development of infrastructure and changes in the domes-
tic marketing structure in African countries are clear from
this decomposition analysis.

African countries face a complicated dilemma in their
infrastructural and marketing policies. The dualism
between large farms and peasant farms in most African
countries has generated a marketing problem. Large
farms tend to vertically integrate production and market-
ing. This leaves the small-farm sector to depend on an
extremely thin market, which is not congenial for the
growth of specialized marketing services. A thin market is
also a very unstable market. Government intervention becomes a natural choice to rectify the problem. Ironically, expensive government intervention accelerates the “thinning” even further. Infrastructural backwardness, however, tends to encourage a strategy of concentrated production on large or estate farms, so that infrastructure could be provided selectively and affordably. This dilemma really indicates the need for a strategy of infrastructural development that considers the form of farming organization, regional potentials for increased production, and public policies to induce private trade in marketing. Public intervention in marketing in Africa may not be eliminated altogether, but the need for gradual changes through selective intervention and market development is clear enough.

Finally, it may not be wrong to say that nobody really knows what prices African farmers actually receive for their products. In Asia one feels reasonably confident that estimates of farm prices are close to actual prices; in Africa, however, one is not quite sure. Therefore further studies on prices generally received by African farmers are an important area of research that is relevant for price policies. Such research should be followed by studies on market structure, particularly the interface between private and public marketing. Transaction costs imposed on private trade by public policies need to be quantified if the price spreads in African markets are to be understood thoroughly. The knowledge of extensive parallel markets in many African countries is almost nil. Similarly, the economic compulsions behind the propensity of market intervention in Africa are poorly understood. Future research should shed light on some of these issues of agricultural marketing in Africa.

Notes

1. But such benefits are not without cost. The issues of government financing of these costs and the indirect costs of such an intervention are not examined here.

2. These statistics do indicate that the so-called panterritorial pricing policies, particularly in Tanzania, were often not effective.

3. This margin of profit relates to the profit rate per year. The profit rate per business trip or consignment is, however, much smaller, only about 4 to 8 percent. Turnover in trade is thus important. Because the market is thin, turnover is smaller in Africa than in Asia.

4. The comparative ineffectiveness of public marketing is not reflected in these estimates. Relative inefficiency in public marketing is thus attributed to high price spreads in Africa by deductive reasoning.

5. These include development of market places, dissemination of price and production information, introduction of standard grades and weights, maintenance of law and order in transport channels and markets, provision of credit to traders, initiation of agricultural processing and specific storage facilities, and provision of electricity to rural markets.

6. Although the marketing cost is small in Gazeria, the farmers receive only a small part of the final price because of other deductions for production costs contributed by the project authority. Marketing costs outside the project areas and in distant areas in the south and west of Sudan are very high.

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Review of the Discussions

Dieter Elz and Caroline Hoisington

Most of the topics in the seminar were interrelated. The discussions reflected this and usually covered more than one subject. There were a few major topics, however, around which much of the discussion was concentrated and which provide the structure for this review.

Market Institutions

Chapter 2, "Alternative Agricultural Marketing Institutions," described the relative advantages, disadvantages, and the possible roles for the various types of market institutions: indigenous, independent private firms, including middlemen; transnationals; cooperatives; and semi-autonomous organizations (parastatals).

This subject was not presented in a lecture but in a group exercise. The participants, who hold senior agricultural marketing positions in their countries, took the roles of various actors in the market and presented ways in which the groups they represented—private traders, cooperatives, state enterprises, and transnationals—might help to solve various marketing problems. Two other groups, representing farmers and government officials, judged whether or not the solutions proposed would help the farmers to get fair prices and the government to protect the consumers and tax payers, to earn (or save) foreign exchange, and to promote national development.

In general, the "private traders" group believed that if they were allowed to compete with state marketing boards and other government monopolies in buying grain from the farmers, they might be able to pay the farmers higher prices. There was concern, however, that if they were allowed to buy directly from the farmers, private traders and millers might be able to play farmers off against each other and, in fact, pay lower prices, at least in years of adequate production; farmers might get higher prices in deficit years.

Several participants suggested that allowing private traders to compete with state-run institutions would improve overall market efficiency. Another idea was that if a small number of traders was a bad thing, because they colluded and set prices among themselves to take advantage of the farmers, the solution was not to regulate them out of the market, as some proposed, but to allow their numbers to increase so that they would compete with each other more effectively.

The "cooperative" group generally suggested a greater role for coops at all levels, from the grass-roots farmers' organizations formed to sell produce to coop representation at the higher levels that formulate national policy. It was conceded generally, however, that there have been few successful coop operations, that successful cooperatives must be formed from the ground up rather than by the government from the top down, and that this was not at all easy.

Cooperatives, as private sector organizations, could offer a balance to the public sector organizations, and in some countries they are supported to the point of being recognized in the constitution. Credit unions are a form of cooperative, but international agencies have not been as enthusiastic about helping them as would be desirable.

The "state enterprise" group emphasized that the free market situations tended to favor the larger producers and that state boards protected the interests of the small-scale farmers. Furthermore, state boards could help farmers to form cooperatives. State purchasing boards could supply inputs and also set quality and price standards for outputs. State boards that manage surplus stocks might be expensive, but they could also save the government funds by avoiding or reducing the necessity of imports. Parastatals
are more of a function of the stage of development of the economy than of a particular ideology. Some speakers had claimed that by and large parastatals had failed in their tasks but that private traders and cooperatives had also failed in the past. It was essential for parastatals to have autonomy in their operations, to be either under one ministry or else directly under the leader of the country, and to have flexible financing.

