SOUTHERN AFRICA: FOOD SECURITY POLICY OPTIONS

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EFFECTS OF MARKET LIBERALIZATION ON FOOD SECURITY IN TANZANIA

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INTRODUCTION

During the past decade, Tanzania has faced an unprecedented economic crisis, characterised by severe balance of payments disequilibria, high inflation, and large government budget deficits. Population has grown more rapidly than gross domestic product. Shortages of consumer goods were widespread and intermittent food shortage had to be met by food imports.

To tackle the economic crisis, government implemented several adjustment and stabilization programmes (Ndulu and Lipumba, 1986). These policies culminated in significant devaluation and the liberalization of imports financed by privately-owned foreign exchange. Restrictions on private trade in food grains were relaxed. In June 1986, the government adopted the World Bank and IMF-supported Economic Recovery Programme (ERP). The policy measures taken included a major devaluation and a crawling peg to correct future overvaluation, control of the growth of government expenditures to reduce and limit government borrowing from the banking system, increases in agricultural producer prices, and further relaxation of restrictions on private trade in major food grains. The policy thrust has been to adopt market-oriented policy instruments and to depend less on state-controlled procedures. Since 1984 government has further liberalized the economy.

FOOD SECURITY AND MARKET LIBERALIZATION

Food security and self-sufficiency

Broadly defined, food security means "access by all people at all times to enough food for an active, healthy life" (World Bank, 1986). It entails both the availability of food and the ability of all members of society to have access to adequate amounts of food. At the aggregate level, the country should have adequate food from production, stocks, and imports to meet its citizen's food requirement for an active healthy life. At the household and individual level, all citizens should have entitlement to adequate food (Sen, 1982).

In an economy where food markets function reasonably well and the supply of food is adequate, household and individual food security depend on

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income distribution. Individuals with adequate incomes will have access to adequate food; but those with inadequate incomes will face food insecurity, even when the country as a whole has adequate surplus stocks. Thus, policies that help generate incomes to the poor will improve their food security. Where food markets do not function properly, food insecurity may increase--even when individuals have adequate money incomes. In such instances, improving the performance of food markets will generally improve food security.

Food self-sufficiency, supplying staple food requirements from domestic production, is not a necessary condition for food security (Tollens, 1985). With adequate foreign exchange reserves, a country can import food to guarantee food security (Donaldson, 1984). However, for countries with chronic balance of payments disequilibrium, adequate domestic production is a basic element in the food security equation.

At the household level, dependence on subsistence production and limited participation in the market may increase food insecurity. Poor climate will lead to severe transitory food insecurity. Specialisation in nonfood crops does not necessarily decrease food security, as long as food markets perform reasonably well. Indeed, food security will improve if specialization increase real incomes. On the other hand, where food markets do not function well, specialization in nonfood crops will decrease food security. In general, poor performance of food markets will discourage specialization according to regional comparative advantages which, in turn, will decrease national income.

Meaning of market liberalization

Market liberalization, as a concept, refers to reducing state control of markets. It assumes market distortions exist as a consequence of government interventions in both factor and product markets; and that the distortions result in significant opportunity costs in terms of growth. These interventions are justified largely by the rejection of normative judgements of free markets, regarding short-run distributional and welfare concerns of the state. Where the state, rather than the market, makes the allocative decision directly, prices are set to reflect perceived social values and needs (Timmer, 1986). If prices significantly deviate from their scarcity value, a major conflict arises between short-run policy concerns about welfare needs and the long-run growth prospects which require efficient use of scarce resources.

Market liberalization and food security

Market liberalization is concerned with reducing the gap between set prices, which reflect policy intervention goals, and prices which reflect scarcity values. In the practical policy world, liberalization seeks out "efficient" intervention and not necessarily "nonintervention". Efficient intervention

minimise sustained growth opportunity costs to achieve short-run welfare targets which are largely distributional. Ineffective interventions, and those with unintended effects, are prime candidates for removal.

In the food market, government intervention has taken two major lines. On the one hand, governments have sought to maintain low and stable consumer prices to ensure access to cheap food. On the other hand, they have tried to maintain high and stable producer prices to induce increased food availability. These policies have required government to use budgetary subsidies to cover the gap and restrict trade to state monopolies for effective implementation. These interventions have stifled investment and adoption of innovation by limiting income growth.

In the context of food security, market liberalization is relevant not only to interventions in the food market, but also to macroeconomic policies which influence income and the dynamism of the agricultural sector. In urban areas, incomes and prices are important components of food security. Families eat what they can afford. In rural areas, consumption depends largely on what households can produce for themselves and can afford to buy to supplement their own food production. In this case too, incomes and prices are important.

Food availability is largely determined by the supply of food (either domestically produced or imported) which is influenced by the incentive structure, investment policy, import capacity, and a flexible institutional structure. The incentive structure encompasses producer pricing, availability of incentive goods, and the overall agricultural terms of trade--particularly relative prices.

While an appropriate incentive structure is important to induce both short-run supply responses and long term agricultural sector growth, incentives are only effective when combined with supportive infrastructural investments. Transport infrastructure, extension services, marketing infrastructure, agricultural research, and production infrastructure such as irrigation are probably the most important infrastructural interventions for increasing food supplies, raising agricultural productivity, and the realization of producer's efforts.

Due to Tanzania's high reliance on rainfed agriculture, food supplies are highly erratic. To ensure adequate supplies, the country has had to frequently rely on imports during bad harvest years to supplement local supplies and stocks. Thus, the ability to bridge food supply shortfalls has depended on the country's import capacity. Consequently, the performance of the export sector and proper management of foreign exchange reserves is critical, given the many competing demands on the country's limited foreign exchange earnings.

Paradoxically, the agricultural sector is one of the most "public" in terms of policy and programme needs, but at the same time one of the most "private" in terms of day to day production, marketing, and consumption decision making (Timmer, *opt. cit.*). Managing such a complex sector requires that government recognizes this dichotomy, while realizing the complementarity between the public and private sectors. Intervention should not interfere excessively with the micro level decision-making process, but rather canvas it for national policy goals.

Factors affecting access to food

Access to food is influenced by consumer-pricing policy, incomes policy, and food trade restrictions. Effective consumer pricing (subsidy) policy depends partly on the relative availability of commodities on the supply side and partly on budgetary ability to finance it, given growth in food demand. Generalized subsidies on commodities consumed by both rich and poor households are an attractive policy option because they are simple to administer. Also, it is difficult to identify households below the poverty line that would qualify for income-determined subsidies. The key disadvantage of generalized subsidies, from the point of view of poverty alleviation, is that leakages to the rich are often large. In cases where generalised subsidies are introduced without adequate supplies--and a parallel market develops--the poorer, less influential households may not have the intended access to cheaper food. Removing subsidies under such conditions has little impact on the welfare of the poor. If subsidized prices are maintained by keeping producer prices low, food scarcity is exacerbated and rural incomes decline--worsening the poverty problem. In this case, appropriate liberalization would entail drawing up an effective subsidy programme which responds to target welfare needs without encroaching on producer incentives.

On incomes policy side, both real income (ability to acquire food) and income distribution (for identification of vulnerable groups) are important. For urban households, wage policy plays a major role in determining real wage incomes in the formal labour market. However, the prevalence of informal sector activities and large incomes form these activities makes analysis of the impact of wage policies on real income difficult, due to the paucity of reliable data. The fluidity of the adjustment processes in this sector and the frequent participation of typical households in both sectors further complicates the analysis. Typically, wage polices under adjustment and stabilization programmes limit (or sometimes freezes) salary and wage increases. Real wages tend to fall as prices increase faster. The reactions, even in the absence of strong labour unions, are not passive. Often households respond by making micro adjustments such as increasing their informal sector activities and reducing work time to match real wage declines.

