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Food Marketing and Pricing Policy in Eastern and Southern Africa: Lessons for Increasing Agricultural Productivity and Access to Food

by

T. S. Jayne and Stephen Jones

**MSU International
Development
Working Paper No. 56
1996**



**Department of Agricultural Economics
Department of Economics
MICHIGAN STATE UNIVERSITY
East Lansing, Michigan 48824**

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**FOOD MARKETING AND PRICING POLICY IN EASTERN AND
SOUTHERN AFRICA: LESSONS FOR INCREASING AGRICULTURAL
PRODUCTIVITY AND ACCESS TO FOOD**

by

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March 1996

Funding for this research was provided by the Food Security and Productivity Unit of the Productive Sectors Growth and Environment Division, Office of Sustainable Development, Bureau for Africa, USAID (AFR/SD/PSGE/FSP). The research was conducted under the Food Security II Cooperative Agreement between AID/Global Bureau, Office of Agriculture and Food Security, and the Department of Agricultural Economics at Michigan State University. The paper also draws on research funded by the Economic and Social Committee for Overseas Research of the UK Overseas Development Administration.

The authors thank Jonathan Beynon, Malcolm Blackie, Derek Byerlee, Munhamo Chisvo, Alex Duncan, Carl Eicher, Julie Howard, Mulinge Mukumbu, Jim Shaffer, Mike Weber, and Kim Witte for their comments on earlier drafts. Thanks also to Richard Goldman, Simon Hunt, Coty Pinckney, and Joseph Rusike for their generous sharing of information.

ISSN 0731-3438

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Published by the Department of Agricultural Economics and the Department of Economics,
Michigan State University, East Lansing, Michigan 48824-1039, U.S.A.

EXECUTIVE SUMMARY

Since the early 1980s, donors and international lending agencies have promoted the reform of agricultural marketing as a central component of economy wide structural adjustment programs in Africa. Although the record of implementation has often been slow and uneven, staple food marketing policy has been transformed over this period. The prevailing wisdom was that by lowering marketing costs, these reforms would reduce consumer food prices, raise producer prices, and generally stimulate farm technology adoption and agricultural productivity growth.

OBJECTIVES: This study surveys the empirical record of grain marketing and pricing policy in selected Eastern and Southern African countries (Kenya, Malawi, Tanzania, Zambia, Zimbabwe and South Africa) over the period 1930-1995. The paper addresses five key issues with major implications for food policy in Africa: (a) why the anticipated supply response to market liberalization has not yet occurred; (b) why the common assumption of state taxation of farmers to support a cheap food policy does not apply in most of these countries; (c) why the temporary successes of the state-led approach to stimulating smallholder grain production were unsustainable; (d) why the elimination of government food subsidies associated with market reform has not adversely affected consumers; and (e) why marketing board deficits have risen rather than declined after the reforms were initiated in most countries.

FINDINGS: Since the mid-1980s, almost all of the countries of Eastern and Southern Africa have undertaken food marketing reform programs. These reform experiments have revealed eight main lessons:

1. Where smallholder grain production and up-take of hybrid seed and fertilizer have expanded significantly since independence (Zimbabwe 1980-88; Zambia 1985-90; and to a lesser extent, Kenya 1975-82), this growth has been associated with major investments in state marketing infrastructure, credit disbursement, input delivery, and assured outlets for crop sale. However, this state-led model of service provision to support smallholder productivity growth has involved large state budget deficits, which, especially in the current environment of expanded donor influence over policy, has been politically and economically unsustainable.
2. The assumption that state marketing boards taxed grain producers to support a cheap food policy, often applied to other areas of Africa, is generally invalid in these countries. The controlled food marketing systems of Eastern and Southern Africa were used to transfer resources and income to selected farm groups, whose composition has changed over time with the balance of political power. The transfers took the form of subsidies on farm-gate prices in remote smallholder areas through pan-territorial pricing (uniform prices throughout all parts of the country), concessional credit and subsidized input prices. In many cases, these transfers and investments served to

expand grain production beyond levels that would have been achieved in an unregulated market environment.

3. The principal driving force behind food market liberalization in the 1980s and 1990s has been fiscal crises. These crises have strengthened the leverage which donors and finance ministries have been able to exercise over policy. In some countries, reform has also been accelerated by the withdrawal of support for the state marketing system by large-scale farmers. Smallholder farmer groups have generally opposed market liberalization, on the grounds that this would result in a withdrawal of state investments designed to stimulate smallholder production and overcome the dualism of the agricultural system inherited from the colonial period.
4. In each country where pan-territorial pricing policies were effectively implemented, important groups of smallholder grain producers have been, or will be, adversely affected by the withdrawal of the controlled marketing system. However, pan-territorial pricing has imposed important costs on the grain sector and the wider economy, including dampening private investment in grain marketing, shifting production from high-potential regions near urban centers to lower-potential and remote regions where it was often not economically viable, and discouraging more economic patterns of crop cultivation and labor allocation. Pan-territorial pricing in a liberalized market environment is not sustainable and, as recent experience has shown, will continue to impose chronic trading deficits on the state marketing boards.
5. Market liberalization has reduced marketing and processing costs. The benefits of these reforms have accrued largely to urban consumers and grain-deficit rural consumers, in some cases offsetting the negative effects of eliminating consumer food subsidies. Market liberalization has positively affected household food security in grain-purchasing regions. Producers facing low transport costs to urban demand centers (mostly large-scale farmers) have in some cases benefitted from the reforms.
6. Although fiscal objectives have been the principal factor driving reform, marketing board deficits have actually increased in every country examined after the reforms were initiated except South Africa. This is because governments have been generally reluctant to relinquish control over the setting of the boards' prices and allow them to reflect market conditions in an increasingly liberalized market environment. While the need for more flexible price setting in a market environment has been underscored by many of the boards themselves, senior politicians continue to exercise control over the marketing boards' price setting in Zimbabwe, Malawi, and Kenya. The main concern with devolution of price setting authority is that the more autonomous and commercially-oriented boards would (a) increase price volatility by frequently altering their prices as market conditions change, and (b) pay less attention to the social objectives historically pursued in the region through food marketing policy.
7. There is little evidence to date of per capita grain production growth since the market reforms, which are still in their incipient stages (Table 1, column a). Grain production

has been outstripped by population growth in all six countries since the mid-1980s. This reflects, in part, cutbacks in government transfers to farmers under the formerly controlled systems, and limited successes in devising new means to coordinate input delivery, credit, and crop sale which are financially and institutionally viable. The general movement toward structural food deficits has continued in all countries except Tanzania (Table 1, column d). There has been upward movement in food prices toward import parity levels in Zimbabwe and Malawi.

8. Despite the strong rationale for moderating extreme price fluctuations, the market board “buyer and seller of last resort” approach has not emerged as a successful model in the current liberalized market environment for two reasons. First, the costs of such a system may be enormous. Second, these schemes have impeded private investment in the marketing system. Rather than accept the gap between import and export prices as given, governments may encourage market-facilitating investments so as to reduce price volatility and the cost of stabilizing food consumption. As is already evident in almost all the countries examined, rapid private investment has already occurred at the grain processing stages in response to market reform, which played a major role in containing food price spikes during the 1992 drought in Southern Africa.

BEYOND MARKET LIBERALIZATION: Market liberalization is certainly not an end in itself. Schultz's “efficient but poor” observation of low-resource farmers also describes the functioning of “liberalized” marketing systems in many developing areas. Marketing margins may approximate costs, but these costs may be too high and unstable to encourage rapid private investment and productivity growth throughout the food system.

So far, liberalization and privatization have replaced often unreliable, high-cost, and centralized forms of state marketing with private markets that are competitive but often lacking in information, infrastructure, and are poorly integrated and/or coordinated with other key production and market enhancing activities. Market transactions in the region mainly involve sale of small lots by private negotiation in a context of price uncertainty and poorly functioning credit markets. Farmers do not have reliable access to key inputs and credit to facilitate advance contracts for sale of output. Nor can they secure forward prices for crop sale to ensure that investments in technology and conservation will be profitable. While private food trade in Eastern and Southern Africa has grown, and has brought important tangible benefits, especially to urban consumers, the evidence so far suggests that the anticipated stimulus to technology adoption and food production growth has been weak.

The major challenges of the newly liberalized grain marketing systems in Eastern and Southern Africa are to contain the effects of price instability, and most importantly, to support technical innovation and productivity growth in smallholder agriculture.

The gains that food market reform can provide to farm productivity growth and food security have not been fully exploited. The full benefits require active government and donor support to develop and integrate markets, not simply “liberalize” them. This will require coordinated

and sustainable systems of input delivery, farm finance, and reliable output markets to stimulate productivity-enhancing investments on-farm. The route to achieving this in other parts of the world has involved a combination of technology generation through sustained research, and institutional innovations that reduce per unit transactions costs and exploit economies of scope and scale in exchange). Experiments with group lending in Africa have shown that the supply of credit to farmers may be increased by shifting enforcement and monitoring costs from the lender to the farm group. This concept --reducing transactions costs from the standpoint of the trader through transacting at a more aggregated level-- may prove to be important in the design of more integrated exchange arrangements between traders and farm groups involving input and credit provision, extension advice, and output sale in one contract.

It is noteworthy that cash crop promotion has often been associated with the successful coordination of input delivery, credit, and crop sale for food crops (e.g., the CMDT/CFDT cotton scheme in Mali). In such schemes, key infra structural investments had already been made, which provided economies of scope and scale for the distribution of inputs, technical knowledge, and finance to support food crop production and sale. Few successful examples have emerged relying exclusively on food crops. An improved knowledge base of workable institutional arrangements will facilitate the emergence of more sophisticated transaction arrangements that promote productivity growth through shifting and/or reducing market and natural risks, exploiting economies of scope and scale, and coordination of credit, input delivery and crop sale between farmers and trading firms.

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1. GRAIN MARKETING AND PRICING POLICY IN EASTERN AND SOUTHERN AFRICA: A SURVEY

Since the early 1980s, donors and international lending agencies have promoted the reform of agricultural marketing as a central component of economy-wide structural adjustment programs in Africa. Although the record of implementation has often been slow and uneven, staple food marketing policy has been transformed over this period. Between 1980 and 1995, agricultural policy reform has been implemented in 35 African countries (World Bank 1994). In almost all African countries, the magnitude of state marketing boards' operations have been reduced. These measures have gone beyond the relatively limited reform agenda for agricultural marketing defined by the watershed Berg Report in 1981 (World Bank 1981). The Berg Report, while advocating market liberalization, had recognized a case for (and regarded as inevitable) some degree of intervention by the state in staple food markets, in recognition of the social and political sensitivity of food prices.

