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EFFECTS OF
PANTERRITORIAL
PRICING POLICY
FOR MAIZE
IN TANZANIA

BY YURIKO SUZUKI
AND ANDREW BERNARD

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FOR MAIZE IN TANZANIA**

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FOREWORD

It is widely believed that public parastatals in food grain markets of Africa in general, and East Africa in particular, have been a major source of price distortion and production imbalance. On the other hand, such parastatals have widely persisted in African foodgrain markets for reasons that are at least partly related to infrastructural backwardness. This paper by Yuriko Suzuki and Andrew Bernard highlights these issues in the context of Tanzania. It complements other studies on similar issues in Africa conducted at IFPRI by Ulrich Koester (Regional Cooperation to Improve Food Security in Southern and Eastern African Countries, Research Report 53), Raisuddin Ahmed and Narendra Rustagi on agricultural marketing and price incentives, and by Christopher Delgado and Thomas Reardon on coarse grains in West Africa.

Before coming to IFPRI to write this report, Suzuki worked for 10 years in Tanzania for the African Division of the Japanese Foreign Ministry. Andrew Bernard collaborated with Suzuki while she was at IFPRI. This report examines the panterritorial pricing policy in maize, its consequences, and alternative options. The study finds that Tanzania could be self-sufficient in maize, but surpluses are produced in areas that are infrastructurally so underdeveloped that the transportation cost of moving this food to deficit areas is larger than the cost of imports. This is a dilemma faced by many African countries. Trading with neighboring countries and structuring production on the basis of regional comparative advantages emerge as important issues that require further research.

John W. Mellor

Washington, D.C.
June 1987

1. INTRODUCTION

No Sub-Saharan African country is really free from the problems that constitute the major constraints against accelerated agricultural development of the continent. The combined effects of a deteriorating agro-ecological resource base, broken equilibrium between production and population, scarcity of trained manpower, lack of effective incentives toward increased production, an inadequate peasant-government relationship, and severe foreign exchange constraints present formidable obstacles to agricultural growth.

There is no easy solution for bringing about a dramatic turnaround in the status quo because many of the constraints are deep-rooted and inseparably interlinked. Long-term objectives and short-term targets often contradict each other, and it is not unusual that an achievement in one area brings forth a difficulty in another that was totally unanticipated at the outset. In addition to the problems that African countries hold in common, each nation is in an uphill battle against its own inherent difficulties that stem from unique geographical, historical, and socioeconomic conditions.

This paper deals with Tanzania's policy on maize production and marketing in recent years, focusing on its panterritorial pricing policy of setting a uniform price for the country, regardless of location or transport costs. After having played a useful role toward achieving regional equality and diversified production, this pricing policy began to have some adverse effects of its own creation, and eventually the whole system was plagued with soaring operational costs.

This paper analyzes the impact of panterritorial pricing policy on maize growing in Tanzania, and alternative means of arresting its increasing financial burden. First, the main characteristics of maize production and consumption in Tanzania are examined, and apparent surplus and deficit areas are identified. The second section develops a simple supply-demand framework for maize, taking into consideration the implications for quantity given the existence of parallel markets. Then, the pricing system, its aims, history, and ensuing problems are detailed, and alternatives to it and implications for the donor community are explored. The final chapter summarizes the findings and considers the prospects for the next 20 years.

2. MAIN CHARACTERISTICS OF PRODUCTION AND MARKETING OF MAIZE

The agricultural sector is dominant in the Tanzanian economy. It supplies 40 percent of GNP, 85 percent of all exports, and a livelihood to 90 percent of the population.¹ Of the food crops, maize is the staple food for more than half the population of Tanzania and thus is a primary target for government intervention. Both rice and wheat are produced in smaller volumes with 95 percent of wheat grown on farms of the National Agricultural and Food Corporation (NAFCO), the parastatal responsible for foodcrop production.

The amount of maize consumed has been increasing with population growth, urbanization, and the changing taste from drought-resistant food staples toward preferred staples. In Tanzania, maize is grown mainly by smallholder farmers in rainfed areas, using traditional skills and production techniques. The best maize-growing land lies at altitudes of 1,000 to 1,500 meters above sea level, and 40 percent of maize comes from this area.

There are no accurate figures for the total volume of maize production in Tanzania because there are no crop-cutting surveys at present, and there is no way of knowing the amount of on-farm consumption. The only available figures are for the maize that goes through official marketing channels. Apart from on-farm consumption and officially marketed maize, there are two other outlets: private, legal markets and illegal sale.

It is hard to estimate how much goes through each channel every year, not only because of the absence of data, but also because of year-to-year production fluctuations and the contrary pricing policies of the government. Temu states that during 1964-1974, approximately 70 percent of total maize produced was consumed at the subsistence level, 10 percent was channeled through official marketing organs, and the remaining 20 percent went into private channels, both legal and illegal.² According to the estimate of the Marketing Development

¹World Bank, Tanzania Agricultural Sector Report (Washington, D.C.: World Bank, 1983).

²p. E. Temu, Marketing, Board Pricing, and Storage Policy with Particular Reference to Maize in Tanzania (New York: Vantage Press, 1984).

Bureau (MDB) of the Ministry of Agriculture, however, more than 80 percent was consumed on the farm in 1980. Keeler et al. estimate that, on average, between 25 and 35 percent of urban food needs were supplied by means other than the official marketing channels.³

In the 1960s Tanzania was almost self-sufficient in cereals, as shown by the level of net imports. However, during the period 1972-83, imports of cereals increased and fluctuated dramatically. Maize imports rose above 200,000 metric tons in 5 out of 12 years and net grain inflows topped 300,000 tons four times (see Figure 1).⁴ The increase was mainly due to increased demand, especially in the urban areas, with the large variability resulting from disastrous climatic conditions and the advent of the new pricing policy (as will be shown later).

Compared to maize, smaller volumes of the other preferred staples were procured or imported. Local procurement of rice was at its peak in 1970/71 when 65,000 tons were purchased. Since 1973, annual procurement has not exceeded 40,000 tons. Wheat is produced mainly for commercial purposes in Tanzania, and on-farm consumption is negligible. Because 95 percent of wheat is grown on NAFCO farms, the flow of wheat from production to consumption can be traced easily.

A look at the aggregated procurement figures shows that if 1977/78 and 1978/79, both years of unusually good weather, were dropped, then procurement of all three grains would show almost no growth (Figure 2). Imports of all three have had to fill the gap between stagnant production and rising demand.

