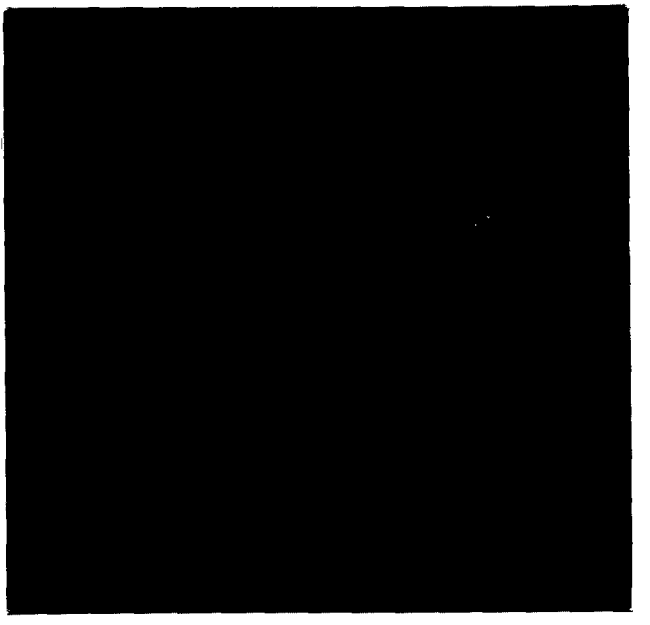
PN-ACE-299
100932



AGRICULTURAL POLICY ANALYSIS PROJECT, PHASE III

Sponsored by the
U.S. Agency for International Development

Assisting USAID Bureaus, Missions and Developing Country Governments
to Improve Food & Agricultural Policies and Make Markets Work Better

Prime Contractor	**Abt Associates Inc**
Subcontractors	**Development Alternatives Inc**
	Food Research Institute, Stanford University
	Harvard Institute for International Development, Harvard University
	International Science and Technology Institute
	Purdue University
	Training Resources Group
Affiliates	**Associates for International Resources and Development**
	International Food Policy Research Institute
	University of Arizona

Project Office 4800 Montgomery Lane, Suite 600, Bethesda, MD 20814 Telephone (301) 913 0500
Fax (301) 652 3839 Internet apap3@abtassoc com USAID Contract No LAG 4201 C-00-3052-00

PN-HCE-299

GUIDELINES ON AGRICULTURAL MARKET PERFORMANCE

December 1998

APAP III
Research Report
No 1065

Prepared for

Agricultural Policy Analysis Project, Phase III, (APAP III)

USAID Contract No LAG-C-00-93-00052-00

Authors **Gary Ender, Abt Associates Inc**
David Wilcock, Development Alternatives, Inc

TABLE OF CONTENTS

LIST OF TABLES

ACKNOWLEDGMENTS

The authors would like to acknowledge the strong support given to the preparation of this document by the first project officer of APAP III, Dr David Schroder They would also like to thank the reviewers, Dr Bruce Marion and Dr John Holtzman, for their thoughtful and helpful comments and suggestions Errors of fact or interpretation of course remain the responsibility of the authors

EXECUTIVE SUMMARY

The conclusions of this guideline are

- Agricultural markets have particular characteristics, including the distribution of essential food, that both result in their functioning differently than other markets and often make them targets for government intervention

- When a government considers either policy intervention or facilitation of market development, it is wise to first make a careful assessment of the performance of the market

- Interventions to correct "market failures" abound, they often result in policy failures Facilitation of market development will generally produce better results than interventions that distort prices and/or other incentives The key is whether government actions promote or hamper competition Government can promote competition by, e g , providing market information, developing necessary infrastructure, and passing and enforcing anti-monopoly laws

- Experience shows that 1) reforms that enhance competition are effective at improving market performance, 2) the public and private sector both have important, complementary roles to play in promoting market performance, and 3) equity can be enhanced at the same time as efficiency While institutional and regulatory reforms take longer than, e g , price policy reforms, they are no less essential *The role of the state in market performance is a strong one the manager, promoter and enforcer of competition, not a competitor in the market itself*

This guideline provides assistance to USAID's Agricultural Development Officers (ADOs) and Economic Growth Officers (EGOs) and other practitioners of agricultural policy reform and the institutional restructuring that often accompanies it The central issue is the appropriate roles of the public and private sectors in defining the structure and operation of agricultural markets The ultimate goal is improved market performance, which is a key theme of the APAP III project We examine types and degrees of public involvement in institutions whose basic functional units are private The public sector should always play a role in creating and maintaining markets and the legal and institutional rules by which they operate It also provides much of the transportation and communications infrastructure which are their life blood Should the state go beyond this level of support?

This issue is addressed from both the theoretical and empirical points of view in the five chapters that follow the introduction In chapter 2 we offer a broad, pragmatic approach on how the performance of markets should be assessed To be useful, our approach has to reflect the practical political and economic development objectives that occupy national policy makers In chapter 3 we discuss the reasons why agricultural markets sometimes function differently than markets for

industrial products These differences have led governments the world over to intervene in their functioning, we also describe the most common types of interventions

In chapter 4 we address the questions, What is a market supposed to do (or how is it supposed to perform), and who is in the best position to ensure that a market will do these things? What are "market failures"? We distill recommendations from neoclassical economics and related modern analyses, particularly about government intervention or facilitation Chapter 5 examines methods that have been used by development practitioners to assess the performance of markets We present a set of relatively simple analytical methods that are accessible to non-economists Careful diagnoses are an important prerequisite to designing successful intervention or reform programs

Finally, in chapter 6, the recent experience of policy reforms in LDCs is selectively reviewed for its effects on the performance of agricultural markets and the changes in public and private roles that have occurred or are judged to be necessary

1 INTRODUCTION

This guideline is intended to provide guidance to USAID's Agricultural Development Officers (ADOs) and Economic Growth Officers (EGOs) and other practitioners of agricultural policy reform and the institutional restructuring that often comes in its wake The central issue is the appropriate roles of the public and private sectors in defining the structure and operation of agricultural markets This is not a question of totally free or totally controlled markets Rather we examine levels or degrees of government involvement in institutions whose basic functional units are private The public sector is always involved in creating and maintaining markets, the legal and institutional rules by which they operate, and providing much of the transportation and communications infrastructure which are their life blood The question is, When should the state go beyond this level of support or indirect involvement in nurturing and promoting markets as instruments of development?

Market performance is a key theme of the APAP III project It is especially timely because of the many reforms of agricultural and macroeconomic policies under way in LDCs As governments and donors pursue these reforms, it often becomes apparent that a realignment of public and private sector roles would lead to more efficient operation of markets and thereby higher income for farmers and others in developing countries The emphasis on dismantling systems for government involvement in agricultural markets is a recent one, with reforms coming largely since 1980 While this strategy advanced more rapidly in the 1980s partly for ideological reasons, it is very clear that many schemes involving state marketing simply were not working and that reforms were often desperately needed In the 20 years that preceded 1980, USAID and other donors were still actively promoting intervention in agricultural markets, often in areas such as the creation of new urban wholesale markets in Latin America Some of the useful assistance that has been continued by other donors in recent years

Markets are at the core of the structural transformation from subsistence to commercial production Most development specialists underline the essential relationships between markets and development For one, markets are needed to allow the poorest farmers to commercialize and raise their productivity Increases in on-farm productivity often follow improvements in marketing systems The cost of marketing an agricultural product, moreover, may be more than half the consumer cost, so the consumer may benefit more from a reduction in marketing cost than from an equal reduction in production cost Markets are also needed to achieve a broad-based distribution of benefits of economic development Markets and the institutions that support them are at the heart of economic development

There is another reason why efficient markets must sometimes be promoted, namely, they will not necessarily arise by themselves As well as being the sum of a set of buy/sell transactions, a well-functioning market is a complex of laws, policies, and institutions, and is a public good in itself As such it needs to be nurtured, and sometimes its rules need to be enforced, by the public sector In agriculture, however, governments have often taken up this charge and pursued it, some would say, to excess

These central issues are addressed in the five chapters that follow, each of which has a different perspective

- In chapter 2 we define agricultural input and output markets and how they fit into commodity systems, then offer a broad, pragmatic approach on how the performance of markets should be assessed To be useful our approach has to reflect the practical political and economic development objectives that occupy national policy makers

- In chapter 3 we discuss the reasons why agricultural markets sometimes function differently than markets for industrial products These differences have led governments the world over to intervene in their functioning, so we describe the most common types of interventions

- In chapter 4 this leads to the questions, What is a market supposed to do (or how is it supposed to perform), and who is in the best position to ensure that a market will do these things? In examining these questions, we distill from neoclassical economics and related modern analyses simple and powerful conceptual suggestions Since we generally do not deal with perfect markets, these suggestions must be qualified We try to distinguish between intervention and facilitation

- Chapter 5 examines methods that have been used by development practitioners to assess the performance of markets We present a set of relatively simple analytical methods that are accessible to non-economists Careful diagnoses are an important prerequisite to designing successful intervention or reform programs

- Finally, in chapter 6, the recent experience of policy reforms in LDCs is briefly reviewed for its effects on market performance and the changes in public and private roles that have occurred or are judged to be necessary [1]

[1] We do not deal with the major transition from central planning (communism) to capitalism which is a move in the same direction as these policy reforms but more profound For insights into this transition see World Bank (1996)

2 THE PERFORMANCE OF AGRICULTURAL MARKETS WHAT IS IT AND HOW SHOULD IT BE ASSESSED?

Defining clearly what is meant by the term "market performance" and deriving practical methods for assessing if specific markets are "working better"?as the result of structural adjustment or other policy reform efforts"are two of the most important, interrelated questions in contemporary, applied agricultural policy analysis In answering these questions we touch on most governmental programs dealing with agriculture and rural development These questions are at the heart of many economic development issues in the third world as well as in more industrialized countries

2 1 Defining Agricultural Markets

To begin this examination, we define, illustrate, and put into context some of the words in our question, starting with agricultural markets A useful document written for the USAID/Africa Bureau defines "agricultural marketing" as

> a process by which inputs are delivered to farmers, output is collected from farmers and commodities are transformed before being delivered to consumers

Thus there are agricultural markets that are "upstream" from the farm that are covered by "input marketing," and those that involve farm products "downstream" from the farm referred to as "output markets " More precise definitions are offered by USAID

> Agricultural input marketing involves the buying and selling, transportation and storage of items such as seeds, fertilizers, agricultural instruments and equipment, pesticides and herbicides, draft animals and appropriate technology
>
> Agricultural output marketing involves the buying and selling, and transportation, storage, grading and sorting, transformation, packaging and promotion and distribution of what is produced on farms (USAID, 1991, Annex A, p 2)

In the practical world these markets are often considered together as part of commodity systems For example, those markets upstream and downstream from rice farmers in Senegal may be referred to as the "Senegal rice production and marketing system" or the "Senegal rice subsector "[2] Agricultural economists who study the structure, operating procedures, and performance of the different agricultural markets that make up commodity systems tend to look at these component markets as "horizonal," each performing a specific function, as raw materials flow "vertically" to

[2] See Wilcock (1991) for more detail on using the "commodity subsector approach" to the study and promotion of agribusiness development

farms, off-farm transformation, and to consumer markets that are all part of the commodity system **Figure 1** illustrates this conceptual framework, it diagrams two marketing subsectors for wheat flour in Morocco, one industrial and the other small-scale or "artisanal" Wheat, produced in Morocco or imported flows through at least three horizontal layers of marketing and processing on its way (as flour) to the consumer Figure 1 also illustrates one of the practical reasons that analysts find the "vertical commodity system" a useful conceptual approach It is simply that this is the way the agricultural world is organized, particularly as a country evolves and develops economically[3]

As development practitioners, looking at policy or economic development questions, we must ask, Are we most interested in the operational efficiency of the component market or the larger commodity system? For example, are we more interested in the market that provides vegetable seed to peri-urban vegetable producers around a capital city, or the overall performance of the entire set of supply, production and distribution systems that result in abundant, high-quality vegetables being available at a reasonable price? Generally we are interested in the efficiency and performance of the entire commodity system or subsector If overall system performance is being negatively affected most directly by the performance of a particular horizontal component market (competing sellers of vegetable seed in our example), then that market may be the target for specific intervention

2 2 Objectives Against Which the Performance of Agricultural Markets Can Be Assessed

In order to assess the performance of agricultural markets, we must first be clear about the objectives that specific groups (farmers, national decision-makers, a bilateral donor) would like those markets to meet In this section we set out some of the ways in which policy makers (and policy reformers) in practice may look at agricultural markets and the commodity systems they are a part of Here we attempt to put some reasonable and practical "conceptual boundaries" around the term market performance

In pragmatic terms development practitioners and political decision-makers must evaluate the performance of markets with respect to a set of objectives, ideally a set of politically relevant and economically rational objectives Which objectives are to be maximized is always subjective and political Poor developing countries have less choice in what national objectives to pursue, but the choice of objectives is always there and is always political

Neoclassical economics, in the logic of its competitive market model, has what seem to be intrinsically egalitarian objectives In its simplified view of the world, undifferentiated goods for sale in competitive markets (many buyers and sellers, no barriers to entry, good information)[4], call to mind

---

[3] A few other notes on this "vertical" terminology Goods flow through the 'vertical marketing channels of these commodity systems As the efficiency of these exchanges improves this increases the "vertical coordination of a commodity system In more advanced marketing systems companies attempt to bypass markets or other market participants (or internalize the functions previously performed by other participants) through "vertical integration '

[4] See chapter 4 for more details on these assumptions

small rural markets for agricultural products where rows of sellers are sitting and displaying identical piles of peanuts or beans that are for sale at a widely known price and measured out by some standard measure The image is of a fairly level socio-economic structure, no barriers to entry, free-flowing information, individuals rewarded equally for their labor

Unfortunately most agricultural markets do not share many of the structural and functional assumptions of the idealized market in neoclassical economics[5], nor its implicit objectives There are often other objectives that are set by national governments or key groups of market participants for transactions in agricultural products If one were to filter out the more undemocratic or self-defeating types of marketing arrangements[6], we can identify five broad categories of national policy objectives that can be used to gauge the performance of agricultural production/marketing systems

2 2 1 "Pro-consumer" Policies

Pro-consumer policies may attempt to insure low food costs (for basic food items) for the largest portion of the population, regardless of whether the food is produced domestically or abroad This could be measured fairly easily by a weighted average of the most commonly consumed food products, denominated in the local or a foreign currency

Since the cost of food may make up the biggest component in the overall cost of living in many LDCs, damping staple food price increases can be a sensible objective on equity grounds and in terms of international labor cost competition For example, in an economy that has a substantial non-agricultural portion of its population with good income-earning opportunities, policies to keep food prices relatively low may be quite appropriate as public policy However, in recent agricultural development experience, the misuse of such policies in some countries has been noted For example, numerous LDCs have been criticized for employing "cheap food" policies When the policies involve a national cereals board providing cheap grain (at a high cost) to portions of the urban population (particularly to already-privileged civil servants), this certainly can be a legitimate criticism

2 2 2 "Pro-producer" Objectives

Pro-producer objectives often involve providing farmers with high and stable prices in order to encourage maximum national agricultural production and employment Success of such policies for a given production/marketing subsector are sometimes narrowly measured by the percentage of national consumption being produced within the country While such an approach may ignore the

---

[5] See chapter 3

[6] These might include cases such as a dictatorial ruler systematically syphoning off the profits from state-controlled export crop marketing broads into his own bank accounts in Switzerland or a particular ethnic group or economic group being able to profit unduly through dominant control over a marketing channel These situations could be seen as political or structural problems or be considered rather extreme "market failures " See chapter 4 for more detail on what constitutes market failure

fundamental economic notions of opportunity cost and comparative advantage, such objectives have certainly been pursued by wealthier countries An interesting example of government market intervention policies that are clearly pro-producer in nature is Shaffer's proposal for a new "statement of purpose" for agricultural marketing orders in the United States under the umbrella of the 1937 Agricultural Marketing Act (underlining is added)

> The purpose of this legislation authorizing marketing orders is to enhance market performance by providing the means for growers to promote activities leading to orderly markets and to otherwise deal with problems in market failure in agricultural commodity subsectors within a set of obligations designed to protect against potential abuse of power by growers acting collectively under the rights specified in the legislation
>
> With orderly markets, supply and demand of commodities are consistently matched at prices reflecting the costs of producing and marketing them by typical well-managed firms Matching supply and demand refers to both quantities and attributes and applies at every transaction point in the vertical system of production and distribution Costs include a normal return to investment and management Matching supply and demand allows for actions to modify demand to match supply as well as adjusting supply to an existing demand The definition reflects two pragmatic goals based on commonly accepted beliefs
>
> (1) Resources should not be used to produce something that isn't worth what it costs to produce it, and conversely resources should be used to produce something which is worth more than it costs to produce it
>
> (2) Rewards for economic contribution should be fair Returns to investment, management and comparable labor inputs in well-managed firms should not vary greatly across industries (Shaffer, p 76 in Padberg, editor, 1994)

In countries where marketing policies provide for stable commodity price levels above the world price for domestically produced food crops (deficits of which are also imported), these policies can be seen as being pro-producer in orientation, although they are often defended in the country on food security grounds

Pro-producer and pro-consumer price policies generally are in conflict Lower or higher prices for farmers generally mean the same thing for consumers This is the heart of the classic food policy dilemma Consumers may be quite willing to pay more for their food if their purchasing power, generally from non-agricultural sources, is rising even faster (often not the case) As we shall see, in some countries governments have attempted to pursue both producer and consumer objectives at once, usually through greater participation in the market and through the use of various transfers or subsidies For example, the Government of Morocco in recent years has maintained substantial support for domestic wheat production by placing a very high tariff on imported wheat This caused the general level of wheat prices to be two to three times the world price In order that the poorest

consumers not be overly penalized that government then also subsidized the production and sale of a particular grade of wheat flour, targeted for sale to the poor

2.2 3 Marketing Efficiency Objectives

Marketing efficiency (sometimes referred to as "technical marketing efficiency") refers to the total cost of performing the functions needed to move agricultural products through the vertical marketing channels, between producers and consumers (or export outlets) Marketing system or project objectives would involve minimizing these aggregate costs or those of specific components In most political economic environments these are objectives that can be adopted, regardless of how the system is constrained to pursue producer- or consumer-oriented or other objectives

Technical marketing efficiency is at the heart of most market improvement programs funded by national governments and their donor partners Gains in efficiency (or reduction in costs) can come through investment in transport or communications infrastructure resulting in lower transport costs per ton/kilometer or lower marketing costs due to operators having better information on which to base their marketing decisions Similar cost reductions can come through the promotion of greater competition in marketing channels, often through the elimination of more costly government-provided marketing services

Gains in technical marketing efficiency are of great interest to market reformers and other applied practitioners for a number of reasons

- **Magnitude** A reduction of only one or two percent in the cost of product marketing can have very significant economic impacts when applied to a large volume of product marketed year after year This would apply particularly to the cost of marketing staple food products in low-income countries One of the reasons for the very high material quality of life in the United States is the efficiency of marketing and distribution systems which result in U S consumers having access to more and better-quality products at cheaper prices than consumers in other countries at similar income levels,

- **Ease of measurement** Gains in technical marketing efficiency can be measured very easily For simple (less transformed) agricultural products, technical marketing efficiency is measured by the aggregate marketing margin between the farm gate and final consumer prices, a gain in efficiency results in a reduction of the marketing margin, and

- **Potential to assess distributional impacts** The monitoring of the change in size and composition of marketing margins provides an opportunity to take a first look at the distributional impacts of marketing reform programs Are reductions in margins going more to farmers in terms of higher prices, or to consumers through lower prices, or is more of the margin now going to marketing agents in between? The margin analysis would have to be supplemented with additional information, however, to be able to answer intra-group

distributional questions such as an analysis of changes in market share by size category of farm [7]

2 2 4 Revenue Generation Objectives

Generating revenue has been and continues to be a major motivation for government sponsorship or control over export marketing channels (particularly for cash crops) in those developing countries without substantial alternative sources of foreign exchange Either as total government enterprises or in some mixture between private sector licensees and state control, domination over export marketing channels has been almost universal The World Bank (1994a) points out that for Africa for example, that even in the 15 years since 1980, the decade and a half of liberalization and privatization, very few countries have substantially reduced their involvement in cash crop marketing, as they have in food crops

One of the most important functions provided by this type of government involvement in export crop marketing has been price stabilization Different approaches have been used, but they almost all involve paying farmers well below the world market price (plus transport and handling changes) so that farm gate prices can be maintained during those periods when world prices are cyclically low When primary commodity export marketing has been one of the few reliable sources of foreign exchange, governments have often increased the portion of the "surplus" retained for their own use This has often resulted in farmer discouragement, inadequate investment in new technology, and declines in overall production Two of the most striking examples of this phenomenon are the declines in Africa's dominant position in the world markets for palm oil and cocoa Another is Pakistan's loss of its virtual monopoly of the world aromatic rice market

2 2 5 Economic Development Objectives

Governments have used their involvement in agricultural marketing systems as a means of promoting economic development The techniques used have varied substantially, usually by the level of development of the economy in question For example, at the most elementary level of economic development, colonial governments often used the creation and operation of marketing boards as a means of achieving a variety of objectives furthering the economic interests of colonial settlers, "monetizing the economy" (creating markets for goods as well as mobilizing the population to produce agricultural commodities for the market), extracting revenue for paying for other administrative functions such the provision of social and economic infrastructure, and so forth

In Africa many of these institutions focused on export cash crops, which sometimes were made up of food commodities, peanuts in Nigeria and Senegal, maize in Kenya, wheat in Morocco, and rice in Madagascar all had well-developed export systems Many of these marketing institutions performed extremely well in meeting colonial state objectives Most of these institutions survived

---

[7] See chapter 5 for further discussion of practical techniques for measurement analysis and presentation of information on marketing margins

after independence but generally have performed less well in meeting the more complex or demanding objectives of newly independent states

Government intervention to promote economic development can take place at all levels of development There is an emerging consensus in the analysis of the recent development of the "Asian tigers" that holds that their success has been less due to market liberalization and laissez-faire policy regimes than to active state assistance to private industry groups in the rapid acquisition of expanded overseas market shares for key export products (see Bradford, 1994)

2.2 6 Political Process Chooses Mix of Objectives

In actual commodity systems, some or all of these five groups of objectives may influence performance expectations by government and by other politically relevant groups in the society The choice of which objectives will be dominant in the design of a marketing system will ultimately be a political one Similarly, political expectations will determine which criteria will count most heavily in the evaluation of the performance of a marketing system The range of options open to a given marketing system will be defined by these political parameters, which in turn are constrained by national economic realities (national resource endowment, human capital, financial resources

In the USAID-funded Latin American Market Planning (LAMP) project, the authors of the project's summary volume argue that the "performance" of agricultural marketing systems can be improved through a variety of governmental activities In this multi-country project setting 'performance" was used

> to represent a combination of economic consequences It refers to economic efficiency in the use of resources in marketing activities, effectiveness in market coordination to promote price stability, fulfillment of consumer quality preferences, and competitive flexibility and willingness of market participants to innovate and progress (Harrison et al 1974, pp 4-5)

In sum, the key point for the policy analyst or potential policy reformer is to determine the explicit or implicit objectives that are being used to judge or make practical decisions regarding the operation of a given commodity system and its component market mechanisms It is important to clarify whether all parties (donors and national governments, different domestic stakeholders) are using the same criteria when evaluating market performance Are there fundamental incompatibilities among stated objectives for the marketing system? Time spent on the clarification of objectives underpinning the assessment of market performance is usually time well spent

' 3 Constraints on Meeting Marketing System Objectives

One of the keys to understanding how applied economists look at the performance of agricultural marketing systems (or any other productive system for that matter) is the notion of **constrained optimization** In evaluating the production and marketing performance of a commodity subsector, the practitioner is trying to maximize economic value produced (or minimize the costs of marketing) subject to a set of limitations on the system, defined by agronomic potential, technologies

(in processing, transportation), the nature and extent of public infrastructure (roads, communications, market places), and a variety of socio-economic and regulatory limitations and regulations These limits to efficiency gains will vary depending on whether the commodity system operates within the boundaries of one country or in the realm of international trade where some of the variables in our systemic formula for profit maximization may be shared (the same technologies are used by all competitors) but other cost elements (labor, other inputs) and constraints (labor and environmental standards, for example) may be quite different, as will the underlying natural resource endowments

To this point our general approach to how the performance of marketing systems can be measured and evaluated has focused on the types of performance objectives that actors in the system (farmers, consumers, marketers, government decision-makers) may try to maximize (technical efficiency, farmer profits) or minimize (marketing margins, costs to consumers, transportation changes) But we must keep in mind that our "socio-economic optimization process" is not without limits (or "unconstrained" in the language of economists) The limits are generally external to the process of decision making open to the analyst during a defined time period (or the limits are "fixed" during that time period) In the short run most costs, resource constraints, and technological efficiencies are fixed, and we make our choices (to produce a mixture of crops on a farm or routes to use in shipping agricultural products in a trucking business) based on those parameters As the time period of the analysis lengthens more of those factors are subject to change as a result of public or private investment and can be considered "fair game" in our performance evaluation

Consider a performance evaluation of the farm production and marketing systems that produce strawberries in north central Morocco for export to the European market In the short run (for example two production/marketing seasons) if we take as our measure of performance the maximization of aggregate Moroccan profits from strawberry sales in Europe many of the variables that define the supply and demand for Moroccan strawberries in the European market are fixed (technologies of production conditioning, and packaging) and other factors such as supply of competing strawberries from other EU or non EU sources are outside or exogenous to the control of participants of the Moroccan export strawberry subsector

Therefore in the shorter run the performance of this production/marketing system will depend largely on the success of the daily commercial management and problem solving efforts of input suppliers producers packing house managers, brokers, and sales agents that will affect the cost quality and timely availability of Moroccan strawberries It is possible that the efforts of subsector allies in the Government of Morocco who are able to obtain preferential treatment and lower prices for air cargo services and settlement of a troublesome quality inspection or customs problem may also be critical to the performance of this subsector over the two-year period of the short-term performance review

Over a medium- or longer-term time horizon, many other parts of the profit/loss equation may become variable These might include agronomic changes (success in the selection of new strawberry varieties changes in the design and cost of the plastic tunnel production technology, or discovery of better production results from other producing regions), changes in the regulatory environment (modifications in the regulation of Moroccan air freight so that costs can be significantly reduced) or changes in the subsector's professional associations, permitting a successful advertizing campaign in the European market which fosters a significant consumer preference for strawberries in a distinctive package with the trade-marked "Maroc" label All of these would be on top of the continual change in the commercial sophistication of producers and marketers that is so important in the short run

Thus in evaluating the performance of commodity (production and/or marketing) systems, we must clearly specify the objectives that will be optimized and the spatial and temporal boundaries that will be placed on the system in question These boundaries help to define what is fixed and what is variable in the system under review and how much learning, technological change, complementary investment, and evolution of consumer tastes and preferences can be accommodated in that review (or how "dynamic" our performance analysis is) In **Text Box 1** we summarize this discussion of limits or constraints to commodity system optimization by briefly reviewing the major kinds of constraints involved in practical system analysis and how these "fixed" constraints can change over time

3 SPECIAL CHARACTERISTICS OF AGRICULTURAL MARKETS WHY DO SO MANY GOVERNMENTS INTERVENE?

Governments in most non-socialist countries[8] have tended to directly intervene in agricultural input and output markets substantially more than they have in the markets for other products The reasons for this phenomenon are complex and interwoven However, we can distinguish three broad groups of issues/concerns that have motivated government intervention and affected the types of market intervention strategies pursued

- Supply and price variability in domestic agricultural markets, particularly domestic food output markets Intervention is often done in the name of food security,
- Supply and price variability in the international commodity markets for traditional non-food cash crops and for widely traded food crops and the opportunities that international trade presents for earning foreign exchange, and
- Characteristics of rural life in the "national character" of most countries and characteristics of farms as business units[9]

3 1 Price Variability in Domestic Food Markets

It is well established that food commodity markets differ from the markets for non-agricultural commodities and certainly for industrial goods A main difference, of course, is that prices in agricultural markets tend to be more unstable than those for other products This price instability can be seasonal or interannual and is due most frequently to fluctuations in the supply of the commodity

[8] In socialist or communist countries government intervention was even greater since there was much greater public or state ownership of production and marketing assets

[9] Tomek and Robinson (1972) writing more about agriculture in developed countries present four general reasons for government intervention in the pricing and marketing of farm products

(1) to reduce price and income instability
(2) to improve the allocation of resources
(3) to increase self-sufficiency in food and fiber and
(4) to raise the average level of prices and incomes

This situation is one that lured first colonial governments, then their post-independence successors to intervene to help dampen these severe seasonal price swings Policies pursued included the forced storage of large quantities of grain at the village level, "cereals bank" loan schemes lending to farmers at harvest (to help meet their seasonal credit needs against the collateral of the stored grain later sold at higher market prices), and central government food security/market stabilization purchasing schemes where the state would buy and store at harvest to raise harvest season prices and sell during the pre-harvest "hungry season" in order to even out large seasonal price swings While the theoretical possibility of price stabilization is logically compelling intervention schemes generally have been very unsuccessful, particularly over a multi-year period, and thus have wasted large amounts of the very scarce capital available to the governments of these very poor countries Policy reforms in recent years have succeeded in reducing state market intervention to the holding of relatively small food security stocks under strictly regulated conditions

in that particular market However, dramatic shifts in the demand for agricultural commodities can also contribute to price instability Governments have had difficulty in resisting the opportunities to intervene in such markets We will look briefly at some of the differences among three groupings of domestic food markets less perishable food crop products, highly perishable food crops, and animal products