For rural households, producer prices and physical productivity are important income determinants. The distribution and ownership of productive resources--especially land tenure--play a key role in the distribution of rural incomes. Market liberalization typically involves raising the relative profitability of tradeables by reducing currency overvaluation. Since export crops are predominantly produced by self-employed smallholders, devaluation will increase the incomes of these producers and also benefit consumers of non-traded goods.

HISTORY OF AGRICULTURAL DEVELOPENT POLICY AND ITS IMPACT ON FOOD SECURITY

At independence, Tanzania inherited a dualistic agricultural sector. The plantation and estate sector, mainly owned by settler farmers, accounted for 35 and 40% of exports and marketed output (by value), respectively. Sisal was the leading export and plantation crop. Estates produced up to 50% of the coffee and almost all tea, tobacco, sugar, and wheat. Peasants dominated cotton, cashew nut, and oil seed production. The peasant sector was self-sufficient in food production and some "progressive farmers" produced adequate grain surpluses, particularly maize, to feed the urban areas.

Early interventions in the food market

Historically, Asian traders have dominated agricultural marketing outside the few areas with strong cooperatives. They were considered exploiting middlemen, not only by nationalist politicians, but also by some colonial officials. State intervention in agricultural marketing in general, and grain marketing in particular, preceded independence. From 1946 to 1957, the Grain Storage Department had a monopoly to purchase all commercial production. It set high maize producer prices to encourage production, which led to surpluses that were exported at a financial loss to the colonial government. Guaranteed producer prices and government control of grain marketing was abandoned in 1957 and free grain markets, where prices were determined by supply and demand, prevailed until independence in 1961.

Changes following independence

Independence marked the beginning of a new era of government control of agricultural marketing. Following the 1960-61 drought, maize prices (particularly in Dar es Salaam) increased sharply and grain traders were blamed for the high price increases. In response, the government introduced the *Agricultural Products Act of 1962* aimed at "controlling and regulating the product, cultivation, and marketing of agricultural products" (Kriesel, *et al.*,1970, p.19). The act established a three-tier single-channel marketing system

which granted the National Agricultural Products Board (NAPB) a monopoly to purchase commercial grain. Only direct sales from producers to consumers were allowed and approval from the NAPB was required to transport significant quantities of grains. The NAPB appointed Cooperative Unions as marketing agents which, directly or through their cooperative societies, purchased maize and other food products from farmers and sold the produce to the NAPB for resale to grain millers. The main objective of the NAPB was to eliminate the middlemen. Kriesel *et al.* (1970, p.21) quote an NAPB report, stating that:

> The one channel marketing system is designed to ensure that the price, movement, storage, and final export (or internal sale) of produce is centrally organised and controlled by a government agency. It does not necessarily operate cheaper than the "free" trade system but tends to eliminate the profit making middleman.

As we will see, intervention in the marketing of agricultural products has been a persistent characteristic of the political economy of agriculture in Tanzania.

First development strategy

After independence, the government's agriculture development strategy was influenced by the World Bank report, *The Economic Development of Tanganyika* (1960). The proposed transformation approach was seen as the only possible way to achieve rapid agricultural growth. It involved settling Africans in newly-opened lands to start relatively capital intensive modern farms under the supervision of extension officers--thereby breaking away from traditional agriculture.

These settlement schemes were the cornerstone of the agricultural development strategy of the *First Five-Year Development Plan (1964 to 1969)*. These settlements were expensive. It was estimated that each settlement, which was supposed to include 250 comprehensively-planned individual farms with adequate social and economic infrastructure, would cost Tsh3.0 million. Sixty pilot projects were to be established by 1970 and 200 by 1980, upon completion of the 15-year perspective plan. Of the Tsh560 million planned to be invested in agriculture, the government allocated Tsh380 million to establish these new settlements.

Another development strategy involved encouraging farmers to improve their agricultural practices through extension and education. This "improvement approach" was a continuation, in mild form, of the colonial agricultural extension strategy that attempted to regulate farming practices and control soil erosion through agricultural by-laws.

In agricultural marketing, as noted above, the government gave the Cooperative Unions a monopoly to purchase commodities from farmers. In addition, the government introduced marketing cooperatives throughout the country, even in areas where they did not previously exist. The extensive introduction of marketing cooperatives increased marketing costs because most cooperatives incurred large overheads, and a lack of strict accounting and financial control systems led to grandiose theft (URT, 1968).

The officially-adopted development strategy failed to increase output. The settlement schemes were a costly failure. The capital equipment was not utilised to increase production. Also, peasants considered the settlement schemes to be government farms. Thus, in 1966 the transformation strategy was abandoned because the settlement schemes produced very little output, despite huge capital investments.

Post-independence production

Despite the failure of the official development strategy, in the first seven years after independence agricultural output grew rapidly, especially peasant production of export crops (Table 1).

Table 1. Production of main export crops, 1960-68, Tanzania (000 mt).

Crop	1960-62 Average	1966-68 Average	Growth rate Per annum (%)
Sisal	202.3	197.5	-0.5
Coffee	23.6	48.1	12.5
Cotton	33.5	70.0	13.0
Cashewnuts	45.1	74.3	9.0
Tea	4.0	6.4	8.0
Tobacco	2.2	3.8	10.0

Source: Coulson (1982).

Particularly significant, the growth in export crop production did not occur at the expense of food crop output, but as a result of an increase in cultivated area. Widespread availability of consumer goods and surplus land allowed peasants to expand their area in cash-earning crops, enabling them to purchase off-farm consumer goods. Thus, despite stagnating or even declining producer prices, peasant production of export crops increased.

On the whole, food supplies were adequate and the growth rate in food output was higher than the population growth rate. Net maize imports were only large in 1961 and 1962, largely because of drought. By 1968 Tanzania had a surplus of 50,000 mt of maize which it exported at a loss (Coulson, 1982). In the 1967-68 budget speech, the Minister of Finance noted that FAO and the Economic Commission for Africa statistics showed that Tanzania was the only African state which "has consistently maintained a growth trend in food production higher than that of population during the entire period 1954 to 1966. This record is a high tribute indeed to the energy and initiative of the Tanzania farmer" (URT, 1967).

The increase in agricultural production was not caused by an increase in productivity. Farmers only used limited amounts of modern nonfarm inputs such as fertilizer and pesticides, mainly on crops which peasants grew for the first time. Tilling technology did not change as only a few areas benefited from the high-cost tractor hire system that was run by the cooperatives and subsidised by the government.

The *Arusha Declaration* and villagization

President Nyerere viewed the development of cash crop farming as leading to capitalist development in the rural areas. He argued that:

> Over large areas of the country peasant spend at least part of their time... on the cultivation of crops for sale--crops like cotton, coffee, sisal, pyrethrum, and so on. But in this process, the old traditions of living together, working together and sharing the proceeds has often been abandoned. Farmers had to work as individuals, in competition and not in cooperation with neighbours. And in many places, our most intelligent and hard-working peasants have quite important farms of 10, 20, or even more acres. To do this, they have employed other people to work for them (Nyerere, 1967).

The objective of the *Arusha Declaration* (1967) was to arrest capitalist development in the rural areas by establishing Ujamaa villages-- "economic and social communities where people live together and work together for the good of all". However, private household farms continued to produce the

bulk of food and export crops. Communal farms have never accounted for more than 0.5% of total cultivated land, although government policy, particularly Presidential directives, have favoured communal production. The Presidential Circular No. 1 directed that:

> All government policies, activities, decisions of all government officials must therefore be geared toward emphasizing the advantages of living and working together for the good of all; they should be angled at discouraging the continuation of private farming and should dampen down the urge for private expenditure on consumer and farm durables in favour of communal expenditure on things like cooperatively owned farm implements, stores, water supplies, good houses, dispensaries, nursery schools, roads, community centres, and so on... This means that it is to be the building of Ujamaa villages that government must now turn its attention. We have to organize our government and party machinery to assist their establishment. We have to give them priority in all our credit, servicing, and extension services at the expense of the individual producer if necessary, and we also have to shift the emphasis of the cooperative movement from marketing to producer cooperatives. Cooperative farming and cooperative production must be looked upon as the main source of economic growth in rural areas ... (Nyerere, 1969).