THE HISTORY OF OFFICIAL INTERVENTION

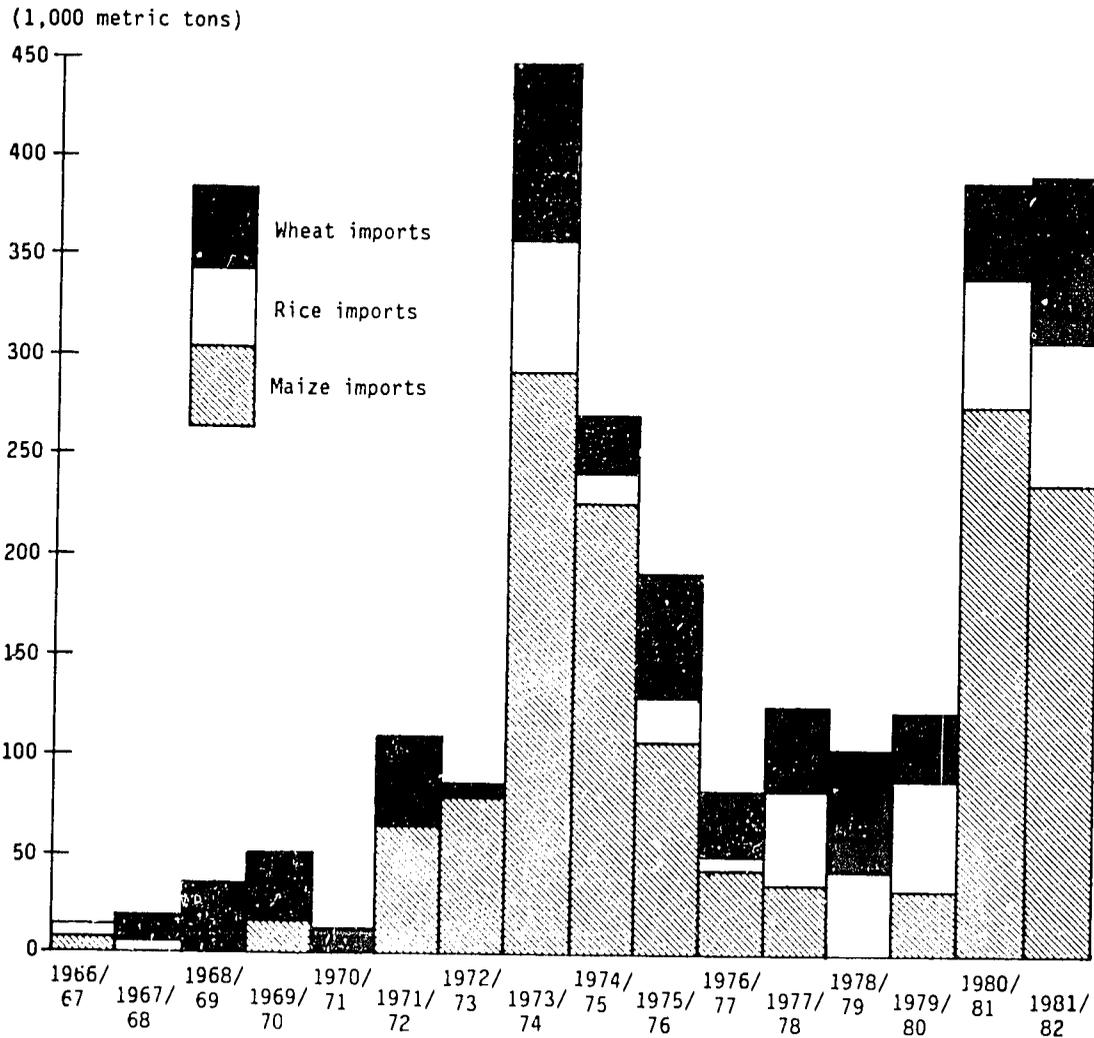
Official maize control in Tanzania dates back to the time of World War II, when Kenya and Tanganyika (now Tanzania) set up statutory cereal boards to ensure bulk purchases of food grains. The intended aim was to secure inexpensive supplies of necessary foodstock. These boards operated with monopoly powers to buy and sell specified crops at fixed prices.

Although the wartime necessity of maintaining such a system ceased when World War II ended, maize control was continued in both countries. From 1945 to 1949, Kenya, Uganda, and Tanganyika jointly operated a Cereals Pool, which was run without very clear provisions.

³Andrew G. Keeler, et al., "The Consumption Effects of Agricultural Policies in Tanzania," Final report prepared for U.S. Agency for International Development, Sigma One Corporation, Raleigh, N.C., 1982.

⁴All tons referred to in this paper are metric tons.

Figure 1--Net grain imports, 1966/67-1981/82

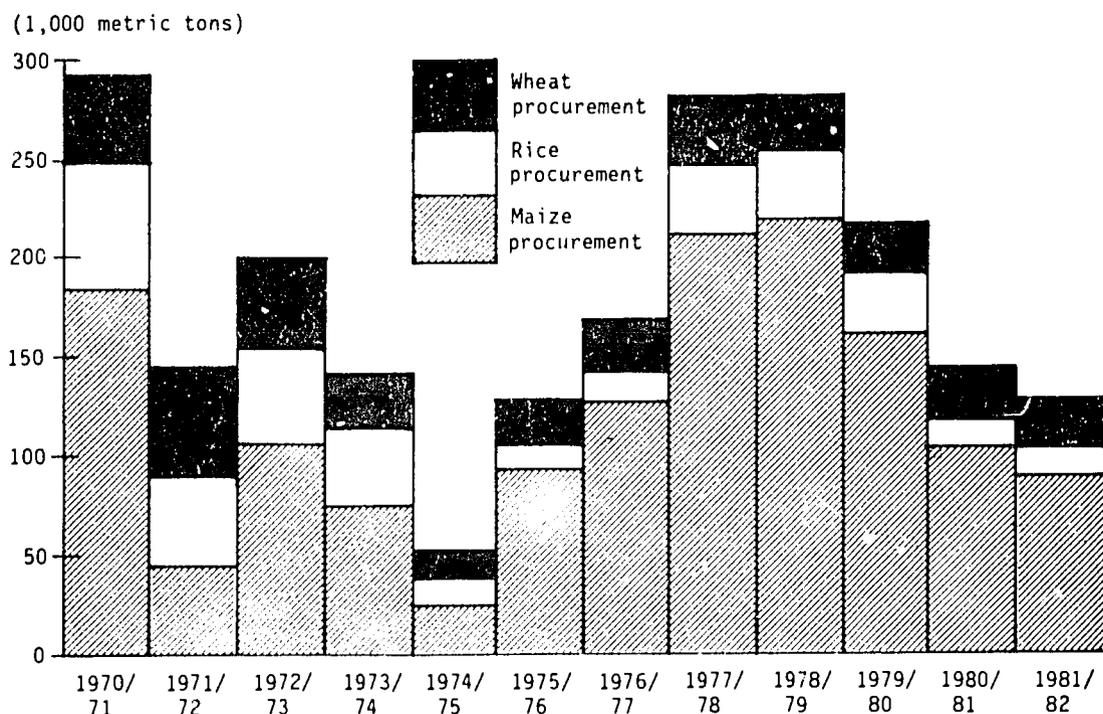


Source: World Bank, Tanzania Agricultural Sector Report (Washington, D.C.: World Bank, 1983).