In general the "transnational" group suggested that the transnationals could offer improved technologies in processing, storage, and so forth and that they offered better management skills, access to capital (including imported equipment), and expertise in international marketing. Their main interest is in internationally traded products, but they might also be able to offer limited help with domestically traded products if they were actively involved with cash crops in a country. Some multinationals had had unfortunate experiences within countries and had not been able to compete effectively with local industries. Multinationals are being driven out of agriculture in some countries mainly because they have no control over the sources of their inputs and because of the import or export regulations.

The "farmers" group was concerned with the prices received by the farmers and with whether or not they had representation on the various coops, boards, and other institutions. The "government" group was concerned about food security, the costs of supporting institutions, stability of prices and supplies, the foreign exchange position, and the strength of its role overall.

In these discussions the roles of marketing boards and middlemen were a central concern. The issue is not whether there is a marketing board, but whether it is a monopoly and whether farmers are allowed to buy and sell to whomever they want at whatever price they can get. One participant objected that there was too strong a bias against government agencies. There was not enough recognition of the facts that in the past large traders had hoarded large amounts of grain and had caused serious problems in his country and that consumers want the government to intervene in such instances. In general traders are neither as rich nor as powerful as is commonly believed. In some parts of the world traders control farmers through indebtedness, but this is not really widespread. Support for market middlemen has been somewhat constrained in the past by the concept that middlemen are "bad," but this is changing as the legitimate roles of these traders are being better understood.

The seminar speakers were nearly unanimous in assuming that the private sector traders are now probably more efficient in trading techniques than the public sector marketing boards and similar agencies. But if these traders had been efficient in the first place, governments would never have stepped in. One participant asked how the private sector traders, most of whom are very small, could hope to manage, buy, and sell grain to maintain stable prices as efficiently as, for instance, Indonesia's BULOC does, or how small traders could possibly store grain as efficiently as a large agency can. Private traders want to be left alone when their prices are high, but when the price of goods they are exporting drops, they want help. They cannot really have it both ways.

The low wages paid in the public sector are a big problem in keeping trained individuals in government, which would ensure efficient market interventions, if needed. Norman Borlaug, the well-known wheat breeder, once said that for every plant breeder one wished to retain, it would be necessary to train seven, and this ratio is probably about correct in the marketing field as well. The structural adjustment loans granted by the World Bank may contribute to this problem if the loans require that wages in the public sector be frozen. Wages are not everything, however. People will find other sources of income, through employment or bribery, before they leave their current posts. The real problem is to increase the productivity of individuals so that they actually earn their wages.

In this context institutional issues of project policies, preparation of marketing projects, and marketing components in agricultural projects were also discussed. Institutional problems often begin when a project is formulated, because donor agencies want to dabble into policy issues with every project and to make conditions that often run counter to national policies. These management problems occur less with senior- than with middle-level people. International organizations such as the World Bank present a problem because they have no electorate to answer to; their views cannot be changed because they are not answerable to anyone.

Often project preparation within the country is inadequate. The project is prepared by consultants, an appraisal team discusses it with experts, negotiations occur in the donor organization headquarters among people who often are not familiar with the project, large loans are approved, and very often countries agree to things that they should not have.

Prices and Price Policies

The discussions on price and price policies were based on Chapters 7 and 10: "Food Marketing and Price Policy" and "Government Intervention in Agricultural Markets and Pricing." These issues also came up in conjunction with other topics during the seminar.

The following technical or theoretical assumptions provided a background for the discussions. These are assumptions, and no judgment has been made about their correctness.

- Prices will provide the same signals to consumers and to producers, and this will allocate resources to maximize economic efficiency. Efficiency alone, however, does not address issues of equity or who
benefits from the resulting redistribution of income.

- Establishing floor and ceiling prices for a commodity to modulate seasonal price fluctuations will determine how much grain is stored by the private and public sectors.

- The food policies of most countries have the following goals: income distribution, efficient growth in agriculture, a nutritional minimum for consumers, and food security. Since these goals are often incompatible, tradeoffs are necessary. Governments usually intervene in the market, and the free-trade framework is modified.

- A program to support minimum prices is a necessary part of a program to increase agricultural production.

- Overtaxation of agriculture, either through direct taxes or implicit taxes, such as the overvalued exchange rate, has slowed agricultural growth.

Participants pointed out that prices are an incentive to production, but not the only one. Reducing production costs through higher productivity also provides incentives. If there are no goods to purchase with the increased income, however, there is little incentive to produce more even if prices are satisfactory.

Considerable debate evolved around the problem of subsidies. For example, participants pointed out that there are such things as “just prices,” and that prices should be uniform throughout the country. There is something wrong with allowing the price of food in a remote rural area to be twice as expensive as in the capital. Also, having the same price throughout the country is a kind of symbol of national unity. Despite the economic arguments that uniform pricing means that, in effect, the producers and consumers nearer the population centers subsidize those farther away and that the subsidies produce a less-than-economically optimal pattern of resource use, there were overriding reasons for continuing such a policy. Without them, there would be greater migration from the distant areas into the central cities, which already have serious problems with growing populations. Furthermore, the lack of a well-developed transport infrastructure produces market situations different from those in a developed country in which foods can be rapidly shipped anywhere. Subsidizing both inputs to farmers and food to consumers in remote areas encourages local production and consumption. The government may, for reasons of social and income policy, decide to provide income for groups in disadvantaged areas. Subsidies can provide this, and there is nothing wrong with this policy if its effect on the budget is acceptable. If, however, the budget needs to be controlled, the situation is more difficult to defend.

Subsidies to agricultural production do cause a number of problems, however.

- Subsidies, to either the farmer or the consumer, misallocate resources in the economic sense that resources are used (or not used) because of the subsidy and not because of the returns it generates in production.

- Subsidies to farmers cause farmers to operate closer to the technical rather than to the economic optimum. In the past the goal was to increase production overall. In some countries that is no longer seen as appropriate.