With the president firmly advocating such policies, institutional and political support for private farms, even those owned by smallholders, was limited. Thus, despite the Arusha Declaration's emphasis on rural development, policies that provided incentives to individual farmers to increase output were neglected, as we shall see later.

Voluntary movement into Ujamaa villages was slow and below the political leaders' expectation and desire. As a first move towards establishing Ujamaa villages, the government initiated operations to settle people in permanent villages. Initially, this was confined to the poorest areas such as Dodoma, Kigoma, and Rufiji. In 1973, the TANU Biennial Conference resolved that all the rural population should be living in permanent villages by 1976. During the next three years, 1974 to 1976, many rural families were moved into 8,000 villages.

Agricultural considerations did not guide village location. In most cases, the new villages were located close to a road. In the southern highlands, villages were located on ridges because roads were on ridges, although most of agricultural land was in the valleys (Friis-Hansen, 1987). Many villages grew too large, resulting in a scarcity of farm land close to villages.

The villagization program disrupted production and increased real costs by increasing the distance from peasants' homes to where their farms were located. Lofchie (1978) attributed the 1974 fall in agricultural production to the villagization campaign. He asserts that "there is a compelling reason to believe that the program of collective villagization was the major cause of a crisis in agricultural production of calamitous proportions" and dismisses climatic factors. Apart from mixing villagization with collectivization, he missed the fact that a drought occurred in 1973-74, before villagization. Agricultural production decreased even in areas like Kilimanjaro which were not affected by villagization. While villagization had a long term adverse impact on agriculture, intellectual honesty requires not dismissing external factors simply because the government followed a wrong policy after the drought.

Market interventions in the 1970s

Before 1976, cooperatives had a monopoly on agricultural marketing. Many were inefficient, incurred financial losses, and delayed paying or never fully paid the peasants (Saul, 1971). The government abolished all cooperatives in 1976 and introduced government-owned Crop Authorities responsible for purchasing, processing, exporting, or selling locally; and providing extension services. Government's policy of abolishing cooperatives was nonselective. A few Cooperative Unions were relatively efficient, had grass root support, and a long tradition of delivering services to farmers. Since relatively larger farmers controlled these cooperatives and were influential in local politics, the political objective of abolishing cooperatives was to remove an independent political base of the "Kulak" farmers.

The Crop Authorities did not eliminate inefficiencies in agricultural marketing, one of the leading stumbling block to rapid agricultural development. The losses incurred by the Crop Authorities, partly due to the shilling's overvaluation and partly to their inefficiency, had to be covered by the government budget which started recording a recurrent budget deficit for the first time in 1978-79. In 1984 the government reintroduced Cooperative Unions. Again, the policy was nonselective. With few exceptions, similar cooperative structures were introduced in each region, regardless of whether there existed a tradition or grass root support of these institutions. Moreover, the Regional Cooperative Unions were supposed to purchase all surplus agricultural crops. In our view, many are over extended and have already incurred financial losses.

In 1967 after the Arusha Declaration, the state increased its control of the grain market by nationalizing the major grain milling companies and forming the National Milling Corporation (NMC). Until 1972, the National Agricultural Product Board (NAPB) controlled staple food grains (maize, rice,

and wheat) marketing. The government set the NAPB into store price and the cooperative unions set producer prices after deducting marketing costs. In 1973 the NMC took over the activities of NAPB, and the NMC continued to use the Cooperative Unions as purchasing agents. When the Cooperative Unions were abolished in 1976, NMC took over direct purchasing of grain from producers; and transporting, milling, and wholesaling to the state-owned National Distributors Limited (NDL) and Regional Trading Companies (RTCs).

State intervention in commerce is not confined in agricultural marketing. After the Arusha Declaration, import, export, and wholesale trade were nationalized. Overtime, competition in wholesale and retail trade eroded, reducing the quality of services offered to peasants as consumers and producers. The trade confinement policy gave monopoly power to a few agencies, particularly RTCs, to sell essential inputs and consumer goods. This increased shortages, particularly in regions where the RTCs had liquidity problems.

Impact of administrative controls

Gradually, administrative controls on the economy increased and peasant incentives to produce for the official market deteriorated. During the 1970s real prices of official agricultural products declined, particularly for exports (Table 2). Real producer prices of exports declined, mainly due to the high marketing margins of official marketing agencies and an increasingly overvalued currency. The government responded to the severe food shortage in 1974 by increasing official food crop prices, including less preferred foods such as cassava, sorghum, millet, and cowpeas. Officially marketed output of these crops increased significantly; but because the NMC was unable to sell these crops locally, they were exported at a loss. Official prices of preferred staples (mainly maize and rice) remained below the free market prices, except in remote regions such as Rukwa and Ruvuma (URT, MDB; various years a). Thus, officially marketed output generally decreased, except when there was a bumper harvest such as in 1977-78 and 1978-79.

Investment in agriculture

The adverse terms of trade facing the agriculture sector pulled resources away from agriculture. Also, institutional uncertainty discouraged investment in the agricultural sector. As relative prices of food crops tended to improve, smallholders allocated more of their resources into food production, relative to export crop production. Thus, food production grew while export production fell (Tables 3 and 4). The Ministry of Agriculture estimated that food production output grew at a high rate of approximately 8% for maize, paddy, and sorghum and millet during 1963-64 to 1983-84 (Table 4).

Table 2. Index of real producer prices for various categories of agricultural products, 1972-87, Tanzania (1985 = 100).

Commodity type	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987
Predominant staples	91	88	86	98	126	122	117	101	91	79	90	78	81	97	100	92
Drought staples	NA	101	134	123	132	147	151	136	106	84	70	75	80	91	100	92
Oilseeds	94	102	94	101	113	122	138	126	102	89	81	80	85	91	100	93
All home consumed items	92	91	94	100	125	130	137	120	102	86	88	78	83	96	100	93
Annual export products	145	146	119	116	131	123	123	110	105	91	85	85	83	84	84	100
All export products	153	141	126	118	122	133	160	135	114	101	92	88	96	97	100	119
All	142	132	120	114	123	133	156	132	112	98	91	87	94	97	100	114

Source: URT, MDB (1986).
The years designate the marketing year. For example, 1972 refers to 1971-72. NA indicates data not available.

Table 3. Volume of major exports, selected years during the period 1966-85, Tanzania (000 mt).

Commodity	1966	1970	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985
Coffee	43.4	44.8	41.1	54.4	57.9	46.5	50.8	43.5	43.5	67.9	54.8	50.7	52.2	51.0
Cotton	86.2	60.7	50.0	40.0	58.0	40.0	47.0	39.0	31.0	44.5	38.9	40.0	27.4	32.0
Sisal	198.9	217.2	94.0	97.0	91.0	68.0	79.0	78.0	48.0	57.7	50.7	26.8	27.1	11.0
Tea	6.3	6.9	10.0	10.0	12.0	12.0	15.0	15.0	13.0	15.4	11.9	16.9	10.6	11.0
Tobacco	2.4	6.0	12.0	9.0	16.0	12.0	11.0	7.0	8.0	10.9	10.1	5.3	4.6	11.0
Cashew nuts	72.2	77.4	11.0	97.0	66.0	75.0	44.0	38.0	9.0	25.1	17.2	10.5	14.8	11.0
Cloves	14.4	4.8	3.7	7.5	7.2	5.9	1.2	5.3	7.6	6.8	5.7	0.9	2.0	13.0

Source: URT, CED (various years) and URT (1986a).

Table 4. Ministry of agriculture estimates of production of major grains, 1964-84, Tanzania (000 mt).