3 1 1 Less Perishable Food Crops

The first group of food crops we will discuss are basic agricultural foodstuffs cereals, beans and pulses, oilseeds, and sugar They are less perishable than other agricultural products (such as horticultural products), they are generally "bulkable" and capable of being stored, and subject to substantial price swings Because these commodities are storable, governments can intervene more than in the case of perishable crops Two examples from different cereals markets (in **Text Box 2** and **Text Box 3**) help to illustrate how price variation can be caused primarily by supply variation but also by supply and demand fluctuations They also address the feasibility of the government interventions that were attempted [10]

[10] For additional information on Moroccan cereals marketing policy see David Wilcock and Lynn Salinger 1994

Sorghum and millet in the Sahelian countries of West Africa are primarily produced in rain-fed agriculture leading to great shifts in supply from season to season and from year to year Production in a good year can easily be twice or three times as great as in a bad year when rainfall is insufficient or poorly distributed during the year Since these are staple foods, demand for them remains fairly constant during the year and from one year to the next Market prices will often vary by a factor of one to three over the space of a year Traditionally, these price swings would be accentuated by the actions of market participants For example, just before or during the beginning of a good sorghum harvest, farmers may also place their "old sorghum" on the market, knowing that they will be able to replace old stocks with new grain This further contributes to a supply glut at harvest and contributes to lowering overall price levels The net result of these supply-side factors is a variation in price that is greater than the variation in the physical quantities produced from year to year and greater than the cost of storage from season to season

Barley is the largest of the three major cereals grown in Morocco (the other two are hard and soft wheat) It also has the greatest variability of both aggregate production and prices This is due to both supply and demand factors On the supply side, it is the most drought-resistant of the three major cereals, so is planted on the most marginal land with the lowest and most variable rainfall conditions This means that when rainfall is poor, barley production suffers the most dramatic decreases in supply Conversely when rainfall conditions are good, barley supplies increase more than the other cereals The demand for barley is also highly variable since part of national production is for human consumption (with close substitutes in the more stable wheat supply) The other part of production goes into animal feeding (particularly goats and sheep), where farmers can substitute other available feedstuffs (such as sugar beet pulp, spoiled wheat) or natural pasturage For example, sometimes late rains (which first drastically reduced the barley supply) will then produce spring pasture that will sharply reduce the demand for barley This combination of variable supply and demand, coupled with widespread farmer speculative marketing, produces highly variable and almost unpredictable market prices for this crop

Given this unusually unstable pattern in market prices, it is not surprising that the few attempts made by the government of Morocco to stabilize prices through government purchase/storage/resale have been dismal failures due partially to an inability to predict prices The only real intervention that had an impact on market stabilization was the government's restriction or expansion of imports through non-tariff barriers (import quotas and licensing and high tariff protection) Under GATT trade reforms the government is presumed to have much less ability to restrict imports through non-tariff means Greater trade in barley would presumably provide for market stabilization since world markets, however thin and volatile in barley are more stable than Moroccan price levels

3 1 2 Perishable Food Crops

More perishable food crops (such as fruits and vegetables) have been subject to much less government intervention, primarily due to the fact that these products, particularly in their fresh state, require labor-intensive handling, packaging, and distribution if there is going to be any market at all This has either been done on a very local basis or has involved very specialized marketing channels, much more likely to be implemented correctly by private firms than by state marketing firms Even in socialist economies, horticultural products were often the only ones left to private firms This may be somewhat less true for certain types of less perishable fruits (for example, until 1985 Morocco's citrus exports were packed by private companies but all exported by a state export marketing

monopoly), or those where the basic outlet for the crop is a processed product (often canned or frozen), which effectively reduces the underlying perishability of the crop itself These crops are often very seasonal in their availability from local production, which has created opportunities for supplies to come from distant sources in the off-season (examples South American fruit available in North America in the winter) or for advances in storage technology (e g , the use of controlled-atmosphere storage for apples and pears in temperate climates)

3 1 3 Animal Products

The supply of many animal products is seasonal in nature but generally less so than for crops For example, in the northeastern United States, lambs are generally available in the spring There is also a pronounced seasonality in the aggregate supply of cow's milk due to seasonal changes in feeding and to the cow's reproductive and lactation cycle In the U S midwest, seasonal and yearly shifts in supply and demand for hogs have produced the famous cyclical "cobweb" in fluctuating hog prices In areas of range production of livestock, a key determinant of supply is often rainfall When abundant, herds can expand, when droughts occur, herders may be obliged to liquidate their herds at low prices

In rural West African markets, the prices for cereals and small ruminants often move in opposite directions in the months during and after harvest, depending on the quality of the grain harvest Sheep and goats serve as a "bush bank" for storing agricultural wealth When cereals harvests are very good (and grain prices decline), ruminant prices often rise sharply as farmers who have sold significant quantities of grain add to their living "bank accounts," thus pushing up livestock prices The reverse occurs after bad grain harvests, as farmers sell off their livestock (with falling prices) to buy grain (at high prices) to feed their families

Markets for animal products, in both developed and developing countries, tend to be freer of government intervention (with a few notable exceptions) than the markets for staple crops The reasons are similar to those for highly perishable crops the inherent instability of the markets, the need for highly specialized management and, in addition, the reluctance of livestock producers to submit to supply controls that are often the price demanded by some governments in order to impose price stabilization schemes

3 1 4 Types of Market Intervention

As a response to wide seasonal and interannual price swings, state intervention in LDC food crop marketing has generally involved some combination (usually all) of (a) price controls, (b) direct participation in the domestic market, and (c) direct control over food imports (if there are periodic or recurrent shortages in supplies of that commodity) A major factor in the operation of these systems is the difficulty most LDC governments have in controlling enough of the food commodity to make a difference to supply or price variability In addition, when government programs only cover a portion of supply, the "rents" that accrue to individuals and groups in the marketing system to either have their products in the official marketing system or marketed outside the official system, depending on circumstances

Price controls/official prices There are a wide variety of official crop pricing schemes that have been tried in countries around the world Usually, a national government will have some ability to operate in the market to help enforce those official prices through purchases from producers or sales to consumers Otherwise official prices become a question of forced requisitions and price controls enforced by "economic police," the surest recipe for failure through corruption and repression Occasionally governments will attempt to influence market behavior through setting "indicative producer prices" that they may require or suggest that state institutions or others use in their purchasing of a portion of that commodity

There are three general types of market price intervention strategies that LDCs have used to intervene in food markets

- **Panterritorial and Panseasonal Pricing** Authorities have attempted to control either all or a portion of the marketing of a crop by fixing the purchase price for farmers, the marketing margin(s), and/or the consumer price Most often these prices are set once a year and are to be applied equally across the country Since real transport and storage costs will vary, panterritorial and panseasonal pricing schemes have often required the state to cover the cost of both transport and storage subsidies (usually done on a fixed ton/kilometer or ton/month basis) The constant prices are often justified on equity grounds for both producers and consumers, although this is inherently inefficient

  When a country is not self-sufficient in the production of a widely traded cereal and maintains domestic prices at above world price levels (such as North African wheat producing and importing countries, or West African rice importing countries prior to the 1994 devaluation), the subsidies to transportation and storage can generally be covered from the difference between the CIF landed price and the fixed domestic price levels

  There are two major problems in these types of fixed price schemes (a) arbitrage and corrupt behavior when price gaps between the controlled prices and prices in parallel markets are significant (as they almost inevitably will be at different points in the marketing year) and (b) managerial and logistical problems in having sufficient quantities available around the country while avoiding wastage when prices are not used as the indicator of relative scarcity

- **Intervention for Market Stabilization** The prospect of stabilizing prices through selective market intervention is theoretically attractive[1] but has proven to be very difficult to accomplish on a sustainable basis in LDC environments The basic idea is for a government company to buy and store excess supply at harvest time in order to keep prices from collapsing and to sell increasing quantities over the marketing year to prevent prices from rising too far above the normal average price plus the cost of storage

  In practice price stabilization intervention is less common than generalized price fixing and has had almost no reported success in very poor environments such as much of sub-Saharan Africa Funds are generally not sufficient in a bumper harvest to keep prices from dramatically falling for more than a few weeks in selected markets The case of the Gov-

ernment of Mali exhausting its donor-supplied buying fund over the course of one bumper harvest and then not being able to resell the resulting stocks in the following year (nor purchase any additional stocks) due to a second bumper harvest has been well documented (Staatz et al 1989) In addition, running local-level price stabilization schemes through village-level cereals banks has also proved very difficult to sustain for more than a year or two before initial capital stocks disappear (Berg and Kent, 1991)

- **Holding Food Security Stocks** The final level of limited price setting (in the context of cereals market intervention) which has proved to be generally more workable has been the careful holding of food security stocks or reserves These efforts have often been funded by Germany, which has specialized in technical and financial assistance to food security stocks in areas such as sub-Saharan Africa The procedures that are followed in those projects is buy and sell (when stocks are being turned over in a "technical rotation") at official or indicative price levels If the stocks are substantial in comparison with normal market supply of the cereal, these rotations must be done in increments and under carefully controlled procedures in order not to destabilize normal commercial markets There are usually distribution rules for food security stocks that are dependent on market prices or other indicators to trigger free or reduced price distribution of the stocked commodity[11]

State Marketing Monopolies and Licensed Traders Another very common form of market intervention in food subsectors is the direct participation by a state corporation or parastatal marketing board Sometimes these organizations have theoretical monopoly powers over the marketing of staple food commodities but, as we have stressed above, this is seldom exercised in actual practice These organizations usually buy the product directly from farmers, or sometimes from officially licensed traders or cooperatives They undertake cleaning, storage, transport, and wholesale functions (in some commodities such as rice, milling is also included) as the product moves to consumers Food marketing boards, while theoretically benefitting from substantial economies of scale and market power, have usually not been able to effectively compete with private marketing channels from a system-efficiency point of view In addition, in Africa, they have often have been operated to benefit certain privileged groups of urban consumers as part of widely-criticized "cheap food" policies which often did not target the most needy in the societies in question[12]

Commodity Import Monopolies Systems to control imports vary, but generally the state has had monopoly power over key food commodity imports Sometimes this can involve the state's negotiating all foreign cereal purchasing but then allocating actual imports to private traders (e g , the Moroccan cereal importing system) A more common system is state ownership of the imported food, which it resells at wholesale or retail at fixed prices Again, while the hypothetical advantages

---

[11] This is another reason that market information systems (MIS) are critical to both correct functioning of agricultural markets and to reform efforts One of the best practical treatments of the procedures involved in starting or improving MIS operations is Bernd Schubert et al *Agricultural Market Information Services* BMZ/GTZ Bonn Germany 1988

[12] See section 6 3 for more detail

of these systems are substantial at times, the practical disadvantages"in terms of inefficiency and corruption"have generally proven to be larger

In more developed countries, there have been efforts to stabilize fluctuating commodity supplies through the use of **marketing orders** In general marketing orders have attempted to restrict and stabilize supply through a variety of compulsory restrictions on aggregate supply or the supply of specific grades or other quality dimensions Some of the supply stabilization techniques have been quotas"either on output marketed or the amount of land in production, such as tobacco land quotas in the United States or Malawi"and price differentials that restrict supplies At times marketing orders have attempted to deal directly with the major sources of supply instability For example, in Michigan researchers observed that tart cherries were on the market in vast excess in some years (if there were no frost kill), or in short supply in years of early frost They also observed that farms on appropriate hillsides with good "air drainage" tended to have production levels much more stable from year to year The state of Michigan then passed legislation creating a tart cherry marketing program that restricted production to those farms with the appropriate air drainage in order to prevent the boom and bust supply that had harmed the entire industry It should be clear from this example that marketing orders often require a degree of data analysis, social organization, and supporting legislation that is often not present in third world countries However, the principles identifying and dealing with the sources of supply fluctuation are useful, and may occasionally find application in the third world This example also illustrates that efficient agricultural markets often require very close coordination between state and private actions

3 2 Revenue Generation, Rural Development, and Price Instability in Export Crops

The complexity of establishing in LDCs systems for the production and marketing of export crops, and the need in poor countries for the hard currency revenues that export crops can produce, coupled with substantial volatility in world prices for those products, combine to produce a second set of reasons for government intervention and control of agricultural markets

3 2 1 Traditions of Intervention in Cash Crop Marketing

The traditions of state intervention in cash crop marketing, for many countries and commodities, have their origins in the colonial era Then the state was often able to mobilize public resources (from the home country or locally-collected taxes) to provide transport or marketing infrastructure and other means of assisting private or parastatal colonial companies establish highly profitable export enterprises These were, in turn, one of the main motivations and justifications for undertaking colonial conquest These patterns were particularly pronounced in African and Asian colonial development

Regardless of their origins, cash crop production and marketing systems (whether staple foods, beverage or fiber crops) have played, and continue to play, a major role in the transformation of rural areas of LDCs While methods employed by colonial governments and their chosen private sector partners have been rightly criticized as exploitative, these commodity systems have contributed to material development through the creation or deepening of primary and secondary commercial

economic activity and the further development of public infrastructure Many analysts have drawn attention to the relative ease of surplus extraction from export crops (as distinct from widely-consumed food crops) due to the natural, dendritic, geographical configuration of marketing channels that funnel physical output toward a limited number of processing plants or ports

The patterns of state and private sector collaboration in these commodity subsectors is highly variable, they depend on the nature of the production environment and the complexity of the production and processing required to prepare the product for export Thus, tea is almost always produced in a plantation pattern and, due to the perishability of the fresh tea leaves, usually in very close proximity to the processing plant Coffee, in contrast, is much less fragile and has usually been produced on individual small farms, with private traders playing a much greater role in basic marketing and input delivery services In Central Africa, the widespread introduction of coffee washing necessitated a substantial increase in extension services, but not necessarily provided by the state Similarly, in West Africa the relative simplicity of peanut production and marketing technologies generally permitted most tasks to be performed by the private sector in contrast with cotton, where the greater technical sophistication of some parts of the production process and the importance of careful grading of the marketed product has generally required a much heavier participation of larger state or parastatal companies[13]

For most of the countries where revenue from cash crops is significant to government budgets, political independence did not decrease the level of state intervention in marketing channels In fact, in some cases state participation increased significantly when some private production and marketing functions were nationalized and put under the control of government-owned companies Compared to domestic food crop marketing, export marketing has rarely been the subject of bilateral or multilateral policy reform or liberalization efforts, either due to greater operating efficiency of the state companies, or the greater importance to the state of the direct control over the revenue streams from cash crop marketing The operational efficiency of these state companies may now be a tempting target for development practitioners who seek reliable ways of stimulating additional economic growth

3 2 2 Types of Market Intervention

There are three main groups of non-market intervention techniques that have been used to deal with price instability in agricultural cash crop markets (a) international price stabilization schemes, including international contingent or compensatory financing, and (b) domestic price and supply stabilization and, to a more limited degree, cash crop diversification schemes The latter attempt to isolate the domestic market from volatile international supplies and prices or to minimize risk by producing a wider variety of crops

---

[13] The very positive West African experience with cotton production and market development under public control is been pointed to (World Bank evaluation report on CFDT) as an exception to the generally negative experience of parastatal intervention in cash crop marketing in the West African savannah belt

International Price Stabilization and Contingent Financing Schemes These are complex areas that we only briefly introduce International price stabilization has been attempted through negotiated price stabilization agreements between producing and consuming nations and unilateral supply management engaged in by producing countries (such as the OPEC cartel for petroleum or the informal attempts to control the prices of bananas) Examples of the former are negotiated commodity agreements for coffee, cocoa and tin that have used a variety of instruments, including buffer stocks, buffer funds, export and import quotas, and quotas on production to attempt to stabilize supply and price These have generally not achieved sustained success In addition, under the UNCTAD Integrated Programme for Commodities (IPC), new international commodity agreements could be negotiated However, the record has been poor due to the process becoming politicized and derailed by suspicions between commodity buyers and sellers Only one new agreement (on natural rubber) has come out of this special program

Similarly, compensatory financing schemes, such as the IMF's Compensatory and Contingency Financing Facility, and the European Union's Stabilization of Export Earnings (STABEX) fund, have been established to stabilize national revenues derived from export commodities, both with little apparent success This has generally meant that LDC producing primary products have had to rely primarily on domestic programs in their attempts to stabilize prices or export earnings [14]

Domestic Price and Supply Stabilization Most export crop stabilization schemes have had two objectives price stabilization for producers and revenue generation for the state Three approaches have been used to meet these objectives They involve the use of buffer or stabilization funds (with variable taxation or subsidization of exports), marketing boards, or production quotas

The export stabilization fund, where the state is often not involved in the primary collection and marketing of the crop nor in its exporting, relies on its ability to effectively tax or subsidize the crop as it moves through marketing channels toward export Where governments have found it difficult to operate a tax/subsidy scheme with the private sector, it has often been easier to take physical control of the commodity to be exported This is the more common LDC pattern and involves the use of a marketing board The prices paid to producers is often quite stable from year to year with the differences between board expenses and the world price being added to or taken from reserve funds The record of most boards was to set the producer price at very low levels and to generate substantial surpluses In numerous cases in Africa, this caused production to stagnate as relative terms of trade worsened for farmers Thus, the basic mechanism in the stabilization fund and marketing board is the same, while the operating procedures or institutional framework varies

Finally, in a few special crops (such as tobacco in Malawi), supply has been carefully regulated through the use of production or acreage quotas For most crops these are not successful due to an inability to control the cheating that a quota system almost inevitably entails

---

[14] For more information on this topic see Stijn Claessens and Ronald Duncan *Managing Commodity Price Risk in Developing Countries* World Bank Johns Hopkins University Press 1993

Crop diversification involves long term efforts to reduce the very high degree of national dependence on a narrow range of food and cash crops that exists in some countries Government can play a constructive role in this area by funding research into the agronomic potential of producing additional crops which are more prominant in similar agro-ecological areas in other countries Where these efforts often become misguided is when agro-ecological potential is translated into state investment programs without careful considereation of the economics of producing the crop and the potential to market it either domestically or abroad The real job of developing new subsectors has to be with the private sector with the role of government restricted to longer term research on agronomic and comparative advantage and on constructively using the power and resources of the state to remove legal, regulatory and customary barriers that hinder the devlopment of private markets

3 3 Geography, Demography and National Cultural Roots in Farming

There is a third cluster of reasons why governments intervene in agriculture, particularly in pricing and marketing This cluster is defined by some of the unique geographic and socio-economic characteristics of agriculture and by the role that agriculture plays in the more intangible elements of national identity This cluster of reasons for intervention, while sometimes also used to justify government control in output marketing, has been used more frequently to justify intervention in the pricing and marketing of agricultural inputs, from land and labor to other basic inputs such as seeds, fertilizer, irrigation water, machinery services, and agricultural credit The need for such intervention may vary greatly by the level of general economic development of the country and the degree to which alternative private sector input delivery systems are available in target agricultural regions

3 3 1 Dispersed Farms

The first defining characteristic of agriculture is its geography Good crop or grazing land is often not conveniently located in relation to urban consumers or established communications or transportation infrastructure[2] Distance and bad roads are critical variables Agriculture is a highly dispersed and decentralized economic activity when compared to many other industries which tend to clump together in urban areas and may be much less location-specific Getting improved inputs to farmers at a reasonable cost can be a challenge The economics of input delivery changes as agricultural systems mature and evolve Private marketing systems will generally be in place to provide inputs consistent with the level of technology and demand from that farming system At earlier stages in the evolution of agricultural systems, periodic markets (that meet every three days or every week) offer an economically rational way for traders to get supplies as close as possible to farmers, particularly when demand for purchased inputs is weak

Weaknesses in existing marketing channels are often revealed when a government or donor project seeks to introduce new technologies into existing farming systems While farmers may be well-supplied with traditional hand-tools, open-pollinated seed varieties, and other inputs that are the mainstays of their existing cropping systems, there may not be a ready market to supply improved seed varieties, chemical fertilizers, and specialized agricultural chemicals to support more optimal production practices During the pilot or introductory phase of broad-based crop improvement, there

will be a natural tendency for the donor project or the government extension service to provide the correct "input package," often at subsidized prices, through project or government marketing channels

If the new, state-supported agricultural practices prove successful there is also a tendency for the government to continue to provide these services, either through force of habit, or through reasonable fear that progress will be curtailed if anything happens to the input supply system (even though the private sector may be perfectly capable of taking over the supply task on a more cost-effective and managerially flexible basis) In addition, in less developed socio-economic environments, where the impersonal rule of law is not the norm, government officials may look in a very predatory manner at private traders, and private sector businesses in general, as a source of payoffs and kick-backs This of course further weakens or adds to the cost of private input delivery systems for widely dispersed farmers

3 3 2 Farm Size and Help to the Poorest Farmers

In a very general way, developing countries can be divided between those where farms are more homogeneous in size"almost always small, subsistence farms"and those countries with a range of farm sizes and levels of technological sophistication Government intervention in input marketing takes place in both and is usually rationalized as a necessary means of helping farmers to help themselves out of poverty

In those countries with a more homogeneous pattern of small-scale, limited resource farming and rural poverty (the poorest parts of the world Sahelian Africa, parts of South Asia), the need for assistance to agriculture and intervention in input marketing is often explained through a description of the small farms, the limited resources (except for human labor), the lack of education, the limited access to technology, and the markets that "fail" to bring inputs and technology to farmers Intervention (usually the subsidized provision of inputs or services), while often well-intentioned, is often not able to assist the rural population to break out of the low-productivity, poverty trap they are in When non-market mechanisms are used to distribute these goods and services in conditions of absolute material poverty, a situation for economic rent-taking is almost automatically created that frustrates and swamps even the most well-intentioned of these "boot-strap" development campaigns This is because they are ultimately not able to address the fundamental, structural poverty problem of too many people trying to use an inadequate natural resource base

In wealthier developing countries (usually with a better ratio between the population and the natural productive capacity of the land, a larger productive potential from the natural resource base, and larger non-agricultural sectors), patterns of agricultural input market intervention are much more complex, with success (measured by the real objectives being sought by these efforts) more frequent In these countries, national elites will often have substantial interests in agricultural production and marketing enterprises and often some access to government input subsidies (or the more efficient inverse, tax shelters) Among typical patterns that may be observed are

- Interventions directed to fairly homogeneous pockets of resource poor farmers in countries with richer and poorer farming regions These efforts face the same pitfalls of input market subsidization in the poorest group of countries If the fundamental problems of imbalance in resource use are not addressed, subsidies will almost always be diverted into rent-taking and contribute little to poverty alleviation through agricultural development,

- Interventions directed to regions where farm size is heterogeneous and farmers are producing the same mixture of crops here access to subsidized inputs and services will tend to be monopolized by the larger-scale, wealthier farmers through a variety of mechanisms For example state cereals marketing services (such as for wheat in Morocco, maize in Kenya, and rice in Senegal) have been used to a proportionally much greater extent by larger-scale farmers with larger marketed surpluses, since smaller scale ones may consume much of their own production on-farm or be net purchasers of that cereal, and

- Interventions that only go to larger scale or planation crop producers For example, a variety of input marketing subsidies go to one large company in Senegal that produces and processes a large portion of the sugar consumed in the country This is rationalized in terms of agro-industrial development, lack of alternative uses for the land, employment generation, and greater national self-sufficiency in the subsector The subsidies, from these perspectives, may be seen as meeting their objectives, while failing the standard measures of opportunity cost and comparative advantage for that national economy

3 3.3 Agriculture and National Identity

The final set of rationales for government intervention in agricultural marketing, particularly on the input side, has to do with the role of agriculture in national identity, or at least in the myths of national identity Virtually every country that intervenes heavily in agriculture appeals to the roots of its national identity that are intertwined with a simpler agrarian past Subsidies to agriculture help to keep more of the population in rural areas, working on smaller farms, and maintaining a rural lifestyle that is supposedly highly valued by the total national population In some countries, such as France and England, various government farm subsidies have been partially justified in terms of maintaining a pleasant, pastoral landscape Farmers are maintained on the land as the grounds keepers in a living land use museum that often has further economic value through tourist and recreation use In the United States, many government programs have been justified in terms of preserving the smaller, family farm for more than economic reasons

3 3 4 Types of State Intervention in Input Markets

In the paragraphs above we have examined some of the diverse reasons why national governments intervene in agricultural markets, both product markets (emphasized in sections 3 1 and 3 2) and input markets Here we review very briefly the types of state intervention in the markets for the major inputs to agriculture land, labor, capital, and purchased inputs (seeds, fertilizer, agricultural chemicals, machinery and machinery services) We will not address the provision of water, farmer water management or other specialized aspects of irrigated agriculture

Land The most extreme state intervention in land markets was that in the socialist/communist portions of the world where private agricultural land holdings were abolished or greatly restricted and replaced with various forms of group ownership such as state, collective, and communal farms These land allocation models served as a total substitute for the market and generally have been judged economically inefficient in terms of agricultural production and marketing These models were tried to a limited extent in some third world countries, but this is not generally not a significant agricultural policy issue today In Eastern Europe and the countries of the FSU, particularly those that had widely adopted the state or collective ownership model, there is currently substantial experimentation in methods of privatizing these ownership structures as a first step to creating real markets in land This is proving to be an extremely slow, long term process in most countries

In most of the third world, markets for agricultural land are not well developed Access to land is often governed by traditional systems of land use rights, which are often inherited in the context of relatively stable patterns of subsistence or semi-subsistence farming The major state intervention in land markets has been programs of land reform, usually in countries where very large land holdings have existed side-by-side with very small holdings or with the existence of substantial populations of landless rural laborers U S -sponsored programs in land reform were important in Asia in the 1940s and early 1950s (particularly in Japan, South Korea, and Taiwan) and in numerous countries in Latin America in the 1960s as a response to communist success in the Cuban Revolution These programs essentially used non-market means to solve a resource access problem where there was no market in land or essentially a market failure In Latin America the problem of a sub-optimal distribution of land has persisted, but the solutions attempted have been less radical in the sense that they have largely attempted to create and reinforce functional land markets As Lambert and Seligson (1994, p 3) note

> the widespread acceptance of neo-liberal economic policy, coupled with disappointment with the post-Cuban Revolution reforms, lead to increased investment to encourage access through market mechanisms and to stabilize [previous land] distributions through programs to strengthen tenure security via land titling and registration

On the African continent, land reform efforts have occurred to some extent in some of the countries where colonialism left a legacy of larger, more technologically sophisticated farms (eg , Morocco, Kenya, Zimbabwe) Most cash crop plantations were nationalized Platteau (1992) provides an extensive review of these experiences and an analysis of customary land tenure arrangements that are dominant in many sub-Saharan African countries

Thus, while dysfunctional, unequal distribution of land remains a problem in numerous developing countries, there is little ideological or practical support for the use of non-market redistributive policies in attempting to directly solve the problem It is generally felt that the best policy approaches are those that strengthen the development of land markets (through measures such astitling, registration of deeds, and improving courts that deal fairly with land disputes) These gradual, reformist policies, coupled with reform of subsidy, trade protection, or state marketing

policies that unduely favor larger, more inefficient land holders in competition with smaller-scale producers, represent more realistic, feasibile methods of achieving socio-economic change in the longer run

Labor There are three major direct ways and many minor or indirect ways[15] national governments have intervened in labor markets The major interventions involve (a) the setting of minimum wage standards, and (b) national laws or international agreements affecting the mobility of labor, and (c) national laws on hiring and firing labor that affect employment in formal sector companies

Wage rates and labor mobility are the key variables in the use of labor as a factor to agricultural production, processing and marketing Government intervention or regulation of labor can best be seen in two types of national situations poor developing countries and richer developed countries

In the poorer third world country, labor is often in surplus, unemployment is high, and wage rates are low In that type of environment, questions of international labor mobility are usually only a concern for the country as an exporter of labor In that situation, the developing country may encourage out-migration of labor, particularly to developed countries, as a means of acquiring foreign exchange through remittances Internally, wage rate issues and restrictions on the ability of formal sector companies to contract their labor force if the volume of business requires, are more important While there may be a legal minimum wage for agricultural labor, this is generally ignored in practice, as are restrictions on child labor and prohibitions of indentured servitude Structural adjustment and other types of economic reform programs may also have some impact on the functioning of labor markets in LDC environments Lawrence Smith (1991) defines a theoretical framework for quantifying these impacts

In the developed country environment, policies affecting permanent or temporary international migration for use in labor-intensive agriculture tend to be more important Cheaper foreign labor can become critical to the profitability of certain types of labor-intensive agricultural production and processing technologies This has been particularly true in the harvesting of higher-value, perishable horticultural crops (vegetables and fruit), and elaborate programs for using imported seasonal labor have been operated in many developed countries

Credit In more advanced, commercial agricultural systems, credit becomes increasingly important as an input Credit can be provided through the informal private sector (relatives, traders,

---

[15] Governments particularly in more developed countries have also engaged in a wide range of other labor regulation covering working hours overtime pay employment of children safety and occupational exposure unemployment compensation and laws dealing with the formation of unions and procedures to be followed in the settlement of labor management disputes (including strikes binding arbitration etc) While most of these measures are widely accepted and many may not directly affect the functioning of underlying market mechanisms for the normal employment of adult labor they do constrain the free functioning of labor markets and definitely add to the financial and economic cost of labor and directly affect a country's international competitive position

money-lenders, etc), the formal private sector (banking institutions), or through public institutions (state banks, credit institutions, or agricultural development organizations that provide credit as one of their services) Government have often intervened in the provision of credit with variable but generally negative results For the latest restatement of the these well-established results, see Meyer and Larson, 1994 Among the biggest problems in state involvement in credit have been

- State banking itself which has often crowded out private sector initiatives in the delivery of rural financial services,

- High transaction costs which are not properly accounted for in fixed interest rates The result has often been an explicit or implicit subsidization of certain kinds of rural credit, and

- Attempts to target credit, particularly subsidized credit, to certain purposes, such as the purchase a prescribed set of inputs However, since financial resources are fungible, these credit funds are often diverted to more pressing family or business needs

Purchased Inputs Among the types of agricultural inputs where there has been the most substantial state intervention has been in the areas of seed (or other types of planting material or improved varieties of livestock), fertilizer and some specialized agricultural chemicals, and the provision of agricultural machine services, whether animal-powered as in many programs in Africa, or machinery-powered in much of the rest of the world

There are some common generalizations about the appropriate role for the state and the private sector in these three categories of purchased inputs In all of them there is a research/development dimension and a production/distribution dimension Experience has shown that in the former, where there is substantial basic research with low probability of immediate commercial payoff, that this takes on public good characteristics and is most appropriately done by public sector institutions (particularly those that are tightly managed to produce demonstrable results over time) However, once the new improved seed variety has been developed, or the improved milk cow, or the better donkey plow, the more routine tasks such as seed and livestock multiplication, day-old chick production, donkey plow manufacturing and distribution, are probably best left to competitive firms in the private sector for implementation The more sophisticated a country's private sector, the smaller can be the size of the public good production undertaken by the state

4 MARKET FUNCTIONS AND MARKET FAILURES. SHOULD GOVERNMENTS INTERVENE OR FACILITATE?

The preceding chapters have described agricultural markets and the kinds of interventions governments make into their functioning In this chapter we take a somewhat more theoretical approach to what a market is and what functions it performs When can it be said that there is a "market failure"? What should governments do in these and related cases?