- Subsidies to farmers for inputs, instead of price supports for specific crops, will tend to encourage overall production rather than the production of specific crops that the subsidies are supposed to encourage and may distort the market signals somewhat less. Price subsidies to consumers for specific agricultural products encourage greater consumption of those particular items and also distort markets, which may not be consistent with market signals.

- The developed countries subsidize their agriculture, but they can afford to do so because their other sectors can pay for the subsidies. These subsidies, however, combined with trade barriers, are hurting production of the developing countries. In the United States and Europe the producer is subsidized, and the consumer pays more. In the developing world generally the consumers are subsidized, and the farmers are hurt.

- Subsidies to farmers alone are not good policy, and the African governments are correct in subsidizing both farmers’ inputs and consumers. Subsidies to consumers are required so that the consumers have the purchasing power necessary to cause the flow of money from the consumers to the farmers. However, much of the growth in income in many developing countries has been financed by debt, and the consumption structure therefore does not correspond to the indigenous earning power of the population. Drastic changes in consumption may therefore be expected if a country experiences a debt crisis.

- Consumers ultimately pay for producer subsidies in the form of taxes. It is not clear who benefits, but it is more likely to be the large producer rather than the small-scale farmer.

- Producer subsidies are very good for the farmers, but market prices are very important also, because if the price is good, the farmers will produce, even without the subsidy.

- In general, administered pricing systems, with uniform pricing throughout a country, discourage transport and storage, whereas free markets encourage these functions, but private traders will certainly not want to supply remote areas unless prices there are high. Some consider subsidizing this transport to be a legitimate welfare function of government. For others, nearby consumers and
produces clearly subsidize the distant ones, and this system should be phased out over time, which will cause prices in these areas to be somewhat higher than in the central regions.

- It is too simple to say that subsidies are good or bad. The critical point is that they should be linked to productivity, for instance to starting an industry or to achieving good results in activities that are difficult for small producers to do by themselves, and then the subsidies should gradually be removed.

- All agreed that any changes in subsidies or administered prices must be carefully and gradually made.

There were numerous objections to the whole line of reasoning that subsidies and taxation caused important distortions in market prices. Some participants felt that too much emphasis was being put on the link between international and internal prices and that unrealistic ideas were being promoted about political and economic realities in developing countries. They reasoned that if farmers can cover their costs of production and also make some profit, why should they produce less because the price they receive for their product is less than the world price, if they do not even know what the world price is? Local prices, particularly the relative prices of other commodities, are more important. The argument to this was that the farmers will generally produce more when they receive a higher return. Comparison with the world price merely shows how the farmers are disadvantaged in their production compared with other producers, and the world price also offers a point of reference—albeit a varying one—of what the value of the forgone production would have been.

The international prices do not really represent an unbiased value of resources or products, however, because the international prices are very much affected by national policies, especially in major exporting countries such as the United States, and some of these heavily subsidize their agriculture.

An economic argument would be that if a country's costs of production for a certain product are higher than the international price for that product, then it should import that product, and produce something for which it has a comparative advantage instead. This is not a realistic alternative for many countries right now, however, because the resources, including trained people, necessary for the supposed alternative are not available, and those shifted out of agriculture would be unemployed and unable to buy food.

**Marketing Agricultural Inputs**

As agriculture develops and its productivity increases, the share of land and labor in total inputs declines relative to those bought off the farm. Most of these inputs are traded internationally. In 1984 the trade was about half fertilizer (US$13 billion), one-third tractors (US$8 billion), and one-sixth pesticides (US$4 billion). The supplies came mainly from developed countries and constituted about 80 percent of fertilizer exports, 57 percent of tractor exports, and 95 percent of pesticide exports (Jones 1984). The physical and managerial problems involved in marketing and distributing these inputs are formidable.

The dependence of farmers on the supply of inputs from the developed countries was extensively discussed. As has become apparent in the past few years, the lack of foreign exchange of developing countries cuts, often severely, the level of imports, and agricultural inputs are no exception. To what extent this situation will eventually affect productivity increases remains to be seen. The alternative to imports—establishing domestic plants—is not feasible in most developing countries because of such constraints as high capital requirements, lack of raw materials, and unavailable skills.

Increasing amounts of inputs, particularly fertilizer, are obtained through grants and donations by developed countries. The conditions attached for these deliveries are sometimes prohibitive, however, and restrain some countries from requesting supplies. Not only do restrictions of foreign suppliers limit the flow and use of agricultural inputs, but domestic limitations, such as licensing requirements, import taxes, and similar protective measures, also impair the use of these inputs.

There was considerable debate about the efficiency of subsidized fertilizer prices in a country. Subsidies are economically wasteful as a misallocation of resources. In some cases cheap fertilizer even finds its way across national boundaries, and one country ends up subsidizing its neighbors' production. If leakage across national borders can be stopped, however, and the value of the increased production is greater than the cost of the fertilizer subsidies, then it is folly to stop them.

Furthermore, governments often will not be willing to remove fertilizer or other subsidies since they believe that this would decrease output and produce a series of negative outcomes, all of which would be counter to government's stated aims. It would decrease farm income and rural standard of living, lower export earnings, and hurt the financial position of any statutory marketing board. The fall in agricultural output would cause price increases, inflation, and pressure to raise wages, all of which are against the government's policies.

How could it be that the value of increased production is so much greater than the cost of fertilizer, and yet the farmers are unwilling to use more fertilizer without the subsidies? There are some very fundamental and significant issues that cannot be fully explained by economic arguments and that require further analysis. This, however, could not be done in the framework of this seminar.

Delivering inputs within the country (Chapter 5) presents other problems, and there are considerable con-
straints to moving goods, particularly fertilizer. One problem is poor handling facilities at ports. Another is the untimely delivery from foreign suppliers caused by the importing country’s delays in assessing needs and ordering supplies. Obviously, the insufficient infrastructure in many developing countries not only impedes the timely delivery, but makes the provision of imports very costly, through high transport cost, for example. Inadequate storage facilities cause product deterioration, and distribution centers are often too far away from farms.