Year	Maize	Paddy	Wheat	Sorghum
1963-64	612	147	27	238
1964-65	532	73	33	266
1965-66	751	133	38	295
1966-67	629	110	35	265
1967-68	647	126	45	286
1968-69	602	138	41	282
1969-70	746	184	71	326
1970-71	730	193	84	279
1971-72	900	171	98	294
1972-73	853	214	87	277
1973-74	1,027	192	78	327
1974-75	1,272	241	49	435
1975-76	1,661	194	78	525
1976-77	1,654	354	59	604
1977-78	1,611	375	85	825
1978-79	1,888	351	71	1,157
1979-80	1,855	305	87	850
1980-81	1,840	350	91	705
1981-82	1,954	415	95	979
1982-83	2,324	409	71	793
1983-84	2,547	511	72	1,158

Source: Odegaard (1985).

While these growth rates exceed the population growth rate of 3.3% and may appear exaggerated, the household budget surveys of 1969 and 1976-77 indicate a similar growth rate for maize and a lower growth rate for paddy. Even with these high growth rates, per capita daily caloric intake was 2012 cal in 1976-77, compared to 1365 cal in 1969. Available data suggest that the production and consumption of maize increased at the expense of root and tuber crops.

Food imports

Food imports have been important since the early 1970s, although they have fluctuated widely and do not show an increasing trend (Table 5). In 1973-74 total imports of maize, wheat, and rice reached a peak of 396,000 mt, mainly because of a major drought. Large quantities of maize, wheat, and rice were also imported in 1980-81 (389,000 mt) and 1981-82 (369,000 mt). Since 1973--74 per capita food imports have tended to decrease although the level has fluctuated widely.

From 1980-81 to 1983-84, when Tanzania was facing a severe balance of payments crisis that continues to the present, imports of major grains were persistently large. During this period, dependence on food aid was at its highest, accounting for 70% of total imports of maize, rice, and wheat (by value). Without the availability of food aid for famine relief, food insecurity--particularly in the urban and frequent food shortage regions like Dodomo--would have increased.

Fiscal burden

Prior to the 1974-75 food crisis, producer prices were determined by reducing the marketing margins from the into store price. After 1974-1975, the government increased producer prices to encourage production and set lower consumer prices to protect consumers. Yet, the increases in producer prices were inadequate to encourage peasants to increase their sales of maize and rice through official channels. Also, these policies resulted in large losses to the NMC which were covered by a subsidy from the government budget. Over time, the subsidy to NMC became an increasingly large fiscal burden, particularly after 1978 when the recurrent budget was persistently in deficit. The fiscal burden grew larger, the higher the proportion of domestically produced food grains in the NMC's total sales, because imports were cheaper due to the overvalued shilling.

Exports

The overall impact of government intervention in agriculture contributed to the falling volume of exports that worsened the foreign exchange shortage that was triggered by the first increase in oil prices in 1973. Following the

Table 5. ***Imports and exports of major grains, 1967 to 1986, Tanzania (000 mt).***

	MAIZE				RICE				WHEAT			
	Imports			Exports	Imports			Exports	Imports			Exports
Year	Commercial	Aid	Total		Commercial	Aid	Total		Commercial	Aid	Total	
1966-67	NA	NA	14.3	7.0	NA	NA	7.6	2.0	0.0	0.0	0.0	0.0
1967-68	0.0	0.0	0.0	0.5	NA	NA	5.7	0.4	NA	NA	13.6	1.0
1968-69	NA	NA	0.0	32.0	0.0	0.0	0.0	0.1	NA	NA	36.7	0.0
1969-70	NA	NA	49.9	28.0	0.0	0.0	0.0	0.5	NA	NA	35.7	0.0
1970-71	0.0	0.0	0.0	24.0	0.0	0.0	0.0	4.0	NA	NA	11.6	0.0
1971-72	NA	NA	92.3	29.0	0.0	0.0	0.0	7.0	NA	NA	45.4	0.1
1972-73	NA	NA	78.9	0.0	NA	NA	72.9	7.0	NA	NA	8.2	0.3
1973-74	NA	NA	291.1	0.0	NA	NA	14.3	0.0	NA	NA	91.0	0.3
1974-75	NA	NA	225.4	0.0	NA	NA	21.0	0.0	NA	NA	28.8	0.0
1975-76	79.5	27.0	106.5	0.0	20.8	0.0	28.8	0.0	14.4	45.7	60.2	0.0
1976-77	34.6	7.0	41.6	0.0	5.3	0.0	5.3	0.0	0.0	33.6	33.6	0.0
1977-78	0.0	34.2	34.3	0.0	26.5	21.6	48.1	0.0	0.0	40.5	40.5	0.0
1978-79	0.0	0.0	0.0	49.0	21.0	20.2	41.2	0.0	15.8	45.5	61.3	0.0
1979-80	32.5	0.0	32.5	28.0	4.6	50.7	54.7	0.0	0.0	32.5	32.5	0.0
1980-81	188.1	86.5	274.6	0.0	14.2	51.0	65.2	0.0	0.0	48.7	48.7	0.0
1981-82	14.5	217.1	231.6	0.0	0.0	66.5	66.5	0.0	0.0	70.9	70.9	0.0
1982-83	17.0	106.4	123.4	0.0	0.0	29.4	29.4	0.0	9.4	2.0	11.4	0.0
1983-84	125.1	69.2	194.3	0.0	30.4	26.7	57.1	0.0	0.0	46.3	46.3	0.0
1984-85	110.9	17.6	128.5	0.0	13.7	22.4	36.1	0.0	11.5	21.8	33.4	0.0
1985-86	3.1	3.0	6.1	0.0	8.5	24.4	32.9	0.0	5.5	16.3	21.8	0.0

Source: URT, MDB (various years b)
NA indicates data not available.

Uganda war in 1978-79 and the second oil price shock in 1979, the balance of payments situation worsened--increasing the shortage of intermediate inputs used to produce consumers goods and agricultural inputs. The shortage of consumer goods was particularly severe in rural areas. To protect consumers, the government imposed price controls on most goods. As a result, parallel markets developed; but the shortage of goods remained acute in the rural areas, even in the parallel market.

Market production

The lack of incentive goods generally discouraged production for the market, particularly the official market. To increase the flow of food to official channel, the authorities restricted the movement of food grains across district boundaries. Roadblocks were set up to inspect vehicles and prevent unauthorised transport of food grains. This increased the risk premium and cost to individuals illegally transporting grains as they had to bribe their way through the roadblocks. In addition, the foreign exchange shortage increased transport costs due to intermittent shortages of fuel, a lack of spare parts, and a deteriorating and decreasing stock of vehicles. The risk premium and the high costs were passed to consumers because the parallel market was a sellers' market. Rent incomes from parallel market activities were high and attracted young people into petty trading.

Government's response

The government grappled with the economic crisis with little success. In 1980, it introduced the National Economic Survival Plan (NESP) that attempted to resolve the crisis by setting unrealistic targets on exports without adequate policy instruments to achieve those targets. The World Bank sponsored Tanzania Advisory Group (TAG) developed a Structural Adjustment Programme (SAP), based on financial inflow from the World Bank and the IMF of US$600 million over three years (1982-83 to 1984-85). As the government did not reach an agreement with the IMF and the World Bank on devaluation and other policy measures, the SAP was never fully implemented.

The government was unwilling to tolerate the intensification of parallel market activities, so in 1983 it attempted to crush the parallel market by declaring a "war against economic saboteurs and racketeers." Many parallel market traders were detained and tried in special courts. Since the shortage of goods was real, it did not end with the imprisoning of some racketeers.

The government-appointed Task Force on the Agricultural Sector examined past policies and recommended adopting market-oriented agricultural development policies with a strong incentive structure. In 1983 after

some hesitation, the government adopted the policy recommendation, but those policies have yet to be completely implemented.