4 1 What is a Market?

Although we have already discussed several kinds of agricultural markets, at this point we will examine more precisely what is meant by a market The concept of a market stretches from the very concrete"a physical marketplace"to the most general and abstract An example of the latter is found in Cui (1991, p 62, citing Nelson and Winter, 1982, p 277)

> the market system is (in part) a device for conducting and evaluating experiments in economic behavior and organization

Between these extremes are found definitions like those of Moran and Wright (1991, p 2), who give four meanings for "the market"

- A metaphor for competition
- A distinctive mechanism of social choice and expression
- A synonym for capitalism
- A synonym for minimally regulated economic exchanges

All of these definitions provide useful information Physical marketplaces are often essential for conducting business in many agricultural commodities, especially at early stages of market development Even in remote villages that can sustain only a periodic market, the local administration often allocates space and time for these important exchanges The notion of markets as systems is also very important The markets that we will be discussing here are subsystems of an economic system in which inputs are exchanged and utilized to produce outputs, and outputs are exchanged and utilized In this sense, markets are interacting webs of economic agents (individuals and private enterprises) operating in relation to a set of institutions (property rights, the state that formulates and enforces these rights, and ideology[16]) We will see that to gain the full benefit from this system, there needs to be a web of related markets, complementing the individual commodity market are factor, insurance, and capital markets The notion of a market system evaluating organizational forms allows for the evolution of agricultural markets from simple physical exchanges to sophisticated commodity markets that most of the time consist of financial and information flows

[16] Srinavasan 1985 p 40

The full economic benefits of a market system are derived when there is vigorous competition, but (as we will see) like markets, competition does *not* arise or persist spontaneously Markets permit individuals and societies to make choices about the goods and services they prefer, and they permit one to invest ones capital in accordance with the information available about risks and returns to that capital The regulation of the exchanges in a market is one of the essential features of an advanced market

Gathering these threads together, then, one can describe a market as

> an evolving system, in which agents (producers, marketers, consumers, and/or speculators) who depend on supporting infrastructure, factor markets, capital markets, insurance markets, information, property rights, standards, and enforcement (and thereby on institutions supplying or regulating these) and are influenced by culture and ideology enter into contracts and/or exchange goods and services at regulated or at least known places and times, and in which the public interest is to promote efficiency of production and distribution through competition

The length of this definition is clearly a clue as to why there are so few truly competitive agricultural markets, whether they are in developing countries or not It takes considerable time and effort to *develop* many of the required supporting functions and institutions that make markets work

4 2 What Functions Does a Competitive Market Perform?

Achieving efficiency through competition sounds like it could only be good What kind of efficiency are we talking about? There are several functions that a competitive market can perform efficiently It can

- Determine the best mix of inputs (factors) to produce a given output (over time),
- Determine optimal factor prices (over time and space),
- Allocate resources to production efficiently (over outputs, time, firms, and space),
- Determine the most desired output mix (over time and space),
- Determine optimal output prices (over time and space), and
- Allocate and distribute outputs optimally (over consumers, time, and space)[3]

When we say that a competitive market can perform these functions efficiently, we mean that economic theory proves that a truly competitive market would achieve these results Results in real markets will approach the theoretical ideal only when all the required conditions are met What are those conditions?

The theoretical model of a competitive market is based on the following conditions

- Many buyers and sellers and no barriers to entry or exit of firms, and
- Perfect information about the past, present, and future

Some further characteristics that are implicit in this simplified, theoretical model are

- No transactions costs,
- No externalities,
- No public goods,
- No government, and
- Property rights

As Streeten (1993, p 1283) puts it, however, "There is nothing in the nature of free markets that either establishes or maintains competition yet the virtue of markets depends on the existence of competition " Thus even at this level of simplification, one can see the beginning of the need for some help from the public sector We return to the appropriate roles of the public sector below (section 4 10), for now we look very briefly at why this might be important

A model can be useful for theoretical work with these kinds of simplifications, but real markets do not function in such a rarefied atmosphere While information will never be perfect, price and quantity data are crucial for price formation and the balancing of supply and demand, and some public or private entity has to collect and disseminate them Location (or geography) is one of the most important considerations in the operation of markets This leads to one kind of transaction costs and the need for the infrastructure to move people, goods, and information In a well-developed market system, there are a significant number of supporting elements that are largely public goods, including infrastructure, information, and rights Rights like property rights cannot be assumed, but must be agreed upon by a society and administered by some institution

The potential outcomes of a competitive market are sometimes overlooked Governments are often more interested in other outcomes, some of which do not necessarily result from a competitive market Let us now examine briefly some of these

4 3 What Functions Does a Market Not (Necessarily) Perform?

While a truly competitive market can work the wonders mentioned above, there are some things that one would often like it to do that it generally cannot These include

- Distribute income "equitably" and
- Stabilize prices or quantities available in all markets at all times

The first problem with a competitive market distributing income equitably is that "equitable" is a subjective term Even if everyone could agree on an appropriate standard, however, markets would not necessarily redistribute income to that standard Markets distribute income to labor and management (and shareholders) in enterprises that efficiently produce goods and services that their customers desire Individuals and enterprises need productive assets (land, machinery) to produce those goods and services Markets, however, have no mechanism or process for determining whether the distribution of those assets is "fair " Thus the distribution of income, which is partly determined by the distribution of productive assets, even in a competitive market, may not be equitable

A competitive set of markets (product, factor, financial, and insurance) does provide a significant amount of stabilization over time and space, however There will be arbitrage"including storage and transport"of products from one geographical market to another, as long as investment and transactions costs are not prohibitive The larger and the better developed a market is, the more stabilization it is likely to provide The degree of stabilization provided by an actual LDC market,however, may not be politically acceptable to a government with a weak mandate and/or a fear of the urban masses On the other hand, the same government may ignore the possibility of promoting a greater degree of competition (and stability in the longer run) when it chooses to intervene and "stabilize" the market in the short run The tradeoff between stabilization and efficiency (and the government's inclination to intervene to promote them) is one of the recurring themes of this chapter

Other functions that competitive markets generally do not perform include

- Limiting negative and promoting positive externalities and
- Supplying adequate public goods

These aspects of market performance will be discussed in the following section

4 4 Market Failure

Markets do not always produce the results we have mentioned above (section 4 2) It is customary to refer to this outcome as market failure Within the set of outcomes known as market failures, however, there are at least two major categories that should be distinguished They are

- Inherent market failures (public goods, externalities) and
- Incomplete markets

Inherent market failure is the result of a market structure that either discourages entry into the market or results in a distribution of (dis)benefits that is not consistent with the efforts of market actors In the terminology of economists, these two most important cases of inherent market failure arise from public goods and externalities, respectively There may also be cases of monopolies, in particular natural monopolies

Public goods (and services) are those for which use by one agent does not (substantially) reduce their potential use by other agents Air and an open-access highway are two examples It is hard or impossible for a provider of such a good to appropriate a charge for the good to himself[4] Thus there is no incentive, or less than full incentive, for a private entity to enter such a market and provide such a good It falls to the public sector, acting on the common behalf, to furnish the good, hence the name, public good Most countries would have few or no roads unless governments built them Public goods are a clear example of market failure in the sense that a free market consisting of only private agents will fail to provide these goods

Externalities are effects that one experiences that are unrelated to ones actions in a market Water pollution from fertilizer runoff is an example A farm may pollute the water I drink as part of its operations, not because the operator wants to, but because it incurs no separable cost in doing so and it profits from its other productive activities Thus externalities are generally unintentional or unexpected, and out of ones control (unless one incurs some expenditure) These effects on ones welfare are conveyed directly, not through prices[17] It is precisely because these effects are not conveyed by prices that market failure occurs prices are the mechanism that markets use to pass information and convey effects optimally If the public sector entered and, using its powers of compulsion, put a price (tax, fee) on pollution, then the externality could be "internalized" to the polluting company and the pollution, reduced to an acceptable level

It is important to remember that externalities can also be positive A good example is the knowledge that may accrue to a neighboring farmer when a progressive farmer experiments with improved varieties or practices It is not usually said that there is market failure when a market does not maximize this kind of externality, but it is the case that a market system will generally not do so

Monopolies are examples of market failure, too Some monopolies are called "natural," in the sense that there is an inherent property in the provision of the good or service that brings about a monopoly The provision of telephone service is an example The cost of running telephone lines to each user is substantial, and it does not make sense for two companies to each run lines to the same users[18] If there is only one telephone company, however, there is no competition to ensure that optimal services and prices obtain Deliberate monopolists, e g , those trying to "corner" a market, strive for the same effect, namely in order to extract higher profits[19]

Inherent market failures occur because of intrinsic properties of the good or service offered in the market By contrast, other market failures may be due to incomplete markets That is, there may not be a full set of functioning product, factor, capital, and futures (insurance) markets There may also be a lack of infrastructure or information When this occurs, competition is limited, and the result is suboptimal allocation of resources For example, if the rural credit market functions inadequately because it is costly to gather credit information about small farmers, then production on small farms will be less than it could be Even in developed countries, while industrial commodity users and speculators may do so, farmers do not take full advantage of futures (insurance) markets that could help reduce their price risk and optimize their production levels

---

[17] An externality according to Mishan (1976, p 117) is "a direct effect on another's profit or welfare arising as an incidental byproduct of some other person's or firm's legitimate activity "

[18] On the other hand with the development of the telecommunications industry it has become clear that the part of the industry that is a natural monopoly may be quite small and may keep changing with available technology

[19] Economists call these "rents

Deficiencies in public goods like roads may also result in incomplete markets When roads are inadequate, higher transport costs (i e , greater riskiness and/or lower returns) may result in fewer marketing agents entering the market and greater market power for those who do It is a common complaint in developing countries that middlemen have great power over poor farmers In such a case, a government has a choice between direct intervention to become a marketing agent itself and the improvement of roads and other facilitating actions that would promote the entry of more private sector agents and increase the level of competition

We will have more to say on these choices of the public sector in the discussion that follows In general, however, inherent market failures are better *potential* opportunities for intervention, while incomplete markets are candidates for market development, or facilitation, governments have typically adopted regulation as their approach to monopolies

To this point we have not distinguished between intervention and facilitation In keeping with the somewhat more theoretical approach of this chapter, let us be clear on what we mean by these terms[20] **Intervention** is entering the market as an agent or otherwise directly affecting prices Such actions would include the government's undertaking production or marketing activities, setting prices, or levying duties **Facilitation** is an indirect approach to affecting a market It includes such actions as setting grades and standards, regulating banks, and building roads Regulation could qualify as either intervention or facilitation, depending on the actions taken by the government In the case of telephone regulation, governments often set prices (e g , through public service commissions) In the regulation of banks, prudential requirements include both audits, which have an indirect effect on the market, and loan loss reserves, which affect the supply of money directly Policy instruments, however, cannot be strictly classified as either facilitation or intervention Rather facilitation and intervention can be considered the extremes of a spectrum, along which policy instruments can be arrayed

4 5 Rationales for Government Intervention

Governments often claim they are intervening in markets because the market did not perform certain functions to their satisfaction, or loosely, because of market failure Now that we have examined the functions a market can and cannot perform and the nature of market failures, let us revisit in a more conceptual way the rationales for government action In a recent survey of the reasons governments intervene in food markets, Timmer (1989, p 17ff) outlines three schools of thought

- The **free market** school, representing standard neoclassical economics, for which "all agricultural prices should reflect opportunity cost at the border, no matter what the

[20]"Intervention" is used widely and with varying meanings in the economic literature It is often used to include the elements of both intervention and facilitation as we use these terms here

international market processes are that determine the prices, and no matter what the price levels happen to be",

- The **stabilization** "school," who advocate counteracting the domestic efficiency losses incurred by following the short-term price movements of international markets while still following the long-term trends in these markets and promoting mostly private market activities, and

- The **structuralists,** who argue that "the entire border price paradigm for domestic price determination is misdirected, at least for a select list of commodities, such as basic foodstuffs, that have important roles in the macro economy and welfare of consumers", they argue for prices to be set "to favour income distribution objectives in conjunction with macroeconomic stability[5] "

We will examine the positions of the first two schools, we will not discuss the structuralist argument As we discussed above in section 4 3, distributing income (a key issue for the structuralists) is a function that markets do not necessarily perform optimally, and it is market performance with which we are primarily concerned in this guideline[21]

As we explore in more depth the positions of the free market and stabilization schools in the sections that follow, let us bear in mind the types of intervention that were mentioned above (section 2 2) and see how they relate to the basic issues raised by these schools The two most common sets of interventions in developing countries are those related directly to food security, including consumer subsidies and government marketing of food ("pro-consumer" policies), and those in inputs, where government participation in, or monopoly over, marketing is also common

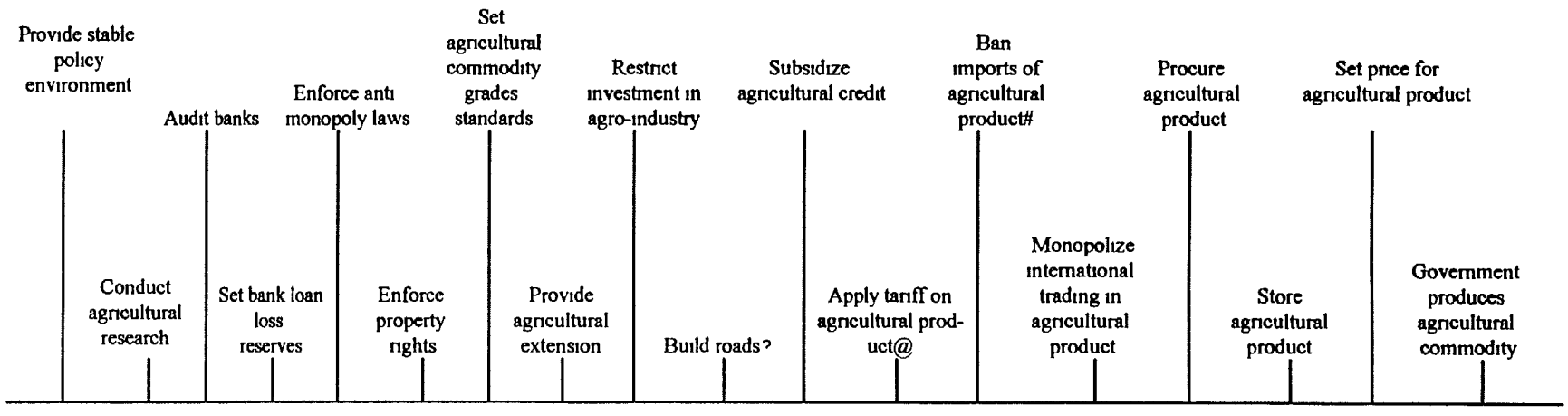
There are three aspects of food security-oriented policies that should be mentioned here They are the level of food prices, the stability of food prices, and the political economy of food If governments change the level of prices, they are clearly going to have an impact on how the market performs its functions of inducing producers to produce, and marketers to handle, the food A market-determined domestic price level is an important item in both the free market and stabilization schools' positions The stability of food prices is an issue that the free market school often does not address, but is the centerpiece of the stabilization school's position Finally, politicians typically have a short time horizon, and the public in developing countries has an expectation that the government should do something about food prices These factors tend to clash with the long gestation period for many market institutions and infrastructure This often leads the government to intervene in the

---

[21]Equity issues are another theme of APAP III perhaps a future publication will deal with the relationship between market performance and equity We note however the position of Mahbub ul Haq Special Advisor to the Administrator of the U N Development Program Mahbub argues for a careful balance between reliance on markets and maintenance of social safety nets (Anderson and de Haan p 8) In the end he too concludes that "people-friendly markets require a very activist role of the government not to overregulate economic enterprises but to create conditions of more equitable access to competitive markets "

food market when market development was also an option The time scale of development is also addressed in the stabilization school's approach

The issues with respect to input marketing are similar Governments may take over input (e g , fertilizer) marketing functions because they affect food security There is also often a lack of appreciation for "middlemen," which we read as simply the covering explanation for the actions governments take under the time pressure mentioned just above



= **Facilitation**
(Indirect impact on price or quantity in agriculture/agribusiness)

Intervention <
(Direct impact on price or quantity in agriculture/agribusiness)

* On this chart, the further to the right a policy instrument is located the more direct its impact on prices and/or quantities in agricultural markets The directness of the impact is a measure of the degree of interference in the functioning of a competitive market. This information is useful as general guidance in selecting policy instruments to support market development It should be remembered though that the directness of impact of a policy instrument is not necessarily related to the ***magnitude*** of the impact of that instrument on a particular market

@ If binding, affects the domestic price, and thereby the quantity

If binding, affects quantity directly, prevents imports from lowering domestic price

? Reduces marketing cost, thereby affecting producer and/or consumer price

4 5 1 A Free Market Position on Intervention

In his discussion of the role of the state in the economy, Stiglitz makes four points

- Market failures are widespread, especially due to incomplete markets and imperfect information,
- Government intervention (i e , at least facilitation) is required to achieve efficient market allocations,
- The state has certain unique powers that make government action potentially beneficial in correcting market failures, and
- Direct intervention, e g government production, must be scrutinized very carefully in light of the strong possibility of "policy failure "

One might think that according to the free market school, only inherent **market failures** (public goods, externalities) would be cause for action by the public sector Stiglitz says, however, that "in general, efficient market allocations cannot be attained without **government intervention**" (1989, pp 37-9, bolding added) He cautions, however, that "the issue becomes one not of identifying market failures, for these are pervasive in the economy, but of identifying *large* market failures where there is scope for welfare-enhancing government interventions " At this point it is important to note that when Stiglitz uses the term "intervention," what we term "facilitation" is included Similarly "market failure" covers what we call both inherent failures and incomplete markets[6] Indeed, some of the main types of market failures Stiglitz discusses are "problems of incomplete markets and imperfect information," which he finds to be "pervasive" in both the public and private sectors

Stiglitz discusses incomplete markets and imperfect information at length but public goods, very little, apparently because the necessity for the public sector to provide public goods is obvious Thus Stiglitz mentions only that public finance of these goods and services is necessary, whereas public production is not (1989, p 40) For further discussion of facilitation and public goods' provision, see section 4 10

One of Stiglitz's particular contributions to the literature on the state and markets is the delineation of the **government's attributes and advantages** in relation to the performance of markets

> there are two distinguishing features of the State, from which most of the other differences between the State and other economic organizations follow the State is the one organization membership of which is *universal*, and the State has powers of *compulsion* not given to other economic organizations (1989, p 21)

Because membership in the state is universal, it is logical for the state to provide public goods, goods that can be shared by all In addition, the state may incur lower transactions costs in correcting market failures From an organizational point of view, "it might pay for an ongoing institution"the

government"to direct its attention to the problem," whereas it might not pay to form a new voluntary organization

From the power of compulsion follow certain advantages of the state in correcting market failures, among them "the power to tax, the power to proscribe, and the power to punish" (Stiglitz, 1989, pp 42-3) The power to tax would logically be used to correct externalities, as mentioned above regarding pollution The power to proscribe would logically come into play in matters like food safety, which might also be a question of incomplete information available to consumers The power to punish is required, e g , to enforce contracts, a supporting institution of a market system

In discussing the relationship between market failures and government intervention, Stiglitz (pp 34-5) refers to the control mentality, which holds that "markets fail because no one is in charge " He believes that

> the control mentality is based on two fallacies it overestimates the powers of direct control and it underestimates the powers of indirect control For direct control to be effective, the controller has to have an enormous amount of information at his disposal He must not only have the information to decide what should be done, he has to have the capacity to monitor that it in fact gets done Those in positions of centralized control seldom have the requisite information

Clearly, Stiglitz takes a **skeptical position regarding intervention** Although there are many opportunities for intervention, bettering the performance of a free market system is not easy The costs and benefits of these opportunities need to be carefully evaluated

One good example of centralized control of an important market in a developing country is a government parastatal operating in a cereal market Let us assume that such an institution has a monopoly on the purchase, storage, sale, and importation of the staple food It therefore must set prices for this product everywhere in the country and at all times over the marketing year Because there are no competing entities operating similar facilities, it will be very difficult, if not impossible, for the parastatal to have complete and accurate information on the lowest possible transport, storage, and other costs at or among all the points in the country to which it has to distribute food That is, there is no opportunity for the government to compare its costs to those of a competing enterprise, especially one that has a profit motive

In this situation, the parastatal very likely will misprice and misallocate food at some points Some individuals may receive unintended subsidies, while others may be overcharged, relative to the prices a competitive market system would have determined More importantly, there may be shortages of food at certain locations and surpluses at others If shortages are not excessive at any given location, there may be considerable silent hunger caused by this distribution system Without a pricing system that reflects the (im)balance of supply and demand, there might be no other accurate signals sent back to the central authority about the adequacy of supplies at each location Thus intervention may provide no better performance than the "market failure" that it set out to correct

One common "solution" to the government's pricing problem is to institute pan-territorial pricing (i e , the sale price is the same everywhere) This pricing intervention totally ignores the true costs of moving food (and if there were not already a monopoly, makes it impossible for the private sector to do business in most of the country) This is clearly worse than an honest attempt at setting prices at different locations that reflect transportation costs Many governments also make their pricing schemes pan-seasonal (i e , the price does not change over the marketing year) This regime ignores storage costs in the same way that pan-territorial pricing ignores transportation costs

Once the private sector is driven out of the market, the performance of the parastatal"as an alternative to the market"is more difficult to judge This is because the distortions of prices are not as obvious, indeed under pan-territorial pricing, prices are by fiat the same everywhere, a condition that on the surface seems "fair " In the absence of prices, there may be some indicators of performance, like shortages and surpluses One of the comparisons one needs to make in order to judge the performance of the parastatal is between the existing allocation of the product, based on distorted prices, and that based on freely determined prices, which would reflect the actual costs of moving the product and would be different in different locations If one could make this comparison, one would find the implicit over- and under-charges mentioned above Further, as we will see, under-charges are likely to be very few

In evaluating the centralized marketing intervention, an important comparison is the total cost of marketing the product The cost of operating a centralized marketing system would likely be higher than that of a competitive market a monopoly has no incentive to trim its costs A public bureaucracy, moreover, has a tendency to grow, and its costs can be covered only by what it charges its customers or by direct subsidies from the treasury It is these latter costs that have eventually shown up on the books of many parastatals as evidence of inefficiency This kind of "policy failure" is discussed further below

Information is essential for evaluating an intervention It is also essential to private agents for day-to-day market operations The cost of information may be a transaction cost that results in an incomplete market In this situation the state may consider intervening to lower the transaction cost In making its decision, it must estimate the cost of gathering information It must also assess the extent to which this information has public good aspects Inevitably, the state cannot provide all information in the economy The benefits and costs of public provision of information should be assessed before the government steps in

The market failures we discussed above (section 4 4) and those discussed by Stiglitz are static in nature That is, a particular market structure leads directly to a non-optimal result While there is cause and effect, there is no explicit consideration of the time dimension Separate "rounds" of effects are not part of the analysis

To arrive at his position on intervention, Timmer expands the notion of market failures to one that is dynamic[22] That position and its justification are the focus of the next section

4.5 2 Market Failures and Stabilization

According to Timmer,

> Optimal *efficiency* calls for some degree of market intervention to stabilize short-run prices, but there must be sufficient flexibility to allow domestic behavior to reflect international price *trends* Rent-seeking behavior is constrained, if not eliminated, by using competitive market agents to carry out most marketing activities, but within government-established price bands Further by encouraging the development of a competitive price marketing sector over time, the role of government price interventions can decline as the role of price stability for the basic foodstuff becomes progressively less important to the economy during the course of economic development (1989, p 18)

What is Timmer saying here? The nature of a possible market failure is not the main point The main point is that the price of the staple food in a developing country is too important to every individual's welfare to be left solely to the market when the market itself is not well developed and therefore not performing well If the staple price is left alone, significant price variations will often depress investment in both production and marketing facilities Low productivity in food production and marketing will affect everyone, because everyone is a consumer of food, and many individuals also produce or market

By referring to international price trends, however, Timmer also indicates that depressing farm prices substantially is not what he is advocating In the long run the economy should be oriented to the price signals that the international market is sending These prices help to indicate in which commodities a country has a comparative advantage in production They are also the opportunity costs for each commodity, namely the price at which countries in need of imports could purchase the commodity and the amount that a country would forgo by not exporting the commodity

Thus Timmer's concept of government's relation to agricultural markets as they evolve over time includes

- Stabilization of short-term prices[23],

---

[22] His supporting analysis tends to rely more on *general* equilibrium analysis than on *partial* equilibrium

[23] There may be difficult problems that arise in designing such stabilization schemes While investigation of these is beyond the scope of this study two quotations from Timmer himself will suggest the magnitude of the problems In the text of his article (p 19) Timmer says

- Adherence to long-term international price trends, and
- Development of the domestic (private) market

As we will see, it also includes

- Stability of policymaking to preserve fragile, but crucial, expectations

Having mentioned the stabilization of staple food prices, we should also indicate that the role and nature of stabilization may be quite different in the case of cash crops Staples are consumed by virtually all individuals, so the incidence of stabilization is broad Cash crops are produced almost solely for sale, so those affected by a price stabilization scheme are likely to be a smaller number of farmers and probably few consumers In addition, marketing systems for such crops tend to be simpler ("dendritic") structures, so implementation of a scheme may be less complicated This does not mean that such schemes may not have significant impacts on national income and development Whether they do will depend on the importance of the crop, who grows it, and various other considerations

Timmer bases his advocacy of limited intervention and significant reliance on the market "on a crucial lesson from post-war development experience, policies that attempted to strengthen the competitiveness of markets as a way to improve their efficiency outperformed policies that attempted to correct for market-failures by suppressing market activities " These policies succeeded "primarily because government failures in market interventions were often far more serious in terms of wasted economic resources and foregone growth than were the market failures they were designed to correct " (1989, p 19)

With regard to failures, then, Stiglitz sees many market failures, while Timer adds that, historically, government failures were worse Yet Timmer and Stiglitz seem to agree that there is room for government interventions to enhance welfare in an economy Referring to his dynamic concept of market failures, Timmer carries the analysis one step further, outlining the type of calculation that one would do to weigh the benefits against the costs of such intervention

> The important analytical question is that the pervasive market failures in developing countries are quantitatively significant relative to the costs governments would incur in order to alleviate them the likely ingredients of a model that would capture these effects include the following displaced investments in physical capital at the farm level, the marketing sector and the industrial sector, substitution of consumption and leisure for savings and work, biases in investments in human capital for the farm agent and intergenerationally in children, the transaction cost consumers face in reallocating budgets when prices change, the welfare gains from a psychic sense of food security (and voters in rich countries and poor alike place a substantial economic price on this factor), and the feedback from this sense of security to a stable political economy,

which reinforces investors' willingness to undertake long-term (and hence risky) commitments (1989, p 21)[24]

Timmer uses the example of rice policies in Asia to demonstrate the gap between economic concepts and reality in determining whether governments should intervene in markets While a pure neoclassical economist would argue against intervention, virtually all these countries have intervened in their rice markets Policy interventions to stabilize rice prices in Asian economies contribute to economic growth, stable and/or enhanced income distribution, and political stability The costs to these governments of achieving stable rice prices are large and often unstable budgetary outlays, misallocation of resources"e g ,subsidies instead of productive investments"and contraction or stagnation of the private marketing sector Regarding the latter, Timmer points out that "investments in physical and human capacity in this sector are not forthcoming if margins are squeezed, policy implementation is erratic or the middleman is held responsible for policy failures " (1989, p 24) Despite the difficulty of the task, he judges a few countries to have succeeded in "intervening in agricultural price formation without incurring unacceptably large budgetary costs or sacrificing long-run efficient resource allocation " (1989, p 23)

Timmer summarizes his recommendations in the following way

> positive expectations are fragile, they take a long time to build and can be destroyed overnight with one foolish intervention Perhaps the best that price policy analysts can do to encourage an efficient private sector is to create a stable policy environment, set price margins wide enough for significant participation by the private sector, and eliminate legal and bureaucratic barriers to entry by private traders Simple as these tasks seem, they often conflict directly with the short-run or long-run interests of policy-makers in food price stabilization and of food logistics agencies in implementing it (1989, p 25)