The participants representing farmers’ interests complained about the high prices of inputs and recommended subsidies to lower them. They realized, however, that eventually the subsidies should be phased out and that this would raise farmers’ costs and restrain the use of inputs. A better way would be for governments to provide incentives for farmers to buy inputs early in the year to even out peaks in demand and prices. For example, a crop insurance system would encourage farmers to take the extra financial risk of purchasing inputs, and a fertilizer fund could provide credit to farmers for purchasing this commodity.

The frequent advice to developing countries from multilateral agencies to devalue might increase the competitiveness of trade but often would not increase agricultural consumption. Although the competitiveness of agricultural products might increase with the lower world market prices resulting from devaluation, the heavy reliance on purchased imported inputs, which would be more expensive after devaluation, would impede the competitiveness.

Improved extension services, training, and monitoring was another major concern. Inadequate promotion of the importance of fertilizer and improved seeds causes insufficient amounts to be used. This information should not only be supplied in lectures and training materials, but be demonstrated through field trials and practical training. In particular, because of inadequate extension or other services, farmers do not know how to use potassium or micronutrient fertilizers (nitrogen is generally better understood), and thus materials are wasted or not used when they should be.

Some specific recommendations to improve extension services were made.

- Train cooperative staff and traders to provide better services and to further extend what they already provide. Suppliers of fertilizer should provide a color-coded system to help illiterate farmers know what materials to put on their fields. Often by the time fertilizers reach small-scale farmers, they have been repacked so often that it is difficult to know what they are, even for those who can read.
- Enlist the help of multilateral agencies to provide training for higher degrees (M.Sc., for example). This is probably more useful than short training courses, particularly for establishing regional fertilizer networks and for providing technical assistance to farmers. This would also promote the greater use of national personnel instead of expatriates, whose involvement in the development process becomes increasingly problematic.
- Develop strong local institutions specialized in training and marketing. These should coordinate the designing, planning, and monitoring of programs at the national and international levels.

Meeting Consumers’ Needs

The main problems in meeting consumers’ needs are market information and training in marketing services. Both training and better information would be useful in incorporating training on quality control, the concepts of value added, and the functioning of the supply of goods. In developing countries, however, these issues would be difficult to solve, since maintaining controls to improve quality would be difficult and providing regular consumer information would be expensive. Yet the lack of well-trained personnel is one of the major barriers to improved market development and management of marketing institutions.

For market information to be effective, it is essential to have good statistics and periodic reports throughout the season as an early warning system. The most important indicators are prices. In India, for example, the government receives 3,500 market quotes per week to monitor whether the Food Corporation should release stocks.

There is evidence that marketing has been neglected by training and research institutions. In one country, for example, an international management institute for state-run enterprises gave very low priority to marketing problems, although this was one of the major difficulties faced by these organizations.

The International Grain Trade

The supply and demand for grain are determined by a number of forces, human and nonhuman, from climatic and geographic limitations to complex international and national political factors, and also the varying abilities of countries to physically and financially handle the import and export of grains.

On the supply side, the major exporting countries have different degrees of government involvement and contrasting marketing policies. On the demand side, the most efficient importers—the Europeans and the Japanese—use competitive importing systems. Exports and imports, however, are only representative of effective supply and demand, that is, situations in which a satisfactory price balance could be achieved to satisfy traders.

The international grain trade is too large and too complex to be controlled by one exporting or importing country, although the large participants do affect the market.
The major concern of actors in the international grain trade is to minimize risk.

The domination of trade is a major worry. Governments are concerned about being dominated by private companies, but generally private grain traders are delighted to do business with a national grain board rather than with other traders, because they expect that they will make more profit. Developing countries should consider allowing some private traders to compete with the official entities and allowing the more efficient traders to take a greater share of the market. In some countries, however, the private traders have less experience, have trouble in acquiring capital, and frequently take irresponsible attitudes. A board, by contrast, has adequate manpower, can be efficient if properly managed, and tries not to make a profit for itself, but to increase the income of farm families. The stage of development makes a difference, and the end advantages, however, are balanced out by some serious problems that few developing countries are equipped to deal with effectively. Training would alleviate this problem, but it should be more practical rather than theoretical.

One country hired a company to oversee its imports, but it was difficult to tell if it was doing a good job. Inspectors of imports are supposed to see whether a given price is fair, but in general, this job is not well done. Too much needs to be known about too many commodities. A more effective way to achieve this would be to publish the prices paid, and allow the market to make the correction. If other competitive grain exporters thought they could underbid the posted prices on the next round of bidding, they would certainly do so. Prices (not necessarily quantities) should be known by everyone from the president to the farmer.

The high-quality standards required by the European and North American markets may be thought to be a form of protectionism. But in the U.S. market, for instance, the grain standards apply to grains used domestically as well as those exported by the United States. This, actually, puts the U.S. farmers at a disadvantage.

Barter among countries has grown as an alternative to cash payments when foreign exchange is lacking. The advantages, however, are balanced out by some serious disadvantages: the arrangements are frequently expensive, with time lags and difficult logistics; different agencies handle different types of commodities, which makes parity difficult to agree on; and, perhaps worst of all, by the time the bartering is done among the various countries involved, the commodity a country exports at barter often winds up in a market where it usually sells for cash, so it has undermined its own cash trade. Also, barter trade frequently occurs among countries producing similar goods, which limits its usefulness.

The developing countries might become more effective traders by being discreet about how much grain is needed at any one time, by beginning purchasing with a one-ship lot, as major grain trading firms do, by shipping in bulk whenever possible, and by awarding contracts to the lowest bidder without further negotiation to eliminate the possibility of favoritism. It may not be possible to act on all of these suggestions because banking, foreign exchange allotments, and so forth prohibit it, even though the advantages might be clear, but major grain trading companies are generally glad to offer training courses in the workings of the international grain market.