Donor advocacy of marketing reforms has been influenced by two related, but logically distinct, theories or ideologies: market optimism and state pessimism (Lipton 1991). The basic theory underlying market optimism is summarized by Barrett and Carter (1994):

“The familiar logic ... is that once governments free marketing channels and prices (including exchange rates), private merchants bid up formerly depressed agricultural prices. By virtue of a positive price elasticity of supply, higher prices induce greater production, and increased production stimulates demand for purchased inputs, including hired labor. Larger agricultural incomes have significant multiplier effects due to relatively poor farmers' high marginal propensity to consume. Thus a liberalized agricultural sector is expected to propagate prosperity across all sectors of the economy in a distributionally progressive manner (p. 1).”

“State pessimism” on the other hand, flows from a longstanding strand of economic thought contending that direct government intervention in markets can seldom enhance social welfare.¹ In the 1980s, these normative views were buoyed by positive models of the agricultural economy contending that state intervention in agricultural markets, ostensibly designed for rural development or to correct for specific market failures, were often fundamentally designed to serve the interests of a dominant elite comprising bureaucrats, urban consumers and industry (e.g., Bates 1981). By the mid-1980s, most international donors and lenders withdrew their earlier support to state food marketing agencies. By the early 1990s, donors had increasingly gained leverage over domestic agricultural policies through aid conditionality, which has throughout Africa led to the relaxation of regulatory controls on private marketing (liberalization) and a substantial withdrawal of state agencies from grain pricing and marketing activities (privatization). The prevailing wisdom was that by reducing marketing costs, reform

¹ For an exposition, see Schultz (1978).

would reduce consumer food prices, raise producer prices, and generally stimulate farm technology adoption and agricultural productivity growth.

This paper surveys the record of grain marketing reform in Eastern and Southern Africa to assess the accuracy of this prevailing wisdom. The survey focuses on the anglophone countries of Zimbabwe, Zambia, Kenya, Malawi, Tanzania, and South Africa from the emergence of controlled food marketing in the 1930s to 1995.² An historical perspective is necessary both to understand the forces that have shaped the existing structure and performance of the grain sectors in the region, and to assess the prospects that recent policy reforms can be sustained. The grain marketing systems of these countries share a common ideological and institutional heritage stemming from the model of controlled, single-channel marketing boards of the UK and dominions. This colonial heritage has shaped food policy far into the post-colonial period. These countries' experiences also provide a particularly important test of the effects of grain market reform, since state agencies have played a much more prominent role in staple food markets here than in many other African countries.

The paper addresses six key issues, with major implications for food policy throughout Africa: (a) why the anticipated supply response to market liberalization has not yet occurred; (b) why the Batesian model of discrimination against farmers to support a cheap food policy is not appropriate in most of these countries; (c) why the temporary successes of the state-led approach to stimulating smallholder maize production were unsustainable; (d) why the elimination of government food subsidies associated with market reform has not adversely affected urban or rural consumers in most countries; (e) why marketing board deficits have risen rather than declined in the liberalized marketing environment in most countries; and (f) what additional changes in government policy may be necessary to support the fledgling food policy reforms already implemented and to reduce the likelihood that such reforms will be reversed. Finally, we argue that two critical issues remain unresolved, that are likely to determine the ultimate political and economic viability of the food marketing policy model that is emerging in these countries. These are the capacity of liberalized marketing systems, first, to contain the effects of price instability, and second, to support productivity improvements in smallholder agriculture within the constraints of the highly dualistic agricultural systems inherited from the colonial period.

² For simplicity, the current names of Zimbabwe, Zambia, Malawi, and Tanzania have been used to refer to the former colonies of Southern Rhodesia, Northern Rhodesia, Nyasaland, and Tanganyika, respectively.

2. THE EVOLUTION OF GRAIN MARKETING POLICY, 1900-1995

Two principal factors have shaped the evolution of food marketing systems in Eastern and Southern Africa. First, from their inception in the 1930s and 1940s, the controlled marketing systems have been designed to mitigate the effects of instability in food production. The region is prone to frequent drought, and cereal yields are among the most unstable in the world.³ The staple crop in the region, white maize, is thinly traded on world markets. Most of the population of Southern and Eastern Africa lives in landlocked cities and remote rural areas facing high transport costs to coastal ports. Maize yields in the major production areas of Southern Africa are highly correlated, limiting the potential of regional trade to offset national production deficits.⁴ These structural features have created large price fluctuations between export and import parity levels (Koester 1986). The social and economic disruptions caused by instability in staple food prices have given rise to the region's historical commitment to food price stabilization and associated market regulation.

The second dominant influence over the evolution of food marketing systems of Eastern and Southern Africa was the significant European settler presence in agriculture, which has given an intensely dualistic structure to the rural economy. In general, the greater the importance of European agriculture during the colonial period, the greater the degree of state intervention in food marketing activities. At one end of the spectrum were South Africa and Zimbabwe, where controlled grain marketing during the colonial period was designed to prevent African farmers from eroding the viability of the less efficient strata of European maize producers, a prospect viewed as antithetical to homesteader development and rural colonization. Malawi and Tanzania, by contrast, experienced limited European settlement and no industrialization. While smallholder agricultural development was provided little active encouragement in these territories, it was not generally suppressed. In Kenya, Zambia, and (during the latter part of the colonial period) Zimbabwe, marketing policy was designed less to suppress African production than to channel its surpluses through the official marketing system so as to cross-subsidize settler agriculture.⁵

Since 1900, grain marketing policy in the region has passed through three clearly identifiable phases. The first, under colonial regimes, was shaped by the interests of white settler agriculture and industry. The second phase, following the end of colonial rule, was marked by attempts to overcome either the inherited dualism in service provision by expanding

³ Zimbabwe, Zambia, and other countries of Southern Africa have the highest cereal yield variability in Africa (Byerlee and Heisey 1995). Cereal yield variability was defined as the trend adjusted coefficient of variation. Yield variability was double or triple that of major food producing countries in Asia and Latin America over the period 1961-93.

⁴ Correlation coefficients of white maize yields among major production regions of Zambia, Zimbabwe, and South Africa range from 0.46 to 0.93 over the period 1983 to 1992 (Jayne, Takavarasha and Van Zyl 1994).

⁵ Political imperatives and the inability of settler agriculture to meet all grain production needs also prompted increasing attention to the development of African agriculture in the later colonial period, most notably in Kenya under the Swynnerton Plan, and as the Independence War intensified in Zimbabwe.

smallholders' access to markets, or the domination of marketing activity by non-indigenous minorities. In both cases, the route pursued was to expand the existing state marketing system while discouraging private marketing activity. The attempts prompted by donors to liberalize and privatize food marketing systems under structural adjustment represents the third phase. Some of the countries are now moving to a fourth phase, in which the state has withdrawn almost completely from grain trading and pricing.

2.1. Phase 1: Colonial Marketing Policies -- Service Provision to Settler Farmers

The regulatory framework governing staple food marketing in Eastern and Southern Africa was established between the 1930s and 1940s. Only in the last five years have reforms fundamentally altered this regulatory framework.

Prior to 1920, Africans supplied the bulk of the food needs in Zimbabwe, Zambia, Malawi and Kenya (Mosley 1987; Mosley 1975; Keyter 1975; Jansen 1977). The primary use of European-owned land in Zimbabwe and Zambia was for speculation and/or mining. The fledgling development of mines, livestock interests, urban employment, and the British starch market (which offered a premium for white maize) greatly expanded the demand for grain, which fueled the rapid expansion in maize production by both Europeans and Africans.⁶ Grain trade was virtually devoid of government regulation during this period.

As the number of Europeans engaged in farming rose greatly during the 1920s, African farmers were increasingly perceived as a threat. Substantial evidence from Kenya, Zambia, and Zimbabwe indicates that African maize surpluses were capable of being generated at prices below the cost of production on most European farms, and that the organized European farm organizations successfully lobbied in the colonial legislatures for protection from African competition (Mosley 1975; Jansen 1977; Keyter 1975). Without protection, according to the Secretary of Agriculture of Rhodesia in 1934, "the extinction of the European farmer through native competition must be merely a question of time" (National Archives of Zimbabwe, cited in Mosley 1987, p. 214).⁷ The depression of the early 1930s brought this problem to a head, and under pressure from organized European farm lobbies, the colonial governments

⁶ Over the 1920-29 period, European maize cultivation increased from 13,129 to 95,499 hectares in Kenya; from 10,056 to 17,903 hectares in Zambia; and from 70,803 to 132,787 hectares in Zimbabwe.

⁷ However, European farmer opposition to competition from Africans was not universal, and some of the more efficient farmers supported the concept of free trade. Yield records of European farms in Southern Rhodesia indicate a wide dispersion with the majority falling into lower yield categories, and it was from this group that the most vociferous demands for protection against African competition were heard in the colonial legislatures (see Mosley 1983, p. 172-183). Perhaps not surprisingly, the protection of European maize producers was initially strongly opposed by white consumer interest groups in both Kenya and Zimbabwe, primarily animal feeders and plantation farms, on the grounds that this would substantially raise the cost of maize.

responded with the Maize Control Acts of the 1930s in Zimbabwe and Zambia, and the Native Produce Ordinance in Kenya in 1935.⁸

These acts shared several common features: (1) the establishment of restrictions on grain movement from African areas to towns, mines and other demand centers where African production could otherwise undercut European grain production; (2) the creation of monopoly state crop buying stations in European farming areas without similar investments in African farming areas; and (3) assured prices for European farmers (typically above export parity) that were financially sustained through “rake-off” taxes on maize sales by Africans to licensed private traders operating as agents of the boards (Table 1). These taxes effectively maintained a two-tiered pricing structure, with European farmers receiving 30% to 60% higher prices than African farmers. The cross-subsidies involved enabled European farm prices to be supported without increasing treasury deficits or the price of wage goods for industry. Other colonial regulations, not related specifically to grain, were passed to reinforce Europeans' dominance of the market including the continued forced removal of Africans from high-potential farm land, and various taxes levied on African households to induce them to move off their farms and work as wage laborers. The underlying strategy was to concentrate the native population in reserve areas which would roughly meet the subsistence needs of dependents, while African men would provide the labor force for mining, manufacturing and European agriculture for which the best land was appropriated.⁹

The combination of maize legislation, land evictions, and fiscal policies eroded Africans' dominance over food marketing and simultaneously contributed to the growth of European agriculture in Kenya, Zambia, and Zimbabwe after 1935. African per capita grain production in Zimbabwe's communal lands declined steadily from a high of about 300 kg per head in 1925 to about 200 kg per head at independence in 1980 (Figure 1).¹⁰

Pricing policy was based on the setting of official purchase and selling prices, usually fixed over the season and at all locations where the marketing agency traded. A consequence of this was that returns to private storage and marketing were reduced or eliminated. Price fluctuations between seasons were partially stabilized, and the price setting process rapidly became the focus of organized lobbying by white farmer interests and industrial grain

⁸ Malawi is an important exception to approaches taken in Kenya, Zambia, and Zimbabwe, since European maize production did not figure prominently there. This was in part due to legislation passed in 1933 prohibiting the British South Africa Company from growing maize in Nyasaland. The intent of this legislation was to restrict potential competition against maize production in Kenya and Rhodesia (Deininger and Binswanger 1995).