Addressing some of the same issues that Timmer takes up, Gilbert provides some additional detail on the justification for specific interventions Regarding the use of stabilization to smooth farmers' consumption streams, the question he asks is, Why can the farmers themselves not do this through saving? He finds that

> A possible argument would be lack of adequate savings instruments rural credit institutions may be considered unreliable Second, a succession of bad years may exhaust savings, and farmers may lack the collateral to borrow except at punitive rates On that argument the government is able to use its superior credit status to offer a greater degree of consumption smoothing But to the extent that governments smooth farmers' revenues by stabilizing prices, they also reduce farmers' incentives to save (1993, p 36)

---

[24]For further elaboration of the costs and benefits of stabilization see Dawe and Timmer 1991

Gilbert refers here to farmers' incentives to save for consumption purposes Timmer's point is that price smoothing will increase the incentive to invest for production Both writers presume a risk-averse poor farmer With income smoothing, the farmer has less need to save for consumption in bad years and a greater ability to bear the risk of a new investment, e g , trying a high-yielding variety S/he may not have more savings to invest, however, so the importance of access to well functioning rural financial institutions becomes clear

Gilbert takes up stabilization again in terms of stabilizing consumer prices Here he discusses the "risk benefits" of stabilization, which "depend on the difference between the coefficient of relative risk aversion and the income elasticity of demand " Gilbert's "risk benefits" are what Timmer refers to as the "welfare gains from a psychic sense of food security" (see quotation, page 45) Because food commodities are necessities with low income elasticities, "reasonable values for risk aversion indicate a positive risk benefit from stabilization [This benefit] will be large if the share of the commodity in total consumption is large For such commodities there may be a case for price stabilization To truly justify stabilization, Gilbert claims, one needs to show that "there is no alternative sectorally oriented policy that could achieve the same objectives as efficiently and at lower cost " He remarks that price stabilization may achieve universal impact [among those who purchase food], whereas various social security schemes do not (1993, pp 44-5) In the end Gilbert recommends that "an adequate policy is simply to cap these prices[25] " (1993, p 46)

Gilbert also examines the issue of interventions in stockholding On this point he concludes that

> If it is decided that food security is an important objective of the government and that stockpiling is the best method of doing this, there are strong arguments for attempting to enhance the market mechanisms rather than supplant them the best approach is the development of efficient transport This policy should be complemented by encouraging private storage (1993, p 56)

In addition to developing transport, the public should ensure that the capital market functions well, so that potential investors in storage can get loans, and that there are no serious restrictions on investment

4 6 The Role of Non-State Entities

Individuals (and enterprises) may act on their own in a market system, or they may act through civil organizations Thus, as Streeten says, "states and markets do not exhaust the players in this game " (1993, p 1286) De Janvry, Sadoulet, and Thorbecke summarize the main ideas

---

[25]On this point Williams and Wright (1991, p 418) caution that "a regime of price ceilings can be self-justifying Because price ceilings reduce the incentive to store the frequency and extent of extreme shortages becomes higher

presented at a conference on the "changing balance between state, market, and civil organizations in development strategies"

> State, market and civil organizations can be contrasted by the type of incentive scheme and the type of compliance/cooperation mechanism that each imply The state enforces by regulation and threat, the market conveys price signals that give incentives to adjust, and civil organizations rely on agreements based on bargaining, cooperation, and persuasion
>
> Many civil organizations have emerged as substitutes for the state and market When the state fails to deliver public goods, insurance, management of externalities, minimum basic needs, and democratic rights, civil organizations may fill the vacuum market failures may lead to the emergence of institutions, many of which may take the form of organizations transactions and mutual insurance may be achieved within the household or among members of the community through contractual arrangements Savings associations respond to exclusion from formal financial institutions due, for instance, to lack of usable collateral or discrimination (1993, p 567)

Besides substituting for the state vis-a-vis the market, nongovernmental organizations (NGOs) may also find themselves in a complementary position As Streeten points out, "the most successful NGOs in the Third World, such as the Self-Employed Women's Organization in India or the Grameen Bank or BRAC in Bangladesh, depend for their continuing and expanding operations on access to, and support and replication by, governments " (1993, p 1286) Trade associations, like a flour millers' association, may collaborate with the government in developing standards for wheat and flour products These improve market performance if they result in market price differentials for these products, because these differentials induce producers and millers to supply those products that consumers prefer and are willing to pay for The same organization might work with the government to provide training to producers and millers on the pre- and post-harvest requirements for achieving the standards that were developed Similarly, there are roles for water user associations, exporter groups, and many others In general, there is a wide range of potential roles for both individuals and both public and private institutions in facilitating the efficient functioning of markets[7] While there is significant potential for such organizations to improve market performance, it is also possible for industry groups to block the efficient functioning of markets[26]

---

[26]Bruce Marion personal communication

4 7 Policy Failures

4 7 1 Why Do Interventions Fail?

With all of the potential for the amelioration of market failures, why are so many observers of the economic scene in developing countries skeptical about the public sector's role? The short answer to this question is "policy failures," or, the cure has often been worse than the illness In this section we will examine some of the reasons why interventions fail

Stiglitz gives us a balanced presentation of the government's assets and liabilities when it comes to intervention in the market On the one hand, he states that " in general, the assertion that the government can do no better than the market is simply false, as Greenwald and Stiglitz (1986) have recently established in a theorem of considerable generality " (1989, p 37) On the other hand, he lists the sources of public (policy) failures

- The fiduciary[27] relationship of the government, which imposes severe constraints on employment policy, leading to not necessarily the best employees and inadequate incentives,
- The fiduciary relationship also imposes severe constraints on expenditure patterns, especially because of equity concerns,
- Imperfect information and incomplete markets are pervasive in the public sector,
- The potential for redistribution (discretionary property rights) inherent in the government's powers of compulsion may give rise not only to inequities but also to wasteful rent-seeking activity,
- Limitations on current governments to impose binding constraints on future governments may impose large economic costs, and
- The lack of competition within the public sector further attenuates incentives (1989, p 45)

What are some examples of the policy failures to which Stiglitz is referring? A number of such examples can be gleaned from the type of intervention that many LDC governments have made into the staple cereal market Often they have set up a parastatal marketing agency that buys and sells grain in an attempt to stabilize the market price and supply Timmer has made clear the difficulty of running a successful price stabilization scheme (section 4 5 2) With the constraints Stiglitz mentions

---

[27] By "fiduciary relationship " Stiglitz means the responsibility of the government to the taxpaying public as its agent to both hire in a defensible manner and in achieving its ends to minimize its expenditures

above on the technical qualifications of employees who can be attracted to and retained in public service, it is not surprising that there have been numerous policy failures in this technically difficult undertaking Parastatal marketing agencies also run afoul of other causes of policy failure Imperfect information (and limited budgets) often leave parastatals with inadequate budgets to buy up bumper crops and may result in their maintaining stocks in the wrong locations It also puts state trading agencies at a disadvantage when they buy on the international market[28] The temptation to redistribute income through consumer subsidies and other means has often been more than governments can resist Government interventions have often led to significant benefits for millers or traders who interact with the marketing agency The lack of competition that parastatals have faced is clearly one reason for their substandard performance, introducing competition is often the first step taken in a reform program that may eventually lead to privatization

Stiglitz also reminds us that the state may have a myriad of objectives that it would like to fulfill on behalf of the electorate This means, however, that "managers can always claim that the reason they are losing money is not that they are inefficient or incompetent, but that they have been pursuing other goals And it is virtually impossible for an outsider to judge the validity of those claims " (1989, p 32)

For all of these reasons, there are many examples of public inefficiency But, Stiglitz reminds us, "there are also many instances of corporate inefficiency The difficulties of ascertaining whether a manager is a good manager make it difficult to judge the magnitude of the market's incompetency " (1989, p 33)

Srinavasan, like Stiglitz and many others, is skeptical about intervention by the state in economic activities He fears that this will lead to substantial "rent-seeking " (1985, p 45) That is, instead of "defending the market," the state may limit market development and create rents In particular, he finds that "an inward-oriented development strategy tends to trigger more resource wastage through DUP (directly unproductive profit-seeking) activities than an outward-oriented strategy through its greater reliance on quantitative controls, such as import quotas and capacity licensing, than on tariffs, taxes, and subsidies that influence prices[29] " (1985, p 55)

Srinavasan points to India as an example of the emergence of a farm lobby in the post-Green Revolution period (1985, p 56) Subsidized credit and inputs led to the rise of this lobby[30] In most developing countries, however, farm lobby groups are non-existent or weak, they are not likely to

---

[28]An agricultural data collection project in Pakistan was able to generate estimates that were more accurate and significantly earlier than the previous system, which would allow the Government to purchase wheat when the price was lower on the international market A government is still not likely to have the same incentive to minimize its cost, however, that the private sector has

[29]Lobbyists can also press for special tariff rates and/or subsidies buried in legislation

[30]Implicit taxation through output pricing may have also had something to do with the eventual rise of the lobby group

be the major source of market distortions Rather in their early stages they are likely to engage in battles to raise the prices of staples"often subsidized to consumers"back toward the border (parity) price Rents are more likely to go to the nascent agro-industrial sector, which often consists of a small number of well-off investors with better political connections

4 7 2 The Informal Sector as an Outcome of Policy Failure

Policy failure may give rise to a large informal sector in the market system The informal sector consists of firms that do not comply with the often burdensome requirements of official regulations and/or taxation As Starr explains De Soto's argument

> Peruvians have been obliged to defy the law because of the high costs that the Peruvian bureaucracy places on the legitimate acquisition of property and business opportunities informality comes at a high price those who invest their capital in extralegal businesses do not enjoy secure property rights they are discouraged from enlarging their businesses to what might be a more efficient scale (1990, p 33)

The problems of the informal sector, and the problems that the size of the sector reflects, are important to the food and fiber market system Services like transport are often provided by small enterprises in the informal sector More importantly, several niches in the food and fiber marketing system are often populated by informal firms These include food, beverage, leather, and textile manufacturing, trade in food and especially horticultural products, and credit[8] It is common for informal firms to provide these goods and services in most developing countries

Hussein et al (1991, p 7) point out that, while formal firms are larger and may take advantage of economies of scale, they may also be protected (i e , subsidized) by government policies Conversely, informal firms often have many competitors Their size and extralegal status, however, often prevent them from enhancing their business relationships with formal firms or securing credit to increase their assets or working capital To the extent that policies, excessive regulations, and their implementation ultimately make informal firms inefficient, the cost to the consumer of the products in question will be higher than it might be and the demand for them, lower, farm incomes will also be lower Thus policy failures that result in large informal sectors depress market performance

4 8 States as Market Managers

Moran and Wright provide another, complementary viewpoint on the relationship of markets and states, and the performance of markets that results They feel that the "state is a vital institution in managing, legitimizing and enforcing the results of competition in markets " (1991, p 2) Their view is that states and markets are interdependent, and that "free markets need strong states," specifically because of the state's role in

- Policing competition,
- Managing the discontent of those who lose by competition,
- Creating the legitimacy needed for competition to happen peacefully, and

- Managing competitive struggles when they transcend national jurisdictions [e g , GATT] (1991, p 244)

Because competition (and the ensuing superior economic performance) is not a spontaneously produced condition, "markets have to be defended against intellectuals, against the losers in competitive struggles, against capitalists and against workers " (1991, p 248) The incentive for the state to perform these roles"and not succumb to rent-seeking entreaties"depends partly on its accountability to the public, which in turn depends partly on the level of literacy and the degree of freedom of the press Sometimes an economic crisis will dramatically increase the need for economic performance, and a state will reform its ways (e g , through structural adjustment) and take on a more positive facilitative role

4 9 Economic Management Functions that Affect Market Performance

We have been discussing interventions in markets that were designed to improve their performance, but did not always do so The question of managerial competence arose A more general question, however, is, what kinds of management do markets require, either on a daily basis by the participants, or at the policy level?

There are several roles that the public and private sectors can play vis-a-vis markets to enhance their performance Here are four key roles, with suggested definitions

Planning	Analysis done in support or anticipation of the production of goods or the provision of services
Coordination	Systematic decisionmaking leading to consistency of policies and/or to efficiency of operation
Regulation	Establishment and enforcement of standards for products and rights and rules for business practices
Control	The power to determine prices, total and/or regional market shares, and/or production

Especially in a developing country context, one thinks of planning as something that governments do Such planning can be critical to implementing long-term programs of infrastructure development, for example Private enterprises plan, too, though, planning for sales is a key part of marketing Planning is important in both sectors because it helps to ensure that supply will meet demand

Coordination is a key aspect of private management In marketing theory, the classic example of coordination is in an advanced form of an agricultural market, in which firms grow in size partly by internalizing the coordination over different functions in the market This is known as vertical integration

Coordination of government policies is also very important Without coordinated policymaking, policies may have unintended and/or offsetting effects Many developing countries have intervened in the pricing of farm inputs and outputs Because the prices of these items were set by different parts of the government, their prices were not always decided in concert or announced to farmers at the same time In such cases coordination would improve the consistency or effectiveness of agricultural policies

Coordination between the public and private sectors, to maximize the impact of useful regulations like grades and standards, e g , can also be a crucial component of market performance In coordinated responses to the needs of changing markets, the private and public sectors may redistribute their functions For example, export quality control may move from the public to the private sector

Regulation of the private sector's compliance with various standards (accounting, safety, pollution) is generally carried out by the public sector The public sector is more likely to take the public's interest into account in this function than the private sector would There are examples, however, of export commodity grading done by private agents In these cases the domestic public's health or welfare is directly not at stake (although the exporters' reputations are), and the private and public sectors agree that this is an effective and appropriate allocation of roles

Control is often associated with centralization Centralized control of a market is generally ineffective, as Stiglitz mentions (section 4 5 1), because the central authority can rarely if ever obtain and manage the enormous amount of information necessary to properly coordinate all the necessary transactions In a competitive market, however, control is diffused among the participants Their actions collectively determine the prices and quantities of exchanges in the market Buyers and sellers then coordinate the details of delivery, specifications, and other qualitative factors that are essential to market performance The objective of maintaining such a competitive market is to prevent any single party from gaining control of the market, since this often leads to that party's collecting "rents" and the lowering of market performance In developed countries maintenance of competition is achieved through the enforcement of anti-monopoly ("anti-trust") laws and regulations Many developing countries have also passed such laws

One way to appreciate the impact of these functions is to examine their distribution between the public and private sectors in different economic systems (**Table 1**) This type of observation may be particularly relevant for those developing countries that are in the throes of a shift from more centrally planned or controlled economies to a more market-based system Recall also Stiglitz's notion (section 4 5 1) of the control mentality, which is represented here by a centrally planned economy

In **Table 1** we present the polar cases of a pure free market (one with virtually no government and very limited provision of public goods)[9] and a centrally planned economy, and two hypothetical variations in between One variation is a free market with some facilitation by the government, the

other is a market-based economy with significant intervention In each of these variations, the government provides a more complete range of public goods than in the free market case[31]

We distinguished above (section 4 4) between intervention and facilitation In this section we have some additional ways of characterizing that distinction Intervention is equivalent to control That is, when it intervenes, the public sector produces goods"other than public goods"or directly sets prices Facilitation includes planning, coordination, and regulation (as well as the provision of public goods)

While any of them can be carried to excess, the facilitative functions tend to enhance market performance, both in the short and long runs It is in this area that the art of government is most crucial The public sector's objective is to strike a balance between deriving the benefits of competition and promoting and preserving that competition It is essential to implement regulations and other policies in ways that are consistent with local traditions and values and in ways that minimize their cost

The public sector's impact on price formation is another lens through which we can view the relationship of state and market, and indirectly, the issue of market performance Price formation through the balancing of supply and demand in the market embodies the virtues of the competitive system The direct control that exists in the planned economy does not exist here Rather, control is diffused over all market participants, and prices provide signals to those participants about the value of inputs and outputs in production and consumption In the mixed forms of this system, however, the public sector has indirect control over the economy through facilitation and direct control over a limited number of commodity prices through intervention Anti-monopoly laws seek to ensure that competition and the price mechanism work to the benefit of all

In a purely market-based economic system, freely formed prices are very important, there is little or no government intervention to achieve objectives like price stabilization At the other end of the spectrum, central planning can achieve complete price stability (at great cost) because it sets prices Mixed economic systems vary in their reliance on market prices and their level of intervention in pricing In general"and leaving aside true market failures (externalities, public goods, and monopolies)"the less competition is the primary force

---

[31]Ironically in a centrally planned economy, the government may provide little or none of some public goods like information because there is no market that needs this information

Table 1

System Function	Pure Free Market	Market With Facilitation	Market With Intervention	Centrally Planned
Planning	Private	Private public	Private public	Public
Coordination	Private public	Private public	Private public	Public
Regulation	None	Public (Enforce appropriate standards)	Public (Tend to be restrictions)	Public (variable)
Control	Private	Private (diffused)	Private, public	Public
Public Sector's Impact on Price Formation	Very little	Some (indirect)	Substantial (often direct)	Prices of intermediate goods may not exist, public sector sets consumer prices
Limitations	Tendency to concentration of assets, limited competition	Difficult to strike a balance between defending markets and interfering in them, particularly as markets evolve	Limited competition leads to inefficiency, tendency to rent-seeking	Consumers preferences often ignored, inefficiency, coordination is difficult to achieve

influencing prices, the worse the market is likely to perform At the extreme, centrally planned economies have shown themselves to be good only at providing mandatory economic security to all citizens, but not at all good at promoting high productivity (and thus high income) or providing the goods that people want

One way to summarize the information in **Table 1** is by examining the limitations of these systems The extreme solutions to the basic economic problem of providing goods and services"the centrally planned economy and the pure free market"are in a sense symmetrically linked The former has too much government, the latter, too little to achieve an optimal level of competition and efficiency The former has tended in practice to ignore consumer preferences, while the latter prospers by carefully catering to them During times when the public sector was weak and the private sector, vigorous, the tendency of pure free markets has been to establish "robber barons," entrepreneurs holding great concentrations of wealth and the income derived from it It was historical developments like these that led to anti-trust legislation and the beginnings of more regulated business behavior The two less extreme options in the table differ less, but may still be grounded in rather divergent notions of the state's role One gets the flavor of their differences in the row titled, "Regulation " Here one senses the tendencies of the public sector to facilitate or to interfere, often to create rents Striking a balance in its activities so that they are supportive rather than obstructive is the difficult art practiced by the public sector in the scenario with "facilitation "

4 10 Prerequisites for Well-Performing Markets

Assuming the state manages well, what should it try to achieve vis-a-vis market performance? We saw in section 4 2 that there were many conditions that would have to be met if markets were to be competitive and achieve results near the ideal of the theoretical model

A more complete list of supporting institutions and elements would include

- Market information
- Market regulations
- Physical infrastructure
- Information infrastructure
- Human capital
- Enforceable property rights
- Enforced business and accounting practices
- Performing factor, insurance, and capital markets
- Enabling policy environment and political stability

Few would disagree that these aspects of markets are important for high performance Thus, what is important about this list is not the particular items on it, or the ways they are grouped It is their relationship to market performance that we highlight here and the provision of these outcomes by the public sector, private firms, and NGOs We also note that, as these markets and the overall economy evolve, the nature of these supporting institutions and elements becomes more sophisticated

In the agricultural sector, market information ranges from one commodity's current price"exchanged between farmers as one's bullock cart passes slowly by"to costly crop predictions released by the department of agriculture at preset times to all takers Market information includes basic price and quantity data, as well as information on upcoming domestic and international market opportunities Both print and broadcast media are important carriers of market information Information and its wide distribution become particularly important when going from a planned to a market-led economy Market participants need large amounts of information to make their production and consumption decisions, information that was not likely in the public domain under a planned economy

Klitgaard judges information "the most important factor for correcting the deficiencies of both markets and governments[32] " Examples he cites include farmers who do not know the current market price of their crop, imperfect standards for weights and measures, and would-be borrowers lacking credit histories He suggests creating an environment "rich in information " Such information would include commercial codes, regulations, standards, advertizing, and labeling

There are roles for both the public and private sectors in providing market information The public sector is likely to enjoy economies of scale in doing crop surveys The private sector can generally provide much price information economically, although the importance of grades and standards for clearly interpreting this information should not be underestimated Because of the required timeliness of market information, individuals may be willing to purchase a newspaper to obtain such information, even though they could get the same information at no cash cost at a later time Thus information is not always or not entirely a public good, and the public sector must consider carefully its programs of information provision The provision of information that is not timely and in other ways relevant and useful will be a waste of public resources

Market regulation includes enforced grades and standards, sanitary and phytosanitary regulations, and regulated places and times for exchange Grades and standards convey information about the quality and condition of a product when the buyer is not physically present at the sale This is particularly useful in agricultural markets, where standardization is possible for bulk commodities Functioning grades thus permit economies in marketing by relieving the purchaser of the need to personally inspect each shipment[33]

Collaboration between the public sector and those who would use grades and standards is clearly in the public's interest That is, market performance will be enhanced if the grades reflect the actually desired and feasible products in the market While this may seem obvious, implementation of market grades may be delayed in systems where the public sector is a dominant force in handling

---

[32]Klitgaard (1991) as cited in ICEG Newsletter July 1992 p 6 Quotations are from the Newsletter

[33]Grades may be less useful for industrial producers who often attempt to differentiate their products sophisticated agricultural producers now do this too but here phytosanitary inspection probably remains important

the commodity The public sector generally lacks the incentive to differentiate its product to improve customer satisfaction and increase profit

Physical infrastructure (marketplaces, roads, ports, airports, dams, irrigation systems) is essential for efficient market performance The availability and quality of such infrastructure directly affects the cost and the quality of agricultural products[34] These items tend to be public goods, but there are also likely to be functions that the private sector can perform Water user associations may operate irrigation systems, and contractors may operate unloading facilities in ports or build roads By contrast, in some developing countries, the public sector has taken it upon itself to build and operate facilities like cold storage to promote trade in perishable products While this objective is laudable, the function can usually be handled better by the private sector Often the service has not been available because of restrictions on investment or other disincentives In these cases it would be more appropriate for the public sector to remove these disincentives than to directly provide services

The World Bank gives these pieces of advice to governments in managing infrastructure for market performance 1) Manage infrastructure like a business, not a bureaucracy, 2) Introduce competition, directly if possible, indirectly if not, and 3) Give users and other stakeholders a strong voice and real responsibility The authors of the 1994 World Development report assert that "public-private partnerships in financing have promise " They also believe that "Governments will have a continuing, if changed, role in infrastructure " (1994b, p 2)

Information infrastructure (radio, telephone, television, Internet) is another set of facilities that are critical for market performance There are clearly roles that the public sector must play, e g , in allocating the airwaves and establishing protocols with other countries Private broadcast media are less common in developing than developed countries, but in at least some developing countries radio is successfully used to transmit regular price information

The highest returns on investment often come from investments in human capital These come about through basic education, research, extension, and management training These investments, combined with an openness to improved technology, can lead to higher productivity in production and marketing Many of these items have public good aspects On the other hand, private seed, fertilizer, and agro-chemical companies have transferred substantial amounts of information through their product service networks, in both developed and developing countries

Commodity markets depend for their performance on performing factor (land, labor), insurance, and capital markets Failure or weakness in one of the latter leads to poor performance in the primary (commodity) market Small farmers unable to secure credit may underinvest in new

---

[34]Data from 13 states in India show that "lower transport costs increased farmers' access to markets and led to considerable agricultural expansion At the same time because improved communications (through roads) lowered banks' costs banks expanded lending to farmers, and farmers used the funds to buy fertilizer further increasing yields " (World Bank 1994 p 14)

technology In these cases, improving the performance of the "secondary" markets (in this case, the credit market) is the immediate goal

Those concerned with market performance should also search for ways to make the connection between the commodity market and the other markets more flexible This would reduce the constraining influence of the secondary market Conversely, in such cases strengthening the linkages between the commodity market and the supporting markets may worsen the problem if one of the latter performs poorly For example, a stricter reliance on land as collateral when titling is poor would only make borrowing to adopt new technology more difficult Rather, better titling or other forms of collateral, e g , should be sought

Supporting markets may each require new laws or regulations to promote higher performance These may include labor laws, land titling laws, and prudential and investment laws In all of these areas, the public sector will be involved, but collaboration with the private sector will enhance the outcome

Property rights are another essential for market performance What people exchange in markets is either property or services Property rights, however,

> do not take a single form, the package of rights subsumed under the conception of property may be variously constructed The state must define, first, what counts as property Property rights include the right to use property, to derive income from it, and to sell it, but these rights are divisible and can be limited in countless ways through laws of liability, contracts, eminent domain, rent and other price controls, and perhaps the most important of all, taxation (Starr, 1990, p 31-2)

Property rights and anti-trust laws that are enforced fairly create positive expectations and lead to private investment By contrast, investment laws that are really barriers to entry reduce competition and degrade market performance Investors, whether they are large or small, must feel secure in their investments"both in the legal and physical senses"or they will not undertake them An inclination to invest and produce will exist, moreover, if there is an enabling policy environment To create such an environment, the public sector needs to take care of significant negative externalities, provide essential public goods, and adopt a cooperative approach toward working with the private sector It needs to ensure stability and an appropriate level for key macroeconomic variables[35] In the long run, an openness to competition, rather than import substitution, tends to promote market performance In the establishment of an enabling policy environment, there is ample scope for cooperation between the public sector, the private sector, and NGOs

---

[35]A World Bank review of returns to projects found that ' when overall economic policy conditions are poor the returns to infrastructure investment decline " (World Bank 1994 p 16)

Many of the prerequisites for market performance have public good attributes This includes infrastructure, information, and the market itself Notice that rights are also a public good, since in general my partaking of my rights does not prevent you from partaking of the same rights, indeed it may encourage it[36] The strong public good nature of many of these prerequisites supports the need for a strong state to facilitate market performance through the provision of these public goods and services At the same time, the state must always be looking for those opportunities where it can make the largest contribution at the lowest cost It must always check whether the private sector can make the same contribution, or do so at a lower cost Even if the private sector's cost is higher, there may be actions for the public sector that have a higher priority and exhaust its resources

The history of some technologies in the developed countries, e g , telephone service, has been progressive growth of competition where there was once a (regulated) monopoly, as it became technologically feasible to divide the service into parts and provide them separately and competitively This paradigm might be adopted by governments examining their options for market intervention, too Governments might actively provide those parts of required goods and services that are, at the time, public goods They should always be reassessing, however, when a particular service could be taken over by the private sector, in whole or in part

Governments might take as guidelines for market performance three conditions

- There will always be a need for the state to provide public goods,
- The state's resources will always be limited, and
- The private sector will almost always be more efficient at providing non-public goods and services

If a state adopts guidelines like these and tries to facilitate enhanced market performance, how does one measure changes in market performance? This is the topic of our next chapter

---

[36]For a detailed discussion of public goods common property club goods and private property as they pertain to infrastructure services see World Bank (1994) p 25 Distinctions are also made between goods that are excludable and rival and the extent of externalities

5 FIELD METHODS FOR THE DESCRIPTION OF AGRICULTURAL MARKETS AND MEASUREMENT OF THEIR PERFORMANCE

In previous sections of this guidelines report we explored different conceptual approaches to the topic of agricultural market performance, the theory of market behavior, and the literature of marketing systems, state intervention, and market policy reform

In this section we provide an introduction to some of the applied methods used in the planning and execution of agricultural marketing projects and the evaluation of market performance in the LDC setting Our intent in this overview is to assist the professional agricultural development worker in understanding why the studies are conducted as they are, how they are conducted in a general sense, and some of the limitations on interpretation of results This introduction to the analytical techniques, along with the discussions in the other sections of this guideline, hopefully will help equip the non-specialist to

- Produce a scope of work for a commodity market assessment, or an agricultural comparative advantage study,
- Supervise the applied studies that might be involved with the execution of a market or trade improvement project, or
- Critique the applied work of agricultural marketing specialists

More detailed technical references will be cited for the reader who would like to pursue these topics further

Applied studies in agricultural marketing in LDCs often involve work in one of two broad categories

- Studies of the **organization, operation and performance** (often referred to as "structure, conduct, and performance") **of specific commodity subsectors at the national level** The main objective is to assess the efficiency of that commodity system in performing its marketing functions An assessment indicating a clear case of sub-optimal performance (measured against standards of efficiency, equity, government revenue generation, etc) is often the basis for some type of market intervention in order to improve performance (or to modify or eliminate state intervention to improve performance), and
- Studies of a country's **comparative advantage in** the production and marketing of specific **agricultural commodities** These are often commodities that the country trades, either exporting surplus production or importing quantities to make up for

shortfalls in domestic production As a consequence of these trade relations, there are often policy questions concerning tariff protection, domestic subsidies, or export taxes that are subject of applied analysis

As a final note of introduction, the methods presented were conceived largely to assess market performance against economic efficiency objectives As discussed in section two, if we were to focus on other objectives -- such as government revenue generation or distributional equity -- we would employ other descriptive or analytical methods

5 1 Methods for Describing the Organization, Operation and Performance of Commodity Subsectors[37]

As we have seen in previous sections of these guidelines, agricultural market analysts, armed with their training in neo-classical economics, have a very clear theoretical view of what markets should be and how they should function However the "neoclassical model" does not provide much assistance in the analysis of market situations that deviate substantially, as most do, from the assumptions of the pure competition model As William O Jones has written, " the concept of the conditions for the perfectly competitive market is useful in determining how a market is inefficient, but it is not very helpful in determining how inefficient a market is" (Jones, p 16)