Trade Liberalization

Chapter 3 clarified why some of the most glaring problems and seeming contradictions in the markets of developing countries persist. These include inefficient parastatals dominating official trade, restrictions on who may trade and when, and large and growing parallel markets as a result. Some of the literature on the subject of market liberalization has stressed the political maximization theory: governments maintain the status quo because it maximizes their political advantage. They satisfy the urban elite, who are their "political clientele," by keeping urban food prices down. There are also direct patronage privileges associated with giving benefits through an administrative system rather than through an open, imper-
sonal market. These may indeed be important factors in some cases, but the situation is actually much more complicated. Several elements slow the changes toward more open markets.

The belief system argues that markets do not work benignly the way economists say they do. If it is believed that free markets both exploit the peasants and harm the consumers, then it is hard to believe that adjusting a few regulations could make the market work to the benefit of all. One participant, for instance, said that it was very clear that traders take advantage of both farmers and consumers. Traders will tell the farmers that their product is not in demand now in the markets and will pay them low prices for the produce; then they will tell the consumers that the goods are very scarce in the market and charge high prices. If there really were big profits to be made, however, one would expect more traders to enter the market, to compete with each other for business, and to reduce their margins. The lack of resources may be a major constraint on this.

Another important impediment to change is the fact that the benefits of political reform are uneven. Civil servants, especially high-level ones, would lose from liberalized prices, and traders would gain. In many countries, however the trading groups are often members of an ethnic group that is not in power and that is resented by some other communities. Fear of ethnic dominance is a strong force preventing market liberalization. In some countries, the trading groups would, in fact take over the market if it were free. Even with some aspects of grain marketing limited to local nationals, the outside groups are sometimes fronted by locals, who in reality still finance and manage the market.

In the past fifteen years parallel markets of an unprecedented size have emerged in many countries, particularly in Africa and in Central America. The official channel used to be large and the parallel market relatively small. In many countries, however, the parallel market is now the major channel of sales, and the system has now adjusted to the existing market and has incorporated the inherent inefficiencies, which makes change more difficult. The World Bank and other agencies tell governments that raising prices to the farmers will increase their incentives to produce. In some areas, however, the higher-priced parallel market accounts for such a large segment of the market that, in effect, this adjustment to the higher price incentive has already occurred.

If there were enough supplies in the official channels, the parallel market would cease to exist. This was certainly correct from the consumers' point of view, but it would not solve the producers' issues. If the government prices are too low to clear the market and supply is insufficient, then consumers will turn to the black market, and farmers will grow more food because the consumers are willing to pay the much higher prices on the parallel market. The real cost of this system is not borne by the farmers, who sometimes receive relatively high prices through the illegal trade, but by the nation as a whole in that it never develops good institutions but remains trapped with the combination of crippled parastatals and illegal traders.

The issue is not whether there is a marketing board, but if it is a monopoly, and whether the farmers should be allowed to buy from and sell to whomever they want at whatever price they can get. Some participants felt that there was too strong a bias in the discussion against government agencies and not enough recognition that, in the past, large traders hoarding large amounts of grain had caused serious problems, and that consumers felt that it was the role of government to intervene when such things happened. It was countered that in most instances, traders were neither as rich nor as powerful as was commonly believed. It was true that in some parts of the world, traders controlled farmers through indebtedness, but this was not really widespread. There is considerable concern about the relative power of farmers and traders, about who can afford to hold stocks, and about the difficulties of changing the situation of small-scale, very poor farmers. Rather than forcing traders to sell their stocks, governments should increase imports, which would force the prices down and thereby remove the benefits of hoarding.

In any case, since no one really knows how the systems are now working, any changes instigated by governments must be done slowly. One scenario for such changes follows:

- The government grain agency would stay in place but change its role somewhat.
- The agency would manage the national reserve stock; feed the army, schools, and other public entities; and also set import policies, both for commercial imports and for food aid in general.
- The agency might also be buyer of last resort by setting a minimum price, below which it would purchase grain.
- The agency might operate in the wholesale market, and impose order on market activity. Because information and transport networks are not effectively developed, the government would have an array of price observers and enter the market to sell when it suspects collusion among traders or a shortfall in supply.
- The private market would be allowed to do the rest. There would be no official prices.

For this series of suggestions there is a series of objections. It is not likely that governments would relinquish their responsibilities in the market because of the responsibility to ensure political and social stability. Private traders want to be left alone when their prices are high, but when the price of goods they are exporting drops, they want help. There are also the major questions of how the government can shield the poorer sections of the population from the increases in food prices if the market is liberalized. Targeted subsidies to the poor are difficult to
manage, and it is difficult to avoid the situation in which the subsidies most help those who are the most powerful.

Food Security

Instability in food production, consumption, and prices has always been a central concern for government. Preventing severe deprivation among the more disadvantaged segments of the population has taken on a special urgency in view of recent events in Africa. Food security—the assurance of a minimally adequate level of food consumption—concerns not only supply security through expansion of production and support measures, such as support prices and subsidies, but it also involves marketing and distribution issues, such as storage and infrastructure development.

Another issue is the security of supply through international markets. Since 1974 the international markets have provided a substantial and effective reserve for importing countries. Donaldson (1984), for example, divides this reserve into three components. First are aggregate trade flows which reached 260 million in 1980–81. Second are non-governmental stocks, which averaged about 80 million tons in 1983 and which can be delivered within two to three months. The third reserve is the grain being fed to livestock. This can and has been diverted to human consumption in case of production shortfall. During 1980–83 about 620 million tons (including soybeans) was fed to livestock per year. This is equal to about 60 percent of yearly human grain consumption and includes about 80 million tons of wheat and around 85 million tons of soybeans. Both commodities are important sources of direct human nutrition.