In 1949 Tanganyika withdrew from the Cereals Pool and established its own agency, the Grain Storage Department (GSD). The GSD became the sole buyer of maize and other food crops, with wide responsibilities for procurement, storage, and marketing, as well as exports and imports. It also set prices of food crops each year. GSD continued to operate until 1955, when the government felt there was no longer any need for a regulatory body. The successive bumper harvests in 1953 and 1954 may have contributed to the withdrawal from official control of maize and other food crops. As a result, Tanzania had a period of free trade of maize and other staple crops from 1955 to 1962. However, the situation changed after a poor harvest in 1961 was followed by a complete crop failure in 1962.

It was in the immediate postindependence years that the new government decided to resume control of maize and other food crops. The National Agricultural Products Board (NAPB) was established in 1963 with objectives similar to those of GSD. It went into full operation in 1964 assuming responsibility for sales, transport, storage, and processing of food crops. Pricing by the government in advance of each crop season took the form of setting minimum prices at different stages of the marketing process. Local procurement was handled directly by agricultural cooperative societies in each area. The officially announced into-store and out-of-store prices in any one year were the same throughout the country, but the producer prices were different in each region, reflecting the markups of primary societies (the smallest units of cooperatives) and cooperative unions in the region. What the producers received, therefore, was the residual after all the intermediary handling charges were deducted. From the unions, the crop was handed over to NAPB. NAPB did not own or operate maize mills, so the milling was handled by one of its subsidiaries, the National Milling Company.

Figure 2--Official procurement of wheat, rice, and maize, 1970/71-1981/82



Source: World Bank, Tanzania Agricultural Sector Report (Washington, D.C.: World Bank, 1983).

In 1973, in conformity with a policy to decentralize and a concurrent accelerated move toward systematic removal of people from cities to villages, the agricultural marketing structure was totally reorganized; agricultural marketing boards including NAPB were abolished and semiautonomous, parastatal crop authorities were established, vested with much wider vertical responsibilities for production, development, and marketing of the crops under their control.

With this reorganization, the National Milling Company took over most of the activities previously handled by NAPB. It was no longer a minor subsidiary under NAPB for milling only. Under the new name of National Milling Corporation (NMC), it was supposed to purchase, process, store, and sell staple grains, including maize, rice, and wheat, and later drought-resistant crops such as sorghum, bulrush millet, finger millet, and cassava as well. Pulses were also added to the official marketing channels in the late 1970s. NMC was also responsible for imports and exports (if any) of foodgrains. Later, formation and upkeep of the Strategic Grains Reserve also came under NMC. Thus almost every aspect of the grain industry was under NMC's jurisdiction.

Basically, NMC has little financial autonomy because the official purchasing and selling prices of the crops it handles are determined by the government. The Cabinet sets crop prices and announces them prior to crop seasons. As later chapters will explore, these prices are determined without particular emphasis on cost-benefit relations, and frequently the actual costs exceed the consumer prices.

In 1976 the already overextended duties of NMC were further widened, when cooperatives, from primary societies to regional unions, were officially dissolved. The dismantling of the apparatus for initial procurement inevitably put another burden on NMC, which now had to reach villages during the purchasing process. The reasons for the huge accumulated operational loss of NMC in later years can be dated back to this rapid expansion of its duties, which was not orchestrated with measures to substantially improve its managerial and operational efficiency.

In this connection, it is noteworthy that in 1984 President Nyerere recalled with bitterness that, although deemed necessary at the time, the dissolution of cooperatives in 1976 was one of the few decisions his government had made since independence that he viewed as wrong.⁵

⁵Sunday News of Tanzania, April 8, 1984.

DEMAND AND SUPPLY

Since independence, Tanzania's population has steadily increased at a rate higher than the average for Sub-Saharan Africa. Tanzania's average growth rate was 2.7 percent during 1960-70 and 3.4 percent during 1970-79, while that of all Sub-Saharan countries was 2.5 percent and 2.7 percent respectively.⁶

The population increase and urbanization have stimulated total food demand; however, it has never been easy to quantify the amount of food production needed to satisfy overall demand, primarily because of the predominantly subsistent nature of food growing in Tanzania. In addition, no crop-cutting surveys are made, and the yield estimates announced by the Ministry of Agriculture have their basis in the reports of field officials with varying degrees of training.

On the supply side, the U.S. Department of Agriculture (USDA) estimates Tanzania's annual maize production during the period 1980-83 to be within the range of 800,000 to 1 million tons depending on weather conditions.⁷ As for area sown with maize, Tanzania's Ministry of Agriculture estimated it to be 1.5 million hectares in 1980, while USDA placed it a bit less than that, at 1.4 million hectares. Total maize consumption of the country is estimated to be 900,000 to 1.1 million tons per year, and the gap has been filled by imports, including food aid.

Besides maize, paddy and wheat are also grown in Tanzania, but their production has never reached a self-sufficient level due to the growing demand, and imports have been needed every year (Figure 1). Other staples (cassava, millet, sorghum, and food bananas) are also grown in various regions, mainly for subsistence, and they contribute to the caloric intake of the nation.

SURPLUS-PRODUCING AREAS AND DEFICIT AREAS

The agricultural potential for maize production in Tanzania is unevenly distributed. Although a few regions have surpluses that can go to feed other regions, most remain more or less self-sufficient in years of favorable climatic conditions and suffer from shortages in years of poor harvest. A few regions that have increasingly urbanized centers are in chronic deficit.

⁶World Bank, Accelerated Development in Sub-Saharan Africa: An Agenda for Action (Washington, D.C.: World Bank, 1981).