This methodological impasse pushed applied agricultural market analysts working in both developed and LDC environments, over the past 30 years or so, to use methods that had been developed in industrial organization studies These were most often used to assess the relationship between the structural organization of an industry and its performance In the United States context many of these studies were motivated by concerns over increased concentration of industrial ownership or monopoly control over production in specific industries and the "anti-trust" laws that were designed to limit concentration in order that the population benefit from competitive production and marketing

5 1 1 The Traditions of "Structure-Conduct-Performance" and "Subsector Analysis"

Harriss characterizes the "structure, conduct, performance methodologies" as "an attempt to compromise between formal structures of economic theory and empirical observations of operational experience in imperfect markets" (Harriss, p 197) She goes on to repeat the standard definitions (first offered by Bain, 1959) of these terms

- **Market structure** consists of the characteristics of the organization of a market which seem to influence strategically the nature of competition and pricing within the

[37]After this chapter was initially drafted the author received a copy of an excellent new book which covers most of the same topics (and more advanced modeling as well) but in substantially more depth The reader is encouraged to consult Gregory J Scott, ***Prices, Products, and People Analyzing Agricultural Markets in Developing Countries*** in paperback by Lynne Rienner Publishers (Boulder and London) 1995

market In particular, these are the degree of seller and buyer concentration, entry conditions, and the extent of agent and product differentiation,

- **Market conduct** is the pattern of behavior which enterprises follow in adapting or adjusting to the markets in which they sell (or buy), in particular methods employed to determine price, sales promotion, and coordination policies and the extent of predatory or exclusionary tactics directed against established rivals or new entrants,

- **Market performance** represents the economic results of structure and conduct, particularly the relationship between distributive margins and the costs of production or marketing services

When these methodological concepts were applied to studies of agricultural rather than industrial commodities, some changes in emphasis occurred In agricultural studies one was often less concerned about the number of firms and the horizontal relationships among them, partly because many agricultural processing and marketing industries (with some notable exceptions) were much less concentrated than many manufacturing industries Instead, the agricultural studies placed more emphasis on the vertical relationships among the different categories of industries that undertake the marketing, processing, and distributional functions that make up specific **commodity subsectors**, defined as a vertically linked set of firms or organizations that produce related products or groups of products As Holtzman notes,

> rather than adopting the conventional dichotomy of "on-farm" being "production" and beyond the farm gate being "marketing", the subsector approach emphasizes transformation, adding value, and transactions at every stage in a subsector from input supply through production, marketing and consumption Consumers are considered as subsector participants, because their demand for agricultural commodities in the aggregate influences production and marketing decisions of all other participants in the subsector " (Holtzman, page 12)

This **added emphasis on consumer demand** in agricultural subsector work is another difference in emphasis from industrial structure-conduct-performance (SCP) studies This stems from the differences between the demand for food (particularly in third world countries) and the demand for industrial goods in developed countries In the latter, demand is less a refection of basic needs and is more often strongly influenced or shaped by the advertising practices of the vertically integrated manufacturing companies themselves "The subsector approach is demand oriented Demand drives commodity subsectors or, alternatively pulls commodities through these subsectors " (Holtzman, p 12) The enhanced emphasis on major changes in supply and demand and the dramatic affects they can have on the nature of subsector activity is also a reflection that dispersed agricultural producers and most marketers are generally "price takers" (i e , their individual actions have little or no influence on the prices they face in the market place) in comparison with the situation in the markets for industrial goods where the actions of a single firm can greatly influence price formation

A third area of greater emphasis in the descriptive and diagnostic dimensions of agricultural subsector studies is a strong focus on the nature of **vertical coordination arrangements**, such as

contracting, quality standards and requirements, and the roles of selected firms, cooperatives, industry associations, and other bodies playing coordinating roles Because agricultural production, processing, and marketing has traditionally been very decentralized and atomistic, governments have often played a central role in working with private groups to provide this vertical coordination This was certainly true in the economic history of the United States where both the federal and state governments both played very extensive roles in assisting private farmers and marketers in the creation and continual improvement of agricultural markets Governments are still very active in market development in many of the least developed countries today, such as those of sub-Saharan Africa As we will see in the next section of this guideline, one of the great errors in development strategy in LDCs has been that the state has overplayed its role In many countries it attempted to replace its role as a facilitating partner with a simple take-over of marketing functions by state companies and marketing boards [38]

In many LDCs agricultural and food products are still marketed through subsectors that are largely not vertically integrated, where fixed, physical market places still play an important role in the system, and where products change ownership many times during the marketing/value added process For these subsectors, many of the methods described in this section -- involving the analysis of market prices over time and space and the decomposition of marketing margins as products move up the marketing channels -- still are quite appropriate However, there are other commodities in some middle income countries, particularly horticultural products produced for export, that are increasingly being grown, processed, and marketed, all within the same vertically structured corporations In such a situation, the role of the state vis-a-vis the subsector changes with more emphasis on sanitary inspection and regulation, and perhaps enforcement of minimum wage levels, worker health and safety regulations, etc Other techniques will be needed to evaluate the efficiency of these markets For subsectors producing for the domestic market, emphasis may also shift to monitoring the number

---

[38] In the modern food and fibre subsectors of developed countries such as the United States today the need for state participation in vertical market coordination has greatly diminished, because markets have grown larger and more sophisticated, as have many of the processing and marketing firms In fact in some subsectors, so much of production and marketing is now undertaken within large vertically-integrated private companies that market analysts are having to totally rethink how they analyze efficiency in the flow of product to consumers The older marketing systems - where products changed ownership numerous times as they moved up the channel from producer to consumer, often through various levels of physical wholesale and retail markets -- are disappearing as these functions are increasingly performed within large vertically integrated corporations or through contracted exchanges between large specialized producers and the processor/marketer companies that perform all the other value adding functions as increasingly differentiated highly packaged products are sold to consumers For example how many US consumers still buy undifferentiated bulk grains beans and vegetables in local market places a form of food marketing that is still dominant in many of the poorer LDCs?

This dramatic shift over time in the structure and functioning of US agricultural markets is described in *Food and Agricultural Markets The Quiet Revolution* by Lyle Schertz and Lynn M Daft editors National Planning Association and USDA 1994 Implications of these structural shifts for needed changes in government roles in areas such as information systems food safety and inspection, marketing orders commodity grade criteria and situation and outlook programs is well illustrated In "Re-Engineering Marketing policies for Food and Agriculture Food and Agricultural Marketing Consortium Daniel Padberg editor Texas A&M University 1994

of firms within an industry, under the generally held belief that a subsector with a larger number of competing firms will result in lower consumer prices than one that is structurally more concentrated

Finally, due to the relatively greater availability of LDC market price data (more available than other detailed information on subsector organization and operation in most cases) and the less integrated nature of many LDC marketing chaneels, there has been a tendency for market analysts to make extensive use of price analysis as the main quantitative method for the assessment of market performance (particularly in terms of spatial and temporal efficiency) A number of these techniques are illustrated in the sections that follow Some have criticized what they see as an excessive reliance on market price data analysis which may hide much important behavioral information that may help in more fully understanding the complex relationship among market intermediaries in LDC agricultural markets, also an important determinant of a broader definition of market performance

5 1 2 Use of Rapid Appraisal Methods to Describe Market Organization, Operation, and Performance[39]

If we are working in the context of an AID grant-funded market development project or a World Bank-funded market development loan program, we could likely face two methodological tasks as we work with the target commodity subsector(s)

- Describing the structure and operations of the commodity system in question (often during the design or early months of project implementation to give baseline information), and

- Monitoring change in operations and assessing the impact of project activities on the performance (in this case, the operating efficiency) of the subsector

These data needs can be met with a variety of formal survey methods, such as a census of all the firms operating in the subsector between producers and consumers If done well there can be great advantages of using comprehensive data collection procedures However there are problems too As Kumar (1993) suggests, the main disadvantages of reliance on more elaborate formal data collection approaches are

- **Cost** Censuses or elaborate socio-economic surveys can be very expensive to undertake Depending on the importance of having accurate and detailed information for decision-making, funds may be better used in other project activities or in doing a larger number of less rigorous studies,

---

[39]Two excellent introductions to this topic are Krishna Kumar, Editor, *Rapid Appraisal Methods*, World Bank 1993 (for a general introduction to the topic) and John Holtzman, "Rapid Reconnaissance Guidelines for Agricultural Marketing and Food System-Research in Developing Countries", Working Paper No 30 *MSU International Development Papers* East Lansing Michigan 1986

- **Timeliness** It may take several years from inception to completion of larger, more formal data collection efforts Studies often included in the category of rapid reconnaissance approaches will often be completed within one to three months,

- **Lack of Methodological Appropriateness.** Formal methods tend to focus on those phenomena that are quantifiable, often missing information that is important in understanding the larger socio-economic setting Rapid reconnaissance methods, in addition to being cheaper and more timely, are often better able to address more "complex socio-economic changes or people's underlying motivations, beliefs, and value systems in project and program settings" (Kumar, p 19) Thus, rather than trying to infer behavior and motivation indirectly from statistical data, well-chosen informants are simply asked what they do, how they do it, and why

Thus in many situations faced by applied marketing analysts, it is appropriate to use methods that are less formal, costly, and time-consuming in order to generate the basic descriptive picture of the organization and functioning of a commodity subsector These methods are referred to here as **rapid appraisal (RA)** (also known as rapid reconnaissance, rapid assessment, rapid low-cost methods, etc) RA can be used effectively to answer many of the questions in the design, implementation, or evaluation of marketing interventions In most conditions some use of RA methods is necessary to understand what is happening in a marketing system The question arises in a subset of cases as to whether use of RA techniques is sufficient to answer some questions with the quantitative precision that will be convincing to decision-makers Use of more intensive, formal survey techniques will generally be necessary when detailed quantitative analysis of primary data is required to make a convincing analytical argument or to increase confidence when making a difficult policy decision RA may also indicate some areas where data should be collected by a government agency on a regular basis

Most short-term consulting teams working in commodity-oriented marketing work will either explicitly or implicitly use RA methods, or even slightly more informal investigative techniques The central task is to come to understand (and to communicate) how a subsector is organized, how it operates, and what some of its "fixable" problems might be Kumar suggests that the RA methods can be grouped into the following five categories, with some being more frequently used in agricultural subsector work than others

- **Key Informant Interviews** This is the RA technique most frequently used by development practitioners It involves interviewing a select group of individuals who are in a position to provide needed information, ideas, and insight The emphasis is on an informal interview setting, although it is often useful for the interviewers to use an interview guide so that the same list of subjects is covered in all interviews For example, early in a commodity marketing investigation, a small group of food traders might be asked about their farm-level purchasing practices and their relationships with wholesalers To get a better picture of different points of view, similar questions might be asked of carefully selected farmers, wholesalers, processors, etc Ten to fifteen interviews might be conducted to begin to "triangulate" on an emerging

understanding of market structure or operations These interviews would probably be conducted by the researchers themselves,

- **Informal Surveys** This is a closely related technique which varies primarily through the use of a somewhat larger sample size (up to 50 persons might be interviewed) and an open-ended or loosely structured questionnaire rather than just an interview guide The questionnaire is used to make sure that interviewees all are asked the same questions, whether open-ended opinion questions, short answers, or questions seeking various levels of quantitative data The use of a larger sample and a questionnaire may allow the researchers to use paid interviewers to complete the job, particularly if the results are regularly reviewed by the senior researchers for completeness and coherence For certain types of information, informal surveys may be all that is required For other categories, the informal survey may generate tentative or preliminary information that leads to more formal, detailed surveys based on representative sampling Informal surveys are good opportunities for researchers to test various approaches for subsequent information collection efforts Non-random or convenience sampling of some type will generally be used,

- **Focus Group Interviews** In marketing studies, this technique has been used most frequently when consumer demand is being studied Frequently used by private companies to generate a basic picture of consumer attitudes toward retail-level products, it uses a facilitator to conduct discussions of a specific topic (such preferences in food consumption involving as wheat flour, perceptions of product quality, factors involved in substitution of one product for another, etc) in small group sessions The premise underlying this approach is that the free flow of a "guided" discussion will generate fresh ideas and insights since the participants stimulate each other By carefully choosing the groups (urban/rural consumers, farmers/nonfarmers, high/middle and low income levels) this technique, if properly implemented, can capture significant information on consumer behavior (such as a rough idea of the income elasticity of demand for a marketed product) within a month, while collection of more rigorous quantitative information (through a budget and consumption survey for example) might take years In addition, the researchers can often get an idea of how consumers think about product quality, substitution relationships, and dietary practices that would not necessarily be evident from quantitative data analysis One of the keys to effective use of this technique is to persuade local researchers/interviewers that they do not already know all the answers about local consumer behavior, to listen to what the groups are saying, and not to bias results through their own remarks during the group meetings,

- **Community Interviews** This technique is used more often when RA is applied to general questions of rural development, community infrastructure projects, and less frequently in agricultural marketing investigations In this approach, the main dialogue is between representatives of the community and the interviewer, rather than among the interviewees themselves, as in the focus group setting There are often

problems of ensuring that women or poorer socio-economic groups are adequately represented in such group settings or having their views be known if different from the mainstream It is suggested that interviewers work in pairs, one to conduct the meeting, and the other to record answers, and

- **Structured Direct Observation** This method involves using structured methods of data collection (recording forms, video-taping, etc) to record observations on a given socio-economic process This has been used with considerable success in agricultural subsector investigations, particularly the marketing of perishable food commodities where delays in delivery, rough handling, and so forth can lead to the substantial degradation of the product Market researchers have literally followed these products from farmers' fields through transactions with market intermediaries, into urban wholesale markets, and on to points of retail consumption Experienced researchers are often able to spot sub-optimal behavior that market participants might take for granted Clearly this does not work as easily for stored products where the timeliness of correct handling and market exchanges is less critical These techniques also apply to observations of processing, handling, and transportation operations, particularly when technical experts can use their experience with similar systems to spot inefficiencies, and places where improvement in technology might break critical bottlenecks

Once an analyst has reviewed existing documentation on a subsector (government, donor, and academic studies), has been to the field to observe the subsector in action (this will depend greatly on the subsector and the season), and used some of the techniques described above, the next steps might involve doing a more in-depth informal survey of emerging problem areas and to begin to assemble and analyze existing production and market price data

5 1 3 Analysis of Subsector Production and Prices Some Fundamentals

Information Requirements When beginning to do any of the price, market efficiency, protection and comparative advantage analyses briefly described in this section, basic information, including production and price data, is essential Exactly what types of data depends on the structure and operation of the subsector Since much analysis is done using average or representative production and marketing firms, one of the first questions has to do with the degree of homogeneity of the subsector In some subsectors (such as cereals in the semi-arid savannahs of subsaharan Africa) the product is produced by small farmers using relatively homogenous hand technologies and marketed by small traders In other subsectors (maize in Kenya for example) low-input, small holder technologies may exist side by side with large-scale, capital intensive technologies Larger scale state marketing channels exist next to smaller scale private ones If both are significant in terms of national production and marketing, our data collection effort (whether through RA or more intensive collection methods) will have to take both subsectors into account

The analyst will need to have information on the following topics, some is quantitative data and some is simply knowledge of the technologies and procedures that make up the production,

processing, and marketing of the commodity, and basic understandings of the socio-economic and policy context within which these things occur

Inputs to Production:

Land tenure	Basic systems, operation of land markets, land access questions, rental prices if farm land is commonly available to rent
Agrochemicals	Prices for fertilizer and any other commonly used agrochemical (special insecticides, etc)
Biological Technologies	Varieties and prices for seed, planting materials, young animals
Mechanical Technologies	Hand tools, animal and tractor-drawn machinery types and prices, including fuels, cost and feeding of draft animals
Irrigation	Systems used, price of water

Production

Farming Systems	Technologies used, monocropping or intercropping, number of production seasons per year, careful enumeration of field-level processes ("process budgets" include the amount and timing of all input use, including labor) and allowing construction of crop enterprise budgets (costs and returns in nominal terms)
Output data	Yields, total production, marketed surplus, farm gate prices, quality and grades (as appropriate)
Government	Amount of direct subsidies, taxes, or government assistance

Marketing

Structure and Conduct	Basic information on the organization and operation of the marketing channel from farm gate to consumer
Marketing costs	Costs (variable and fixed) of marketing services equipment and supplies used (scales, bags, cartons, etc), transportation and handling charges, storage costs (for less perishable products), post-harvest losses, all at the firm level (duplicated if multiple channels important)

Market prices	In as much detail as possible, by levels in the subsector, wholesale/retail, and by any differentiation of the product, domestic and relevant foreign prices (FOB and CIF) if the product is traded
Government	Price controls, active participation in marketing, subsidies, and taxes
Processing	To the extent that processing is important to the commodity, the same types of information as above Substitute processing for marketing costs Information should be duplicated for each processing technology that is a significant part of the market
Consumption	Quantities of subsector product(s) purchased and consumed, data on product substitution, information on use of product in food consumption or final product production, retail prices
Macroeconomic Context	Aggregate sectoral and subsectoral data (output, employment) role of the target subsector in national economy and political system, key policies (input, credit, marketing, etc), government fiscal (particularly vis-a-vis the target subsector(s)) and monetary data (particularly exchange, interest, and inflation rates), consumer prices indices

Graphing Market Price Data Whether doing an introductory description of a commodity subsector, or more complex economic analyses, price data is often on center stage In addition, much can be learned and communicated by using simple graphical representations of price data If the analyst is fortunate in having an extensive data set on market prices, graphing these data for the commodity for a number of representative (or larger, more important) markets can give us a market-level "summary" of the many factors that determine supply and demand

One of the difficult realities of simple price analysis is that while price data may often exist, data on the volumes transacted in marketplaces is much rarer in most field situations Thus we know what the price of maize was in a rural market, but not how much was sold, whether those transactions are predominantly farmers selling at harvest time to traders or to consumers, or are consumers (including farmers) buying maize for consumption in the season before the next harvest when prices are often at the height of their cyclical swing An example of tabular price data and the resulting graph is given in Figure 3 (Source Goetz and Webber, 1986, pp 7-8) on the following page

There are five functions that graphing of price data can serve

(1) Graphing forces the analyst to look more closely at the price data and facilitates his understanding of trends,

(2) Seasonality in agricultural prices is one of the key phenomena that analysts deal with since it often provokes government or private sector market intervention to deal with various dimensions of price risk Seasonality is much easier to see in the graphical presentation than

in the numerical table These seasonal patterns are enhanced when data from several markets and a number of years are combined, in conjunction with removing the inflation from the data and various indexing techniques (see below),

(3) Graphing provides, when used in conjunction with other sources of information on the market in question, a means of eliminating of correcting data aberrations or "outliers" While ad-hoc statistical rules (e g eliminate values that are more than three standard deviations away from the mean value of the series) can be useful in correcting price data series, ultimately the analyst has to decide whether the outlier is erroneous data or a real but substantial deviation from the central tendencies in the data series,

(4) Visual presentation of the data also facilitates making decisions about potentially replacing missing data If missing values are seen to be in periods when prices are normally rising or falling, it is intuitively more acceptable to choose an intermediate value than during market turning points when we know the market has turned but not how high or low the price was at the turning point, and

(5) In some situations market price series will graphically and dramatically illustrate policy changes and other shocks to the market in question For example, it is often possible to indicate on a price graph when a state marketing board begins and ends its open market operations and even draw conclusions about the utility of such market interventions

Correction for Inflation, Construction of Price Indices When beginning to work with price data, it is important to correct for inflation by "deflating" and sometimes indexing the price series (For example, if we have monthly price data from 1980 to 1995, with our starting month in 1980 set = 100, a portion of the aggregate inflation index between 1980 and 1995 is subtracted from each monthly price) Deflating the time series produces a 1995 indexed price that is lower than current actual prices In doing applied work, this can be confusing to some groups of market participants The solution may be to "anchor" our adjusted price series to current price levels and "inflate" the past prices to compensate for inflation (so the 1995 average price is equal to actual levels (or if indexed, 1995 = 100) and previous years are lower assuming some non-inflationary natural trend) [40]

This latter "reflation" approach to a producing a price series corrected for inflation, however, is less attractive for use in regression analysis because higher absolute deviations from the trend line will cause there to be higher variation in the error term, and bias in the estimated variance in the regression coefficient Other sources of bias can enter into these procedures depending on the data used to construct the consumer price index ("CPI") that is used to correct the price series In LDC situations, these concerns may appear in more complex statistical analysis but for most basic

---

[40] Goetz and Webber (1986) provide many practical illustrations of how price data can be corrected for inflation (pp 22-35) and on index construction (pp 64-97)

descriptive work, it is generally better to accept these risks of bias and correct for inflation in price series, particularly when rates of inflation are very high There are, however, some very major questions that arise concerning the composition of CPIs and the relevance of an urban-based index to some rural food production and marketing channels These must be examined on a case by case basis

Once the major effects of inflation have been removed from the price series, the analyst can use other statistical procedures to separate the seasonal patterns in the data from normal trend (either increasing or decreasing) and non-seasonal cyclical patterns, and from random movements in the price series One of the most commonly used techniques to reduce the random element and more and clearly see the season pattern is to calculate **moving averages**, which essentially smooth out some of the "noise" or small variations around the trend line, but still do not remove trend and cyclical tendencies from the data

Alternatively, any linear trend in the deflated (or reflated) price series can be estimated by using simple linear regression and subtracted from the deflated series to generate a **seasonal price index** which will still contain randomness in the series Finally, with statistical removal or compensation for the final randomness, the analyst can generate a **grand seasonal index** which indicates for example for a multi-year monthly price series how much higher or lower prices are in that month when compared to the overall multi-year price average (see Goetz and Webber, Chapter 4 for full details)

Other Descriptive Analyses In addition to an analysis of prices series for the commodity under study (trends in real prices and seasonal variation as described above), there are a number of other basic analyses, that can help come to a better understanding of the target marketing system Among these are

- **Analysis of Relative Output Price Relationships** The analyst, while dissecting prices series for the target commodity, should also look carefully to see how change in the price for the target commodity are related to those for commodities that are normal substitutes in dietary consumption (such as rice, millet and maize as substitute for sorghum in West African diets) Knowledge of consumer behavior that can be derived from statistical analysis of the price movements of these substitutes over time will be enhanced by the results of carefully carried out focus group investigations on consumer perceptions of these dietary substitutions in practice,

- **International/Domestic Price Comparisons** For agricultural products that are heavily traded (exported cash crops or imported food crops), comparisons of the domestic and international price structures and levels (and the exchange rates between the domestic currency and foreign currencies), is part of a larger set of analyses of many of the marketing policies that are at issue in developing and developed countries today Embedding these price relationships in a broader policy framework is the subject of section 5 2 below on comparative advantage analysis However, suffice it

to say here that, if simple examination shows that the real farm price of a key export crop is one third of its fob price leaving the country and production is stagnating, then this situation deserves more careful scrutiny Similarly, if domestic farm gate prices for a key food crop are two to three times the CIF price of the same commodity as it arrives in the country, then there are undoubtedly key issues on trade protection and producer/consumer impacts that need to be further explored by the analytical team,

- **Input/Output Price Ratios** It is also possible to calculate a number of output/input price ratios which, when compared to those from other regions or countries, may give us a measure of the relative efficiency of the firms performing a particular production, marketing, or processing task within the subsector in our target project area For example, one can calculate the commodity/input price ratio or the processed product/raw material price ratio (for any in the value added chain looking at the value of the output of that step in relation to the value of inputs to the step) If the values are particularly low on a comparative basis, this might indicate the value to conducting more in-depth investigations focused on efficiency at the firm level, which certainly can be one dimension of performance of marketing functions or performance of the subsector as a whole This will be relevant to our discussion of marketing margins below

5 1 4 Analysis of Spatial Integration and Efficiency

The Theory One of the most frequently used approaches to the examination of market performance is the use of correlation analysis of commodity prices to examine the degree to which markets are efficiently integrated and perform functions of spatial arbitrage as the theory of perfectly competitive markets anticipates In that theory a competitive agricultural marketing region will have a number of geographically-dispersed local markets where the target commodity is bought and sold by many traders and many farmers, each blessed with access to a good information system so they all know what prices are for a standard lot of the commodity in the other markets in the region, and where transportation services are readily available in their own competitive market, so that sub-regional differences in supply and demand would be reflected in different prices among those markets If the price in one market exceeds that the neighboring markets by more than the reasonable cost of taking advantage of those higher prices (assumed to include transport, handling, communications costs, any risk premiums if there is some degree of uncertainty about how long the higher prices might last, a standard profit margin), then traders (or farmers) would continue to transport and sell the commodity in the higher priced market until the price drops to a point that it would no longer cover the added costs of the arbitrage operations

From the above it is then assumed that, even though local prices may differ due to differing local supply and demand conditions, price levels will rise and fall together according to the aggregate supply and demand conditions in the region with excessive local price differences eliminated by competitive arbitrage activity The way to test for this is to calculate the correlation coefficients for price data over time for all or a set of representative markets where good data exist This is a

technique that has been used extensively in the United States (Marion and Handy, 1973) and fairly frequently in micro-level marketing studies in Africa, Asia, and Latin America

The Method as Used This method works best for good, consistently-collected data for a number of markets, for a standardized product (for example 100 kilo sack of millet at normal dryness, levels of impurities, and grain quality acceptable to knowledgeable consumers, etc), over an adequate time period (for monthly price averages, two or three years of data will offer a better chance to test the strength of the relationship) The procedures are simple, but the interpretation must be done with care

As is illustrated in Figure 4 on the next page, the price data is arranged in tabular form by market and by time period (part A) Correlation coefficients are calculated for all pairs of markets over time These coefficients are normally arrayed in a matrix (as shown in Part B) The correlation coefficient itself (or "r"[41]) is the scale-free measure of the covariance between two variables Squaring the coefficient provides an estimate of the variability of one variable that is "associated with" the variability in the other variable in the pair Hence, a correlation coefficient of r = 75 implies that 56 percent ("r squared") of the variation in one price series is associated with that of the other

Finally it is useful to present the results of the correlation analysis of market prices in a graphical or simplified map format as is shown in Part C of Figure 4 There we see that of the ten possible pairings among the five Malian millet markets, that four were classified by the analysts as "strong connections" (IE, where these markets are strongly integrated through spatial arbitrage or very similar local supply/demand conditions during the two year period, with the cut-off being $r^2 >$ 60), three are shown as weak connections ($r^2 <$ 20), and three were classified as being inter-market connections of medium strength ($20 < r^2 <$ 60) However, one of those market pairs -- Sikasso-Keyes -- was on the border line between "medium" and "weak" and probably should have been put in the latter category These results are consistent with the economic geography of Mali the strong connections follow the main paved roads linking the four cities that are in the major cereals producing region of the country Even though Keyes is linked to Bamako by a rail line (with high freight rates and poor service), these are really two widely separate regions that might logically be expected to be semi-autonomous economically

But what do these correlations really mean? All methodologists agree that market price correlations should be interpreted very carefully, only as rough indicators or as additional confirming evidence of market integration and efficiency There are many factors (other than our assumed theoretical relationship between the two markets) that may cause prices to move together As we noted above, if there is substantial inflation in the series of market prices this, in and of itself, will cause the "r squared" values to be higher (thus encouraging us to use deflated price series) It should also be evident that this type of statistical investigation of market performance can be made substantially more complete than the example presented in Figure 4 The interpretation of results is

[41] More formally known as "Pearson's product moment correlation coefficient"

highly dependent on a broader and careful interpretation of the socio-economic context within which the market operates

Higher R^2s as a Measure of Improved Market Performance? Finally, while correlation analysis may provide a view of the spatial efficiency (or performance) of an agricultural market at one point in time, what about changes in that performance over time? For example, in a country where government attempts at direct market intervention, such as movement controls on private sector shipments from one administrative unit to the next under the pretext of food security (such as maize movement controls in Kenya), one might expect to find that local markets would not be well integrated (or have low price correlation coefficients) If our market reform program targeted removing these movement controls, this might result in greater integration, or higher correlation coefficients, after the reform program went into effect Conversely, removal of price controls or government subsidies might result in lower r^2s with movement to freer markets which, ironically, might also be more efficient, but an effect that could not be picked up by this statistical measure

It should be intuitively clear that if the interpretation of correlation coefficients in the static picture of market performance must be done with care, interpretation of these coefficients before and after a major change in market structure or regulation must be done even more carefully If we see an increase in coefficients after marketing restrictions have been eliminated, are we sure that we can attribute this change in performance to the reform program? First, we must judge whether the change in regulation was the only major change that might increase market integration If there had also been an improvement in the road network linking the markets, that too might contribute significantly to a more integrated marketing system with higher coefficients Sometimes, improvements in data collection methods may be the main reason for better correlation However, if we were also to observe an increased number of traders engaged in arbitrage, increased investment in new trucks, lower incidence of bribery at roadblocks, and other evidence that might corroborate our higher coefficients, we might have greater confidence in the "causal link" between the reform or investment program and the quantitative measure of greater market integration and efficiency

Correlation analysis of market price data, even though the data matrix is over space and time, is really more a measure of spatial integration of markets over time than it is a measure of market efficiency over time This is particularly true since r is a scale neutral indicator Thus we know to what degree prices are moving up and down together (or how coordinated the price movements are), but we do not know anything about the size of the marketing margins over time To do this we need to look at commodity-specific marketing margins, discussed below in section 5 1 5 In addition, change in marketing margins over time gives us another potential very useful measure of market performance

A Note on Basis Relationships In agricultural market systems that are largely free of direct government influence on price formation and that have good price statistics (such as grain markets in the Midwestern United States), market analysts calculate "basis relationships" between the price series in local cash markets and those in larger markets that can serve as price reference markets over time and space The most common type of "basis" is simply the difference between the current cash price of a commodity and the futures market price for that same commodity some months hence