In 1984 the government adopted policy measures that departed from its previous policy stance. These policies included reducing government ministries to streamline administration and reduce government expenditure; reintroducing cooperatives and removing Crop Authorities; devaluing the shilling by 26% (in dollar terms); substantial increasing producer prices for major export and food crops; removing consumer subsidies; and most important, allowing individuals who owned foreign exchange to import goods and sell them at whatever price they could fetch. In effect, the government adopted a more liberal attitude to the private sector.

IMPACT OF POLICY INTERVENTIONS ON FOOD SECURITY

Government interventions in the food market have had two main and seemingly conflicting objectives. On the one hand, government has sought to achieve food self-sufficiency through increased production. On the other hand, it has attempted to enhance access to cheap food by poor urban consumers through food subsidies. Achieving the two objectives requires simultaneously maintaining high real prices to producers to stimulate increased production and keeping consumer prices low.

The previously described control regime has had an impact on both availability and accessibility to food. On the availability side we will review the trend of real producer and open market prices for major staples, official marketed quantities, food availability index, the coefficient of variation of food prices, the share of marketed output going to official markets, open market consumer prices, and the purchasing power of the urban minimum wage earners.

Producer prices

A closer look at real official producer prices of maize, paddy, and wheat shows they have generally declined after the 1975-76 peak (Table 6) due to the accelerating rate of inflation which Tanzania has experienced in recent years. Thus, even substantial nominal price increases were insufficient to increase the real value of the producer prices.

The average inflation rate increased form 13% during the period 1973-74 and 1977-78 to about 30% by 1981-82. During the same period, the real producer price of paddy has fluctuated less than that of maize. For wheat, the situation was even worse. Not only has the real price been declining

Table 6. Real producer prices of maize, paddy, and wheat 1971-72, to 1986-87, Tanzania (Tsh per kg)[a].

	Maize		Paddy		Wheat	
	Money Prices	Real Prices	Money Prices	Real Prices	Money Prices	Real Prices
1971-72	0.24	2.72	0.52	5.88	0.59	6.45
1972-73	0.26	2.70	0.56	5.81	0.57	5.92
1973-74	0.33	3.00	0.57	5.14	0.57	5.14
1974-75	0.55	3.66	0.65	4.76	0.77	5.64
1975-76	0.80	5.07	1.00	6.34	1.00	6.34
1976-77	0.80	4.64	1.00	5.80	1.20	6.96
1977-78	0.85	4.41	1.20	6.22	1.25	6.48
1978-79	0.85	3.94	1.20	5.56	1.25	5.80
1979-80	1.00	3.88	1.50	5.82	1.35	5.24
1980-81	1.00	2.95	1.75	5.16	1.65	4.87
1981-82	1.50	3.57	2.30	5.48	2.20	5.24
1982-83	1.75	3.15	3.00	5.39	2.50	4.49
1983-84	2.20	3.11	4.00	5.66	3.00	4.25
1984-85	4.00	4.00	6.00	6.00	4.50	4.50
1985-86	5.25	3.89	8.00	5.93	6.00	4.44
1986-87	6.30	3.18	9.60	5.69	7.20	4.34

[a]Tanzania CPI used as deflator
Source: UTZ, MDB (1986a).

Table 7. Official[a] purchases of maize, paddy, rice, and wheat, 1971-72, to 1986-87, Tanzania (000 mt)·

Marketing Year	Maize	Paddy	Rice	Total	Wheat	Total preferred staples
1971-72	43.0	68.6	NA	44.6	56.7	144.3
1972-73	106.4	73.1	NA	47.5	46.8	200.7
1973-74	73.8	59.6	NA	38.7	27.9	140.4
1974-75	23.9	22.7	NA	14.8	14.4	53.1
1975-76	91.1	11.7	4.4	12.0	24.5	127.6
1976-77	127.5	12.2	6.7	14.6	27.1	169.2
1977-78	213.2	24.6	19.1	35.1	35.3	283.6
1978-79	220.4	26.9	16.5	34.0	28.8	283.2
1979-80	161.5	29.7	10.9	30.2	26.6	218.3
1980-81	104.6	4.8	10.4	13.5	27.9	146.0
1981-82	89.4	4.5	12.1	15.0	23.1	127.5
1982-83	86.0	12.1	13.0	20.9	31.2	138.1
1983-84	71.0	13.5	13.3	22.0	28.3	121.3
1984-85	90.0	5.5	8.6	12.2	33.2	135.4
1985-86[b]	178.5	24.5	NA	15.9	50.3	244.7
1986-87[b]	127.8	17.5	NA	11.4	33.7	172.9

[a]Official channels include NMC, its predecessor, the National Agricultural Products Board (NAPF), and Regional Cooperative Unions (RCU's).
[b]Purchases by (RCU's)
Source: URT, MDB (various years a)

the late 1970s, but in 1986-87 the nominal producer price (Tsh7.20 per kg) fell to its second lowest real price since 1971-72. The main reasons for low official nominal prices to farmers were the governments' input subsidization policy and budgetary pressures stemming from the government's coverage of NMC losses.

Input use

Government believed that it could modernize agriculture by subsidizing producer efforts. This strategy failed to have the intended impact, except in a

few regions such as Ruvuma, Iringa, Mbeya, and most recently Rukwa. Even in these regions there is no conclusive evidence to show that input subsidization led to improved farming.

Several problems contributed to policy's ineffectiveness. First, there was apparent competition for inputs between food and export crops, with the latter taking a greater share. Second, due to governmental budgetary constraints, demand greatly exceeded available supply. As a result, many farmers did not apply recommended quantities. Also, inputs were distributed late due to transportation bottlenecks.

Production and official marketings

These policies worked against achieving food self-sufficiency as incentives to increase production declined. Low real producer prices and late payments to farmers were the main factors responsible for the decline in official staple grain purchases, especially maize between 1978-79 to 1984-85 (Table 7). The period of declining official maize purchases corresponds closely to the period of declining real producer prices. Due to the growing food shortages and low real producer prices paid by the official marketing agencies, a parallel market began to develop. Although data on open market producer prices are only available for the last four years, it is generally accepted that these prices have been higher over most of the period (URT, MDB; 1986a).

In years when the price differential between official and open market prices was narrower than during previous years, official purchases of food grains increased. For example, official maize purchases increased significantly between 1984-85 and 1985-86 (Table 7), not only due to a bumper harvest but also because the more relaxed official attitude towards the open market which resulted in relatively low open market prices--particularly for rice and wheat. Apart from rice and wheat, open market producer prices for maize and paddy fell during that period (Table 8).

The absence of an effective system for enforcing official subsidized prices meant that consumers had to rely on the parallel market for their basic foods. Existing time-series data on open market consumer price for maize, rice, and wheat from the early 1970s to the early 1980s show that they were almost always significantly higher than official consumer prices (Table 9). Beginning in November 1982, the MDB started collecting such data monthly. Higher open market consumer prices are not totally a result of excess demand, but are also due to high transport charges and costs associated with the risks of being caught trading illegally.

Table 8. Open market producer prices for maize, paddy, wheat, and rice, 1982-83 to 1985-86, Tanzania (Tsh per kg).

Year	Maize	Paddy	Rice	Wheat
1982-83	3.80	4.06	10.80	5.15
1983-84	10.93	9.12	11.30	NA
1984-85	7.57	10.82	18.09	12.03
1985-86	7.52	9.42	29.26	22.18

NA indicates data not available.
Source: URT, MDB (various years a).

Table 9. Official and open market consumer prices for maize flour, maize grain, rice, and wheat, 1973-74 to 1985-86, Tanzania (Tsh per kg).