⁹ In this framework, Malawi was treated as a large labor reserve for the neighboring and more industrialized colonies of Zimbabwe and Zambia.

¹⁰ Despite this decline in per capita grain output, per capita maize output by Africans rose after the 1950s, reflecting a major substitution in production from millet and sorghum to maize during the latter half of the century.

purchasers (primarily millers and feeders), who also controlled the management of the marketing boards.

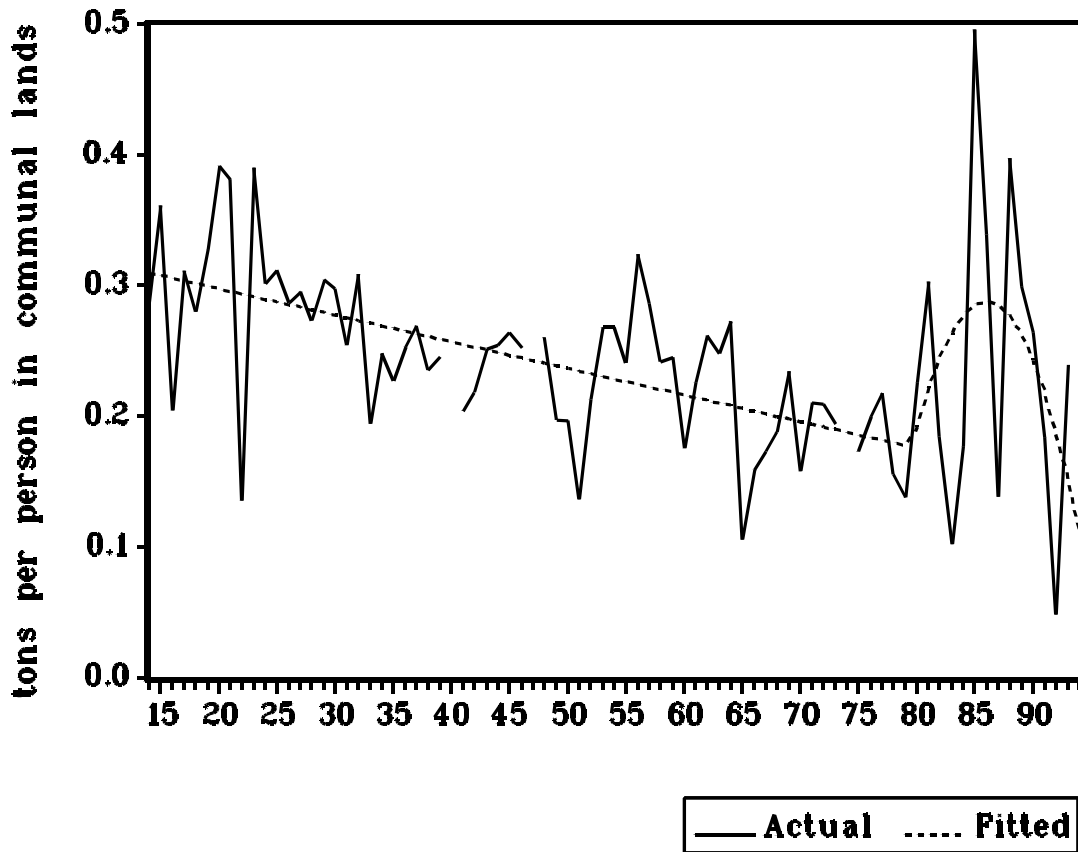
Table 1. Phases of Maize Marketing Policy – Phase 1: Colonial Regime – Service Provision to Settler Farmers

Country	State Marketing Agency	Market Regulation	Pricing Policy
Kenya (1922-1963)	Kenya Farmers' Association statutory board established in 1923 to buy grain from European producers. Monopoly marketing boards established in 1930s. Provincial boards purchased African production, Maize Board settler production.	Native Foodstuffs Ordinance (1922) restricts African maize sales across district boundaries. Marketing of Native Produce Ordinance (1935) tightens controls at all stages of grain marketing. Monopoly by marketing board on sales to registered millers established 1942.	Prices for European delivery to Maize Board 36% higher, on average, than official price for African maize offered by provincial boards (1941-62).
Malawi (1943-1971)	Maize Control Board established 1947. Succeeded by Farmer's Marketing Board with limited price stabilization mandate.	Colonial policy bans maize production by British South Africa Company in Nyasaland to restrict competition against Rhodesian and Kenyan producers (1933). Native Produce Ordinance (1943) introduces state trading in response to drought and price instability.	Limited price stabilization intervention.
South Africa (1935-1987)	Maize Board established in 1935. Cooperatives function as agents of Maize Board in marketing and storage.	Maize Board monopoly on marketing in main production areas. Regulations restrict African farmer access to main urban markets. Maize Board monopoly on sales to registered millers.	Maize Board buying and selling prices set by government. Fixed and pan-territorial.
Tanzania (1942-55)	Grain Storage Department operated 1949-55. No government intervention 1955-62.	Rationing and price controls introduced during Second World War. Cereal Pool operated jointly with Kenya and Uganda.	GSD set prices with limited stabilization objectives.
Zambia (1936-1964)	Maize Control Board established in 1936 serving European producers.	Restrictions on inter-district maize movements.	Single price to commercial farmers close to the line of rail, 41% higher than for Africans, on average (1936-58).
Zimbabwe (1931-1980)	Maize Control Board established 1931, replaced by Grain Marketing Board (GMB), 1950. Buying stations built almost exclusively in European farming areas. African surplus production channeled mainly to licensed agents of GMB.	GMB monopoly over grain marketing in commercial farming and urban areas. African producers barred from selling grain outside of their "reserve" area, except to GMB or licensed agents. GMB monopoly on sales to registered millers.	Prices for European delivery to GMB 56% higher than for African smallholders, on average (1936-60).

Sources: Bryceson (1993), Deininger and Binswanger (1995), Food Studies Group (1992), Howard, Makaponda, and Ferris. (1995) Gordon (1994), Jones (1994), Kydd (1988), LAPC (1993; 1995), Lewa (1995), Mosley (1983, 1975); Raikes (1983), Republic of Zambia (1995), Scarborough (1990), Smith (1995).

^aWhile South Africa was not a colony during this period, its food marketing policies were similar in design to those of the former British colonies examined here.

Figure 1. Per Capita Grain Production in African Communal Lands, Zimbabwe 1914-1994.



Source: computed from data in Annual Reports of the Chief Native Commissioner (presented in Mosley 1983); Ministry of Lands (1995); CSO 1986.

Note: The spline function generating the trend estimates was:

$$Y_t = \delta_0 + \delta_1(TREND_t) + \delta_2 D(TREND_t - I) + \delta_3 D(TREND_t - I)^2 + \epsilon_t$$

where Y_t is grain output per capita in Zimbabwe's communal lands in year t ; $TREND$ is a time trend; I is a constant equaling the value of the time trend variable at independence and transition to majority rule in 1980; D is a dummy variable taking on a value of zero before independence in 1980 and 1 otherwise. The term ϵ_t is assumed to be independent and identically normally distributed with mean zero and constant variance. The estimated average annual change in per capita grain output is δ_1 from 1914-1979 and $\delta_1 + \delta_2 + 2\delta_3(TREND - I)$ from 1980-1994. This specification allows for non-linearity in the trend after independence. F-test results rejected the assumption of linearity at the .001 significance level. Model estimation produced the following results (t-statistics in parentheses):

$$Y_t = 308.7 - 1.85(TREND_t) + 32.8(TREND_t - I) - 2.21(TREND_t - I)^2 \quad R^2 = 0.23$$

(18.3) (-4.32) (3.99) (-3.77) F = 8.99

DW = 2.21

Results indicate that average annual change in grain production per capita was -1.85 kgs from 1914-1979 and -1.12 kgs when evaluated at the mid-year of the post-independence period (1987).

The centralization and concentration of grain sales through single-channel grain boards shaped the development of downstream marketing activities, most notably processing. Since the advent of the hammer mill in the early 1900s, maize had been increasingly milled into “posho” or whole maize meal by small-scale hammer mills. However, the single-channel systems developed regulations to sell maize to only a few licensed millers, thus encouraging the development of large-scale, concentrated grain milling industries, using roller mill technology first employed on a large scale in Kenya and Zimbabwe in the 1950s. Controls on private maize movement provided the licensed roller millers (that produced a refined and more expensive type of meal) with a de facto monopoly on maize meal sales to urban consumers as well as rural households in grain-deficit areas once their supplies from own production were exhausted. In this way, government policy encouraged the consumption of relatively expensive refined meal at the expense of whole meal and stifled the development of a more decentralized small-scale milling industry. Over the 1985-1993 period, the regulated processing margins awarded to the registered roller millers were from two to nine times higher than observed margins for informal hammer mills. These controls inflated the price of maize meal paid by consumers.¹¹

However, the rise of a small number of registered large-scale milling firms reduced per unit transaction costs (compared to selling small amounts to numerous buyers) for the boards, and, more importantly, facilitated the implementation and monitoring of price controls on maize meal. Therefore, the rise of a few large industrial maize processors to link downstream distribution activities into the official grain marketing system created a manageable system of supplying the urban population with staple food at prices easily controlled by the state.¹² Within a span of three decades (1955-1985), urban consumption of maize meal consumption in the region switched almost entirely from whole meal to more expensive and less nutritious refined meal (Jayne, Hajek, Van Zyl 1995).