⁷U.S. Department of Agriculture, Foreign Agricultural Service, "Production, Supply and Distribution of Agricultural Commodities Tape, 1984," USDA, Washington, D.C., 1984.

In the following study regional figures, such as NMC procurement and sales, are used, although administrative regions do not necessarily relate to agro-economic zones. This is because NMC's regional figures are the only visible tip for guessing the whole picture of total maize production in the country, and they are the basis for political decisionmaking.

The factors that affect the nature of maize production of a region--either surplus-producing or deficit--are considered to be, first, the natural endowment of the land, such as fertility, annual rainfall patterns, and topographical conditions; and second, socio-economic factors, such as population, distance from storage and transport networks, and availability of inputs. Reliable rainfall is of particular importance because most of the area under maize is without irrigation. The existence of an illegal market, which is closely related to the proximity of major cities, also affects the volume of maize entering the official marketing channel.

To examine the characteristics of the regional maize production pattern, the 20 mainland regions of Tanzania are grouped as follows: first, major surplus-producing regions, procurement from which has constantly contributed to the bulk of national maize surpluses; second, former surplus-producing regions, which produced a consistent surplus in the past but now fail to do so; and third, regions with a negligible volume of maize for official procurement. Table 1 shows the grouping of the regions; Figure 3 shows their location. Most of the regions under the first two categories are in the fertile Southern or Northern Highland areas.

The total procured amount of maize under each category in Table 1 is shown in Table 2. As is evident from these figures, there have been wide fluctuations in total procurement. For instance, in 1971/72, total procurement was only 23 percent of that of the previous year, but in 1978/79 procurement was 917 percent larger than the poorest harvest in 1974/75. Moreover, the share of the 10 regions under the third category in total procurement has become increasingly smaller. This means that in 1980/81, the contribution from these 10 regions to the public channel was 1.3 percent of the total, whereas purchases from the 6 regions in the first group amounted to 95.0 percent.

The import and procurement figures show extreme fluctuations from year to year around the bumper period in the late 1970s. However, this variation in the official figures may not exactly correlate with the overall production of maize.

Even so, the wide fluctuations are worrisome because imports must be obtained on the basis of expected grain flows, and these have become increasingly erratic. As the next chapter shows, the parallel market may have been a stabilizing element for the total quantity produced but a destabilizer for the amount obtained through government procurement.

Table 1--National Milling Corporation purchases of maize by region, 1970/71 - 1981/82

Region	1970/71	1971/72	1972/73	1973/74	1974/75	1975/76	1976/77	1977/78	1978/79	1979/80	1980/81	1981/82
	(1,000 metric tons)											
Major surplus regions												
Iringa	36.5	7.7	8.2	11.2	4.1	10.5	14.7	20.9	27.2	26.3	21.8	33.5
Mbeya	2.5	0.2	0.1	1.4	0.7	2.2	5.5	11.7	6.7	6.4	5.3	7.5
Rukwa	...	...	...	...	0.7	3.0	11.8	8.5	5.3	15.9	17.8	17.2
Ruvuma	1.7	...	0.5	0.1	4.2	12.7	10.0	16.1	22.8	17.8	14.5	20.0
Arusha	45.1	7.6	17.1	7.0	2.9	10.1	14.8	60.3	69.5	47.4	17.4	3.0
Dodoma	58.6	15.6	54.1	34.5	...	6.0	11.5	17.8	36.6	27.1	23.6	4.5
Former surplus regions												
Tanga	0.9	0.1	...	...	3.8	20.2	20.8	7.2	7.3	0.4	0.1	1.4
Kilimanjaro	16.0	2.9	11.8	6.0	4.8	4.8	6.1	22.9	13.6	5.9	0.1	0.1
Morogoro	6.7	3.9	9.6	5.4	1.0	10.5	9.2	14.5	4.5	1.1	0.7	0.4
Tabora	1.3	0.9	0.5	...	...	0.1	3.5	10.9	5.7	4.9	2.4	0.4
Other regions												
Coast/Dar es												
Salaam	...	...	...	...	...	1.5	2.4	21.1	0.8	...	...	...
Kigoma	0.2	...	...	...	...	0.2	0.7	0.9	1.0	0.4	0.2	0.4
Lindi	...	...	...	...	...	1.2	2.7	3.0	2.0	0.1	0.2	0.4
Mara	10.0	1.6	3.6	6.2	1.7	1.1	5.9	5.5	4.2	3.0	0.1	...
Mtwara	...	...	...	...	...	2.7	4.4	1.8	1.0	...	0.2	...
Mwanza	1.3	0.1	0.2	0.4	...	2.9	1.3	2.4	4.2	2.0	...	...
Shinyanga	0.2	1.4	...	...	...	0.7	...	2.5	2.4	1.1	0.2	0.2
Singida	5.4	1.0	0.7	1.6	...	0.5	1.1	1.0	3.6	0.7	0.4	1.2
Kagera	...	...	...	...	...	0.2	1.1	1.3	0.8	0.7	0.1	...

Source: Unpublished data provided by the National Milling Corporation.

Notes: Other regions are those that produce a nil or negligible surplus of maize. Former surplus regions no longer produce a consistent surplus. The ellipses indicate a nil or negligible amount.