	MAIZE			RICE		WHEAT	
	Flour		Grain			Flour	
Year	Official	Open OMPM		Official OPR	Open OMPR	Official OPWF	Open OPMFW
1973	0.80	NA	NA	1.65	NA	1.65	NA
1974	1.25	NA	NA	2.00	NA	2.40	NA
1975	1.25	NA	NA	4.00	NA	3.75	NA
1976	1.75	NA	NA	4.00	NA	3.75	NA
1977	1.75	NA	NA	3.50	NA	3.75	NA
1978	1.75	NA	NA	3.50	NA	3.75	NA
1979	1.75	NA	NA	3.50	NA	3.75	NA
1980	1.25	NA	NA	5.35	NA	5.65	NA
1981	2.50	NA	NA	5.35	NA	5.65	NA
1982	2.50	5.90	NA	5.35	15.85	5.65	17.80
1983	2.50	10.58	12.20	7.20	24.05	8.00	25.12
1984	8.00	13.29	10.78	13.40	29.03	14.50	41.31
1985	13.75	17.14	9.65	14.50	13.57	17.20	35.53

Source: URT, MDB (1986a).

Availibility of consumer goods

Shortages of nonfood consumer goods affected rural areas the most. A survey of rural households in four regions of Tanzania found that 40 to 50% of the households were sometimes unable to purchase agricultural implements; and over 90% could sometimes not buy consumer goods such as sugar, soap, and cooking oil. The high coefficient of variation of quantity bought (ranging from 0.4 to 1.0 for official purchases and 0.2 to 1.3 for unofficial purchases) confirms the probabilistic nature of household access to consumer goods in both official and open markets (Collier, *et al.*, 1985).

Food availability in urban areas has also deteriorated from the late 1970s. Using data on availability of 25 foodstuffs in 20 unregulated urban food markets, Collier constructed an index of availability for the 1978 to 1982 period. These data indicate that the proportion of attempted, but unsuccessful purchases rose sharply between 1978 and 1982 (Table 10.)

Traders in the parallel markets have faced difficulties, due to their status as illegal participants and high transportation costs. From the 1960s to 1980, the trade network was insufficiently dense to form an integrated parallel market. A MDB study found that the parallel market network has actually deteriorated as indicated by a rise in the coefficient of variation of food prices in regional urban centers from 0.14 (1964), to 0.24 (1970), to 0.30 (1980).

It appears that this situation started to change after 1984, when measures were taken to deregulate the food market and relax trade controls. The coefficient of variation for maize and rice price in 29 urban markets fell from 0.30 (1980), to 0.29 (1984-85), to 0.20 (1985), and finally to 0.18 in 1986-87 (computed from data reported in URT, MDB; various years a).

Table 10. Availability of 25 foodstuffs in 20 urban markets, 1978 to 1982, Tanzania.

Year	Availability index[a]	Number of attempts
1978	0.154	4,650
1979	0.201	3,975
1980	0.216	4,425
1981	0.242	4,725
1982	0.283	5,025

[a]Probability that an attempted purchase is unsuccessful.
Source: Collier *et al.* (1985), p. 415.

Sales to official and open markets

Another impact of government intervention in the food market could be deduced from the share of marketed output that goes to the official and open markets (Table 11). From the late 1970s to 1983-84, about 20% of maize production was marketed. Of this marketed surplus, 25% was sold through the official market and 75% through open markets. The share of the marketed surplus going to the official market increased between 1984-85 and 1985-86 as a result of bumper harvests and a relative decline in the open market price of maize grain.

During the period, 50% of total rice production (paddy) was marketed, with 20% going to the official channel and 80% through open markets. The share of the marketed rice surplus going to the open market has been increasing continuously because prices on the open market were far above official prices. This is partly because the main paddy production areas (Morogoro, Shinyanga, and Mwanza) have a relatively high population and are near other major consumption centers such as Dar es Salaam, Dodoma, and the lake region.

Purchasing power

The ineffectiveness of food subsidies can be partly measured by the declining purchasing power of the minimum urban wage earners, and partly by the

Table 11. Share of marketed output of maize and paddy going to official and open markets, 1970s to 1986-87, Tanzania (%)[a].

Year	Maize			Paddy		
	Marketed surplus[a]	Market share Official	Open	Marketed surplus[a]	Market share Official	Open
Pre-1984c	20	25	75	50	20	80
1984-85	25	25	75	50	14	86
1985-86	25	36	64	50	13	87
1986-87	25	36	64	50	7	93

[a]Marketed surplus as a percent of total production. [b]Share of marketed surplus going to each market. [c]1970s to 1983-84.
Source: URT, MDB (various years a).

trend of official and open market consumer prices. Table 12 clearly shows that the purchasing power of the minimum urban wage has declined rather steadily, implying that individuals earning the minimum wage would have difficulty feeding their families--even if they had access to official food sources. However, few urban consumers have access to official food supplies since most households buy their food from open markets. Consumer food prices (Table 9) are partly higher because producer prices are higher and partly due to higher marketing cost due to the illegal status under which parallel markets operate. As a result, the purchasing power of many poor urban consumers has further eroded. Thus, attempts to control food prices at official levels have made food more, not less, expensive by increasing marketing costs of both the NMC and traders in the parallel market.

Government budget

Government intervention in the food market has also had budgetary implications. Subsidizing food production (ie., low input prices) and consumption (low consumer prices) has escalated government expenditure on subsidies. Government subsidies on fertilizer and maize flour have increased substantially from 1976-77 to 1983-84 (Table 13).

In addition to these subsidies, the government subsidized the increasing marketing losses of the NMC, resulting from increasing unit cost of marketing and handling a declining volume of officially marketed output. Unfortunately, the possibility of reducing the size of NMC as the volume of marketed output declined was not considered. Government subsidies to the NMC during the last three years prior to market liberalization were Tsh405 million in 1981-82, Tsh216 million in 1982-83, and Tsh318 million in 1983-84. Together with input and consumer subsidies, these subsidies were mainly absorbed by running budgetary deficits which increased almost annually.

In summary, government intervention in the food market did not achieve its intended goals. First, as a result of declining real producer prices and the decreasing availability of incentive goods, production growth slackened--increasing food shortages and making price control policy ineffective. This in turn contributed to the development of a parallel market. By 1983 the parallel market dominated the food market and the government actually tolerated its existence--even though it was still illegal. Second, since most consumers in urban and deficit rural areas did not have access to subsidized food, they had to turn to the parallel market where prices were considerably higher. Thus, the policy of enhancing accessibility to food among the poor through food subsidies turned out to hurt this group most. The regulated market could neither increase food availability nor help the target group get access to low-priced food. Third, subsidizing consumers

Table 12. Purchasing power in terms of maize flour and rice (kg of staple per day's wage) at official and open market prices, 1973-1987, Tanzania.

	Maize flour		Rice	
Year	Official	Open	Official	Open
1973	10.0	NA	4.8	NA
1974	9.1	NA	5.7	NA
1975	10.1	NA	3.2	NA
1976	7.2	NA	3.2	NA
1977	7.2	NA	3.6	NA
1978	7.2	NA	3.6	NA
1979	7.2	NA	3.6	NA
1980	12.8	NA	3.0	NA
1981	8.0	NA	3.7	NA
1982	8.0	3.85	3.7	1.38
1983	8.0	3.21	2.8	1.06
1984	3.4	1.89	2.0	0.77
1985	2.0	2.62	1.9	0.80
1986	NA	3.19	1.19	0.95
1987	NA	3.60	1.09	0.99

Source: URT, MDB (1987a)

Table 13. Government subsidies for fertilizer and maize flour, 1976-77 to 1983-84, Tanzania (Tsh million).

Year	Fertilizer	Maize flour
1976-77	49.693	49.349
1977-78	100.000	84.263
1978-79	135.400	562.350
1979-80	134.692	419.080
1980-81	136.450	125.151
1981-82	202.800	405.290
1982-83	195.970	216.550
1983-84	215.000	245.630

Source: URT, MFFP (1986).

and NMC losses since 1975 created budgetary pressure on the government which inhibited any attempts to increase real producer prices. All put together, by 1984 the government had sufficient reasons to liberalize the food market. The following section analyses market liberalization and its impact on food security.