This system of regulation described in Table 1 was highly effective in achieving its principal objectives. European grain production expanded and benefitted from prices generally exceeding export parity.¹³ All countries except Zambia, and Zimbabwe (during World War II), became self-sufficient in maize. The cost of supporting European maize production was paid for largely by African farmers (through the two-tiered pricing format) and consumers rather than European taxpayers, making the system fiscally and politically sustainable.

¹¹ See Jayne, Hajek, and Van Zyl 1995; Rubey 1995; Republic of Zambia 1995; Mkandawire 1993. The problem of inflated marketing costs through the official marketing system appeared to be a longstanding phenomenon. As reported to the 1944 Native Production and Trade Commission in Zimbabwe, “the Africans’ complaint is not so much what they can sell maize at, but the great differences when they sell and buy... If they got 6/- and it cost only 6/6 to buy a bag of meal it would be all right, but they do not understand why they have to pay 22/-...for a bag of mealie meal” (National Archives of Zimbabwe, ZBJ 1/1/1, reported in Mosley 1987).

¹² Examples where state maize procurement and milling were either vertically integrated in a single agency included Tanzania and Malawi; examples where the marketing boards served as de facto procurement agents for large-scale private milling firms included Zimbabwe, Zambia, Kenya, and South Africa.

¹³ As mentioned previously, Malawi was an exception as a matter of colonial policy.

Opposition to agricultural price supports (for instance from mining and livestock interests in South Africa and Zimbabwe) was accommodated by selective consumer subsidies. The stability of the policy and pricing environment (and the limited competition faced by incumbents) contributed to downstream investment and rapid growth in commercial agriculture, including the adoption by commercial farmers of hybrid maize varieties developed by national research systems (Eicher 1995).

2.2. Phase 2: Independence – Expansion of Marketing Services to Smallholders

An important policy objective at Independence in Kenya, Malawi, Tanzania, Zambia, and Zimbabwe was to expand smallholder grain production. In each country, the newly independent governments responded to this objective in a fundamentally similar way. The key features were (a) expansion of state crop buying stations in smallholder areas that had been excluded from these benefits under the colonial regime; (b) continuation of direct state control over grain supplies and pricing; (c) efforts to stabilize and often subsidize urban consumer prices without reliance on imports; and (d) elimination of the dominant role of non-indigenous minorities (Table 2). The expansion of state market infrastructure in smallholder areas facilitated the disbursement of credit and subsidized inputs to smallholders through allied state agencies designed to recoup loans through farmer grain sales to the marketing boards (Rohrbach 1989; Howard 1994; Jones 1994). Management control of the grain boards was wrested from white commercial farmer interests. These attempts to accommodate wider interests occurred without fundamental changes to marketing institutions or to the policy framework. Only Tanzania attempted to implement a strategy of socialist transformation of the rural economy. Land redistribution was accorded a limited role in the attempt to reduce agricultural dualism. Agricultural dualism was in fact increased in Malawi, and to a lesser extent in Kenya and Zimbabwe, through state support to a newly created black-owned large farm sector.

A key objective of pricing policy during this period was white maize self-sufficiency. Because of the thinness of the world market for white maize, domestic production shortfalls often necessitated imports of yellow maize, a less-preferred substitute that had become connoted with an agricultural policy failure (Jayne and Rukuni 1993). Government stockholding of white maize expanded due both to national food security concerns (particularly exposure to drought) and as the unplanned result of pricing policy. The expansion of state buying stations under pan-territorial pricing generally subsidized transport costs for smallholders in remote areas and implicitly taxed those grain producers (mainly white commercial farmers) located near consumer markets. In most cases, however, taxpayers and aid donors bore most of the cost of expanding marketing services to smallholders.¹⁴

¹⁴ Donors provided extensive support to the expansion of bulk grain handling by marketing boards, which yielded little direct benefit to smallholders but added substantially to marketing board costs (Jones 1994).

Table 2. Phases of Maize Marketing – Policy Phase 2: Independence – Expansion of Marketing Services to Smallholders.

Country	State Marketing Agency	Market Regulation	Pricing Policy
Kenya (1963- 1988)	Maize Board and provincial boards combined (1963). Combined with Wheat Board to form National Cereals and Produce Board (1980). Five hundred new NCPB buying centers created (1980-2). Threefold increase in number of NCPB employees (1980-7).	Licensing system for inter-district trade creates rents for local officials. Licensing system for inter-district maize meal trade creates rents for licensed millers.	Increase in NCPB purchase prices (1977). NCPB margin squeezed as imported maize sold at subsidized prices by NCPB (1984).
Malawi (1971-1987)	Agricultural Development and Marketing Corporation (ADMARC) established in part to develop smallholder maize production (1971). ADMARC establishes up to 1,400 marketing points (by early 1980s).	No legal restrictions on trade in smallholder produce by Malawian Africans, but officially disapproved. Expansion of ADMARC crowds out private trading. Restrictions on smallholder produce trading by Malawian Asians.	Pan-territorial pricing to encourage production in Northern districts. ADMARC subsidizes maize producer prices and fertilizer, through taxation of smallholder cash crops.
Tanzania (1963-1984)	National Agricultural Products Board (NAPB) established to procure from cooperatives. NAPB replaced by National Milling Corporation (NMC). Cooperatives abolished 1975 and replaced by village procurement.	Statutory single-channel three tier system (primary cooperatives, regional cooperative unions, marketing boards). Replaced by two tier system 1975. Crackdown on “economic saboteurs” 1983 attempts to suppress parallel markets.	Maize producer prices determined as residual after deduction of cooperative and NAPB costs. Pan-territorial and panseasonal price setting. NMC margins squeezed. Regional pricing introduced 1981.
Zambia (1964-1985)	ARMB established to serve “non-viable” producers (1964). Merged with GMB to form NAMBOARD in 1969. Nationalization of grain mills (1986).	No changes.	Increases in consumer subsidies. Implicit taxation of agriculture through currency overvaluation increases from 1975. Expansion of pan-territorial pricing to smallholder farmers.
Zimbabwe (1980-1992)	Development of limited GMB depot network in smallholder areas from 1970s. Rapidly accelerated after 1980. GMB staff doubles in numbers.	No changes.	Consumer and producer subsidies increased in late 1970s. Expansion of pan-territorial pricing, taxing commercial maize producers. Consumer subsidies phased out by 1985; reintroduced from 1991-1993.

Sources: see Table 1.

Table 3. Phases of Maize Marketing Policy – Phase 3: Structural Adjustment – Marketing Liberalization and Privatization.

Country	State Marketing Agency	Market Regulation	Pricing Policy
Kenya (From 1988)	1988 Financial/managerial restructuring of NCPB. Phased closure of NCPB buying centres – depot construction continues. NCPB debts written-off; crop purchase revolving fund established but not replenished. 1994 NCPB to be restricted to limited buyer and seller of last resort role.	1988/9 Phased increase in permitted purchases from traders by millers. Relaxation of unlicensed maize movement and milling.	1988 Cereal Sector Reform Program (CSRP) envisages widening of NCPB price margin. In fact margin narrows. 1992 NCPB unable to defend ceiling prices. 1993/4 Limits set on NCPB purchases. Unable to defend floor price.
		1991 Further relaxation of district trade limits.	
		1992 Movement restrictions tightened.	
		1993 Abolition of mill quotas. 1994 Liberalization of internal and external trade.	
South Africa (From 1987)	1987 Ending of subsidies to Maize Board trading account.	1993 Direct farmers-to-miller trade permitted, subject to levy payment and approval.	1987 Fixed producer price replaced with advance price and supplementary payment (“agterskot”) to ensure maize account breaks even. 1995 Removal of maize and maize meal price controls.
		1995 Removal of restrictions on private maize purchases and sales, subject to stabilization and other levies. Imports liberalized (with zero tariff).	
Zambia (1985-1994)	1989 NAMBOARD abolished. Marketing functions transferred to cooperatives. 1993 State provides crop purchase finance to approved buyers. 1995 Food Reserve Agency formed.	1986 Liberalization of inter-district trade.	1986 Consumer subsidies removed, then reintroduced. 1989 Maize meal coupon program introduced (till 1992). 1993/4 Consumer subsidies, official floor and into-mill prices abolished.
		1992 Deregulation of small-scale milling. Removal of most restrictions on external trade.	
		1994 Completion of liberalization of import and export trade.	
Zimbabwe (From 1986)	1986 Reduction in number of maize collection points.	1991/2 Phased elimination of controls on trade between smallholder areas.	1987 Producer prices allowed to decline in real terms, then rise after 1992 drought. 1993 Maize meal subsidies abolished, consumer prices decontrolled.
		1993 GMB monopsony-seller status restricted to large mills, then eliminated (1994). External trade still controlled by GMB.	
Malawi (From 1987)	1987 ADMARC market closure program initiated. Strategic Grain Reserve established, managed by ADMARC.	1987 Private maize trade officially promoted. 1992 Provisions of 1987 legislation (governing prices, location of trade) abolished.	1987 Premiums set for maize delivered to main depots. Target of zero loss on ADMARC maize account.

Table 3. (continued): Phase 3: Structural Adjustment – Marketing Liberalization and Privatization.

Country	State Marketing Agency		Market Regulation		Pricing Policy	
Tanzania (1984-1990)	1986	Re-establishment of cooperatives.	1984	Relaxation of controls on grain movement. De facto toleration of private trade.	1984	Maize flour price decontrolled.
	1990	NMC access to crop finance ended. Strategic Grain Reserve transferred to Ministry of Agriculture.			1985	Maize grain price decontrolled.
	1991	New Cooperative Act recognizes cooperatives as private institutions.	1987	Movement restrictions abolished.	1986	Maize flour subsidies removed.
			1988	Private traders allowed to purchase from cooperatives.	1987	Official producer prices to be regarded as minimum cooperatives.
			1990	All restrictions on purchase of grain by traders eliminated.		

Sources: see Table 1.