Figure 3--Map of Tanzania

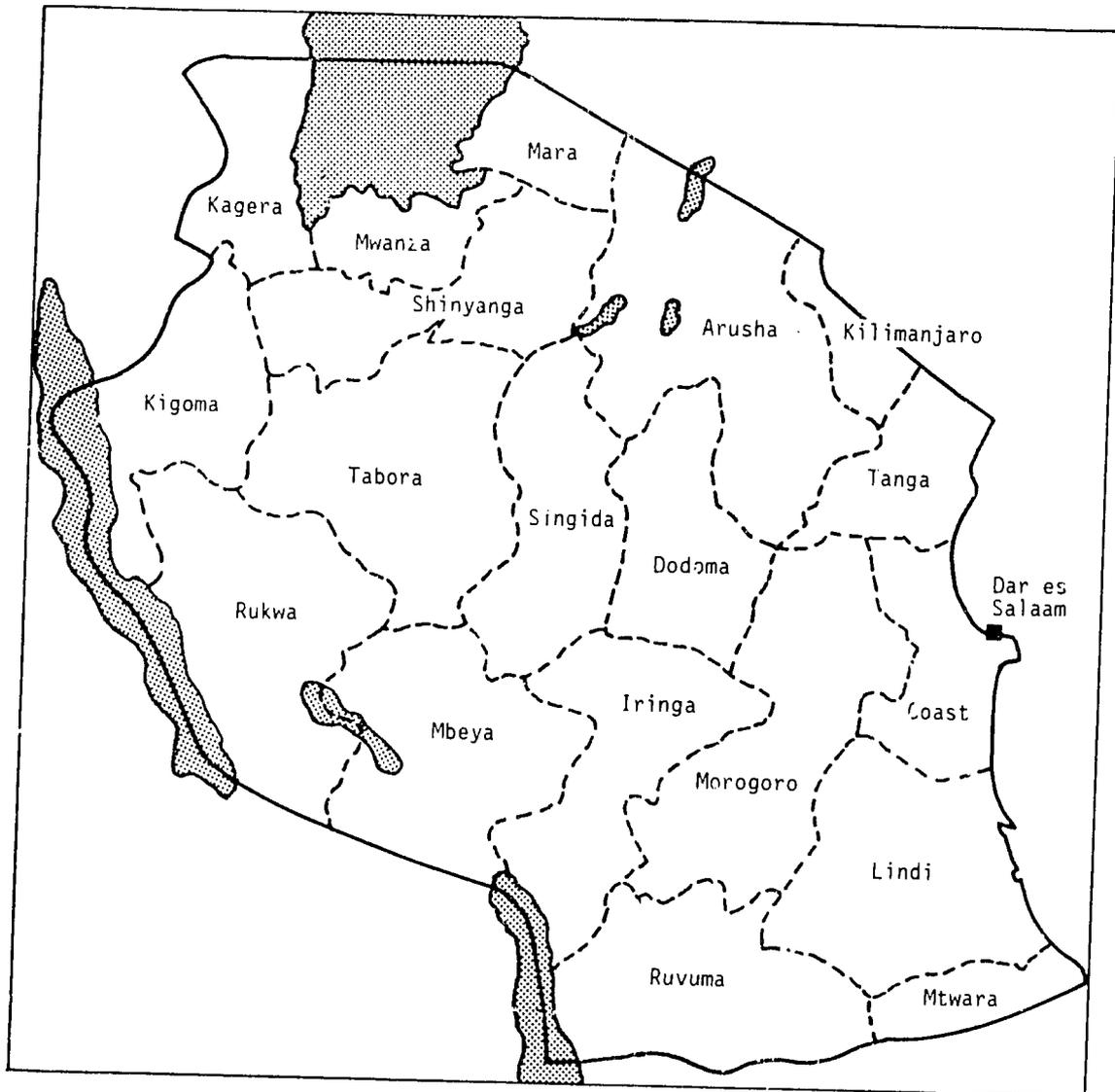


Table 2--National Milling Corporation purchases of maize categorized by regional producing groups, 1970-81

Year	Regions			Regions		
	Major Surplus	Former Surplus	Other	Major Surplus	Former Surplus	Other
	(1,000 metric tons)			(percent)		
1970	144.1	24.9	17.1	77.50	13.34	9.16
1971	31.1	7.8	4.1	72.33	18.14	9.53
1972	80.0	21.9	4.5	75.19	20.58	4.23
1973	54.2	11.4	8.2	73.44	15.45	11.11
1974	12.6	9.6	1.7	52.72	40.17	7.11
1975	44.5	35.6	11.0	48.85	39.08	12.07
1976	68.1	39.6	19.6	53.50	31.11	15.40
1977	135.3	55.5	20.5	64.03	26.27	9.70
1978	168.1	31.1	20.0	76.69	14.19	9.12
1979	140.9	12.3	8.0	87.41	7.63	4.96
1980	100.4	3.3	1.4	95.53	3.14	1.33
1981	85.7	2.3	2.2	95.01	2.55	2.44

Source: Calculated from Table 1, which is based on data provided by the National Milling Corporation.

3. PARALLEL MARKETS IN A CONTROLLED-PRICE FRAMEWORK

At this point, it is essential to look at the extremely important phenomenon of informal or parallel markets. Legally permissible trade of maize that does not go through the official procurement network in Tanzania is limited to the movement of 450 kilograms per person at one time. (Each bag of maize weighs 90 kilograms so this means five bags of maize is the maximum amount for a privately traded load.) The other outlet for maize leaving the farm is illegal trade, both inside the country and across the border. Estimates differ as to the actual scale of such trade, but it is not out of line to guess that the amount might exceed that officially marketed.

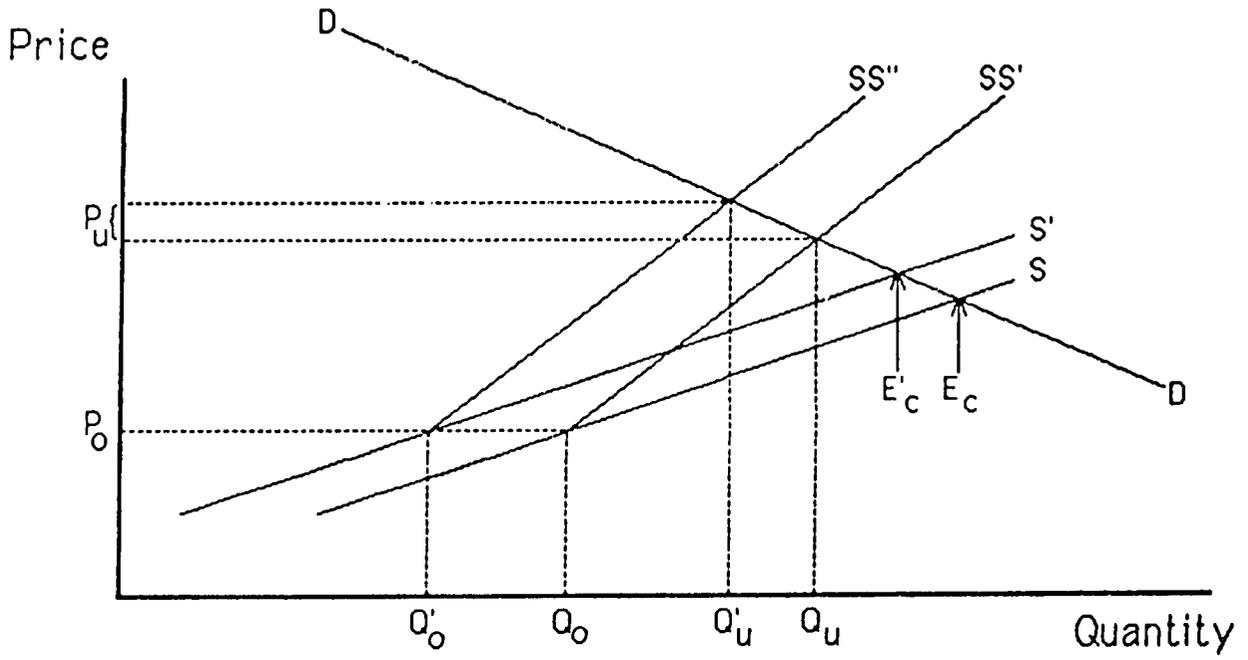
Policing the hitherto illegal trade is next to impossible because of Tanzania's long border with eight neighboring countries and the proximity of some growing areas to large urban centers. In fact, it is this distribution of producing areas that makes an analysis of the parallel markets so important.