When the cash price is greater than the futures price, this basis is referred to as a "premium", when the futures price is greater than the cash price, it is a "discount"

While these price differences can be observed directly at any point during the season, data have been statistically analyzed over multi-year time periods to derive more predictable patterns in the price relationship over the seasons within the average year The objective is to calculate the relationship between a local spot or cash market and the reference market (often a spot market that has evolved into a futures market over time) and to make this probabilistic information available to those who can make of use of it in their own price analyses and business decisions The reason to do this is to allow businessmen operating in that market to make buying or selling decisions by just referring to the widely available futures prices (such as the grain futures prices from the Chicago Board of Trade or the Minneapolis or Kansas City Grain Exchanges), knowing from the statistically derived basis relationships that, on the average at that point in the year, the local spot market price will be a certain number of cents per bushel of grain above or below the quoted futures price Alternatively, if the businessman observes that the actual difference between his local spot price and the futures market price is larger or smaller than the normal basis relationship, he might anticipate that there will be a correcting movement in the market toward the "normal" price gap, and this may affect his buying or selling decisions

The development of this type of sophisticated price analysis is a part of the process of building and reinforcing private markets, particularly when the market is emerging from 30 to 50 years of varying degrees of state control This is representative of high pay-off aspects to market reform programs that are often neglected in market liberalization programs As a hypothetical example, in Morocco after liberalization of the bread wheat market we may find that after a good local wheat harvest, the Meknes regional price will be 5 dirhams a kilo less than the widely quoted Casablanca wholesale price (reflecting a mixture of domestic wheat supply from other regions and from imports) Further this price differential is reduced to zero, on average, within six months of harvest, after which the average Meknes price will depend on the size of the next year's anticipated harvest, closely associated with the timing and amount of the winter rains four to six months before the next harvest This basis information and price forecasting is compiled and made available for dissemination to farmers and local traders through the Ministry of Agriculture's new market price forecasting service

There are a number of summary implications of this type of statistical price analysis for emerging liberalized agricultural markets in LDCs

- It is important to have good market information systems (MIS) for the main (or reference) markets and representative secondary or local markets in major producing/consuming regions so that the stability of basis relationships between reference markets and local markets over time can be analyzed in a manner that is useful to private operators, and

- If basis relationships can be demonstrated and communicated to relevant actors at the local level, overall market performance can be improved in an efficient manner by (a) timely dissemination (usually by radio or TV) of the spot and futures price (or price

for standardized contracts for future delivery in an "enhanced" reference market), and (b) some type of localized extension market education, initiated as a public sector activity, with the potential of spinning off into a private sector fee-for-service activity for larger operators [42]

5 1.5 Analysis of Marketing Margins

There are three related types of marketing margins that can be examined, based on the services that change the "place, form, and time utility" of the product through transport, processing, and storage Substantial reductions in marketing margins over time may be considered to represent gains in technical efficiency for that market, or to represent a more competitive market (with lower profits), or some combination of the two

Utility of Place (Transport Margins) First we might look at the overall marketing margin between farm gate and consumer for a relatively perishable agricultural product that does not undergo any significant physical transformation or processing These transactions will take place relatively quickly, over a couple of days to a couple of weeks depending on the degree of perishability and the marketing, handling, and packaging technologies in use [10] The primary service involves place utility in getting the product to the consumer The margin can simply be measured by the difference between the farm gate price and the retail price to the consumer This can also be referred to as the **gross margin**

"Gross margin analysis" is frequently seen since the data needed are the most frequently available An example of a simple marketing chain involving few transactions and little or no processing might be fresh tomatoes sold by farmers to wholesale traders, who sell them the next day to retail sellers in a local market, who sell them to consumers The simple gross margin might be a useful measure, if followed over time Does the margin stay the same all year, or increase when supplies are tight? In the latter case, how is the extra margin divided between farmer, wholesaler, and retailer? (See below for more detail)

Further we can attempt to evaluate the static efficiency of this market channel by comparing the costs incurred by intermediaries with the size of the total margin or, for intermediaries performing one of the several functions, just their portion of the margin Marketing costs can be broken down into very tangible **short-term variable costs** (the tomato wholesaler has to buy bags or boxes for the tomatoes and put gas into his pickup for transportation), **longer term fixed costs** that can also be very tangible (cost and amortization of the pickup truck for example) or less tangible factors (costs over time of locating farmer suppliers, maintaining his reputation as an honest buyer, etc) With some effort we can construct a detailed picture of the wholesaler's per kilo marketing costs and

---

[42]For other ideas on the use of futures market-based risk management for agricultural commodities see the excellent introductory piece by Debatisse et al "Risk Management in Liberalizing Economies Issues of Access to Food and Agricultural Futures and Options Markets" World Bank Report No 12220 ECA November 1993

subtract them from his gross margin per kilo, in order to calculate his **net marketing margin** per kilo of tomatoes sold

Depending on the cost accounting conventions used, this net margin could also be equal to his profit How big is the net margin? Fifty percent, ten percent? Is this "reasonable"? Is the market efficient, in a comparative static sense? The analysis quickly can get very complex as we decide what other markets to use in comparison (do we compare selling tomatoes in the local market in Kaya, Burkina Faso with Sikasso, Mali and/or selling locally grown tomatoes in the Bethesda Maryland farmers' market?), or as we attempt to incorporate the levels of risk assumed by the entrepreneurs under our analytical magnifying glass

Processing Margins For some agricultural commodities, processing costs (or changing the form of the product) can be an important portion of the overall marketing margin Whether it is transforming apples into apple sauce, red sorghum into beer, or fresh tea leaves into processed tea, evaluation of this part of the marketing margin requires careful assembly of detailed micro or processing plant-level data to be used in evaluating average processing costs against international cost standards (presumably using the same or very similar production technologies), as a measure of plant efficiency, or against revenues received as a measure of the competitiveness of that value-added segment of the marketing channel In other cases the same processing function may be performed by two or more competing industries that differ primarily by firm size or type of technology used For example, in Morocco 9,500 small-scale wheat mills are in competition with 86 large-scale industrial wheat mills to produce that country's bread wheat flour In addition there are conversion factors (milled rice may be 75% and milled wheat 80% by weight of the original unmilled product) and industrial byproducts (rice hulls, wheat bran and germ, etc) that are very important in the economics of the processing process

Storage Margins Storage is the value adding function that is most frequently analyzed when the markets for relatively less perishable agricultural commodities, particularly cereals and legumes, are analyzed This analysis again tends to be most appropriate in third world staple food markets that are more atomistic and unconcentrated The basic "temporal efficiency" hypothesis is that in markets with substantial seasonal shifts in price levels (prices often will double or triple over a typical agricultural marketing year), one measure of the efficiency of the market is to compare the total fixed and variable cost of storage with the revenues received Major emphasis should be placed on the opportunity cost of capital, particularly where both real interest and inflation rates are high

If revenues are not too much greater than costs, particularly given risk and uncertainty about future supply/demand conditions and market price, then the market can be thought to be relatively competitive and efficient (for that level of risk, real costs of capital, inflation rates, etc) This is not to say that if some of these often overlooked or underestimated cost variables could be significantly lowered, that average storage costs and margins could not be reduced as well This would be considered improving the "temporal efficiency" of that particular market The analyst should be especially careful in basing judgements about storage margins on data from just one agricultural year since profit margins may vary greatly from year to year and opportunities for "windfall profits" do occur periodically (There is much evidence to support the notion that successful agricultural traders

in much of the third world use a multi-year time horizon for realizing profits or may frequently support short-term losses in one activity with profits from another)

Unfortunately, there is no methodological approach that has the elegant simplicity of the use of price correlation analysis to assess spatial market integration Correlation analysis can not be used since temporal margins in the same markets over time are inherently highly auto-correlated In addition, since future prices in agricultural markets are unknown, and to varying degrees uncertain (even where there is a pronounced seasonal pattern), we can not logically expect the same massive entrepreneurial response to opportunities for temporal arbitrage as we would to opportunities for spatial arbitrage with much lower levels of risk For these and other reasons, as discussed in previous sections, governments have tended to intervene in these markets They do this because the pronounced seasonality of cereals prices is quite visible and easy to understand, because of perceived differential ability of different market actors to bear risk or wait for higher prices (particularly small farmers), and because of the natural hubris of planners to think that markets can be stabilized and that seasonal price movements can be limited (over a number of years) to the long-run average cost of storage (i e , that the state can do better than the market in internalizing the interannual variation in seasonal price variability, thus driving down the average costs to storage to more "reasonable" levels)

Methodological Notes on Storage Analysis The analysis of the efficiency of the storage function in a commodity marketing channel has to take place at the firm level, either by collecting data on real storage costs and returns incurred by private farmers or traders, or those incurred by state marketing companies (of different sizes ranging from state-sponsored "cereals banks" at the village level to country-wide marketing and price stabilization boards) There has been a great deal of work done by agricultural economists in analyzing the "storage problem" We can not go into much detail here but will offer some summary points[43]

- As in other types of applied market analysis, it is vital to have a clear definition of the type of storage enterprise to be analyzed and its socio-economic setting, complete information on the firm's cost structure, detailed market price series, and any other information available on major risk factors Assembling this information for a number of firms for each major storage technology in wide use will be instructive in itself and will greatly expand the analyst's intuitive understanding of the performance of this part of the marketing channel,

- Two simple methods are described by Goetz and Webber (pp 114-129) for assessing storage costs (a) calculating multi-year "gross historical storage margins" and (b) the average monthly "percentage rate of return to storage" -- with the latter incorporating the opportunity cost of capital to give a rough picture of the potential profitability of storage Both measures produce quick, yet solid preliminary analyses of market

[43]Two more in-depth treatments of commodity storage analysis are Newberry and Stiglitz 1981 and Williams and Wright 1991

performance at an acceptable level of precision, or form a solid basis for further, more detailed studies,

- If we could consider data on decomposed margins (separating gross margins into individual margins for farmer to assembler, assembler to wholesaler, wholesaler to processor, processor to retailer, etc) over time -- that when graphed might look like the cross-section of a cake with irregular layers -- then a number of econometric techniques can be used to assess the relative changes in these margins over time If changes in margins are mostly linear in nature (once data has been deflated) then linear regression methods (described on pp 49-63 of Goetz and Webber) are appropriate If not (with margins varying seasonally for example) then more complex non-linear techniques would be required to successfully capture this variation over time, and

- Due to a deep understanding of seasonal price movements by farmers and other market participants (for example, most will have an idea of the average price after harvest, the highest price when there is a small harvest, and the lowest price when there is a bumper harvest -- all the elements needed to define a normal distribution or the computationally simple "triangular" probability distribution), it is relatively easy to make use of probabilistic simulation approaches to discussing and solving classic storage problems such as when to sell grain stocks on average, given known attitudes toward risk by the storing party

Summary Advantages to Use of Margin Analysis Even though the different methods of margin analysis above do not have the same quantitative simplicity, the analysis of marketing margins, in general, exerts a powerful appeal Gains in technical marketing efficiency (or reducing margins) are of great interest to market reformers and other applied practitioners for a number of reasons

- **Large Impacts from Small Changes in Margins·** A reduction of only one or two percent in the cost of product marketing can have very significant economic impacts when applied to a large volume of product marketed year after year This would apply particularly to the cost of marketing staple food products in low income countries Similarly, one of the reasons for the very high material quality of life in the US is the efficiency of marketing and distribution systems which result in US consumers having access to more and better quality products at cheaper prices than those available to consumers in other countries at similar income levels,

- **Their ease of measurement and presentation** Gains in technical marketing efficiency have a great advantage in ease of measurement through use of relatively more available farm gate and consumer price data Since observable price information is one of the hallmarks of open markets, practitioners have the opportunity to fairly precisely measure the impacts of market improvement programs over time In the real world this ease of measurement can easily become more difficult through phenomena such as differential price inflation (domestic fertilizer prices may inflate more rapidly

than commercial wheat flour prices for example), or due to difficulties in measurement in complex, highly differentiated products As an example of the latter, it is easier to measure the aggregate marketing margin for fresh apples than it is for highly processed frozen apple pie, which embodies complex processing, packaging and advertizing costs The marketing margin, or its breakdown into components, is also a very easy concept to present to non-economist audiences, as several examples below illustrate,

- **Distributional Equity** Analysis of the changes in marketing margins over time offers an opportunity to observe potential changes in a form of distributional equity associated with relatively more or less competition in different parts of the marketing chain If, after a change in policy, farmers can be shown to systematically receive lower prices and marketers a bigger margin (or the opposite situation), this can allow us to assess the impacts of this policy change on equity This sort of analysis also has the obvious potential of being used in the political arena This is illustrated in the US in the frequently observed analysis of "who get's the dollar you spend on product X ?", showing a breakdown of the margin between farm gate and consumer

The ease of measurement and presentation of the marketing margin presents opportunities to practically measure the economic gains that can come from policy reform programs For example, in the USAID Kenya Market Development Program for maize, the main reform involved elimination of internal "movement controls" (permits needed to move larger quantities of maize across district boundaries) Calculating the size of aggregate maize marketing margins before and after the reforms presented a rather unique opportunity to quantitatively measure the impacts of an agricultural policy reform, regardless of seasonal variations in maize supply (since, over a reasonable range of prices, the margin in a sense floats on top of a moving seasonal price level, determined in large measure by changes in maize supply)

5 2 Methods Used in Assessing Comparative Advantage in Agriculture and Impacts of Alternative Policies

The second group of methods, used very extensively by policy analysts working on different aspects of the development of commodity subsectors in recent years, have to do, directly or indirectly, with a country's comparative advantage in the production and marketing of those commodities The three closely related methods that will be briefly discussed here are

- **Protection coefficients** measuring barriers to import competition to domestic agricultural production The most frequently used are the Nominal and Effective Protection Coefficients (NPC or EPC) and various related measures of subsidies offered to domestic producers,

- **Domestic resource cost (DRC) ratios,** which incorporate all the information used in the protection coefficients plus a detailed examination of the levels and costs for all the resources used in the production process This is the measure of comparative advantage most frequently used in the analysis, and

- **Policy Analysis Matrix (PAM)** which is a broad analytical framework that incorporates all of the information needed for the above two sets of analytical procedures, and provides a broader "conceptual roadmap" to the analysis of the subsector in question, helping to clarify the advantages and disadvantages of using the different indicators

These techniques have generally not been used to investigate the performance of agricultural marketing systems per se However, the relative efficiency of the marketing component of commodity subsectors will have an important bearing on how competitive the products of that subsector are when compared to the same products produced by the subsectors of other countries There are three major types of policy situations that have been frequently analyzed using protection or comparative advantage coefficients or where similar analyses have been conducted within the broader PAM framework

- **Analysis of Border Protection against Agricultural Imports that Compete with National Production** This is most often seen where countries are not completely self-sufficient in a traditional staple food crop (examples cereals, cooking oils, sugar, meat) In such circumstances, many countries have used tariffs and non-tariff barriers to restrict imports and keep domestic prices high enough to stimulate maximum domestic production -- often in the name of food self-sufficiency and maintaining agricultural labor "on the farm" Answering the question of how much to protect domestic production is a complex one where agronomic factors (what other crops can be grown?), and political factors (how much value does the population place on attaining food self-sufficiency? how powerful is the farm group most directly concerned?) are equally or more important than the calculation of the economic costs of high protection However, even in these circumstances, it is vital for national decision-makers to have a good estimate of the economic price they are paying as they search for acceptable compromise levels of protection In addition, it is vital to know to what extent national commodity production can realistically be hoped to become more competitive, though improved production and marketing, so that the national market share can be maintained or increased, even if tariff protection is reduced,

- **Assessing Policy Measures Affecting the Levels and Profitability of Commodity Exports.** Since the 1950s and 60s when many Asian and African countries gained their political independence, the performance of cash crop export systems in different countries has ranged from terrible to excellent Some countries have gained market share, while others have seen theirs plummet In many cases this difference in performance can be attributed, at least in large part, to the quality of the policy environment in the competing countries The closely related analytical frameworks we discuss in this section offer a means to assess the impacts of changes in policy on the profitability of these production and export systems, and

- **Government Policy and the Performance of Domestic Markets** By domestic markets we refer to the markets for products that are neither exported nor facing any substantial direct import competition Even in these cases, the PAM analytical framework offers a useful approach to assessing government actions that may affect the pricing and use of inputs, the use of alternative production and marketing technologies, or the pricing and marketing of the commodity products themselves

5 2 1 Basic Principles[44]

All of the methods discussed here are quite applied and relatively easy to use, but data-intensive (The precision and usefulness of the analyses increases in fairly direct relationship to the amount and quality of the data collected on the commodity subsectors) Essentially they measure the aggregate profitability -- for individual entrepreneurs and for the society as a whole -- of producing and marketing the given commodity at one point in time The key concept is the pricing of the resources used in production, processing, and marketing the commodity Comparisons are made between what producers actually pay (nominal prices) and alternative prices (border and shadow prices) that are felt to be truer measures of the opportunity cost to the larger economy of the use of those resources The difference between the two sets of prices represents the result of non-market forces, usually government actions such as subsidy programs, taxation, or direct participation in the operation of commodity markets The heart of the method is the analysis of the divergences between private profitability and social profitability, with the latter representing an alternative set of price structures The same analytical framework can also be used to assess the impacts of changes in production and marketing technologies, improved infrastructure, and so forth

---

[44] Policy analysts are fortunate today to have a number of very good reference works to use in applied studies of comparative advantage First for an introduction to the PAM framework we encourage the reader to obtain a copy of ***The Policy Analysis Matrix for Agricultural Development*** by Eric Monke and Scott Pearson Cornell University Press 1989 Next, for a very useful guide to protection and comparative advantage analyses (with the calculation of coefficients illustrated in great detail) we recommend Isabelle Tsakok's ***Agricultural Price Policy A Practitioners Guide to Partial Equilibrium Analysis*** Cornell University Press 1990 Finally William Masters reviews and critically compares all the measures of comparative advantage and provides a very useful review of the evolution of the theory of international agricultural trade in a companion APAP III guideline "Guidelines on National Comparative Advantage and Agricultural Trade", ***APAP III Methods and Guidelines*** No 4001, Abt Associates, Bethesda Maryland January 1995

As Monke and Pearson point out, this analytical approach is different from traditional empirical policy analysis in economics which is based on the estimation of supply and demand functions for inputs and outputs While the traditional approach is theoretically elegant, it is difficult to implement in practice since

> sufficient historical data of reliable quality are only rarely available Even when parameters describing the response to output price changes can be estimated, input demands and the impact of various interventions on production costs are usually overlooked, Further, data are often not sufficiently disaggregated among regions or types of farms Hence, analysts are unable to assess satisfactorily the impact of government policies on the behavior of a particular commodity system The resulting analysis is incomplete and often incomprehensible to policy-makers (Monke, p 13)

The methods described here take a simpler approach They are based on the collection, at the level of representative enterprises, of data on the technologies used in the subsector, and on the construction of enterprise budgets for the major subsector activities field-level production, marketing (may include storage) and processing If the subsector is relatively homogeneous, i e , the commodity is mostly produced by one type of farm and marketed and processed in one marketing channel, the collection of data for representative firms will be less complicated If however, as is more often the case, the commodity is produced by a variety of farm types, using different production technologies, and processed and marketed in a number of competing channels, the analyst should be careful to try and collect information on all the different channels that are important to the economy In sum, the budget construction techniques used in these analyses are similar to what would typically be used in the careful design of a large agricultural investment project Obviously when analyzing policies and their impacts, much depends on the correct statistical characterization of the subsector

One of the central elements to these analytical methods is the use of **border prices** as the economically optimal or efficient prices for internationally tradable inputs (e g , a standard fertilizer readily available on world markets) or commodities (soft wheat, arabica coffee, etc) and **shadow prices** for non-tradables (land, labor, obscure commodities for which there is no world market, etc) [45] The analyst should be ready to engage in discussions of the appropriateness of using world prices for tradables While most potential critics of comparative advantage analysis will concede that the border price does represent the short-term opportunity cost of importing a commodity that is widely traded in international markets, they will often balk at accepting these prices as appropriate for longer-term policy analyses They will point to differences in quality between the domestic and international reference commodity (which can presumably be corrected by using a small quality premium or

---

[45] "Shadow prices" for nontradable resources used in the production process are simply the values for these inputs when put to some alternative productive use when that price is higher than the nominal price producers are currently paying If there is no alternative use for the input then the shadow price is zero The computation of domestic shadow prices can involve substantial investigation and data collection in some cases

discount), seasonality or other instability in the international reference price, marketing bottlenecks, or exchange rate distortions [46]

A further argument against the use of world prices as efficiency benchmarks is that those prices may be distorted by massive subsidies, dumping, or cartel behavior (certainly true for many commodities in world markets) The orthodox answer (which should settle most arguments) is clearly stated by Tsakok (1990, p 53)

> The relevance of border prices as efficiency benchmarks is not dependent on the competitiveness of international markets However they are determined, they represent what the country would have to pay or would receive if trading internationally The important consideration is not whether international markets are competitive, but whether the prices a given country faces are likely to prevail during the period of interest to policy makers

This is precisely the situation that some LDC policy makers have raised when considering domestic policy changes regarding commodities (such as cereals) where much of the supply on world markets is subject to export subsidies that might be removed in world agricultural trade liberalization In addition, others might argue that accepting world nominal prices is like using only nominal prices in analysis within the national economy On a world basis these nominal prices may imply substantial distortions from some definition of optimal resource use However, given the lack of means to do anything about resource use on a world-wide basis (with occasional exceptions), this type of critique is not very useful

Suffice it to say that, with a few very specific technical exceptions, use of border prices as benchmarks of national economic efficiency is sensible and widely accepted However, we should also hasten to add that only rarely do policy makers rely only on considerations of economic efficiency in making decisions about policies that have broad socio-political as well as economic implications Economists should always keep in mind that it is the combination and interplay of market and non-market forces that defines the economic environment For example, when discussing why governments intervene in markets, Monke and Pearson distinguish between national "efficiency objectives" and "non-efficiency objectives" Under the latter term (which would be probably considered at least somewhat prejudicial by non-economists), they discuss important concepts such as income distribution concerns, price stabilization, and national concerns over the appropriate role for agriculture -- which can all be very important in the national policy making process The analyst's success in incorporating essential non-efficiency factors into policy advice comes in the explanation

---

[46]Byerlee and Morris (1993) point out a significant technical difficulty in using world reference prices in situations where government intervention may actually change the current trade status (whether the commodity is being imported or exported, also called a "trade reversal") of the commodity for the target country Where a country is at or near self-sufficiency in that crop the potential for misestimating the degree of protection in calculating NPCs or EPCs using world prices is great, with the error further exaggerated when the country is large and has high internal transport costs and when the commodity in question has a low value to weight ratio (like cereals) which increases the proportion of total value made up by transport costs

and interpretation of calculated coefficients This points to one of the advantages of using the PAM framework, the broad logical approach of the matrix (see Table 5 1 below) encompasses all the relevant economic information, provides a way to see the interrelated nature of the common used measures of protection and comparative advantage, and provides a broad forum for seeing how the interactive impacts of changes in technologies, rules and regulations, and marketing efficiencies -- as well as price changes -- can all be seen in the matrix and its derived coefficients

As Masters notes, the PAM is, in essence, a formal way to present all of the data needed to calculate NPCs, EPCs, DRCs, and the newest measure, the social cost-benefit ratio, or SCB (see section 5 2 4 for more detail on the SCB) The PAM is typically presented as follows

Table 2 The Policy Analysis Matrix

	BENEFITS	COSTS		
	Gross Revenue	Tradable Inputs	Domestic Factors	Net Profit
Budgets at Market Prices	$A=\Sigma_x P_x Q_x$	$B=\Sigma_i P_i Q_i$	$C=\Sigma_j P_j Q_j$	$D = A - (B + C)$
Budgets at Border and Shadow Prices	$E=\Sigma_x P_x^* Q_x$	$F=\Sigma_i P_i^* Q_i$	$G=\Sigma_j P_j^* Q_j$	$H = E - (F + G)$
Divergences	I	J	K	$L = I - (J + K)$

Source Masters (1995, p 25)

PAM entries A, B, and C are the sum of products of market prices (P) and quantities (Q) representing all of a subsector's production and marketing activities' outputs (with subscript x), tradable inputs (subscript I) and nontradable domestic factor inputs (subscript j) Entries E, F, and G use the same quantities but are valued using border or domestic shadow prices (P^*, also referred to as "social opportunity costs") The bottom row is the difference between the other two rows or the divergences from the efficiency ideal, the last column is benefits minus costs

Commonly used indicators of border protection and comparative advantage (and other indicators) can be derived from simple calculations involving data in the matrix

Nominal Protection Coefficient	NPC = A/E
Effective Protection Coefficient	EPC = (A-B)/(E-F)
Domestic Resource Cost Ratio	DRC = G/(E-F)
Social Cost-Benefit Ratio	SCB = (F+G)/E

Figure 6 conveys another sense of the overlapping nature of these measures and the nmonality of the data requirements for computing the coefficients or ratios once one gets beyond simple nominal protection coefficient Finally, the simplicity of this summary presentation is not nded to minimize the substantial effort that is usually required to collect the budget and price data ded by the PAM and the understanding of multi-channel subsectors and the real world constraints t condition the use of improved production and marketing technologies to improve overall market formance

For more detail on the intricacies and interpretation of these measures of comparative antage, consult the major references cited in footnote 9 For the balance of this section we present ımmary description of some of the applied uses of these analytical methods

2 Protection Coefficients

Coefficients of protection have been used extensively in studies of international trade over the t thirty years Trade protection analysis has figured prominently in international trade negotiations lertaken in different "rounds" by the General Agreement on Tariffs and Trade (GATT) secretariat ich, since the end of the Uruguay Round in 1994, has become the World Trade Organization TO) It is clear that in the years to come, agricultural trade issues will continue to be an important t of the overall economic development agenda to be discussed between LDC policy officials and ir bilateral and multilateral collaborators

Since agriculture was included in these talks for the first time in the Uruguay round, a large nber of comparative studies of agricultural trade protection in developed as well as developing ınomies were undertaken by USDA, the OECD, and other organizations, beginning in the late 30s The main objective was to examine the degree to which the markets for primary agricultural nmodities were being protected, by tariffs or non-tariff barriers, and to estimate the potential ıacts on bilateral trade expansion and world prices of alternative levels of trade barrier reduction ıther cases, groups such as the World Bank, have wanted to modify (generally reduce) protection els as part of larger efforts at economic restructuring In these analyses, **gross protection fficients** (e g , in the case of the NPC, the gross coefficient is the ratio of domestic price over the ıdjusted border price) are adjusted for other policy-induced distortions, such as exchange rate over uations and domestic subsidies, with the end result being **net protection coefficients**

Tsakok (1990) is the best general introduction to agricultural protection analysis with very ailed examples presented to illustrate the precise steps involved in computation of both gross and coefficients, and in the economic interpretation of results Here we will provide several additional ımary hints on the nature and interpretation of protection coefficients

- The **Nominal Protection Coefficient** (NPC) is the ratio between a commodity's domestic price and its border price It can be calculated at any stage between farm gate and consumer Once any distortions in the exchange rate for the local currency have been corrected, significant deviations of the NPC away from the value 1, represent government intervention (taxes, subsidies, etc) either in favor of producers

benefit analysis discounts streams of costs and benefits, DRC analysis takes a snapshot of costs and benefits "

5 2 4 Policy Analysis Matrix[49]

In the paragraphs above we have seen a progression from the NPC which just considers the ratio of output prices, to the EPC which introduces tradable inputs to production, to the DRC analysis where all inputs and outputs are taken into consideration in assessing comparative advantage and actions of the state However, as Masters points out, "relying on a single number can hide all of its determinants [50] To make the sources of an activity's comparative advantage fully explicit, in the 1980s Pearson devised the Policy Analysis Matrix (PAM) "

There are two practical reasons for the emphasis on the PAM as broader framework with more capacity to instruct both policy analysts and decision-makers

- In analytical work the summary emphasis is on the matrix of costs and returns, rather than simply the presentation of a list of coefficients Focus is on the line which summarizes all divergences between nominal and border/shadow prices rather than on a single coefficient,

- The PAM has been developed, popularized, and training across the world organized,[51] all emphasizing the process of data collection and analysis, all of which has been facilitated by the growth in widespread use of microcomputers and spreadsheets Most analysts, when they see the PAM, are exposed to the entire set of production and marketing budgets, the two price matrices, and the resulting summary matrix

---

[49]The applied analyst or trainer may benefit greatly from a series of hands on training guidelines for hands on PAM training of policy makers and policy analysis staff published during the second phase of the APAP project

Carl Gotsch 1993 (a) "Outline and Lecture Notes' (APAP II Publication No 412) (b) Learning Spreadsheets and Analyzing Aggregate Data (No 412 Vol I) (c) "Policy Analysis Matrix (No 412 Vol II), (d) Natural Resource Policy in a PAM Framework" (No 412 Vol III) (e) "Optimization in Agricultural Policy Analysis Micro Level Modeling using GAMS" (No 412 Vol IV)

[50]Despite this recognition that single coefficient analysis hides as much as it reveals he does make a strong and convincing case that the Social Cost Benefit (SCB) ratio should be used instead of the DRC (Masters pp 23-25) The SCB (by putting all costs in the numerator and all benefits in the denominator) reduces hidden biases in the DRC and any discrimination between tradable and nontradable production costs It thus can serve as a more appropriate relative benchmark for use in comparing among commodity subsectors in one country and among countries Thus the use of the SCB measure allows very different activities to be compared across sectors and across countries

[51]The PAM is the central focus of much of the applied agricultural policy analysis training that is being conducted Africa Asia and Latin America by both the USAID APAP Project and the Economic Development Institute of the World Bank

Previous Page Blank pgs - 83-84

This is not to say that the analyst using DRCs can not present to his collaborators the same level of budgeting detail and the entire spreadsheet approach to calculating the impacts of policy on comparative advantage or highlighting the differences between current private net profits and any alternative set of social profits It is simply that, in practice, the PAM has been presented in its entirety, which does a better job at conveying the interrelated nature of the overall costs and benefits to different commodity subsectors as they are impacted by government actions

The important point about the PAM as an analytical framework is that the results are only as good as the micro-level production and marketing data, the price series, and the skill of the analyst in assembling and presenting the analytical results While our presentation has emphasized the agricultural trade origins of these methods, it must be emphasized that the framework can be equally well used in addressing domestic policy issues [52] The theoretical approach to using the PAM framework for the analysis of natural resource and environmental issues was spelled out in three APAP II publications Cory and Monke, 1991, Pagiola, 1991, and Gotsch, 1993, Volume III [53]

5 2 5 Concluding Remarks on Measures of Protection and Comparative Advantage

We hope that this brief review of state-of-the-art, applied techniques in the analysis of comparative advantage and trade protection has illustrated how these methods can be used to analyze the performance of agricultural marketing systems, either at one point in time or over time using comparative statics We conclude by emphasizing a few summary points

- When we are concerned with broader agricultural or economic development in a country, the performance of the marketing activities are one part of the overall aggregate national profitability of investing in that particular commodity The PAM framework (as well as some of the coefficients that can be derived from it) provide a practical way of putting these questions in analytical perspective,

- The calculated coefficients, such as the NPC or DRC, have limited meaning for one commodity in isolation They have much more meaning or significance in a comparative context, usually with coefficients being compared across commodities to judge

---

[52] This is well illustrated in recent work where the PAM framework has been used very effectively in the analysis of natural resource issues The heart of the analysis is a comparison of the potential impacts on private profitability of using alternative prices for natural resource inputs into a production process (in order to capture the longer-run scarcity value of a resource or capture the true impacts of the externalities of a particular pattern of natural resources use

[53] This further innovative use of the PAM framework is best illustrated by Jansen and Gotsch (1993) which uses PAM in the analysis of sustainable alternatives to cattle grazing and wildlife ranching in Zimbabwe, a topic that is very far from a traditional policy study of comparative advantage or agricultural trade The theoretical approach to using the PAM framework for the analysis of natural resource and environmental issues was spelled out in three APAP II publications Cory and Monke, 1991 Pagiola 1991 and Gotsch 1993 Volume III

the relative merits of different government policies to promote, tax, subsidize or improve the production and marketing efficiency, and

- **The process of policy analysis and the ability of policy analysts to influence the decisions made by policy makers are critical** The use of any of these measures of comparative advantage (and national economic gains and loses) is a convention that requires substantial coordination among analysts (to ensure that everyone understands the reasons calculations are made in a particular way, the potential shortfalls, etc) More importantly, the analyst must communicate results and implications effectively to non-economist decision-makers and explain why particular groups of commodity-related policy decisions are better for the economic health of the country

6 POLICY REFORMS AND POLICY REGIMES DO THEY ENHANCE MARKET PERFORMANCE?

We have investigated agricultural markets to see how they may be different from other markets, what functions they perform (and do not perform), and how one might measure their performance In the past decade, many countries have initiated agricultural policy reforms, often in the context of structural adjustment These reforms have had a range of objectives and varying degrees of success The main question this chapter addresses is, Have policy reforms improved market performance? Not all developing countries have initiated policy reform programs, yet their pursuit of policy objectives may also yield important insights about enhancing market performance Overall, what lessons emerge from the experiences of developing countries?