3. ASSESSMENT OF THE MARKET LIBERALIZATION EXPERIMENTS

The food market reforms over the past decade are difficult to assess for three main reasons. First, the effects of the reforms are difficult to isolate from other processes affecting the broader economy, including macroeconomic adjustments and extreme weather conditions. Second, the reforms as described above have been partial, in some cases subject to reversals, and in almost all cases, decisive reform measures have only been implemented very recently. Third, with only weak and partial data on factor productivity, the welfare implications are unclear. Notwithstanding these caveats, several consistent trends appear to be emerging out of the market reform experiments in Eastern and Southern Africa: (a) reduced food marketing costs from surplus to deficit areas; (b) improved access to food by low-income urban consumers; (c) limited supply response to the partial food market reforms that have been implemented; (d) a gradual movement of the region to structural food deficits; and (e) increased marketing board deficits after the reforms were initiated.

3.1. Reduced Food Marketing Costs to Grain-deficit Rural Areas

Before reforms, the controlled marketing systems featured a one-way flow of grain from farmers to the marketing boards, onward to large-scale processors in urban areas, and then to consumers in both rural and urban areas (Bryceson 1993; Kirsten and von Bach 1992; Jayne and Chisvo 1991; Mukumbu 1992).¹⁵ Regulatory barriers prevented the grain, once in the hands of the marketing board, from being purchased by traders for redistribution to rural areas. This system was based on the implicit assumption of rural grain self-sufficiency. On the surface, this assumption seemed plausible enough because grain sales normally rose rapidly in most smallholder areas where marketing board infrastructure was developed (Bryceson 1993; Rohrbach 1989). This provided some evidence of a “surplus” in excess of a particular area's consumption requirements. However, micro-level research had shown that grain deliveries to the marketing boards should not be mistaken for a “surplus” from a given region, over and above consumption requirements, since marketed output from a small segment of well-equipped farmers often masked considerable grain deficits among a large proportion of households. Official restrictions on private trade and weak market infrastructure often made it easier for surplus farmers to sell to the boards rather than their deficit neighbors a few kilometers away (Jayne and Chisvo 1991).

This marketing structure, which characterized Zimbabwe, Kenya, Zambia, and South Africa prior to the reforms, created a circuitous and expensive flow of grain from rural areas to urban areas to be milled by high-cost urban millers, only to be transported back to rural areas

¹⁵ The boards' role as procurement agent for the large processors was most evident in Zimbabwe, South Africa, and Kenya, where Board depots and mills were often located side by side and occasionally linked by conveyer belts.

for consumption by grain-deficit households.¹⁶ After locally-produced supplies were depleted, rural households had no legal means of acquiring grain from outside their “zone.” The controls on inter-zone grain movement provided the industrial urban millers with a *de facto* monopoly on maize distribution into grain-deficit areas (Mukumbu 1992; Kirsten and von Bach 1992; Jayne and Chisvo 1991). However, the milling costs charged by urban milling firms and passed along to consumers and/or taxpayers, were substantially higher than those charged by unlicensed small-scale hammer mills operating in the rural areas. In Zimbabwe, the suppression of private trade (to assure the dominance of the controlled marketing system) inhibited the development of direct trade from surplus to deficit rural areas. This made households largely dependent on relatively expensive refined maize meal distributed through the official market channel, which raised total expenditures of the poorest rural households by as much as 30% (Jayne and Chisvo 1991).

Increased recognition of the food purchasing status of many rural households heightened decision makers' awareness of the need for more decentralized and efficient food distribution networks serving the semi-arid areas. Although few quantitative assessments of the reforms are available, the emerging picture is that the legalization of inter-district grain movement in Zambia, Kenya, and Zimbabwe has reduced the difference between prices realized by producers and those paid by consumers for maize meal (Republic of Zambia 1994; Argwings-Kodhek and Jayne 1996; Rubey 1995). This reduction in marketing costs has been achieved primarily through the expanded role of small-scale trading and milling networks in fulfilling the residual grain needs of rural households.

3.2. Changes in Urban Consumption Patterns and Improved Access to Food by Low-income Consumers

Prior to the reforms, urban maize milling in each country was dominated by several large private firms using roller mill technology.¹⁷ They purchased maize from the state marketing boards, often at subsidized prices, processed it, and distributed meal to retailers at government-controlled margins that were substantially higher than margins observed by the informal small-scale mills for whole meal.¹⁸

¹⁶ Although the marketing board in Malawi had been historically organized to sell grain to consumers through its rural depots, stockouts appear to have been common (Scarborough 1990).

¹⁷ In Zimbabwe prior to reform, the largest miller handled 65% of all industrial meal sales, while the largest two handled 85%. In Kenya and South Africa, prohibitions on inter-district movement of maize meal resulted in regional oligopolies, with the largest miller accounting for 30-80% of all sales within particular regions.

¹⁸ Not counting the opportunity cost of time for waiting in the queue to custom mill grain, or the travel costs. Studies have also shown in Kenya, Tanzania, and Zimbabwe that hammer mill technology has a higher labor-to-capital ratio, labor-to-output ratio, and output-to-capital ratio than large-scale roller mill technology (Stewart 1977; Bagachwa 1992; Rubey 1995). This implies that hammer mill technology is more consistent with employment growth, conservation of scarce foreign exchange, and lower maize meal costs than industrial roller

In the early 1990s, private trading was liberalized and subsidies on roller-milled meal were eliminated in Zambia, Kenya, and Zimbabwe. In each case, the large-scale millers swiftly lost a major part of their market share to small urban hammer mills. Within several years, urban consumption of hammer milled meal rose from negligible levels prior to reform to between 45% to 55% of total meal consumption in Zimbabwe, and to about 40% in Kenya and Zambia (Jayne et al 1995).¹⁹ During the 1993/94 and 1994/95 seasons, the cost of whole meal has been about 60% to 75% the retail price of roller meal in most urban areas of Zimbabwe, Zambia, and Kenya (Table 4, columns c and e). Household surveys indicate that low-income consumers in particular shifted quickly to hammer-milled meal (Rubey 1995; Jensen and Lucket 1993; Mukumbu and Jayne 1994). The reforms have clearly promoted urban household food security in much of the region by providing a lower-cost alternative to sole reliance on roller-milled meal, especially after the withdrawal of direct and indirect subsidies conferred through the official marketing channel, which caused roller meal prices to rise during the reform period (Table 4, columns c).

It is important to note that the rapid shift from roller meal to hammer milled meal has been accentuated by a decline in real incomes of urban consumers which followed the introduction of macroeconomic adjustment policies in much of the region since the late 1980s and early 1990s. This is suggested by survey evidence of an inverse relationship between consumption of hammer-milled whole meal and household income (Rubey 1995; Jensen and Lockett 1993; Mukumbu and Jayne 1994).

3.3. Limited Supply Response to Food Market Liberalization

Analysts commonly asserted that state marketing boards in Africa generally depressed food production by keeping producer prices below border price equivalents.²⁰ This view is invalid in most of the countries examined here. Throughout the 1980s and up to the initial reforms, official producer prices typically exceeded export parity prices in the major production regions of Zimbabwe, South Africa, and Kenya (typically exporters during this period).²¹ The driving

mill technology. These advantages, however, must be considered against the fact that roller mill technology produces important by-products for the stockfeed and oil processing industries that hammer-milled whole meal does not.

¹⁹ These results are consistent with census data indicating rapid investment in small-scale milling since the reforms were implemented. In Zambia, the number of hammer mills in the country has increased from 4,156 to around 6,000 between 1992 and 1994 (Republic of Zambia 1994). The number of hammer mills operating in the capital cities of Nairobi and Harare has risen by 80% and 57% in the past six years and two years, respectively (Jayne, Hajek, and Van Zyl 1995).

²⁰ See, for example, World Bank 1981; Cleaver 1985; Schiff and Valdes 1992.

²¹ For example, in Zimbabwe during the 1980-89 period, the net protection coefficient for maize was 31% above export parity at official exchange rates and 15% below export parity at imputed real exchange rates (Jansen and Muir 1994). In South Africa, Wright and Niewoudt (1993) argue that maize pricing policy prior to

forces for the continuation of maize price supports were the sustained influence of farm lobbies in food price formation, a process established during the colonial era, but more importantly because the post-independence African governments put major priority on achieving self-sufficiency in white maize. Only in Tanzania and Zambia, which typically imported small quantities of maize, were producer prices depressed relative to import parity. While currency overvaluation did introduce an often substantial indirect tax on food producers (Schiff and Valdes 1992), this was to a significant degree offset by a package of state investments designed to increase food production incentives (primarily input subsidies, concessional credit, and investments in state crop buying stations). For example, Jabara (1984) demonstrated in the case of Kenya that despite falling real food prices in the 1970s, the profitability of grain production actually increased due to farm productivity growth achieved in part through government investments in agriculture.

The period in which these public investments and/or transfers reached their peak coincides closely with the brief dramatic rise in smallholder grain production experienced in many of these countries. Most important were the expansion of marketing board buying stations in smallholder areas (Zimbabwe 1980-1986; Zambia 1983-1989; Kenya 1980-1982; Malawi 1974-1985), expansion of state credit disbursed to smallholders (Zimbabwe 1980-86; Zambia 1983-88; Kenya 1975-1983), explicit or implicit subsidies on inputs (Zimbabwe 1980-91; Zambia 1971-1991; Malawi 1980-93) albeit with the degree of subsidization varying widely between countries and years. These pricing and market support policies clearly encouraged the adoption of newly-available hybrid maize seeds and stimulated the growth in smallholder grain area and yields during the 1980s in Kenya, Zimbabwe, and Zambia (Table 5).²² Column (a) shows that smallholder grain production in Zimbabwe increased by 51% from 117 kgs per person during the 1975-79 period to 177 kgs during the 1985-89 period. Per capita maize production in Zambia rose 47% over the same period. In Kenya, per capita grain production rose 30% between the 1970-74 and 1980-84 periods. The evidence indicates that the major spurts of foodgrain output growth in the 1980s in Zimbabwe, Kenya, and Zambia were fueled by large state subventions to the maize sector (Jayne et al. 1994; Mosley 1994; Howard 1994) and the existence of viable on-shelf technology made available through decades of agricultural research.