Food security is an overriding concern, and governments place a high value on increasing food production even if it involves high costs. Although border prices may be lower than production costs, many governments cannot afford to import food because they lack foreign exchange. For some land-locked countries transshipment of food through neighboring countries is simply not considered reliable enough to allow imports to be a basis for food security. Expansion of domestic production is thus the only way to maintain or increase food supplies. The governments that place great emphasis on food self-sufficiency want to produce enough grain and to hold stocks within the country, rather than rely on the world market to guarantee national food security. It may be difficult to import grain when it is needed because of the availability of foreign exchange and difficulties in shipment. There is a lag between the time the decision to import is made and the time grain arrives, which can be critical. In addition, supplies may not be available in the international market when the country wants to import. If the countries that are being advised to rely on the world market for their food security in times of shortfall were to do so, there would not be enough grain available in the market in a bad year when several of them decided to buy.

Other governments prefer to rely on buying and selling in the world market for a part of their food supply. Storage costs are typically high, and it is generally more economical to rely on international trade. Even grain embargoes have not kept countries from purchasing grain on the international markets when needed. Normally, there are adequate supplies of grain on the world market, the prices are known, and it is possible to schedule deliveries well ahead of time.

Domestic procurement varies from country to country. For example, Indonesia’s BULOG trades in the domestic market, including importing, when floor and ceiling prices reach certain levels. It is active in the market until self-sufficiency is reached, but it is not allowed to import grain beyond that stage. In Malaysia the government is in the market only until 85 percent of self-sufficiency has been achieved. It decided that the remaining 15 percent should be supplied by the free market, mainly imports, which are probably cheaper than domestic supplies.

In the case study on Zimbabwe (following) there was a question on how to cope with a grain shortage. Various policy options were considered. Rationing all food grain and controlling prices is possible. Although rationing will make food available to more people, it will not end the shortage, and if the price is set by a marketing board, there will soon be a parallel market with higher prices.

A government could allow market prices to rise but also provide food rations to the poor to guarantee a minimum diet. People who get rationed food, however, often resell it at higher prices to those with more money, and the administrative costs of rationing food to a targeted group are very high. Droughts cause rapid, sometimes short-lived shortages, and it is too difficult to build up a rationing system quickly, and then to dismantle it, for a three-month shortage. If a country is feeding grain to livestock, more animals can be sent to market, and some grain diverted to human consumption. It would also be possible for the government to subsidize substitutes for the preferred grain, if available.

Grain can be imported to make up the deficit, but the country’s ability to do that would be constrained by the amount of foreign exchange available. A certain amount of grain would come in over the borders illegally if the parallel market prices were high enough. There were varying opinions as to what a government should do about this during a food shortage. A preferred option was that regions set up arrangements for mutual help, so that neighboring countries could be called upon in times of need.

Food security can be improved through storage. Current distribution patterns and storage facilities in developing countries, however, most often reflect history rather than current needs. As populations grow and shift, markets need to be reorganized. Investments in large storage
facilities were favored in the past by lending institutions including the World Bank, but now there is much more interest in smaller storage capacity that is located nearer to the producers. This change in philosophy is not fully shared by national authorities.

Large-scale storage facilities have their advantages and disadvantages. They add one more link in the chain from producers to consumers. This link progresses from small-scale entities, to larger scale, and then back to small-scale again: from rural primary markets, to regional markets and large central markets, and then back down to urban fringe or periphery markets. In this system, large-scale storage would not be as efficient as smaller, decentralized storage.

Security of supply could be improved, however, through vertical integration. Contract farming is often the best way to assure this.

The change from subsistence to commercial farming has affected marketing in several ways. This transition is necessary to improve the productivity of agriculture. Subsistence farmers produce food for themselves and sell only small quantities on the market. In general these farmers do not need much in the way of marketing services. Subsistence farmers are usually smallholders who are optimally organized to provide agricultural products for the family's needs, but they are not optimally organized in the economic sense to benefit from specialization of production and economics of scale. To change these holdings into more productive commercial farms, it is necessary to develop agricultural produce markets, as well as to promote investment in increasing agricultural production.

Not only are marketing and productivity issues involved, however, but the change to a market economy brings up social and nutritional problems. Diverting land from subsistence crops to cash crops reduces the capacity of rural families to feed themselves—a movement they may therefore resist. Marketing their crops will provide cash, however, but experience shows that a large share of this cash is spent on consumer goods rather than on food, which reduces nutrition levels.

References


Grain Marketing in Zimbabwe: A Case Study

Ulrich Koester

This case study was presented at the seminar and provided an opportunity to analyze the basic concepts of demand, supply, and market equilibrium; the importance of world market prices for national planning; and the determinants of price differences over space and time in a market economy. The participants were asked to discuss some of the major problems inherent in the marketing system.

Background

The government in Zimbabwe has intervened in grain pricing and marketing policy for more than fifty years, and its influence is steadily increasing. Intervention policies began with the Maize Control Act of 1931, which led to the establishment of the Grain Marketing Board (GMB), which markets all grains. Producers are allowed to sell only to the GMB, and millers and retailers are supposed to buy only from the GMB.

The Zimbabwean government sets the selling and buying prices for each type of grain annually. These prices are the same throughout the country and change only once a year. If the GMB incurs a loss because the margin was set too small, the government covers the loss.

In setting prices the Agricultural Marketing Authority (AMA) and producers' representatives first analyze the trading accounts and prepare background papers. The AMA then forwards recommendations to the Ministry of Agriculture. The producers are given the opportunity to voice their views on pricing policy in meetings with the Ministry of Agriculture. In consultation with senior officials, the minister of agriculture then decides on the prices to recommend to the government. The minister prepares a paper to justify these prices and presents it to the Ministerial Economic Coordinating Committee (MECC), which consists of ministers from the economic ministries. After considering the proposals and perhaps making changes, the MECC presents the recommendations to the cabinet, which makes the final decision on producer prices. A similar process is used to set consumer prices, which are based on recommendations by the Ministry of Trade and Commerce.