The framework for analysis consists of two types of producing regions, one with a strong parallel market (near a border or urban area) and the other with a weak informal market (the Southern Highlands). In Figure 4, in the example of a strong informal market the area has easy access to a sizable urban market where prices are two to three times higher than those set by the government. Line DD represents aggregate demand in the region, and line SS' represents aggregate supply in an average year. P_0 is the official level of prices. The supply curve SS' is kinked above the equilibrium supply curve S because of the additional costs per unit of supplying to an illegal market (risk and transport). Q_0 is the amount supplied to the government and $Q_u - Q_0$ is the amount sold in the parallel markets.

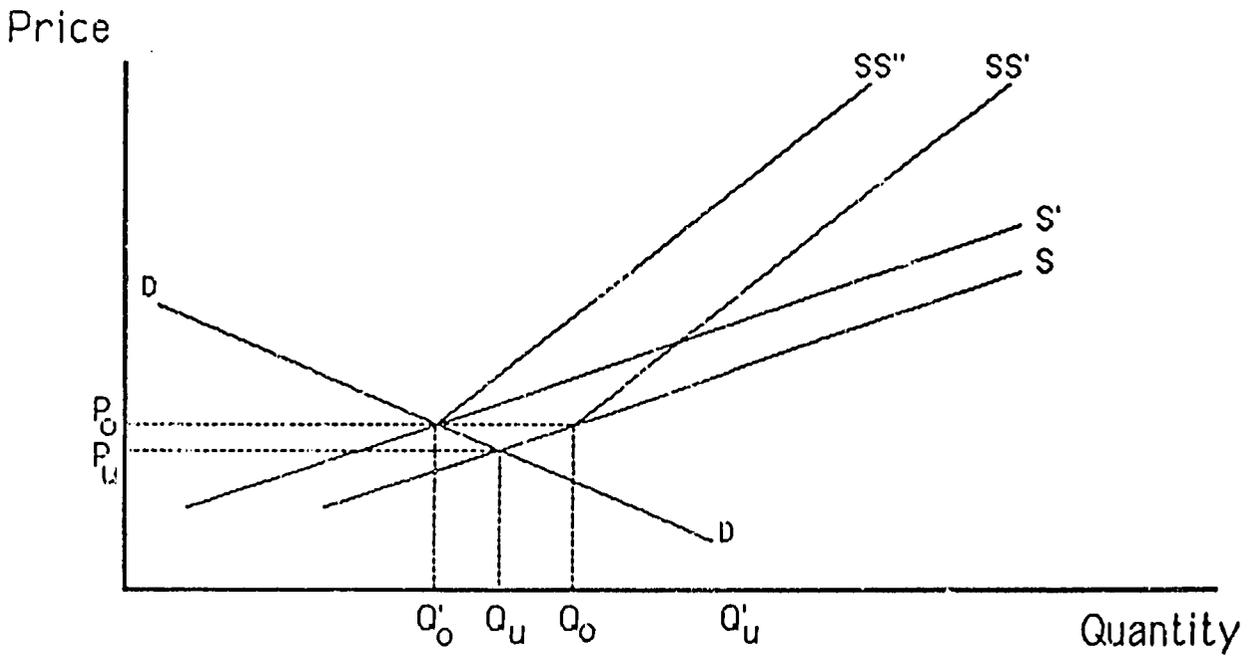
Because prices are set before the crop is planted, an exogenous production disturbance (such as weather) will move the supply curve in (or out) without changing the price in the government market. In a poor year the drop in the amount sold to the government is equal to the shift in the supply curve (SS' --> SS''). However, the price is free to adjust in the parallel market so the quantity will fall by a smaller amount if the demand is less than perfectly elastic. The inverse is true in a good year. The figure shows that the variability of quantity in the official market is much higher than that in the parallel market and the more inelastic the demand the greater the quantity change in the government market and the price change in the illegal market. The concept of a weighted average price where the procured grain goes to

Figure 4--Examples of strong and weak informal markets

Strong Informal Market



Weak Informal Market



the poorer groups with a high income elasticity of demand is not relevant here because of the lack of targeting of sales.⁸ In fact, wealthier urban consumers receive the bulk of the procured maize so the program has an additional negative distributional effect.

If the government did not intervene at price P_0 and the market could reach competitive equilibrium at point E_c , the quantity sold would be larger and the price in the informal market lower, achieving a net gain for consumers and producers in this region. In this framework an exogenous shortfall in production would raise price and lower quantity less, thus softening the impact on the economy. This would also be reinforced through better control over imports needed to cover any national foodgrain deficit. However, the overall operating expenses of the system would continue to grow as production shifted to distant areas.

The region where the informal market is weak faces a different local demand for maize (Figure 4). Because it is not near an urban center or an easily traversable border, the "normal" equilibrium point would be at $P_u Q_u$, with price lower than the official price. However, the government price effectively increases demand and raises the price to P_0 . Local consumption falls to Q'_0 and production rises to Q_0 . The amount supplied to the government purchasing agency is $Q_0 - Q'_0$.

For this area, the program of price setting has a large gain for producers, a loss for local consumers, and a net gain for the area. When there is a supply shock, however, the entire reduction in supply comes from the amount sold to the government. Although one region gains and one loses from panterritorial pricing, both react in the same fashion to an exogenous supplyside shift. The volatility of procurement is much greater than the quantity supplied to an undistorted market.

On a national level, this means that in lean years, when subsistence consumption is a higher percentage of total production, even less maize will be available for procurement, forcing the government to turn to larger imports. In bumper crop years the government may be forced to hold excess supplies of grain, as the amount channeled through procurement rises. If prediction is difficult, as it must be with no crop-cutting surveys, then planning levels of imports is even harder, and timing deliveries to ports is a matter of chance.