The intent of this chapter is to 1) examine in which ways liberalization through policy reform (or liberal policies by design) can result in superior market performance, and 2) extract some specific lessons about market performance from the recent economic history of developing countries We do this by reviewing relevant literature and extracting the themes and lessons we find therein Section 6 1 summarizes the themes we find in the literature, with some brief examples Fuller explication of the examples follows in sections 6 2ff In the table we have also indicated some specific projects and programs that work

The full literature review follows, beginning in section 6 2 The review is organized geographically [54] Within regions we proceed from general or comparative studies to more specific studies where both exist We end the chapter examining some results from multi-regional comparisons The papers cited here come to a significant extent from the experience of APAP They are complemented with significant current works not conducted by APAP, particularly cross-national summaries or comparative studies

6 1 Policies and Performance Major Themes

The examples in our literature review reflect many of the ideas that have been discussed in previous chapters The first and foremost theme that emerges is that

- **Effective policy reforms promote improved market performance, heavy interference in the market hampers growth and development**

[54] We cover the major developing regions During the economic and political transitions of countries in Eastern Europe and the former Soviet Union similar questions of state and market will have to be addressed but from a quite different starting point For this reason and because of limited time discussion of policies and performance in these countries will be covered in future APAP III studies but not this one

David Sahn makes a critical conclusion based on African countries" liberalizing food crop marketing "the cost of raising prices paid to farmers has generally not been borne by consumers Lower marketing margins owing to increased competition and greater efficiency have served the interests of those at both ends of the marketing chain " (1994, p 377) Similarly, when governments have discontinued efforts to maintain low retail prices, consumers have generally not lost, because the efforts were ineffective to begin with

These conclusions are very significant Politicians were often thought to be responding to a political imperative in providing subsidies to consumers or in holding down prices to farmers Sahn says, on the contrary, that the performance of the liberalized market can be strong enough to provide benefits to both producers and consumers, even in those countries where infrastructure and other performance-enhancing factors are often inadequate or missing

Examples from other sources bolster the general conclusion regarding liberalization vs interference, rice reforms in Madagascar (section 6 3 10), fertilizer reforms in Cameroon (section 6 3 7), and wheat policy reforms in Pakistan (section 6 2 4) are some of these In Madagascar, rice marketing reforms included the elimination of the monopoly on rice marketing and the abolition of the ceiling price Farmers, traders, and millers all benefited from these reforms Higher rice prices after liberalization led to rising producer incomes Increased competition among collectors provided choices for farmers in remote areas In Cameroon, a public fertilizer monopoly was replaced by a privatized system, and the fertilizer subsidy was eliminated These changes cut the order and delivery time for fertilizer in half, reduced the in-country distribution costs by 16 percent, and saved the Government FCFA 4 billion (or $16 million prior to the CFA devaluation in 1994) The reforms resulted in fertilizer being available when it was most needed In Pakistan, low parastatal marketing margins drove the private sector out of the wheat storage business When reforms led to increases in the gap between official procurement and release prices, the private sector reentered the market, making significant post-harvest purchases If the new price policy is not reversed, the Government will save a substantial amount by no longer subsidizing storage, and millers and consumers will have an equally reliable supply of wheat and flour

These and other examples we could cite are heartening evidence of the impact of policy reforms Simply "getting prices right" and getting out of the way is not the whole answer to market performance, however The second theme to emerge is

- **Both public and private roles are important, and they are complementary**

The public and private sectors must have a clear picture of their comparative advantages, and they must proceed accordingly Often this involves privatization

Examples include Papanek's comparison of infrastructure investments and their impact in the two Bengal and Punjab states in South Asia (section 6 2 1), and a description by Barriga et al of the elaborate institutional infrastructure that developed to support the fruit and vegetable export industry in Chile (section 6 4 3) Young (section 6 3 5) gives some of the reasons for the slow pace of

privatization in Africa, and an APAP evaluation (section 6 3 11) describes the divestiture of state farms in Mozambique, the "poorest country in the world "

Papanek finds very persuasive "a comparison of the two Bengals [India and Bangladesh] and the two Punjabs [India and Pakistan] " There was a difference during the different policy periods (market-oriented vs dirigiste[55]) "equal to a growth rate of Gross Value Product of about 8 percentage points, a massive difference due to policy " This difference was largely due to "the larger and more effective effort in developing both the institutional and physical infrastructure for agriculture" made by India This included general education, agricultural research, extension, rural electrification, and the expansion of the road network Similarly, Barriga and his co-authors summarize the key factors in Chile's success as 1) A long tradition of public-private cooperation and well-established institutions flourishing under an open free-market economy, 2) A dynamic private sector, 3) A reservoir of trained individuals, and 4) Basic infrastructure of roads and port facilities

In some sectors, a proper mix of public and private roles can only be achieved after privatization Young characterizes privatization as entering African political agendas under recessionary conditions and facing constraints that included small domestic markets, disadvantages of location or poorly developed communications networks, and the thinness of local private capital He says the impact of privatization has been variable A specific example of privatization as it affects agricultural markets is state farm divestiture in Mozambique Land issues are critical in Mozambique, and state farm divestiture is now recognized as only one part of the land security problem Many view state farm divestiture as having been badly handled, yet largely complete and irreversible The attention of leaders and analysts is now turning to the land access and equity problems being encountered by rural families and small farmers as they try to make new beginnings in Mozambique's post-war economy

The World Bank has studied the reform of state-owned enterprises (SOEs) through twelve country case studies (section 6 5 2) In summary the report states that the "evidence [is] clear that reducing the role of bureaucrats in business and improving the performance of the remaining SOEs can bring a country substantial economic gains Yet reform has been slow and seldom successful " (1995, p 14) Its conclusions are that successful reformers (i e , countries making reforms) divested more, introduced more competition (through liberalized trade, eased restrictions on entry, and the unbundling of large enterprises), hardened SOE budgets, and reformed the financial sector Both successful and unsuccessful reformers alike tried to improve the incentive structure by changing the relationship between SOE managers and the government (1995, pp 4-5)

Moving from the static to the dynamic aspects of market interventions, the third theme is

- **Food price stabilization is important and difficult to achieve**

---

[55] *Dirigiste* refers to a top-down control-oriented management style by governments

Asian examples predominate on this theme Timmer (section 6 2 3) describes a "paradox" in Indonesia rice markets were substantially more competitive in the early 1990s than when price stabilization began in the late 1960s Stabilization led to substantial investment by the private sector in rice marketing The Government was thus able to operate increasingly at the margin of local markets and still maintain a satisfactory degree of price stability Comparing Indonesia and the Philippines, however, Timmer and Dawe find that there was an excess of objectives in the latter's stabilization program, so true stabilization could not occur In South Asia, Papanek found that policies that reduced the risk of crop price fluctuations enhanced the adoption of modern varieties and practices, and thus led to increased yields and production (section 6 2 1) Ender (section 6 2 4) showed the importance of stabilization in Pakistan's wheat policies

In Africa"with much less price stability, lower levels of input use, and smaller marketed surplus"the picture is even more complex Sahn (section 6 3 4) describes the experience of many African countries that underwent structural adjustment (1994, pp 377-8) Reforms in agricultural pricing and marketing were very often part of this process These reforms generally went ahead for two reasons 1) faith in markets to deliver the correct price signals, and 2) disillusionment with previous state interventions in the name of equity and stabilization Because of the instability of world market prices and other structural weaknesses in agricultural markets in these countries, Sahn sees an a priori argument for government intervention that encompasses more than infrastructure, research, and extension However, he is also highly skeptical of the capacities of the respective governments to stabilize agricultural prices in light of their limited analytical capacity and the substantial corruption that were pervasive in the past

Because the world is more complicated than textbook models, the achievement of economic objectives is not always straightforward Some the examples demonstrate the fourth theme, namely that

- **Institutional reforms, changes in attitudes, and accumulation of human capital take longer than price reforms**[56]

In Chile, changes in attitudes and institutions took place over a long period and supplemented policy reforms that promoted the development of the fruit and vegetable export industry (section 6 4 3) Human capital was built up by the universities, which had been turning out pomology graduates for some time before the rapid growth of the industry Some of the public institutions changed their roles over time from active participation to facilitation (cf CORFO) Changes in banking laws allowed private banks to make long-term loans Changes in attitudes were reflected in the new agricultural entrepreneurs who started to emerge between 1975 and 1980 (As a result, from 1983 to 1988 exports of fresh fruit increased from $220 to $582 million, exports of fresh fruit went from 17 percent of total exports in 1970 to 40 percent in 1988) The private National Agricultural Society lobbied for a clear definition of private property rights and encouraged farmers to show

[56] Here "price reforms' include exchange rate adjustments

confidence in the Government's policies by investing in agriculture The impact of all these developments was enhanced by key policy reforms, including those affecting the exchange rate Exchange rate policies changed often, but were one key to success

Pakistan provides an example of an approach and attitudes that are in transition (section 6 2 4) The Government of Pakistan ended its wheat rationing system because of the excessive costs it incurred, particularly through leakage, without targeting its benefits The Government could not, however, dissociate itself from the notion that it was responsible for directly assuring the availability of the staple, wheat Thus after derationing, it maintained an open-ended system of procurement and releases of wheat that was also extremely costly When it then began to decrease its financial losses by increasing its marketing margin, there was apparently still no overall plan to change the system, and the same parastatal was operating with the same wheat marketing objectives

The fifth theme that emerges from the review is that

- **Unique or initial conditions may strongly influence outcomes**

A socialist past and massive food aid in Egypt (section 6 2 2) are two of the special factors contributing to perhaps the classic case of a "subsidy trap " Bread has been subsidized so much for so long that food riots have sometimes resulted when the Government has attempted to wean the public off this program

What is unique in Zimbabwe (section 6 3 12) is the structure of its agricultural sector At independence in 1980, the prosperous commercial part of the sector was controlled almost entirely by those of European descent, while the majority of the rural population relied on subsistence farming on poorer "communal" lands Poor infrastructure served the communal areas These structural characteristics were largely responsible for the mixed results obtained by the Government, despite efforts to enhance productivity through public research and extension that are of high quality Improving equity in the sector was also a major objective of the Government

In this regard, the final examples show that in some cases it was possible that

- **Farm-level equity can be enhanced along with improved marketing system efficiency**

Drawing on the South Asian examples, Papanek gives several reasons why a market-oriented strategy often helps the poor (section 6 2 1) With greater efficiency resulting in higher average rates of growth, factor prices reflect scarcity, so cheap labor gets employed In addition, government interventions are less politicized, so inputs and licenses are not allocated to the well-connected Specific projects and reforms also resulted in improvements in equity Other examples also support this theme In Uganda, the nontraditional agricultural export program benefitted female farmers (section 6 3 6) In Madagascar, farmers, traders, and millers all benefited from reforms in rice marketing, and with rice markets now more dynamic, they have opened up to many new participants (section 6 3 10)

On the other hand, there were some negative impacts of the reforms targeted at the cocoa subsector in Ghana (section 6 3 8) The costs were declining living standards in non-cocoa agriculture and among women farmers and petty traders The removal of subsidies on fertilizer was offset for cocoa farmers by increased output prices, but others had to wait longer to see benefits

6 2 Policies and Performance in Asia and the Near East

Asia has a reputation as a high-growth area and for success in agriculture What has been the relationship between policies and performance in this region?

6 2.1 Intervention vis-a-vis Growth and Equity in South Asia

Papanek inquires directly about the impact of the policy regime on growth and income distribution He compares the rate of growth and the reduction of poverty in a group of mostly South Asian countries during periods of greater reliance on markets or government intervention during the last 30 to 40 years (1992, p 131) Some of the countries, like Pakistan, Bangladesh, and Sri Lanka, exhibited distinct periods characterized by heavy government intervention (with government ownership of firms and direct quantitative controls), in other periods, there was considerably more reliance on market forces India's policies were more consistent there was a mixture of subsidies, tight controls in general, but a vigorous private sector, significant deregulation came only in 1991 (1992, p 132) [57]

Papanek's unequivocal conclusion is that "the more market-oriented periods produced a far higher rate of economic growth", on average the rate was almost twice as high Of course there were some factors other than the strategy followed that influenced the growth rate (1992, p 133) **Table 1** gives the growth rates found by Papanek in the *dirigiste* and market-oriented periods in the former countries and Indonesia compared to the rates for the same time periods in India, which was considered to be under a *dirigiste* regime until 1991 "The reasons for higher growth per unit of investment lay in a series of interconnected policy decisions, most indeed involving deregulation and greater market orientation " (1992, p 137)

A key point that Papanek makes is that a major cause of differences in overall growth were differences in agricultural growth rates (1992, p 140) **Table 2** shows these Note that by comparing India to its neighbors, the effects of the Green Revolution during certain periods are effectively accounted for Several factors explain the higher rate of agricultural growth in market-oriented periods

- Input-to-output price ratios were more favorable,
- Compulsory procurement of foodgrains was abandoned,

[57] For a detailed study of the impact of the liberalization of input markets in Bangladesh see R Ahmed

- Competitive distribution of inputs was permitted and was more effective than a government or cooperative monopoly,
- Cheaper imported parts for wells and pumps and higher, more stable prices for output made investment more profitable,
- The shift to higher-value crops was eased by fewer government distortions in prices, and
- Inputs were available when needed so their use was more efficient (1992, pp 140-41)

Countries	Growth rate (%)	Countries	Growth rate (%)
Pakistan, Bangladesh, Indonesia, Sri Lanka-*dirigiste*	3 2	India-*dirigiste* (same time as at left)	3 8
Pakistan, Bangladesh, Indonesia, Sri Lanka-*market-oriented*	6 9	India-*dirigiste* (same time as at left)	3 8

Source Papanek (1992, p 133)

Countries	Agricultural Growth rate (%)	Countries	Growth rate (%)
Pakistan, Bangladesh-*dirigiste*	1 6	India-*dirigiste* (same time as at left)	2 4
Pakistan, Bangladesh-*market-oriented*	3 6	India-*dirigiste* (same time as at left)	1 2

Source Papanek (1992, p 140)

Papanek then takes up the question of income distribution, or equity "For all countries and time periods for which data exist [1953-88] and unambiguously indicate the direction of change in income distribution," he writes, "during all five periods of rapid growth, income distribution improved [as a result of a market-oriented strategy] " (1992, p 144) He gives several reasons why a market-oriented strategy helps the poor

- Greater efficiency results in higher average rates of growth,
- Factor prices reflect scarcity, so cheap labor gets employed, and
- Government interventions are less politicized, so inputs and licenses are not allocated to the well-connected (1992, p 150-1)

Given these results in terms of both efficiency and equity, is less government always better? Papanek answers, "Not quite some forms of government intervention had important benefits " (1992, p 151) Despite some key policy failures like overvalued exchange rates and extended periods of infant-industry protection (1992, p 155), there were numerous government actions that spurred growth and development For one, "reducing the risk of crop price fluctuations by a guaranteed minimum price scheme speeded the adoption of modern seed varieties and the investment in fertilizer and water control that that required " In addition, "subsidies for modern inputs for agriculture also reduced the risk of adopting these inputs," although "in most countries some subsidies were continued too long resulting in [a significant] budget deficit " (1992, p 157)

Papanek also carries the analysis to the state (province) level Here he says, "even more persuasive is a comparison of the two Bengals [India and Bangladesh] and the two Punjabs [India and Pakistan], where exogenous factors have virtually identical effects " There was a difference between the market-oriented and *dirigiste* periods equivalent to a growth rate in Gross Value Product of about 8 percentage points, a massive difference due to policy " (1992, p 140) This difference was largely due to "the larger and more effective effort in developing both the institutional and physical infra-structure for agriculture" made by India This included general education, agricultural research, extension, rural electrification, and the expansion of the road network These together resulted in a higher rate of growth in agricultural output over the whole 30-year period in Indian Punjab (1992, p 159-60)[58]

In conclusion, some appropriate actions and roles for government that Papanek identifies include

- Withdraw from ownership and management of enterprises selling in a competitive market, this will free resources, especially trained personnel,
- Build physical and institutional infrastructure, especially institutions that provide services with strong external economies for sectors of the economy dominated by small firms, these include research, extension, and other services for smallholder agriculture, and
- Subsidize (initially) industries like nontraditional exports, where both the infant industry and externality considerations are important (1992, p 162)

---

[58]While the Punjabs were alike in many major respects they are inhabited by populations that are culturally different Papanek does not mention this as a possible factor nor are the authors prepared to assert that it is a causal factor The difference remains however

Countries	Subsectors, Topics	Section	Themes						Projects and programs that work
			Effective policy reforms (liberalization) promote market performance, heavy interference hampers it.	Importance of complementary public and private roles, including privatization	Importance of food price stabilization and the difficulty of achieving it	Institutional reforms and changes in attitudes take longer than price reforms	Equity can be enhanced along with efficiency	Unique or initial conditions may determine outcomes	
Africa									
Various	Agricultural transformation	6 3 1	T	T					
Various	Productivity	6 3 3	T			T			
Various	Policy failures	6 3 4	T		T			T	
Various	Privatization	6 3 5		T					
Uganda	Nontraditional Agricultural Exports	6 3 6	T	T			T		T
Cameroon	Credit unions	6 3 6							T
Ghana	Roads	6 3 6		T					T
Cameroon	Fertilizer	6 3 7	T	T					T
Ghana	Cocoa	6 3 8	T	T			Neg		T
Mali	Cereals	6 3 9	T	T					T
Madagascar	Rice	6 3 10	T				T		T
Mozambique	Various	6 3 11	T	T					T

Countries	Subsectors, Topics	Section	Themes						Projects and programs that work
			Effective policy reforms (liberalization) promote market performance, heavy interference hampers it.	Importance of complementary public and private roles, including privatization	Importance of food price stabilization and the difficulty of achieving it	Institutional reforms and changes in attitudes take longer than price reforms	Equity can be enhanced along with efficiency	Unique or initial conditions may determine outcomes	
Kenya, Tanzania Zimbabwe	Various	6 3 12	T	T		T		T	
Kenya	Credit	6 3 12					T		T
Asia and the Near East									
Indonesia Bangladesh, Pakistan, Sri Lanka Indonesia	Intervention vis-a vis growth and equity	6 2 1	T	T	T		T		
Pakistan Egypt Indonesia, Thailand, India	Calorie consumption	6 2 2	T					T	
Philippines Indonesia	Food price stabilization	6 2 3			T				T
Pakistan	Wheat policy	6 2 4	T		T	T			
India	Marketplaces	6 2 5	T	T					
Latin America									
Various	States and markets	6 4 1		T					

	Topics		Effective policy reforms (liberalization) promote market performance, heavy interference hampers it.	Importance of complementary public and private roles, including privatization	Importance of food price stabilization and the difficulty of achieving it	Institutional reforms and changes in attitudes take longer than price reforms	Equity can be enhanced along with efficiency	Unique or initial conditions may determine outcomes	Projects and programs that work
Mexico, Argentina, Brazil	High-value exports	6 4 2		T					
Chile	Fruit and vegetable exports	6 4 3	T	T		T			
Nicaragua	Credit	6 4 4					T		T
Multiple-Country Comparisons									
Various	Various	6 5 1	T	T		T			
Various	Reform of SOEs	6 5 2	T	T		T		T	
Various	Various	6 5 3	T	T			T		

6.2 2 The Cost of Calories

Let us move now from the production side of the development equation to the consumption side Goldman (1992[11]) sets out to explain the growth of food consumption in several Asian and Near East developing countries over the past 30 years We can use the summarized case study information in Goldman's paper to examine the effects of policies on market performance That is, the incentives created by government policies affect the private production and marketing system and result in a level of calorie consumption This level is an indicator of the market's performance, as tempered by government interventions, in distributing food to food purchasers While it is not Goldman's objective to treat policy reforms, he does compare consumption in countries with differently designed policy environments Thus both the use of calorie consumption as an indicator and the particular results are of interest here

Average per capita calorie consumption itself would not necessarily be a good measure of marketing system performance As we will see in Goldman's examples, there were both increases and stagnation in per capita consumption under similar policy regimes The missing element here is cost Cost per calorie consumed would be a better measure of performance than simply calories consumed While we will not calculate these costs per calorie, the examples chosen exhibit wide variation in the budgetary costs of distributing food that permit drawing some conclusions

We will examine the results of four of Goldman's five summarized case studies Pakistan, Indonesia, Egypt, and Thailand (1992, pp 15-16) In Pakistan and Indonesia, stable food prices were a key element in the policy regime Calorie consumption grew with increases in cereal production In Pakistan the private marketing system was often kept on the sidelines by government policies, whereas in Indonesia the private sector remained a stronger player in food marketing throughout In Pakistan the fiscal cost to the Government of food distribution eventually became very large, in Indonesia it generally remained moderate

In Egypt, massive foreign aid and budget subsidies were used to keep calorie consumption increasing to unexpected levels, unsupported by increases in production This required very large food imports Food subsidies became so large that they became a serious macroeconomic policy issue The Government was heavily involved in food distribution The price of bread was notoriously stable, cf the food riots that occurred when it was changed minimally from its very low level

By contrast, Thailand traditionally used an export tax on rice to keep the domestic price of rice low and consumption up This tax was variable, adding to price stability The budgetary cost of this policy was "negative," i e , the Government collected revenue on rice exports (There may have been opportunity costs of not growing crops other than rice due to lack of knowledge or other impediments Such other options did eventually materialize) Subsequently the political power of farmers led to higher domestic prices and the dampening of growth in calorie consumption The lack

of growth in consumption in the most recent period is unusual in light of the high growth rate in agricultural production Food distribution in Thailand has generally been in the private sector

What conclusions can we draw from the evidence in these cases?

- Except for Thailand's recent period, per capita calorie consumption grew in all cases,
- Each government kept the consumer price of food low,
- Each government stabilized the price of the staple food,
- Indonesia used a broad price band and Thailand used a variable export tax to keep the cost of the policy low,
- Heavy interventions in Egypt and Pakistan eventually were extremely costly, and
- Indonesia's and Thailand's policies made easier transitions into policies appropriate for later stages of development, Egypt's and Pakistan's heavy interventions were hard to "escape from "

6 2 3 Price Stabilization in Indonesia and the Philippines

Let us now examine somewhat closer methods of price stabilization that so many governments value so highly Dawe and Timmer focus on the form of intervention that two Asian countries used to stabilize the price of rice over the last twenty years The National Food Authority (NFA) in the Philippines and BULOG (the national logistics agency) in Indonesia were founded with similar mandates and organizational structures The countries have similar incomes per capita, and both are now self-sufficient in rice in a normal year (1991, p 24)

The authors focus their discussion around the choice of price or volume targets in the stabilization process They point out that BULOG truly stabilized price NFA tried to do that but was also given mandatory procurement targets Keeping the price the same requires large purchases from farmers or the market in some years and none in others Because of the relationship between prices and quantities (the demand curve), setting volume targets that change little from year to year virtually prevents the agency from stabilizing prices (1991, pp 24-5)

Another significant difference in the operating procedures of the NFA and BULOG has been their access to funds for procurement of rice Price stabilization requires flexible procurement, which in turn requires flexible financing BULOG had this, in the form of a line of credit NFA did not, it had to battle the national legislature every year for its budget (1991, p 25)

Dawe and Timmer also discuss the two Governments' systems of announcing floor prices and the expectations that these announcements engendered The announcement of floor prices in Indonesia was done 7 months in advance of the harvest **consistently** over many years Because of

the adequate time lag for planning and the interannual consistency, the benefits of price stabilization accrued in the form of additional investment in agriculture In the Philippines, the timing of the price announcement relative to the harvest was different every year When viewed on a graph, this timing appears almost random The authors maintain that in such cases, even stabilization that is achieved ex post could not have been expected, so its effect on investment is limited (1991, p 26)

Finally, the authors address the issue of the costs of the program vis-a-vis the price band used NFA was saddled with a negative marketing margin, which resulted in various anomalies in the market BULOG's margin was wide enough to recover full costs, with the result that the private sector remained an important player in the market The direct and indirect costs of stabilization in Indonesia were considerably lower than in the Philippines (1991, p 27)

In a separate article, Timmer gives a more expansive perspective on BULOG's operations He summarizes as follows

> A major paradox has emerged from BULOG's investments in its analytical and logistical capacity There can be no doubt that Indonesia's rice markets were substantially more competitive in the early 1990s than when BULOG first faced its stabilization tasks in the late 1960s The stability provided by BULOG has induced substantial investment by the private sector in rice marketing BULOG was able to operate increasingly at the margin of local markets and still maintain a satisfactory degree of price stability In addition what was 'satisfactory' was changing as consumers, with higher incomes, were better able to absorb larger price changes, both seasonally and from year to year, and as farmers began to diversify cropping patterns to meet demands from these more affluent consumers In short, BULOG's role as a price stabilizing agency was no longer as important as it once was (1993, p 159)

In Timmer's view, BULOG's impact on consumers, producers, and marketing agents adds up to a strong improvement in market performance

6 2 4 Wheat Policy in Pakistan

Ender discusses staple food policy in another country where price stabilization was a key goal He deduces the Government of Pakistan's objectives in wheat policy in order of priority to have been the following

- Stabilize producer and consumer prices,
- Ensure adequate quantities and lower prices to urban consumers (and indirectly to other areas),
- Limit the budgetary cost,

- Ensure adequate quantities to those at risk (the poor, women, and children), and
- Promote production and self-sufficiency (1992, p 3)

Ender finds that the Government stabilized wheat and flour prices successfully Domestic procurement was often supplemented by substantial imports These were necessary because in the post-rationing period (since 1987), the policy was to release wheat to millers in whatever quantities were demanded at the predetermined price The cost of this program, however, eventually became quite significant (1992, p 5) While stabilization may have had the kinds of benefits that Timmer describes, the level at which prices were stabilized was often well below import parity, so production suffered (1992, p 8)

The impact of public food distribution on the private marketing system was dramatic Zero and then very narrow official marketing margins (the procurement-release price difference) drove the private sector out of storage The quality of wheat in the market declined because of rent-seeking behavior by low-level government officials Through policy reform the price gap was increased, which induced the private sector into purchasing wheat at harvest and storing it for part of the marketing year Public sector procurement fell considerably, but with no visible adverse consequences The country lacked usable grades and standards, although the willingness of the private sector to pay for cleaner wheat was demonstrated in USAID-assisted market experiments (1992, p 13)