Like other African countries, Zimbabwe produces mainly white maize, which consumers prefer. About 75 percent of it is consumed by humans and 25 percent by animals, which produce mainly milk, pork, and beef. In years of surplus production white maize is exported where it faces strong competition from yellow maize, the main maize export commodity.

Producer prices have sometimes been higher than consumer prices for some grains. But even when consumer prices are higher than producer prices, the difference does not cover marketing costs. In recent years, producer prices for maize have been much lower than export border prices, but they have been considerably higher than the local selling price.

The stockpiling of maize varies with domestic production. If there is a good harvest, stocks are built up. Stocks are released if the harvest is insufficient. Because of two successive droughts, Zimbabwe had a significant maize shortage in 1984. Purchases by the Marketing Board, the sole authorized buyer, declined from 2,013,758 tons of maize in 1981-82 to 620,000 tons in 1983-84. The figure was probably even less in 1984-85. Given the demand at the official selling prices for maize and maize flour, these quantities are insufficient to satisfy the demand, which was estimated at 1.1 million tons in 1983-84.

The market situation of wheat is similar to that for maize, except that Zimbabwe usually has to import wheat. The goal is to become self-sufficient in that commodity.
For the past few years, the producer price for milk has been much higher than the cost of imported milk, but the retail price for milk has been much lower than the producer price. During the same period, producer prices for beef have been much higher than export prices for beef. However, the average wholesale price for beef has been much lower than the average producer price.

The Zimbabwean currency ($Z) is somewhat overvalued. The degree of overvaluation is difficult to estimate, but it is not less than 25 percent.

Price Policy

The distributional and allocative effects of the pricing policy for maize, wheat, milk and milk products, and beef are illustrated in Figures A-1 and A-2.

If the country wants to maximize its GNP, marginal costs of production, represented by the supply curve, should be equal to the export or import parity prices. If producer prices were below these parity prices, the society would be better off if it raised producer prices for grain to the level of the parity price. Figure A-1 illustrates this situation for an export crop.

Given the present producer price, the quantity produced is equal to $Q_0$. If the producer price were equal to the export parity price, production would go up to $Q_2$. Selling this additional quantity on the world market would result in additional revenues of $Q_0 \times BC\times Q_2$. Additional costs would amount to $Q_0 \times AC\times Q_2$. Hence, the country could gain ABC. The size of the gain depends on the difference between the export parity price and the producer price and on the price elasticity of supply. If the price elasticity of supply were zero, price changes would not affect production. However, this would be exceptional.

The situation for milk and beef, two commodities generally in short supply, is the opposite of that for grain from the allocative point of view. Producer prices are above the import parity price for milk and the export parity prices for beef. In addition, maize, a main input, is cheaper for producers than for consumers. The price for consumers is always equal to export or import parity prices. The price for the producer is equal to the market price. Because of these distortions, production of milk and beef is higher than under world market conditions, as shown in Figure A-2.

Assuming import parity prices for producers, the optimal production quantity would be $Q_0$. With higher producer price, production goes up to $Q_2$. Because maize input prices are kept low, the supply curve is shifted to the right, resulting in production $Q_2$. 

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Figure A-1. Relation between Producer and Parity Prices for an Export Crop

Figure A-2. Relation between Producer and Import Parity Prices for Milk, an Import Commodity
As production costs for the quantity $Q_2 - Q_1$ are higher by ABC than the value of the replaced imports, the country would be better off to produce only quantity $Q_0$ at the import parity price for milk and maize.

The present pricing policy implies a tax and subsidy system. Farmers who produce maize and wheat are taxed in favor of consumers, that is, they receive prices lower than export or import parity prices. Farmers who produce milk and beef are subsidized to the disadvantage of the taxpayer, that is, producer prices are higher than parity prices.

Income distribution is also affected by government intervention in marketing. Since the difference between consumer and producer prices does not cover marketing costs, the taxpayer has to take the loss. This implies some perverse forms of income redistribution, especially on the beef market. Rich people, the main consumers of beef, are subsidized by the general taxpayer.

Problems for Discussion

In this exercise participants used their own experience and the lectures on market and price policy and international marketing to evaluate the market situation described above.

Eight questions and possible answers to them are given below. Responses can vary widely, partly because of the different backgrounds of the participants. Conflicting proposals and recommendations arise because of differences in objectives, diagnosis of the situation, and expectations about the effects of specific market interventions.

Response to the 1984 Maize Shortage

- **How can the government decrease the demand for maize without causing starvation?**

  The demand for maize is made up of two components: the demand for human consumption and the demand for animal feed. The supply of maize for human consumption could be increased if the demand for animal feed could be decreased. This could be achieved several ways: (a) by curbing administratively the use of feed maize, which would probably reduce milk and beef production and would be difficult to enforce, but which might work on large farms; (b) by increasing the rice of feed maize through a two-price system, which is difficult to control; and (c) by lowering milk and beef prices to reduce their production and, consequently, the use of maize as feed.

  If the demand for maize for human consumption has to be curtailed, the government can choose from at least four alternative responses.

  1. Abolish price fixing and let market forces come into play. This would probably result in higher consumer prices, with fatal consequences for poor people.

  2. Ration cards could be distributed. Everyone would be entitled to the same quantity of maize. However, this presumes that such a system can be administered effectively, which is not always the case. Even if the system could be administered, the effects are questionable. Rich people would get the same quantity of maize at the same price as poor people. This might be socially unacceptable.

  3. Market forces could be allowed to function, and the poor could be given food stamps that entitle them to buy a specified quantity of maize at a lower price. Since the poor can not decrease their consumption without starvation, the rich should consume less. If maize prices rose steeply, the rich could still afford the maize or they could eat other foods.