Aside from the aforementioned problems, there is a direct efficiency loss to the country as a result of the associated costs of participating in the illegal market. This appears graphically as the

⁸John W. Mellor, "Food Price Policy and Income Distribution in Low Income Countries," Economic Development and Cultural Change 27 (No. 1, 1978).

area between the kinked section of the supply curve and its normal straight extension to E_C in the diagram for the strong informal market. Because the supply curve is now steeper at every point above the official price, the quantity volatility is also greater than if there were no additional costs to entering the parallel market.

PARALLEL MARKETS AT WORK

This brief review concentrates on those regions notable for being deficient in maize production and consumption, namely, Tanga, Kilimanjaro, Morogoro, Coast, Dar es Salaam, Mwanza, and Shinyanga. Only the procurement figures have been shown so far. Thus there is a need to review the total situation by relating procurement to regional sales figures. To focus attention on major deficit regions, only five regions are shown for every year in Table 3. (Needless to say, NMC had to resort to maize imports when column 1 was below zero).

Chronic shortages of maize in Coast, Dar es Salaam, Mwanza, and Tanga regions are evident in Table 3. Conspicuous shortages in Kagera region in the late 1970s can be explained by Tanzania's military conflict with Uganda, which took place in this region from 1978 to 1979, and the reasons for the deficiencies in Dar es Salaam-Coast and Mwanza are clear, since they are the largest urban centers in the country. Mwanza region also has a strong cash crop--cotton--competing for land. Table 4 shows the rapid growth of urban population. In these urban centers, the regional supply of grains can seldom fill the demand.

The case of Tanga, however, is more complicated. Tanga City is the third largest city, but the whole region is fertile and used to be very productive. Procurement from Tanga region suddenly dropped in the late 1970s, coinciding with the advent of panterritorial pricing. The procurement figure for 1980/81 (100 tons) is surprisingly low, compared to that in 1976/77 (20,800 tons). This seems to be the perfect example of a strong parallel market absorbing the regional surplus. In 1974/75, 91.1 percent of Tanga City's food needs were met by NMC sales. By the end of the decade, that percentage had dropped to 66.7 percent.⁹

Looking at the production estimated for 1977/78 (admittedly a very good weather year throughout the country), Tanga ranked seventh out of 21 districts in maize production and produced 308 kilograms per capita of food crops, more than the national average of 284 kilograms per capita. Tanga was also the third highest per capita producer of cash crops in spite of having one of the largest populations.

⁹World Bank, Tanzania Agricultural Sector Report.

Table 3--National Milling Corporation maize sales compared to purchases in major deficient regions, 1974/75 to 1980/81

Year	National (Aggregate) Purchases Minus Sales	Major Deficient Regions	Regional Purchases Minus Sales
	(1,000 metric tons)		(1,000 metric tons)
1974/75	-174.5	Coast/DSM	-61.7
		Mtwara	-19.5
		Arusha	-19.2
		Morogoro	-15.5
		Tanga	-13.8
1975/76	- 39.0	Coast/DSM	-55.7
		Dodoma	- 7.5
		Mwanza	- 6.6
		Shinyanga	- 5.4
		Tabora	- 4.5
1976/77	- 0.3	Coast/DSM	-49.7
		Mwanza	-10.1
		Singida	- 4.1
		Shinyanga	- 2.5
		Kagera	- 2.1
1977/78	+106.7	Coast/DSM	-54.7
		Tanga	- 4.5
		Mtwara	- 2.7
		Kagera	- 2.4
		Lindi	- 1.2
1978/79	+ 72.6	Coast/DSM	-83.0
		Kagera	- 9.3
		Tanga	- 6.7
		Mtwara	- 3.1
		Mwanza	- 1.4
1979/80	- 30.7	Coast/DSM	-99.5
		Tanga	-22.2
		Morogoro	- 6.1
		Kagera	- 3.4
		Mwanza	- 2.3
1980/81	-113.2	Coast/DSM	-107.7
		Tanga	-25.4
		Mwanza	- 9.4
		Shinyanga	- 8.9
		Kilimanjaro	- 7.9

Source: Tanzania, Ministry of Agriculture, and Food and Agriculture Organization of the United Nations, The Availability of Food in Tanzania in 1981/82 (Dar es Salaam: Government Printer, 1981).

Notes: DSM stands for Dar es Salaam, the capital city. Lindi became an independent region in 1975.

Table 4--Urban population by town or city, selected years

Region	1967	1978	1980	1985
	(1,000 persons)			
Dar es Salaam	273	759	911	1,447
Mwanza	35	110	136	228
Tanga	61	103	120	177
Mbeya	12	77	195	160
Tabora	21	67	83	140

Sources: 1967 and 1978 figures are from census. 1980 and 1985 figures are from estimates by Tanzania Ministry of Agriculture, National Food Strategy Project.

All this goes against the picture shown by the official net procurement and disbursement figures and weighs heavily on the side of the existence of a large parallel market. With its large urban population and its border with Kenya, Tanga has the right demand side conditions for development of a parallel market.

The trends of Kilimanjaro and Morogoro regions are similar to that of Tanga. They were official surplus regions in the past, but recent figures show a rapid decline. Meanwhile their per capita productivities remain among the best. Again parallel markets work against the efforts of procurement officials.

Against this background, the emergence of four southern regions, Ruvuma, Rukwa, Iringa, and Mbeya, as the giant maize growers of the country requires attention. Their success is the result of a policy that was adopted to facilitate the goal of increased production in the far, fertile regions. Before looking at these regions, however, the origins and development of the panterritorial pricing policy should be examined.

4. PAN TERRITORIAL PRICING POLICY

In July 1974, the government adopted a panterritorial pricing policy for maize, paddy, wheat, tobacco, cashew nuts, and pyrethrum. Through this policy, the Cabinet annually determined one uniform producer price for each crop all over the country regardless of the location of growing areas or transport costs involved. There was a precedent case of uniform pricing for cotton growers in the mid-1960s.

In the National Food Strategy of 1982, the Ministry of Agriculture stated:

...the main objective of panterritorial prices is to encourage farmers in remote areas to produce more for the market by subsidizing their transport costs. Through this policy, the government also hoped the income differentials between regions would tend to decrease and equal regional development would be encouraged.¹⁰

Panterritorial pricing was not limited to agriculture alone. Later the policy was applied to the factory prices of specified manufactured goods as well in an attempt to alleviate the burden of relatively poor rural people at the expense of relatively better-off urban dwellers.