MARKET LIBERALIZATION AND FOOD SECURITY

The previous analysis of government interventions in the food market and their impacts, relative to intervention goals, clearly shows that despite government intervention to set prices, the food market in Tanzania has remained by and large price-flex. The parallel markets, where market-clearing prices exert themselves, have dominated the dual market structure

Table 14. Official and parallel marketing margins for maize and rice, 1984-85 to 1986-87, Tanzania (Tsh per mt).

	Maize			Rice		
Price	1984-85	1985-86	1986-87	1984-85	1985-86	1986-87
Producer price						
Official	3,992	5,226	6,300	10,684	12,308	14,688
Open market	8,611	7,529	8,000	18,090	29,261	31,600
Ex-store cost						
Official	7,582	10,854	12,215	NA	NA	NA
Consumer prices						
Official	NA	NA	NA	13,950	16,750	28,880
Open market	10,780	9,650	10,357	36,070	37,570	36,810
Marketing margin						
Official	2,757	5,628	5,915	3,266	4,443	14,192
Private trader	2,169	2,121	2,357	18,000	8,320	5,210
Margin/producer price						
Official	0.69	1.08	0.96	0.31	0.36	0.94
Open market	0.25	0.28	0.29	1.00	0.28	0.16

Source: Computations based on data from URT, MDB (various years a).

that ensued from the intervention. In fact, of the major staples under government control, maize and rice--which account for 71% of total caloric intake in the diets (URT, MDB, 1985a)--are channelled predominantly through the parallel markets. Over the 1984-85 to 1986-87 period, parallel markets' shares of marketed maize and rice averaged 68 and 87%, respectively (Table 11). Despite costs associated with risks for contravening controls, private traders on average paid higher prices to producers and had significantly lower marketing margins than the official marketing system (Table 14).

Stimulus for liberalization

Pressure for liberalizing the food market stems from three sources. First, food scarcity arising from inadequate supplies invalidated price controls as parallel market prices for controlled grains became the effective prices. Second, because price controls were ineffective, the target group for food subsidies--the urban poor and rural food deficit households--did not have access to cheaper official supplies. Official supplies found their way to the less vulnerable and influential consumers; and quite often, via leakage to the parallel market, official supplies went to supplement trader's rental incomes through resales. Third, budgetary pressures increased as expenditure on subsidies escalated.

In addition to the increased cost of marketing and handling produce (stemming from increased unit costs as volumes declined without adjustment in the size of the official marketing agency), government incurred additional costs from its effort to support producer price increases via absorbing the growing losses of the official marketing agency (NMC). However, the budget-supported producer prices increases were outstripped by the high rate of inflation. This resulted in reduced real official producer prices, which further compounded the general problem of scarcity and increased switching away from official market sales.

Under these conditions, liberalization of controls become attractive to the government in order to reduce the increasing budgetary pressures. Also, it involved negligible political risk, in view of the ineffectiveness of the subsidy programme. The fact that most of the liberalization measures were initiated starting July 1984, before the adoption of the IMF programme in October 1986, partial supports this assertion.

Major liberalization thrusts

The government adopted two major types of market liberalization measures. The first category included direct, micro level modifications of existing interventions in the food market. These were generally geared towards modifying official prices so they more closely reflected scarcity prices.

Micro level policy measures

Micro level policy changes initiated since July 1984 have included the following measures:

- o The gap between official ex-store cost and consumer prices was narrowed. Consumer prices were raised by removing the consumer subsidies, especially for maize, in order to reduce budgetary deficits arising from official food trade. This was achieved rather quickly.
- o Real producer prices were raised by 5% per annum to correct for the historical decline and thereby induce greater production and increase the share of sales to the official marketing system. A key objective of this measure was to reduce scarcities by increasing supplies--thereby achieving sustainable national food security. This measure narrowed the gap between official and effective parallel market prices.
- o Bottlenecks to private trade in scheduled food crops were reduced. Road blocks were removed. Initially, private traders were allowed to buy and transport up to 500 kgs per lot, but in March 1987 the quantity restriction was removed. Under the current marketing system, the reinstituted Cooperative Unions buy from and sell to the NMC; and parallel to this system, private traders are also permitted to trade in food. The official system guarantees purchases at set floor prices.
- o Agricultural input subsidies were removed, with higher producer prices set to increase farm profitability and encourage farmers to adopt improved crop husbandry and innovation. This measure was partly introduced to shift the tying of rewards from manufactured fertilizer to the whole range of improvement efforts.

Macro level measures

The second category of market liberalization measures included macroeconomic policy initiatives that were geared, among other things, to enhancing agricultural dynamism; and were included primarily in the Economic Recovery Programme adopted in July 1986. These included the following measures:

- o Partial import liberalization was instituted in July 1984, allowing individuals with access to their own foreign exchange to import incentive goods *inter alia* and sell them at market-clearing prices in order to increase the supply of incentive goods. This policy implied a major devaluation on the implicit exchange rate of imports which significantly increased profits to owners of foreign exchange and, as a result, reversed capital flight. The response to this move was greater than anticipated. Imports of goods totalled more than US$400 million in both 1985 and 1986, exceeding official export earnings (Ndulu and Hyuha, 1987; Ndulu, Lyakurwa, Semboja, and Chaligha, 1987). This

measure significantly increased the supply of incentive goods and complemented the producer price increase effects on the supply of food. One visible effect was the disappearance of time-consuming queues for scarce commodities and the use of permits to acquire commodities previously in severely scarcity.

- Exchange rate adjustments to correct for overvaluation started in earnest in July 1984 when the government devalued the currency by 31%, in terms of the Tanzanian shilling. Starting in March of 1986, Tanzania decided to quickly reduce the currency overvaluation. The shilling was rapidly depreciated from Tsh17 to the US$ in March of 1986, to Tsh40 in July of 1986. Thereafter, through a crawling peg, it was further depreciated to Tsh70 to the US$ by October of 1987.

This move, coupled with the decision to offer producers at least 70% of world market prices has significantly shifted the terms of trade in favour of agriculture. The implicit tax on agriculture resulting from overvaluation has been significantly reduced, raising the relative profitability of agriculture as a whole. Explicit taxation on local food producers--measured as the difference between c.i.f. cost of imports at official exchange rate and farm gate prices (official) of local supplies--was wiped out starting 1984, as farm gate prices rose sharply for maize and rice. However, the gap between the import cost (valued at the real exchange rate) and domestic farm gate prices continued to be significantly higher for maize than rice. For rice, the gap closed during 1985 as world market prices declined while prices to local produces continued to increase. These comparisons are made net of transfer costs in the domestic market.

IMPACTS ON THE FOOD MARKET: A PRELIMINARY ANALYSIS

Food supplies

Combined with good weather during 1985-86 and 1986-87, the above measures significantly increased food supplies, especially maize and rice. In 1984-85, an above average year, maize production reached an estimated 2.093 million mt and paddy production rose to 427,000 mt--an increase of about 8% and 20% over the 1983-84 level, respectively. In 1985-86, both maize and paddy production again increased rapidly. The maize harvest rose to an estimated 2.211 million mt (5.6% over 1984-85) while paddy output increased to 547,000 mt (28.1% over 1984-85). Estimates for 1986-87 show further production increases for these two major staples of 6.7% for maize and 17.7% for paddy (URT, MDB 1987a, p.9).

The estimated production increases reported above are well corroborated by consumer price movements in the open market, the dominant market

reflecting scarcities. After reaching a peak during 1983-84, the average open market consumer prices for maize declined significantly during 1984-85 and have remained below the 1983-84 peak up to 1987. For rice, open market consumer prices more or less stabilized at the 1984 level. The decrease in the maize consumer prices and stabilization of rice prices occurred despite significant reductions in imports of both commodities (URT, MDB; 1985, 1986, 1987a).