The consumption effects of the public food distribution system were supposedly targeted under rationing, but rent-seeking was so excessive that the Government did away with rationing The new system does not incorporate targeting The current insensitivity of wheat consumption to income increases"except at the very lowest income levels"leaves no doubt that only targeted subsidies would be efficient in helping those at nutritional risk (1992, pp 1, 19)

6 2 5 Marketplace Construction and Regulation in India

In another analysis of the impact of government intervention on market performance, a 1990 World Bank review of its marketing projects included an examination of marketplace construction and operation in India According to the review,

> researchers found a strong link between market access and the increasing surpluses produced by small farmers The most important factor was distance from the marketplace, farmers appeared willing to haul their own produce to markets that involved not more than a day's trip by bullock cart The organization of markets also appeared to be a significant factor in farmers' production decisions, with farmers preferring markets with a large number of buyers and sellers and hence a large number of transactions (p 44)

Further analysis of market performance and government policies and intervention in Asia can be found below in section 6 5

6.3 Policies and Performance in Africa

Africa's resource endowment, human capital, and policy regimes are quite different from Asia's in many ways It is not surprising, then, that the picture of policy reform and market performance that emerges in Africa is also different

6 3 1 The Agricultural Transformation

Goldman and Block (1993, pp 117-8) summarize the main themes that came out of a major conference on the agricultural transformation in Africa The participants were addressing issues of technology and commercialization Many of the topics touched upon in this symposium relate directly to the performance of agricultural markets The editors begin their summary with a general statement about the pace of change and the current prospects

> Agricultural transformation is a long term process in Africa It has been taking place at a very slow pace Given current policy directions and levels of investment in the sector, it will take at least a decade to achieve a desirable level of transformation in many African countries

Many of the issues the conference covered are centered around the generation and application of new technology The editors note that if these new technologies are to have their maximum impact at the farm level, there is a strategic need for more interaction between the international centers and the national agricultural research systems

Another indicator of the stage of progress of policy reform in Africa is that it was still a main theme in 1993 that "parastatal marketing structures should be de-emphasized and *competitive* market structures promoted " As we will see, some African countries have made progress along these lines, but many have not

As an overall summary of performance to date, the editors state that

> There has been a general improvement in agricultural performance in most countries under structural adjustment, but this improvement is probably not sustainable without substantial improvement in marketing infrastructure, promotion of competitive market structures, and capacity for resource management of intensive agricultural systems

6 3.2 The Impact of Structural Adjustment

More recently, the World Bank (1994a) has studied the impact of structural adjustment on the economies of twenty-nine sub-Saharan African countries It finds the results encouraging In general it finds that macroeconomic policies (exchange rate valuation, trade barriers, fiscal deficits) have been reformed the most, with positive benefits to GDP per capita In agriculture, two-thirds of the adjusting countries are taxing their farmers less Of the fifteen countries that had major restrictions on the private purchase, distribution, and sale of major food crops before adjustment, thirteen governmentshave withdrawn from marketing almost completely (See summary volume, p 3) In general, countries that limited their intervention in markets had median GDP per capita growth of almost 2 percent during 1987-91, compared with declines of more than 1 percent for the countries that intervened more extensively (Summary volume, p 6)

Looking at agriculture in more detail, the report finds that reform efforts for export crop marketing fall into three categories eliminating marketing boards, linking producer prices to world market prices while reforming marketing boards to reduce costs, and allowing the private sector to compete with marketing boards in crop purchasing and exporting Among the countries studied, few have abolished marketing boards Some are experimenting with different ways of linking producer prices to world prices, e g two-payment systems It is not clear yet if these systems will work well in practice Most reforms are too new to evaluate, though some appear to be succeeding (World Bank, 1994a, Main report, p 81)

The authors report good progress in liberalizing the marketing of staple food crops (Main report, p 83) Countries in eastern and southern africa (especially Kenya, Tanzania, and Malawi) have reduced the scope of maize marketing boards but have had difficulty fully liberalizing maize markets In Malawi, APAP analyses (Brown, Reutlinger, and Thomson, 1996, Abbott and Poulin, 1996) are helping to show that food security can be promoted through the market and that ADMARC"the major parastatal"can safely reduce its role to limited social functions to support the very poor and those unable to take part in the market There is a new consensus emerging among policymakers The World Bank describes marketing reforms that started in 1986 Since then there has been a significant expansion of private maize trade, including more traders operating outside their home area, and the closure of some parastatal buying centers Yet transport and regulatory barriers remain Despite these, even by 1992 private traders had a considerable share of the market and were paying more than ADMARC to producers (World Bank, 1994a, Main report, p 87)

The World Bank also examined the reform of fertilizer subsidies and liberalization of its distribution About half the adjusting countries have eliminated subsidies, liberalized distribution systems, and allowed the private sector to take a greater role in importing and distributing fertilizer Tanzania and Malawi are finding that removing large subsidies and liberalizing distribution can ease supply constraints and result in greater fertilizer use (World Bank, Main report, pp 88-9)

6 3 3 Productivity Growth

The agricultural transformation involves increases in agricultural productivity Block (1994, p 623) analyzed a group of African countries' progress in this area in the 1980s, during or just prior to structural adjustment programs He found that 17 of 26 countries successfully depreciated the real exchange rate in the early and mid-1980s "Jaeger shows that taxation of agricultural exports declined dramatically during the mid 1980s the price environment facing African agriculture improved during the late 1970s and early to mid 1980s " Block finds that in these countries, total factor productivity (TFP, or the efficiency of agricultural production) grew by a little over 2 percent per year during 1983-88 His method removed the potentially confounding effects of prices and exchange rates that are often used as weights in the analysis

From Block's research there is a " suggestive finding that policy reform and lagged research expenditures explain most of the 1983-88 TFP growth " To the author this raises concern about "the sustainability of the improvement " This is because maintaining the "benefits of a real depreciation in the face of its inflationary effects requires expenditure reduction Cuts in domestic absorption in Africa have come largely from public investment, a critical source of funding for agricultural research " Thus countries have taken the appropriate and difficult step of devaluation only to have to deal with the result that they must also make cuts in public expenditures With government virtually the only source of funding for agricultural research in Africa, the long-term performance of agricultural markets could be threatened

6 3 4 Adjusting to Policy Failures Improved Market Performance Can Rescue Committed Leaders from the Consumer Subsidy Trap

Sahn elaborates on this balance between policy reforms (and the capabilities required to enhance the performance of the market when there are structural weaknesses in it), and the need to continue and strengthen programs with strong public goods aspects, like research and infrastructure He describes the experience of many African countries that underwent structural adjustment (1994, pp 366-85) Reforms in agricultural pricing and marketing were very often part of this process There was often significant disillusionment with previous state interventions in the name of equity and stabilization Because of the instability of world market prices and other factors, Sahn sees an a priori argument for government intervention that encompasses more than infrastructure, research, and extension However, he is also highly skeptical of the capacities of these governments to stabilize agricultural prices in light of their limited analytical capacity and the substantial corruption that was pervasive in the past Thus, while it is clear to him that the role of the public sector must change and that it will remain a crucial one, the exact nature of that role is not clear (1994, pp 377-8, 381)

In general Sahn finds that "measured against the failed policies that predate the reforms, considerable progress has been made both in policy change and performance" (1994, p 374) In some countries there was more rhetoric than policy change Trade policy reform has been notable

Sahn says that "where trade reforms have proceeded, there are indications that the incomes of producers of exportables in general, and of export-oriented farmers in particular, have benefitted" (1994, p 376)

The "most important policy changes," however, have been in domestic agricultural prices and marketing Reforms in food crops have tended to proceed faster than in export crops (1994, p 376-77) A key result that Sahn finds from the marketing reforms in the food crop sector is that

> the cost of raising prices paid to farmers has generally not been borne by consumers Lower marketing margins owing to increased competition and greater efficiency have served the interests of those at both ends of the marketing chain (1994, p 377)

Similarly, he says, when governments gave up efforts to maintain low retail prices, consumers have generally not lost, because the efforts were ineffective to begin with

These conclusions are significant Politicians, especially in the poorest countries, were often thought to be responding to a political imperative in providing subsidies to consumers or in holding down prices to farmers Sahn is saying, on the contrary, that the performance of the market, when given a chance, can be strong enough to provide benefits to both producers and consumers, even in those countries where infrastructure and other factors required for market performance are often inadequate or missing If consumers did not lose from "getting prices right" in some countries, then politicians in other countries may be able to follow this example Freedom, even if it is only partial, from the consumer imperative gives leaders leeway to expend some resources on strengthening the factors that enhance market performance By strengthening these factors, performance could be improved further, continuing to benefit both producers and consumers

Sahn also discusses the importance of initial conditions He feels that the most important aspect of these conditions is the nature and strength of existing institutions in the country With policy change in agriculture comes the need to reform, eliminate, or replace various institutions "A robust response by existing and newly emerging institutions is a prerequisite to restoring incentives and efficiency in markets " Getting parastatals out of agricultural marketing may leave a vacuum, and performance may not improve in the short run Sahn cites failures in Gambia (fertilizer) and Guinea (rice), which were caused by the lack of access to credit, imperfect information, and uncertainty about the actions of the state (1994, p 380)

6 3 5 Privatization

Young also comments on a number of aspects of policy reform and public support of private markets in Africa The focus of his discussion is privatization, which in the agricultural sector relates mostly to marketing parastatals Young feels that

privatization has entered African political agendas under widely-generalized recessionary conditions Structural constraints [like] limited size of domestic markets, disadvantages of geographical locations or unevenly developed internal communications networks, and the thinness of local private capital might tend to inhibit an expanded private sector role displacing that of the state (1991, p 169)

As to the impact of privatization, he says it has been variable, and that " though divestiture of public enterprise has frequently not figured among the most central of the 'reform' options associated with this process of policy change, privatization may well prove a key marker as to the extent to which it will lead to substantial alterations in the boundaries between states and markets " (1991, p 171)

6 3 6 Nontraditional Agricultural Exports in Uganda, Credit Unions in Cameroon, Roads in Ghana

In contrast to some of the previous studies, USAID gives a rather upbeat assessment of African agriculture in the wake of structural adjustment and the resulting declines in public services, saying the sector has been "vibrant " (1993, p 48) The report gives many examples of the types of programs the Agency has been implementing and their impacts We present some of these, choosing in particular those that complement the examples we have chosen from other research below

In Uganda, the Government and USAID are cooperating to promote nontraditional agricultural exports The Government seeks to diversify the country's exports away from coffee Policy reform and regulatory changes in the foreign exchange and marketing systems and technical assistance to export-oriented agribusinesses are key parts of the program "This assistance helped increase the real value of agricultural nontraditional exports from a level of just $8 1 million in 1987 to an estimated $61 4 million in 1992 Many of the beneficiaries of this program are female farmers" (1993, p 51)

In Cameroon, USAID worked with the Government to support a credit union project "that has had a strong, positive impact on rural financial market development " The credit unions with which the project worked managed to bridge the gap between rural and urban financial markets They "met the demand of rural savers for safe depositories and the demand of borrowers for credit and liquidity " When the formal financial market was experiencing a liquidity crisis in the late 1980s, the credit union league was able to continue to provide financial services (1993, p 53)

While USAID has recently tended to leave high-cost infrastructure construction to other donors like the World Bank, it does work in lower-cost infrastructure-related areas, like improving road maintenance and feeder road rehabilitation In Ghana, the rehabilitation program also trained private Ghanaian contractors USAID points out that "reduced transport costs increase farm gate prices and allow farmers to sell to traders who have efficient storage capacity, thus reducing crop

losses " In one part of Ghana, USAID reports, rehabilitated roads carried traffic of 120 vehicles per day compared to 4 on unrehabilitated roads Maize losses have fallen from 35 to 15 percent In another region, rehabilitation led to a 61-percent decline in transport costs (1993, p 54) USAID reports similar benefits for its program in Tanzania Sustained financing remains a problem for these programs, since they require the governments in question to contribute substantially to them and government budgets are stretched very thin

6 3 7 Fertilizer Marketing Reform in Cameroon

In 1992 and 1993, APAP II undertook a major series of studies, "Improving the Effectiveness of Agricultural Sector Policy Reform in Africa " Kulibaba and Rielly (1994) summarize the lessons learned from several research papers in their synthesis volume While the focus of these studies was the political economy of reform, there are examples given of the reforms made and the resulting impacts on market performance that will be useful to examine here

Until 1987 Cameroon had a public fertilizer monopoly that financed, imported, and distributed subsidized fertilizer This was considered inefficient and open to corruption In 1985 the USAID Mission began studies of the problem and eventually recommended a new public-private joint venture monopoly A reform program was negotiated and agreed to, with tranches of funding to be released as various objectives of the reform were achieved Apparently there were some very rapid conversions among the technical bureaucrats involved in implementing the reforms These individuals became committed "policy champions " As a result of the program and these conversions, the fertilizer market was liberalized in one year The public monopoly was replaced by a privatized system, and the fertilizer subsidy was eliminated These changes cut the order and delivery time for fertilizer in half, reduced the in-country costs by 16 percent, and saved the Government FCFA 4 billion (1994, pp 32-4) Perhaps most importantly, the reforms made fertilizer available when it was most needed (USAID, 1993, p 52)

6 3 8 Devaluation and Cocoa Reforms in Ghana

Ghana implemented the Economic Reform Programmes I (1983-85) and II (1987-91) in the wake of a prolonged economic crisis Among other things, an overvalued currency and low producer prices had reduced the country's share of the world cocoa market from 29 percent in 1970 to 17 percent in 1980 ERP I was based largely on devaluation of the *cedi* to promote primarily cocoa exports, with some attention to increasing non-cocoa prices to producers as part of agricultural market liberalization It also included increases in the producer price of cocoa and reform of the cocoa marketing board (COCOBOD) COCOBOD released 16,000 staff in 1985 and removed large numbers of actual and ghost employees from the rolls in the following two years (Kulibaba, 1993, pp 32, 40) The resetting of prices toward world levels was accompanied by a better physical connection between Ghana's farmers and the rest of the world roads, ports, and rail lines were rehabilitated during ERP I

ERP I largely succeeded in achieving economic stabilization The years 1984-88 were five years of steady economic growth The share of the world price accruing to Ghana's cocoa producers rose to 30 percent in 1986 and 42 percent the following year, against the target of 50 percent (Kulibaba, 1993, p 36) The costs of ERP I were declining standards of living in *non-cocoa* agriculture and among women farmers and petty traders, among others The gradual removal of subsidies on fertilizer was offset by increased prices to cocoa farmers, but others had to wait longer to see benefits

Under ERP II trade and exchange rate reforms were still the centerpiece, but improvements in cocoa yields and quality and the construction of feeder roads were also important components Ghana held to its commitment to give cocoa producers 55 percent of the world price and by 1992, 60 percent, despite world prices that were a historical low (Kulibaba, 1993, p 52) By 1990 the Government also eliminated subsidies on inputs and equipment The key cocoa production goal was increasing national production of the highest quality cocoa to 300,000 tons by 1991 Supported by improved incentives, this goal was met ahead of schedule during the 1988-89 season (Kulibaba and Rielly pp 40-43) COCOBOD also unilaterally decided to improve its cocoa processing facilities, and was later successful at soliciting donor funds to complement its own resources in this regard The Government also pursued a joint-venture arrangement with a European chemicals manufacturer to partially privatize COCOBOD's insecticide production plant by 1991 Increased efficiencies in COCOBOD marketing operations resulted in cost savings that were passed on to producers (Kulibaba, 1993, pp 52-3)

6 3 9 Cereals Market Reforms in Mali

In the same series of studies, Ouedraogo and Adoum describe the Program for Restructuring the Cereals Market in Mali (or PRMC in its French acronym), which is widely perceived as a success The program included three major thrusts market liberalization (participation of the private sector in agricultural marketing), market-determined pricing, and reorganization of the parastatals (1993, p vii)

Before 1987 traders were free to buy and sell grain, but prices were set by administrative fiat, not the market As a result of the reform program, many new merchants entered the coarse grain market, including former employees of OPAM, the grain marketing board In addition, consumers got grain available closer to their homes Losers from the reforms were primarily those who had gained from rent-seeking behaviors Liberalization of the coarse grain market through PRMC has been sustained since 1987, but the authors believe that credit problems still keep market performance somewhat suboptimal (1993, pp 12-15)

6 3 10 Rice Market Reforms in Madagascar

The last study from the APAP II series that we cite here details the process of rice market reform in Madagascar The two most significant reasons for these reforms were an economic crisis"the breakdown of the state-based rice marketing system and a balance-of-payments crisis"and the commitment of "policy champions" to these reforms (Rielly, 1993, p 15) Foreign technical assistance was important in informing policymakers about the nature and extent of the problems in the rice subsector As a condition for receiving World Bank loans[12], in 1983 the Government agreed to double the consumer price of rice (to a level still highly subsidized) and to submit a plan for liberalizing the rice subsector

Rice marketing reforms included the elimination of the public monopoly on rice marketing in most parts of the country in 1983, and the abolition of the ceiling price of rice by 1985 Farmers, traders, and millers all benefited from these reforms Production incentives shifted toward rice, and increases in output resulted Higher rice prices after liberalization were the major factor underlying rising producer incomes between 1982 and 1986 (1993, p 22) Rice markets have become more dynamic, including opening up to many new participants New traders, transporters, and millers have lowered entry and transport costs and broken frequent attempts by parastatals and established traders to fix prices Price signals now get through more clearly to farmers Increased competition among collectors has provided choices among purchasers for farmers in remote areas Output now moves long distances to market (1993, p 23)

6 3 11 Macroeconomic and Agricultural Reforms in Support of the Private Sector in Mozambique

In a very recent APAP study, Brown et al evaluated the Private Sector Support Program (PSSP) in Mozambique, "the poorest country in the world "[59] The PSSP Policy Agenda was part of a multi-donor and government effort to shift Mozambique from a command economy to one that is market-based PSSP supported the development of the agricultural private sector The evaluation team found that PSSP's impact was larger than could reasonably have been expected, given the resources at its command The six elements of the policy reform program were agricultural pricing policy, divestiture of state farms, private agricultural sales and service, access to foreign exchange, private marketing channels, and petroleum importation and marketing

In the agricultural pricing area, the team found that, "despite occasional backsliding, liberalization of agricultural prices has progressed to cover nearly all agricultural products and has had a significant impact on agricultural production and on availability of farm products in the market "

---

[59] Quotation from the Statement of Work by the Mission other quotations in this section are from the Executive Summary of the report Brown et al 1995

Divestiture of state farms, once an enormous drain on the budget, has been largely accomplished The Commodity Import Program (CIP) provided many tractors and other farm equipment and small trucks of appropriate types This helped reestablish farm production (after the hostilities) and improved the movement of people and products to and from market centers Significant exchange rate distortions have been eliminated, and private sector access to foreign exchange improved, in part because of USAID's policy dialogue In the long run, availability of foreign exchange will depend on increasing export earnings, particularly from agriculture The team also found that

> a functional free market trade in food grain and other foodstuffs has developed to replace the rationing system, which has become less and less able to provide for the food requirements of the populations of Maputo and Beira Private sector wholesale and retail trade in food grains, beans, and other non-perishable agricultural products has been reestablished, largely superseding the government purchasing agent, AGRICOM Retail trade has also been liberalized and expanded, as small-scale itinerant traders supply consumer goods to rural areas and scour the countryside for farm products to retail in an increasing number of open-air markets Domestic purchases of white maize and other products by private voluntary organizations is helping to reestablish the rural market structure

Finally, marketing of export crops like cashews and cotton, which are crucial to raising small farmers' incomes, has shown considerable improvement as marketing boards have been dismantled and their assets, privatized Marketing channels have now been reestablished in most of the country

6 3 12 Food Strategies and Market Performance in Kenya, Tanzania, and Zimbabwe

Shapouri et al examine the food strategies of Kenya, Tanzania, and Zimbabwe, including policy reforms these countries made and their results Agricultural sector reform in Kenya began between 1986 and 1988, with the goals of "stimulating agricultural output and contributing to fiscal stabilization " Some of the key steps taken were to increase the supply of key inputs, improve procedures for setting producer prices, reforming some of the state-owned enterprises, and enhancing extension services (1992, p 11) The authors find that in spite of declines in public investment in agriculture, the research system was relatively successful at producing high-yielding varieties Nevertheless, the yield of maize remained at less than half the world average

In input markets, there was also uneven progress While the Government eliminated fertilizer price controls in 1989 and increased the number of fertilizer distributors, unpredictable government policies and inadequate supplies remained major constraints to input use Thus while the market was competitive, the use of fertilizer stagnated Another reason for this could be that smallholder credit programs were generally unsuccessful Braverman and Guasch (1986, p 1258) provide some detail on one of the Government of Kenya's activities to enhance performance in rural credit markets The Cooperative Saving Scheme involved weak forced savings The scheme arranged payment to

growers for coffee sales by crediting it to their accounts These accounts paid positive real interest rates The activity resulted in viable lending organizations Overall it created a kind of implicit insurance or collateral scheme that was very successful in achieving high participation rates and low delinquency rates

Unlike many farmers in developing countries, Kenyan producers were apparently subsidized during the 1984-9 period (PSEs[13] were positive), especially producers of food crops The Government still sets producer prices for food crops While by 1992 cereal reforms had not been fully implemented, the Government had encouraged the participation of the private sector in marketing since 1982, and has reduced the restrictions on maize movements Nevertheless, per capita grain production declined in the period of analysis, while per capita food and agricultural production stagnated (Shapouri et al , 1992, pp 34-5) [60]

Tanzania began a return to liberalized markets in 1986 after a period of socialism that ended in economic decline The policy measures implemented at that time included exchange rate adjustments, better incentives for agricultural production, liberalization of trade, and development of infrastructure This program achieved what the authors call "modest" success growth increased from 1 percent in the first half to 4 percent in the latter half of the 1980s (1992, p 38) Because of a slower pace of devaluation and inadequate increases in producer prices, overall subsidies to agricultural producers in the mid-1980s turned back to taxes in the late 1980s

Shapouri et al find that a poor credit system, significant cuts in research and extension expenditures, input shortages, and weak infrastructure led to low adoption of improved varieties, and yields of maize and rice that were about 40 percent of the world average Fertilizer subsidies were reduced but not eliminated Despite these disincentives, agricultural production increased by 4-5 percent in the 1985-90 period (Shapouri et al , 1992, p 66-7) Perhaps liberalization of the marketing system provided some additional incentives to farmers The Government gradually shifted the system from tightly government-controlled to market-oriented by abolishing permit requirements and movement restrictions By 1989/90 grain trading was fully liberalized The Government now operates only a Strategic Food Reserve (1992, p 46) As a result, 70 percent of all grain is now privately traded at market prices (1992, p 51) The private sector operates between all major producing and consuming centers Protection of urban consumers and high annual production variability, however, have resulted in higher food price variability in rural areas (1992, pp 61)

Zimbabwe presents a case of a very different nature The country only became independent in 1980, and its dual economic structure, carried over into agriculture, is unlike that of most African countries, with the notable exception of South Africa Most fertile land and modern infrastructure

---

[60]The authors report Kenya's annual population growth rate to still be near 4 percent

was in the modern, commercial sector and controlled by the minority of European ancestry Most of the rest of the rural population relied on subsistence farming on poorer land (1992, p 71)

After independence the Government expanded its role, with the goal of helping those in the communal sector to commercialize their agricultural operations It did so in a stable policy environment The Government's resettlement program has led to some improvements in equity and a reduction in the number of commercial farms Public research and extension are still of high quality and have been reoriented to the communal sector, with some agricultural research conducted by the private sector The role of the traditional marketing boards was also retargeted to serve the communal sectors better Because of the poor infrastructure serving these areas, and for other reasons, this reorientation led to increasing deficits in the marketing board budgets Now the Government is planning to separate the commercial and development services of these boards Price-setting procedures are complex, but the authors' analysis finds that prices tend to follow world prices, with net taxation or subsidization remaining small (1992, pp 72-88)

Shapouri et al say Zimbabwe is considered an agricultural performance success, but their information show that it really is a mixed picture While there have been increases in production in the communal sector, communal maize yields are only 16 percent of those in the commercial sector The contribution of the communal sector to production is still not significant With hybrid seed used widely, but fertilizer use having changed little, commercial farm yields are above world averages in good years, but overall the country has not been successful at increasing the productivity of the farm sector (1992, pp 73-80)

6 4 Policies and Performance in Latin America

Latin America presents yet another set of social and economic resource endowments What have been the relationships between states and markets and between policies and performance?

6 4 1 States and Markets in Latin America

Cammack opines that in this region politics have generally frustrated a successful collaboration between the state and the market As he puts it, "in Latin America [since] the Second World War States generally lacked the degree of autonomy from dominant classes to be able to overcome their resistance to policies that would have brought more effective and equitable markets into being " (1991, p 148) He compares the position of states in Latin America to those in East Asia, where the collaboration is generally seen to have been very effective

> The adoption of market-oriented capitalist development strategies in East Asia was preceded by substantial reforms imposed either by strongly interventionist states or external forces, and by successive state intervention to create the conditions for

international competitiveness Thus when the shift to liberal policies came, it was made from a position of strength In Latin America, in contrast, the shift is being made from a position of weakness Fundamental reforms are still waited in the region, and on the current evidence there is little to suggest that they are being advocated and pursued On the contrary, both land reform and fiscal reform have generally been avoided (1991, p 152)

Cammack also corroborates the assertions of Stiglitz (section 4 5 1), Timmer (section 4 5 2) and others about the necessity for state action to support the market, saying, "it is misleading to depict free market and 'interventionist' policies as making low and high demands respectively upon the state a capacity for effective intervention on the part of the state is as much a requirement for the pursuit of liberal economic policies as it is for intervention aimed at resisting the pressure of the market forces (1991, p 152-3)

6 4 2 Exporting High-Value Food Commodities Some Latin American Success Stories

Despite Cammack's overall assessment of the policy environment as not very favorable, Jaffee found successful cases of the development and promotion of high-value food exports We extract here some of his general conclusions and information on some of the cases in Latin America Regarding the relationship of the state to the market, Jaffee (1993, p 44-46) found that

- Government interventions in the case study commodity systems have generally been quite extensive, although their forms and longevity varied considerably

- Direct government investments in production and/or marketing infrastructure have occurred in nearly all cases This included ports, market places, auctions, and storage and transport facilities which either exhibit 'public good' characteristics or have entailed large up-front investments and significant economies of scale

- Government involvement in the collection and dissemination of market information has been less common and less important among the focal commodity systems than might be expected given the public goods nature of market information Important exceptions include the livestock/meat market price system developed in Argentina by the National Meat Board

- In virtually all the systems, governments have played some role in product quality control, whether through communicating international quality standards to producers/processors, through undertaking sample quality inspections on products, or through the inspection of factories, cold storage units, and other processing and marketing infrastructure

- In a majority of cases, governments have taken an activist microeconomic position, providing subsidies in one or more forms to producers, processors, and/or traders, although these subsidies have not fully countered the negative incentive effects of overvalued exchange rates, industrial protection, and direct commodity taxation in several Latin American countries [Argentina and Brazil]

- In the large majority of cases, production and investment subsidies were not targeted on the specific commodities covered in this study

All of the cases studies by Jaffee were successes, so we will not dwell on the extent of market performance Rather in the rest of this subsection we will give some of the differing flavor of the cases to demonstrate the variety of forms of collaboration by the public and private sectors that result in success

Mexico Fresh Tomatoes This case study showed relatively few government interventions joint public/private research, water allocations and controlled plantings, and subsidies to irrigation facilities, water, fertilizer, and energy (1993, p 47)

Brazil Soybeans The Government undertook moderate intervention into this commodity system Actions included public research, domestic price controls and producer support prices, subsidies on tractors, production credit, whole bean importing, crusher credit, and storage facilities, and direct investment in storage facilities (1993, p 47) There was some direct (domestic) state trading, and differential tax rates on fresh beans and processed products (i e , a targeted subsidy) were important to the development of soy processing (1993, p 45-6)

Argentina Beef Intervention in this commodity system has been heavy The Government conducted research in animal health, nutrition, and disease, provided domestic and international market price information, arranged government-to-government deals and negotiated market access, provided meat grading and factory inspection, imposed domestic price controls, minimum export prices, export licensing/quotas, and a variable levy, provided subsidies on processing facilities and debt financing, and made direct investments in transport and market facilities (1993, p 47) There was some direct state trading in the past (1993, p 45)

Commodity System	Highly Decentralized	Loose Oligopoly	Concentrated Oligopoly
Argentina Beef	Production Local sales	Processing Exporting	
Argentina Soybeans	Production Local sales	Processing Exporting	
Brazil Frozen Concentrated Orange Juice (for comparison)	Production		Processing Exporting
Brazil Soybeans	Production Processing Local sales Exporting		
Chile Fish	Production Processing/ Exporting Fish	Processing/ Exporting Fish Oil, Meal	
Chile Temperate Fruits	Production	Packing Exporting	
Mexico Fresh Tomatoes	Local sales	Production Packing Exporting	

Source Jaffee (1993, p 49)

Jaffee also provides information about the competitive structure of the commodity systems studied (**Table 2**) We show this for the three cases mentioned here as well as the other Latin American cases in Jaffee's report One notes that the level of competition in these markets is rather high Jaffee pointed out that the level of involvement was generally high Together these two observations reiterate Cammack's point that a market orientation does not mean a low level of demand on the state to facilitate and provide services