However, this state-led model of service provision to support smallholder maize production growth has proven politically and economically unsustainable. Evidence in some areas indicates that the production growth was achieved at a cost greater than the value of the output, especially in Zambia, Zimbabwe, and South Africa (Howard 1994; Jayne and Rukuni 1993; Wright and Nieuwoudt 1993). For example, Howard (1994) derives a negative rate of return to the package of maize technology investments over the period 1978-1992 when the costs of associated marketing investments are included. As fiscal deficits increasingly came under attack during the period of structural adjustment, state marketing services and associated

1993 involved major income transfers from consumers to producers relative to free market pricing.

²² For detailed analyses of the effects of these state interventions on maize technology adoption, see Rohrbach (1989) and Howard (1994).

deficits were gradually or sharply cut back.²³ In Zimbabwe, even though 17 additional permanent buying stations were established between 1985 and 1992, the number of seasonal rural buying stations declined from 135 in 1985 to 42 in 1989 to 9 in 1991. Disbursement of government credit to smallholders declined steadily from a peak of Z\$195 million in 1987 to under Z\$40 million in 1994 (in constant 1994 Z\$). Fertilizer use on all crops in the three seasons since 1993, the initiation of major maize policy reforms, has been less than 75% of its 1985-89 level. In Zambia, grain area, fertilizer use, hybrid seed purchases, and production have all declined since the late 1980s, due to a combination of lower real producer prices, higher real fertilizer prices, deteriorating state marketing services, and a reduction in available credit (associated with the collapse of the state credit agency and a sudden rise in the level of real interest rates in 1993/94). Fertilizer nutrient use, which peaked in 1986/87 at 88,000 tons, declined to less than 60,000 in 1994/95. Hybrid maize seed purchases declined from 15,000 tons in 1989/90 to 4,799 in 1994/95. Both total cropped area as well as maize area have declined by about 15% since the height of state support to agriculture in the late 1980s (Howard, Nakaponda, and Ferris 1995). In Kenya, fertilizer use and maize yields have continued to rise. Yet grain production has been outstripped by population growth in all four countries since the mid-1980s (Table 5). The stagnation in yields and per capita production are especially noteworthy in Zimbabwe, Kenya, and Zambia, where the use of improved maize hybrids and fertilizer use per hectare are the highest in black Africa.²⁴

Some of the food output decline in the 1990-94 period can be attributed to the 1992 drought, the worst in decades. But when the effects of the drought are removed (see note a, Table 5), the general picture remains intact, and clarifies that the decline is not simply a transitory phenomenon due to drought.

Welfare effects cannot be inferred from the decline in per capita production and yield stagnation associated with food market reform. Information on factor productivity is still largely unavailable. Furthermore, grain market reform has created complex distributional effects, expanding opportunities for farmers and consumers in areas close to urban markets while generally withdrawing benefits in the more remote areas. The extent to which these

²³ In Zimbabwe and South Africa, governments deliberately discouraged maize production in the mid-1980s due to the accumulation of massive maize stockpiles.

²⁴ Hybrid seed use continues to rise in Kenya, Malawi, and Zambia, and is almost universally adopted by Zimbabwean smallholders. However, as argued by Rohrbach (1989) for Zimbabwe, and Conroy (1994) for Malawi, without increased nutrient use, the productivity gains from the existing hybrids are virtually exhausted.

Table 4. Real Maize Grain and Maize Meal Price Trends, Selected Countries.

Country	Period	----- maize grain price ^a -----		----- index of real maize meal prices -----		
		as % of import parity ^b	constant 1994 local currency units	roller meal, retail	roller meal, including subsidies ^c	hammer- milled meal ^d
		(a)	(b)	(c)	(d)	(e)
----- maize retail prices during 1980-89 period = 100 -----						
Zimbabwe	1980-89 ^e	78	100	126	158	--
	1990	65	83	132	132	--
	1991	46	76	132	141	--
	1992	92	154	164	245	167
	1993	90	129	215	215	144
	1994	86	120	178	178	147
Zambia	1980-89	71	100	149	186	--
	1990	60	101	162	198	--
	1991	70	130	136	162	--
	1992	56	73	198	208	--
	1993	56	121	214	214	160
	1994	77	132	228	228	154
Kenya	1980-89	91	100	117	--	--
	1990	93	89	110	122	95
	1991	97	93	111	123	98
	1992	111	119	167	181	129
	1993	69	86	160	na	98
	1994	114	82	121	143	94
Malawi	1980-89	78	100	180	na	na
	1990	87	108	163		
	1991	90	103	151		
	1992	119	140	179		
	1993	114	141	271		
	1994	121	190	311		
South Africa	1980-89	80	100	232	232	--
	1990	85	84	223	223	--
	1991	92	86	228	228	--
	1992	89	86	224	224	--
	1993	90	80	238	238	163
	1994	74	66	212	212	149

Sources: white maize prices, fob US gulf: Fisher (various years). Freight rates: IWC (1994). Maize grain prices in Zimbabwe: GMB (various years); Zambia: Howard (1994) until 1992; LACE thereafter; Kenya: CBS Various issues until 1990, USAID/Nairobi data files from 1990 to 1994; Malawi: ADMARC data files, courtesy of R. Goldman and C. Pinckney; South Africa: Maize Board (various issues). CPI and exchange rate data for all countries: IMF (1995). Roller meal prices, Zimbabwe: CSO (various years); Zambia: Howard (1994) to 1992; LACE thereafter; Kenya: Mukumbu 1995; South Africa: Maize Board files. Consumer subsidies in Zimbabwe: CSO data files; Zambia: Sipula (1993); Kenya: CBS (various issues).

^aMarketing board selling price in Zimbabwe, South Africa, Malawi (until 1985), Kenya (until 1990) and Zambia (until 1993); then, average retail maize prices in Blantyre, Nairobi, and Lusaka markets. ^bimport parity derived as f.o.b. white maize, US Gulf, plus freight, demurrage, and rail transport to Harare, Lusaka, Nairobi, Blantyre, and Johannesburg. Use of nominal exchange rates in calculation of import parity prices in general understates the upward movement in domestic prices toward import parity in recent years due to greater currency overvaluation during the pre-reform periods. ^crefers to direct consumer subsidies plus marketing board maize trading deficit. ^dretail maize price (Harare, Lusaka, Nairobi, and Johannesburg markets) plus custom-milling fee; does not include opportunity cost of labor time. ^eYears are marketing years, e.g. 1990=1990/91.

Table 5. Trends in Coarse Grain Production Per Capita, Area, Yield, and Net Exports, Selected Countries.

		production per capita (kg) (a)	area (ha) (b)	yield (ton/ha) (c)	net exports (000 tons) (d)	fertilizer use (000 tons) (e)
----- three-year centered moving average -----						
Zimbabwe	1970-74	340	1,286	1.32	628	na
	1975-79	285	1,262	1.18	429	378
	1980-84	267	1,758	1.06	205	471
	1985-89	266	1,697	1.33	314	443
	1990-92	162 (184) ^a	1,366	1.12	-228	451
	1993-94	144 (179) ^a	1,545	1.00	49	442
Zimbabwe (smallholder sector)	1970-74	116	993	.55	na	8.6
	1975-79	117	1,031	.54		27.1
	1980-84	127	1,538	.59		97.2
	1985-89	177	1,542	.98		119.0
	1990-92	108 (131) ^a	1,266	.82		98.0
	1993-94	91 (117) ^a	1,393	.65		86.6
Zambia ^b	1970-74	224	577	1.51	-78	47.9
	1975-79	160	626	1.22	-94	65.3
	1980-84	188	989	1.03	-181	74.3
	1985-89	235	848	1.56	-161	80.4
	1990-94	173 (193) ^a	836	1.46	-239	68.2
Malawi	1970-74	328	1,071	1.13	14	14.1
	1975-79	286	1,049	1.14	-5	21.8
	1980-84	267	1,144	1.16	30	33.4
	1985-89	228	1,185	1.13	-24	43.9
	1990-94	182 (196) ^a	1,322	1.03	-215	58.0
Kenya	1970-74	102	1,129	.93	77	144.2
	1975-79	133	1,222	1.22	71	130.2
	1980-84	132	1,247	1.71	59	155.7
	1985-89	126	1,381	1.81	120	235.1
	1990-94	92 (99) ^a	1,337	1.87	-102	241.5
Tanzania	1970-74	89	1632	0.82	-207	na
	1975-79	145	2330	1.10	-142	
	1980-84	151	2447	1.26	-274	
	1985-89	166	2994	1.31	-113	
	1990-94	130 (127) ^a	3082	1.15	-138	
South Africa ^b	1970-74	327	4,250	1.77	2,435	na
	1975-79	332	4,393	1.97	2,909	
	1980-84	311	4,235	2.19	3,069	
	1985-89	206	3,947	1.81	1,428	
	1990-94	204 (216) ^a	3,437	2.27	1,090	

Sources: Population data: Urban and Nightengale (1993). Grain data: Ministry of Agriculture data files (Zimbabwe); Jones 1994 (Zambia); Ministry of Agriculture data files, compliments of J. Rusike (Malawi); Egerton University, Kenya Market Development Program/Policy Analysis Matrix database (Kenya); Maize Board data files, various years, and RSA 1994 (South Africa).

Notes: ^afigures in parentheses exclude the 1992 drought year.

^bfigures for South Africa are for maize only. The share of maize in total coarse grain production during the 1980-1989 period is estimated at 91% in Zimbabwe, 98% for Malawi, 95% for Zambia, 92% for Kenya, and 94% for South Africa (USDA 1992).

state pricing policies have skewed the allocation of productive resources away from that of comparative advantage is very unclear.

The major conclusion from this section is that, contrary to most donor expectations, the removal of government controls on private grain trading generally did not raise production incentives or expand market opportunities for smallholder farmers. This is corroborated by the data presented in Table 5. The primary reason for the weak production response has been the withdrawal of substantial state transfers to the maize sector associated with market reform. In contrast to other cases in Africa where liberalization facilitated trade in illegal but relatively well-functioning parallel markets, the transition from the controlled to market-oriented systems in Eastern and Southern Africa has had ambiguous or even negative effects on farm production, at least so far. However, evidence indicates that the number of private traders serving smallholders has increased, especially in high-potential areas, within several years after the initiation of partial food market reform (Amani and Maro 1992; Kaluwa 1992). It remains to be seen whether states will make the key investments to nurture the development of low-cost private input delivery, finance, and commodity marketing systems, and whether such private systems can fully offset the effects of the withdrawal of public marketing services.