  4. The government could tax other foods, thus getting more money to import maize.

- **Assume that the GMB will not have enough maize to meet demand at the prices set by the government. What are the implications? What actions might the government take?**

  If maize prices were set at low levels and enforced, people in the towns will start to form lines to buy maize meal. It is harder to enforce prices in rural areas, however. This will lead to illegal private trading from town to country, which will result in even less maize being available in the towns. The effects on income distribution would be highly negative to the poorer people in the countryside.

- **Assume that yellow and white maize have the same nutritional value and that Zimbabwe can buy yellow maize on the world market. How can the government induce farmers to feed their animals yellow rather than white maize?**

  Farmers would feed their animals yellow maize if it were cheaper than white or if feeding of white maize was forbidden and heavily penalized.

- **Since Zimbabwe has a limited amount of foreign exchange, it cannot import its usual quantity of wheat as well as additional quantities of maize. How would you allocate imports to cope with the maize shortage?**

  The caloric content of wheat and maize is about the same. However, wheat is normally much more expensive than maize on the world markets. Hence, for the same amount of money, Zimbabwe could buy more calories if it were to buy only maize.

The Effects of Uniform Regional Prices for Grain

- **Discuss the effects on allocation, distribution, the division of labor between the public and private sec-
tors, and enforcement problems, in years with normal, above-average, and below-average harvests.

**Allocation.** If a country wants to maximize production and social welfare (GNP), prices should reflect marginal costs. This would guarantee that the consumption pattern would also reflect marginal costs. If marginal costs and prices of a specific good are high, consumers will consume less. If production is centered in specific regions, but consumers are spread over the country, the marginal cost of supply (the marginal cost of production plus the marginal cost of transport) differs from one location to another. With the same prices applied throughout the country, production resources are misallocated.

**Distribution.** People living in areas that produce more maize than they consume are taxed in favor of people who live in areas that consume more than they produce. Thus the implication is that people in rural areas are taxed in favor of city dwellers.

**The Division of Labor between the Public and Private Sectors.** Private traders have no incentive to transport maize from one region to another if prices are the same in all regions. Hence, private maize trading will be eliminated. The government or parastatals, which have to be subsidized, will have to step into the market.

**Enforcement Problems.** The system might work in years with a normal harvest. If the harvest is above average, however, the government or the parastatals may not have sufficient storage capacity to buy the whole crop. Consequently, prices in surplus regions might fall below official prices. If the harvest is below average, consumers may have to pay much more to get maize on the black market.

**Stable Prices throughout Years**

- Discuss the effects of prices remaining the same throughout the year on the points listed above.

If prices remain the same throughout the year, there is no incentive to store grain. The government will probably have to buy the entire crop at harvest time. This involves high storage cost and waste.

**Stockpiling**

- Discuss whether government stockpiling of maize and wheat is rational from the economic point of view.

Zimbabwe generally grows sufficient maize so that there is a surplus available for export. Hence, fluctuations in production could result either in fluctuations in the amount available for export or changes in domestic stocks. To evaluate the alternatives, present world market prices and expected world market prices one year from now should be taken into account.

The situation is somewhat different for wheat, in which Zimbabwe is not self-sufficient. If the crop is insufficient to meet domestic demand, changes in carryover stocks should not be related to fluctuations in domestic production. Stocks should be built up if present world market prices are lower than expected world market prices. If there should be an exceptionally good harvest such that wheat production exceeds domestic demand, however, the government should consider not exporting the surplus but using it to build up stocks. This makes economic sense because export prices in one year are usually lower than import parity prices the next year, especially for landlocked countries such as Zimbabwe.

**The System for Setting Prices**

- Discuss whether the procedure for setting prices results in appropriate prices from an economic point of view. Are distributional effects properly taken into account?

Zimbabwe’s price setting procedure very likely results in inefficient prices from the allocative point of view. Prices are efficient if domestic prices are equal to export or import parity prices. The market will determine these efficient prices.

The system also causes other losses in economic efficiency. Human resources are wasted in preparing papers and discussing the proposals. Moreover, such a system tends to strengthen the efforts of lobbyists, since it suggests that lobbying may pay and where to intervene in the decisionmaking process.

It is unlikely that distributional effects are considered properly, since not all social groups participate in setting prices. This affects especially consumers. It is likely, however, that commercial farmers are much better organized than other groups, hence, they may be able to articulate their interests more clearly and strongly.

The present price ratios in Zimbabwe indicate that some implied distributional effects are questionable. Where producer prices are below parity prices, there is an income transfer from the rural areas to the cities. But the average income in the cities is higher than that in the country. Where producer prices are above parity prices, as for milk and beef, commercial farmers, who are not among the poorest in the countryside, receive a higher income.

In general, it is nearly impossible to take into account all the distributional effects in setting agricultural and food prices. Only in exceptional cases will a product be produced or consumed only by either poor or by rich people. Hence price changes set by the government to respond to distributional needs will always affect some people positively and others negatively.
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The collection and distribution of agricultural products, particularly food, is an important mechanism for redistributing resources, wealth, and power. The marketing of agricultural products can therefore be considered a tool of development policy and an instrument for regulating and executing development processes. In many developing countries, however, marketing constraints are becoming increasingly problematic. Complex political, institutional, economic, and operational issues concerning agricultural marketing have made it difficult to develop a general framework for understanding the performance of marketing systems in individual countries.

This volume arises out of a seminar for senior officials involved in agricultural marketing and decisionmaking in ten developing countries. Its eleven chapters, divided into two parts on marketing institutions and marketing and on pricing policy, reflect the varied backgrounds of the participants. The treatment includes experiences in planning and managing markets in developing countries and emotional issues involving ideological differences in market organizations and the participation of farmers in marketing decisions. The book concludes with a review of the discussions and a case study.

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