Official purchases

Official maize purchases increased on average by 40% per annum over the period 1984-85 to 1986-87, partly in response to increased production and partly due to increases in the official producer prices, relative to open market producer prices. Although in absolute terms, open market prices generally remained above official throughout the period, the gap was closing rapidly. By 1985-86, the official price reached 70% of the open market prices, up from 50% in 1984-85. In 1986-87, official prices reached 78.8% of the open market producer prices (Table 14). These national averages hide the fact that in Ruvuma and Rukwa--the two remote and major surplus regions which account for over 30% of official procurement--official producer prices were *defacto* support prices, exceeding open market prices throughout the period.

Official rice purchases continued to decline, despite increases in production, mainly because the price gap between the two markets increased. While official producer prices were 59% of open market prices during 1984-85, they were a mere 42% and 46.5% of open market prices in 1985-86 and 1986-87, respectively. Over the period, open market producer prices increased by 74.7% while official prices increased by a mere 37.5% (Table 14). While the share of purchases from state farms increased during the period, smallholders significantly decreased their sales to official markets (URT, MDB; 1986a p.10).

Since March 1987, the NMC's maize stocks have reached record levels, estimated at over 200,000 mt. Slow local sales, due to both the fact that open market consumer prices were on average lower and export sales could only be undertaken at significant losses, has generated a liquidity crunch for official agents with far-reaching consequences. The liquidity tied up in nonmoving stocks has had backwash effects on continued purchases at official prices. This is worsened by the stringent credit ceilings of the recovery programme which affect not only continued purchases, but also credit to other sectors. Interest costs of tied up credit and storage losses compound the financial problems of official agencies. Projected increased margins are yet to be realized by the NMC since they are tied up in stocks. Whether they are ever realized will depend on whether or not stocks will be sold at a loss.

Producer income

In contrast, producers have achieved significant income gains. In high potential areas, estimated returns to labour per day from maize (valued at official prices) have increased by 112% over the period 1983-84 to 1986-87 (URT, MDB; various years a). For lowland paddy producers, estimated return to labour per day rose by 111% over the same period (MDB, 1984a). These income increases are predominantly price based, although production increases partially explain the increases.

In major maize surplus regions, especially Rukwa and Ruvuma, official producer prices were support prices, since they exceeded open market prices. As pressure from excessive stocks asserts itself, it is very likely that open market producer prices will decline (some current casual observation supports this assertion). Mandatorty purchases at above official open market prices by official agencies has, and continue, to constitute income transfers to producers.

Access to food

On the consumers' side, liberalization of cereal trade has improved access to food. Open market consumer prices for maize, as earlier noted, have declined. The share of open market purchases by consumers exceeds 75%. This is further strenghened by the fact that at the currently higher official consumer prices, private consumers hardly buy at all from official sources, as indicated by the decline in NMC sales since 1985-86 (URT, MDB; 1986a, p. 17). Combined with wage increases, the purchasing power of a day's minimum wage in terms of maize flour (at open market prices) increased from a low of 1.89 kg in 1984 to 3.60 kg in 1987 (Table 12). In contrast, the relative position of those who procure from official channels has definitely declined. Most of these purchases are institutional, usually subsumed in official budgets. For rice, the purchasing power of the daily minimum wage (at open market prices) increased from 0.77 kg to 0.99 kg over the same period. In the case of rice, open market consumer purchases are estimated to constitute 93% of total purchases (Table 11). Thus, the increase in real purchasing power for rice was totally accounted for by increases in minimum wages, since the consumer price of rice did not decline over the period.

Interregional movement of supplies

Interregional movement of supplies improved as road blocks were removed and private traders increased their participation in food trade. The decline in private trading margins, especially for rice partly reflects reduced costs previously associated with risks from violating controls (Table 14). Spatial variation in open market consumer prices significantly declined as shown by

the steep decrease of coefficient of variation for these prices, from 0.29 in 1983-84 to 0.18 in 1986-87 (URT, MDB; 1986a). This had the effect of reducing prices in food deficit areas as supplies increased. Typical deficit areas such as Dodoma, Shinyanga, Kahama, and Tabora all have shown below national average increases in the food CPI since 1985-86 (URT, MDB; 1987a).

Agricultural sector income share

At a more aggregate level, a major shift has occurred in the share of income going to agricultural producers. This shift started in 1982 with the Structural Adjustment Programme which focused partly on raising prices to agricultural producers. It has accelerated since 1984 due to the concerted effort to raise real producer prices, which implied faster rates of increase in nominal prices. As pointed out earlier, this resulted from less reliance on budgetary support, removal of food subsidies, and adjusting the exchange rate.

National accounts data indicate that the share of nominal income going to agricultural producers jumped from an average of 43% from 1976 to 1981, to 50% in 1982, and then continued to move upwards--reaching 58.9% in 1986 (Table 15).

Nominal income of agricultural producers rose at an average rate of 36.9% over the period 1984-1986. If this rate of increase is compared with the 33.9% average annual increase in the CPI (URT, MDB; 1986a), agricultural pro-ducers' real income increased at a rate of 3% over the period. In contrast, during the 1980-84 period when nominal income rose by an average of 25.5% per annum, the average annual rate of inflation was 27.9%. This implied a decline in real income for agricultural producers of 2.45% per annum.

The increase in real income during the 1984-86 period was partly due to increases in nominal incomes (explained mostly by increases in producer prices) and partly to real growth in output, although producer prices had a stronger influence in explaining changes in nominal incomes.

The increase in agriculture's share of national income is strongly explained by agricultural prices, relative to non-agricultural prices, which rose by 31.7% over the period. Agricultural producers' relative prices were computed as the ratio of GDP deflators for agriculture and nonagricultural sectors.

Table 15. **Nominal agricultural incomes and relative profitability of agriculture, 1976-1986, Tanzania.**

Year	Nominal agricultural GDP			Relative price of agricultural to nonagricultural activities[a]
	Value (Tsh million)	Growth rate (percent)	Share (Percent)	
1976	9,046	NA	42	100.0
1977	11,131	23	44	106.1
1978	12,506	12	44	113.6
1979	14,728	18	44	128.2
1980	16,636	13	44	122.8
1981	20,338	22	46	128.4
1982	26,449	30	50	152,1
1983	32,737	24	54	167.4
1984	41,295	26	54	180.5
1985	56,235	37	57	196.9
1986	77,396	38	59	220.5

[a]Ratio of agricultural GDP implicit deflator to non-agricultural GDP deflator. NA indicates data not available.
Source: URT (1986b).

CONCLUSION

These results indicate that the rural population as a group increased their access to food through increases in real income. Given an income elasticity of demand for food of 0.89 for rural households, food consumption in these households very probably increased by 2.67% per annum over the 1984-86 period.

The picture for the urban households is more difficult to discern in view of the likely growth of informal sector incomes. However, national accounts statistics indicate that the nominal incomes of non-agriculturalists increased by 24.04% per annum over the 1984-86 period. When compared to the annual average rate of CPI of 33.9% over the same period, the real incomes of this group declined by 6.01% per annum. However, the food component of the

CPI registered a significantly lower rate of increase--25.82% annually (URT, DEVPLAN) 1986a. Thus, in terms of consumption, real income decreased by only 1.78% over the whole period. The rate of decline in real income of non-agriculturalist was significantly reduced, compared to the 1980-84 situation. During that period, nominal incomes increased at an average rate of 12.65%, compared with the average inflation rate of 27.9% (URT, DEVPLAN, 1986a). This implied an annual rate of decline of real income of 15.25%.

These preliminary estimates of the impacts of market liberalization on food supplies, consumption, and income were supported by two consecutive years of good weather. They indicate generally increased availability of food, improved access to food in rural areas, and some decline in the rate of deterioration of urban real income in terms of food. Furthermore, the geographical flow of food supplies improved, as indicated by the reduced price dispersion. In the next phase of the study, we will undertake a more micro level analysis of impacts, taking into account income distribution and the identification of vulnerable groups.

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