3.4. Gradual Movement of Region to Structural Food Deficits

Associated with the policy-related decline in cereal production growth has been a general movement of the region toward structural food deficit. Table 5 indicates a marked decline in net maize exports in five of the six countries examined, especially the two reliable surplus producers in the 1970s and 1980s, South Africa and Zimbabwe. Malawi and Kenya have apparently moved from net surplus to net deficit during the 1990s,²⁵ and average net maize imports to Zambia have doubled since the late 1970s. The reduction of state transfers to the grain sector under policy reform has reduced production growth in Zimbabwe (since 1985), Zambia (since 1990), Malawi (since 1987), and South Africa (since 1987). Population growth, about 3% per year, has outstripped grain production growth since the mid-1980s in every country examined.

This macro-level picture of declining food surpluses on the national level is paralleled by micro-level information on household grain marketing behavior. During the 1970s and early 1980s, it was commonly believed throughout the region that most smallholder areas, and most households within these areas, were surplus grain producers. Whether this perception was erroneous, or whether household food marketing patterns have changed over the past several decades due to declining farm size, population pressure, and soil degradation in some areas, abundant household-level survey findings during the late 1980s and 1990s have revealed that a

²⁵ The deficit position of Kenya is understated since the data does not capture the estimated 100,000 to 250,000 tons of maize annually imported informally from Uganda and Tanzania.

large proportion of rural farm households are actually net buyers of grain even in a normal year (see, for example, Cousins, Weiner, and Amin 1992; Kirsten and von Bach 1992; Kandoole and Msukwa 1992; Lele 1990; Odhiambo and Wilcock 1990; Weber et al 1988).²⁶ In Zimbabwe, normally a food exporter during the 1980s, the proportion of rural farm households that are net grain buyers is 70% or more in the drier areas where over 60% of the smallholder population lives. Of these households, about half purchase over 50% of their annual grain requirements (Jayne and Chisvo 1991). In Malawi, over 65% of the rural population were net buyers of maize in 1991, a normal weather year (Kandoole and Msukwa 1992). These findings indicate that the effects of the reforms on food security will depend on the ability of the emerging private trade to reduce the costs of food to the grain-deficit and generally poorer regions.

3.5. Impact of Liberalization on Marketing Board Deficits

Although the fiscal burden of the controlled marketing systems has been the principal factor driving reform, marketing board deficits have actually increased in every country examined after the reforms were initiated except South Africa. This is primarily because governments in the region have been generally reluctant to relinquish control over the setting of the boards' prices and allow them to move more consistently with prevailing market conditions. As a result, when official prices have diverged substantially with market conditions, the private sector has increasingly bypassed or undercut the official marketing system, with often disastrous impact on the boards' trading account.

The most dramatic example has been Zimbabwe. After the drought of 1992/3, the GMB announced substantially higher official producer prices fixed well in advance of planting. The 1993 harvest was a bumper crop, and the GMB accumulated unsalable stocks and a trading deficit in eight months equal to 2.8 percent of GNP. Subsequently, the board has set a producer price that is too low relative to market prices (in 1995/96) and has lost market share to private traders and millers. In Tanzania and Zambia, the state marketing boards continued to fix prices without due reference to prevailing market conditions up to the point at which their access to credit was cut. The resulting financial crises led to these boards' abolition. In Kenya, the NCPB's deficit increased over the period of the Cereal Sector Reform Programme, as its price margins were squeezed. Only South Africa has managed to reform its maize pricing system without imposing large trading deficits on the marketing board.²⁷

While the need for more flexible price setting in a market environment has been highlighted both by analysts and by the management of the boards (e.g., GMB 1991), little progress has

²⁶ Mellor (1976) and others had made this point decades ago in Asia, but the perception of rural food self-sufficiency in Africa has been modified more slowly, since lower population densities in most of Africa were often equated with land abundance and relatively egalitarian distribution of productive resources.

²⁷ This was achieved by paying farmers the residual revenue collected from the sale of maize by the Maize Board after deducting the costs of its domestic and export operations.

been made in devolving price-setting authority to the boards themselves, a first step in allowing the boards to conduct their operations in a more commercialized manner. Senior politicians continue to exercise control over the marketing boards' price setting in Zimbabwe, Malawi, and Kenya. The main concern with devolution of price setting authority is that the more autonomous and commercially-oriented boards would (a) increase price volatility by frequently altering their prices as market conditions change, and (b) pay less attention to the social objectives historically pursued in the region through food marketing policy. As has been shown in Zambia and Tanzania, the transition from pan-territorial to market pricing has reduced grain prices received by smallholders in the more remote grain-surplus areas, and, in Zambia, has raised prices for large-scale European farmers close to urban areas (Howard, Nakaponda and Ferris 1995; Amani and Maro 1992). A transition to market-oriented pricing is anticipated to have similar effects in Zimbabwe (GMB 1991; Masters and Nuppenau 1993), which could potentially have major political ramifications and could be construed as a further step backward in attempts to promote smallholder maize production and erase the inherited dualism of the colonial marketing system.

For these reasons, governments have made little progress to date towards establishing more flexible pricing strategies that allow the marketing board to respond to, or influence at the margin, prevailing prices in private trading channels (Jones 1994). Where reforms have increased the formal autonomy of marketing agencies over prices, these agencies have often been unwilling to exercise this power (for instance in Malawi), apparently partly out of fear of the political consequences of being involved in implementing unpopular policies, and partly for technical and managerial reasons (e.g., an inability to determine on what basis regional differentiation of prices should be introduced).

4. LOOKING TO THE FUTURE: STRATEGIES TO STRENGTHEN THE PERFORMANCE OF GRAIN MARKETING SYSTEMS IN THE REGION

The empirical record of food marketing reforms in Eastern and Southern Africa highlights two major issues with generalizable implications for food policy elsewhere in Africa: (a) the importance of moving beyond a reform agenda of liberalization toward the promotion of financially sustainable productivity growth through the coordination and strengthening of food, financial, and input marketing tasks; and (b) the need to devise market-oriented mechanisms to reduce vulnerability to price and supply instability, so as to reduce the stabilization burden that has been borne by the state.

4.1. Beyond Food Market Liberalization

Market liberalization is certainly not an end in itself. Schultz's "efficient but poor" observation of low-resource farmers also describes the functioning of "liberalized" marketing systems in many developing areas (Shaffer et al 1985). Marketing margins may approximate costs, but these costs may be too high and unstable to encourage rapid private investment and productivity growth throughout the food system. So far, liberalization and privatization have replaced often unreliable, high-cost, and centralized forms of state marketing with private markets that are competitive but often lacking in information, infrastructure, and poorly integrated with other key activities. Market transactions in the region mainly involve sale of small lots by private negotiation in a context of price uncertainty and poorly functioning credit markets. Farmers do not have reliable access to forward markets in which a high volume of trade occurs on standardized quality, quantity, and contract terms. Investments in technology and conservation are risky in this environments. Nor can farmers generally ensure access to key inputs and credit to facilitate advance contracts for sale of output (Staatz et al. 1993). While private food trade in Eastern and Southern Africa has grown, and has brought important tangible benefits, especially to urban consumers, the evidence so far suggests that the anticipated stimulus to technology adoption and food production growth has been weak.

Food marketing and food security policy strategies will need to refocus their emphasis from the liberalization of food markets to the promotion of productivity growth throughout the entire food system, through the strengthening and coordination of markets -- most notably for commodities, inputs, and finance, in a financially sustainable way. The former state-controlled system addressed the coordination problem, successfully from the standpoint of many farmers, by offering credit, supplying needed inputs, and tying repayment to the sale of the crop upon harvest. However, these schemes required heavy support from taxpayers and indirect cross-subsidies, which basically amounted to shifting the costs and risks of maintaining the food system from one group to another, rather than reducing the total costs for society as a whole. Eventually, the production gains, achieved disproportionately by well-equipped farmers in high-potential areas, became unsustainable as the budgetary transfers eventually provoked decisive internal and external opposition. Moreover, the subsidized controlled systems inhibited the development of potentially better coordinated and sustainable private input/credit/output commodity systems.

The challenge for the future is to design integrated and sustainable systems of input delivery, farm finance, and reliable output markets to stimulate productivity-enhancing investments on-farm. The route to achieving this in other parts of the world has involved a combination of technology generation through sustained research, and institutional innovations that reduce per unit transactions costs and exploit economies of scope and scale in exchange (North 1990; Wallis and North 1994). Experiments with group lending in Africa have shown that the supply of credit to farmers may be increased by shifting enforcement and monitoring costs from the lender to the farm group (Chimedza 1994). This concept -- reducing transactions costs from the standpoint of the trader through transacting at a more aggregated level -- may prove to be important in the design of more integrated exchange arrangements between traders and farm groups involving input and credit provision, extension advice, and output sale in one contract. It is noteworthy that cash crop promotion has often been associated with the successful coordination of input delivery, credit, and crop sale for food crops (e.g., the CMDT/CFDT cotton scheme in Mali).²⁸ In such schemes, key infrastructural investments had already been made, which provided economies of scope and scale for the distribution of inputs, technical knowledge, and finance to support food crop production and sale. Few successful examples have emerged relying exclusively on food crops. An improved knowledge base of workable institutional arrangements will facilitate the emergence of more sophisticated transaction arrangements that promote productivity growth through shifting and/or reducing market and natural risks, exploiting economies of scope and scale, and coordination of credit, input delivery and crop sale between farmers and trading firms.

4.2. Stabilizing Food Prices in an Era of Fiscal Austerity

In most countries in the region, grain-based meals makes up a large part of the diet. Demand is generally inelastic. Production shortfalls and related price surges fall disproportionately on the poor. Most studies of private trade indicate an underprovision of inter-year storage because of high risks and market failures.²⁹ In some cases, these risks have been exacerbated by government behavior (Sahn and Delgado 1987; Steffen 1995). Some evidence indicates that private traders question whether governments would really allow them to profit from high prices in drought years (Steffen 1995).³⁰ Especially in landlocked countries where the gap between import and export parity is large, the potential magnitude of price volatility may be unacceptably high to many African governments.

²⁸ see Dione 1991.

²⁹ See Lele 1971; Southworth, Jones, and Pearson 1979; and Sahn and Delgado 1987. Failures in financial markets also contribute to an underprovision and concentration of inter-annual storage by the private sector, since, without access to credit, long-term storage can only be borne by relatively large traders with the ability to finance inventories with own capital and bear substantial risk.

³⁰ Government statements frequently indicate that it is socially unacceptable to permit such perceived "profiteering," even if such profits are necessary to induce commercial storage.

In spite of the strong rationale for moderating extreme price fluctuation, the marketing board “buyer and seller of last resort” approach has not emerged as a successful model in the current liberalized market environment, for two reasons. First, as mentioned above, the costs of such a system may be enormous, especially if floor and ceiling prices are set without reference to market conditions (Pinckney 1988, 1993; Buccola and Sekume 1988). Second, stabilization schemes have impeded private investment in the marketing system by dampening spatial and temporal price variation and by the often unpredictable and uneven implementation of these schemes.

An alternative approach to the instability problem would be for states to make market-facilitating investments so as to reduce market-related risks and costs, shrink the wedge between import and export parity prices, and reduce the overall cost of stabilizing food consumption. Such a strategy would include:

1. improving road and rail infrastructure. A considerable part of the food price instability problem in the region is due to the high cost of transportation, which makes import parity prices two to four times higher than export parity prices in much of the region (Koester 1986). National rail transport rates are generally very high compared to rates elsewhere. For example, the cost of railing a ton of white maize from the Western Transvaal in South Africa to the Copperbelt of Zambia is about \$90, roughly the amount that South African farmers are paid to grow it (Scott 1995). The reduction of transfer costs between surplus and deficit areas within the region would reduce price instability through encouragement of regional trade (Jayne, Hajek, and van Zyl 1995);
2. shifting the emphasis on stabilizing the poor' access to food from untargeted programs that attempt to influence market prices (e.g., administered price stabilization schemes on a widely consumed good) to more selectively targeted strategies featuring “self-targeted” staples. Self-targeted commodities (those which are more important in the consumption patterns of low-income groups), offer a “safety net” for the poor in the event of price hikes on the more expensive refined meals. Examples of self-targeted commodities are whole maize meal, yellow maize, and in some areas, cassava);³¹
3. improving communication infrastructure (e.g., telephone systems) in rural areas, to reduce the costs of acquiring information and reduce entry barriers to private trading;

³¹ For example, evidence from Mozambique indicates that some proportion of consumers chose to buy yellow maize over white maize at a price discount determined by the market (Tschirley and Santos 1996). Contingent valuation studies also support this conclusion in Zimbabwe (Rubey 1995). This indicates the potential role in stabilizing consumer expenditures on food during poor harvests. Yellow maize is widely traded on international markets, benefits from a well-functioning international commodity exchange, and typically costs 10% to 20% less than the limited supplies of white maize on international markets. This provides countries in the region with a wider range of buying and risk-management options to procure needed supplies in the event of domestic production shortfalls.

4. introducing seasonality and spatial differentiation in marketing board prices, which would increase investment in private trade and storage within years and thereby expand the scope for a wider range of private marketing activities.

4.3. Can the Fledgling Market Reforms Be Sustained?

The experimental nature of food market liberalization in Eastern and Southern Africa is apparent from the fact that, prior to the recent reforms, almost no one in the region has experienced a market-oriented food system in his/her lifetime. The market reform process initiated in the late-1980s in Eastern and Southern Africa has not been driven by, and has not yet created, a strong domestic political base for maintaining a liberalized, privatized, and unsubsidized food marketing system. Smallholder farmer groups (generally represented by relatively large grain-surplus farmers) have generally opposed the withdrawal of the state from food marketing activities, and generally remain suspicious of private marketing activity. This suspicion may appear reasonable in countries such as Zimbabwe, where for decades Africans' experience with private grain traders were the licensed buying agents that were instructed by the state to offer prices substantially below those offered at the marketing board depots. Something of a schism has developed among large-scale farmers. European farmers have increasingly lobbied for liberalization as their influence over the official marketing system has waned since the transition to majority rule. A new class of often politically well-connected black commercial farmers support the continuation of state marketing. Within government, increasing fiscal difficulties and foreign exchange shortages have strengthened the hand of finance ministries arguing for budgetary restraint, both for the sake of macroeconomic stability and to maintain access to foreign borrowing. These considerations may have overcome the patronage attractions of preserving the former controlled marketing system.

The decade-long saga of attempts by the World Bank and other donors to bring about fundamental reforms to region's grain marketing systems shows that a simplistic view that donors have been able to dictate marketing reforms to governments through the application of loan conditionality is inadequate.³² The force of conditionality has been weakened by conflicts with other donor objectives, including the continuation of loan disbursement and balance of payments support, and the desire to continue capital projects such as silo building. However, the framework of policy-based lending within which market reforms have occurred in each of these countries (except South Africa) has strongly influenced the path of reforms.

For example, the need to meet IMF targets on public borrowing (strengthening the fiscal constraint on marketing policy) prompted the abandonment of subsidy and pricing interventions in Kenya, Zambia, and Zimbabwe, and the curtailment of marketing board purchases in Malawi.

It is difficult to envisage a wholesale reintroduction of trade controls, but pressures for subsidies and price supports are likely to re-emerge, especially if the new systems fail to

³² See for example Mosley, Harrigan and Teye (1991) for detailed examinations of the conflicts between the World Bank and national governments over marketing reform in Kenya and Malawi, and the discussion in Jones (1994).

adequately buffer producers and low-income consumers against severe production and price shocks. But without significant public sector investments that reduce the magnitude of food price instability and provide the conditions for more efficient private trade, the sustainability of the reforms may be jeopardized by calls for the reimposition of state food purchasing and price controls. The current situation in the region is, therefore, one in which marketing policy has moved only recently to a fundamentally new stance, whose longer-run implications remain to be tested. At the heart of the problem is the level of price variability that may be expected under the new system, how the problems that this poses (especially for smallholders) can be accommodated, and what will happen to the marketing boards which now are envisaged as playing a limited price supporting role, but where the old processes of government food price setting have remained largely intact.

5. SUMMARY

The history of food marketing policy in Eastern and Southern Africa has demonstrated its centrality in the deeply established political conflicts between urban and rural interests, and between the large- and small-farm sectors. Structural adjustment has not removed these conflicts, although it has (probably temporarily) enhanced the influence of donor agencies over policy and shifted the emphasis of the objectives of food marketing policy. Prior to structural adjustment, the goals of redistributing income and stabilizing the food system have been emphasized in the design of food marketing policy. After the initiation of structural adjustment, the emphasis has shifted in favor of efficiency and the minimization of budget deficits. At one level, structural adjustment has been a defeat for the aspiration of independent governments to overcome the dualism and poverty of the rural economy. On the other hand, evidence shows that some features of the reformed market systems are growth promoting, and do indeed serve to reduce some elements of dualism (e.g., by improving direct access for smallholder produce to urban markets).

Since the mid-1980s, almost all of the countries of Eastern and Southern Africa have undertaken food marketing reform programs. These reform experiments have revealed nine main lessons:

1. Where smallholder grain production and uptake of hybrid seed and fertilizer have expanded significantly since independence (Zimbabwe 1980-85; Zambia 1985-90; and to a lesser extent, Kenya 1982-89), this growth has been associated with major investments in state marketing infrastructure and credit disbursement, and state coordination of credit, input delivery, and assured outlets for crop sale. However, this state-led model of service provision to support smallholder productivity growth has involved large state budget deficits, which, especially in the current environment of expanded donor influence over policy, has proven politically and economically unsustainable.
2. The assumption that state marketing boards depressed producer grain prices to support a cheap food policy, often applied to other areas of Africa, is generally invalid in these countries. The controlled food marketing systems of Eastern and Southern Africa were used to transfer resources and income to selected farm groups, whose composition has changed over time with the balance of political power. These resources transfers temporarily promoted grain technology adoption and production growth, but at a high cost.
3. The principal driving force behind food market liberalization in the 1980s and 1990 has been fiscal crises. These crises have strengthened the leverage which donors have been able to exercise over policy. In some countries, reform has also been accelerated by the withdrawal of support for the state marketing system by large-scale farmers. Smallholder farmers, who were supposed to be the principal beneficiaries of reform, have played little political role in marketing reform.

4. In each country where pan-territorial pricing policies were effectively implemented, important groups of smallholder grain producers have been, or will be, adversely affected by the withdrawal of the controlled marketing system. However, pan-territorial pricing has imposed important costs on the grain sector and the wider economy, including dampening private investment in grain marketing, shifting production from high-potential regions near urban centers to lower-potential and remote regions where it was often not economically viable, and discouraging more economic patterns of crop cultivation and labor allocation. The continuation of pan-territorial pricing in a liberalized market environment is expected to impose chronic trading deficits on the state marketing boards.
5. Market liberalization has reduced marketing and processing costs. The benefits of these reforms have accrued largely to urban consumers and grain-deficit rural consumers, in some cases offsetting the negative effects of eliminating consumer food subsidies. Producers facing low transport costs to urban demand centers (mostly large-scale farmers) have in some cases benefitted from the reforms.
6. Although fiscal objectives have been paramount in reform programs, in several cases marketing board deficits have actually increased. This has resulted from a failure to adjust official price setting procedures to reflect market conditions in an increasingly liberalized marketing environment.
7. There is little evidence to date of per capita grain production growth since the market reforms, which are still in their incipient stages. This reflects, in part, cutbacks in government transfers to farmers under the formerly controlled systems, and limited successes in devising new means to coordinate input delivery, credit, and crop sale which are financially viable. The general movement toward structural food deficits has continued. There has been upward movement in food prices toward import parity levels in Zimbabwe, Kenya, and Malawi.
8. However, the withdrawal of state transfers to grain producers associated with market reform may be partially or wholly compensated in the future by expanded production and marketing options made possible by market reform. A more market-oriented food system is likely to induce a more sustainable pattern of investment in production and marketing activities, which may lead to lower costs and productivity growth throughout the food system. As is already evident in almost all the countries examined, rapid private investments and cost reduction have already occurred at the grain processing stage in response to market reform.
9. The major challenges of the newly liberalized grain marketing systems in Eastern and Southern Africa are, first, to contain the effects of price instability, and second, to support productivity improvements in smallholder agriculture within the constraints of the dualistic agricultural systems inherited from the colonial period.

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