After a strong nationwide drive for villagization in 1973, the implementation of which could be considered a bit severe, the output of food crops shrank drastically in 1973/74. Climatic conditions were unfavorable, and they were coupled with high oil prices during and after the oil shock. It was a time when the balance between demand and domestic supply was upset, and the country had to resort to massive imports of food. This period of confusion was followed by a disastrous harvest in 1974/75, when the total domestic procurement of maize amounted to no more than 23,900 tons (see Table 2).

The government simultaneously faced the newly created problem of absorbing increasing transport costs and thus higher total marketing

¹⁰Tanzania, Ministry of Agriculture, National Food Strategy (Dar es Salaam: Government Printer, 1983).

costs. Within the framework of the decentralization policy adopted in 1972 and the goal of equal development of the regions, the decision to subsidize transport costs for producers in remote regions seemed reasonable.

The total cost of grain imports between March 1974 and September 1975 reached 12 billion Tanzanian shillings (TSh).¹¹ The striking size of the food shortage problem that resulted caused the government to adopt a national slogan of "Food is our life-or-death problem." Food production received national attention for the first time since independence. Producer prices of all food crops were raised, but the cost-of-living index was also on a sharp upward curve (see Figure 5).

SOUTHERN REGIONS EMERGE AS RELIABLE MAIZE SUPPLIERS

After adoption of the panterritorial pricing policy, the total NMC maize purchase began to recover. It was helped by a series of supportive measures, such as the revision of producer prices. The special emphasis given to food production by the political leadership also played a positive role in the recovery, and many public offices and private companies encouraged their employees to cultivate home plots.

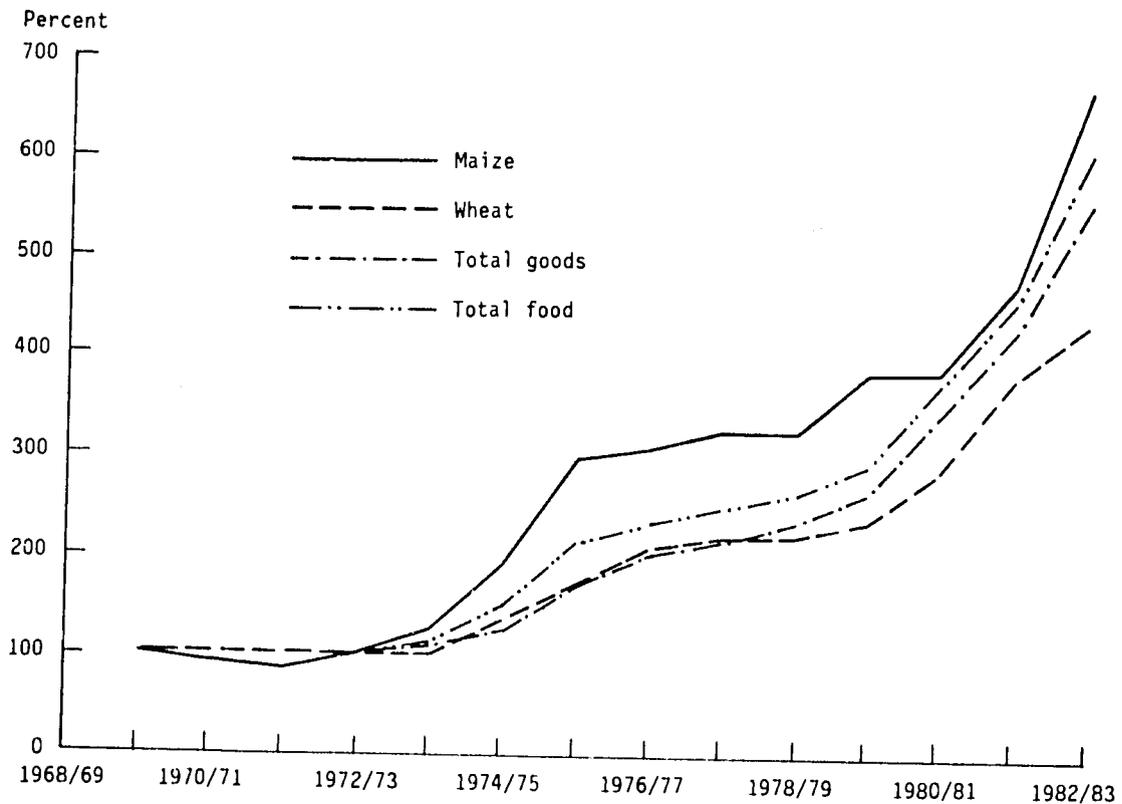
Though growing conditions in 1975/76 were poor and in 1976/77 were fair, in 1977/78 and 1978/79 they were quite good. Domestic maize procurement was the best in the decade, exceeding 210,000 tons (see Table 2).

During the post-oil-shock recovery period, the importance of the southern highland regions of Iringa, Mbeya, Ruvuma, and Rukwa became increasingly evident, as surpluses from these regions constantly made up the bulk of national maize procurement. Iringa and Mbeya had long been noted for their high agricultural productivity, but the emergence of Ruvuma and Rukwa regions as major producers opened a new era of maize production in Tanzania.

From the beginning, these two regions had great natural potential for becoming surplus-producing areas because both are endowed with ideal altitudes and, more importantly, a reliable amount and pattern of annual rainfall. However, they are far from the capital; thus transport costs are high. (The distance between the national capital, Dar es Salaam, and the regional capital of Rukwa region, Sumbawanga, is 741 miles, and that between the national capital and Songea in Ruvuma is 620 miles.)

¹¹In 1981, U.S. \$1.00 equaled TSh 8.2. See Tanzania, Ministry of Agriculture, National Food Strategy.

Figure 5--Producer prices for maize, wheat, food, and total goods, 1968/69 - 1982/83



Source: World Bank, Tanzania Agricultural Sector Report (Washington, D.C.: World Bank, 1983).

As mentioned earlier, under the old pricing system, the price farmers received was the residual after all marketing costs had been deducted. As a result, producer prices were kept low in the distant regions, and few farmers grew maize other than for subsistence purposes.

Under the new pricing system, however, the long distances between the major producers and the main deficit areas were no longer an obstacle. The uniform pricing system greatly encouraged maize production in those remote but fertile areas. In sharp contrast to the wide year-to-year fluctuation of officially purchased maize in some other regions like Arusha and Dodoma, the steady and reliable character of maize production in those southern highland regions helped stabilize the amount of national maize stock. This remarkable dependability is not surprising given the interaction between this implicit subsidy and the parallel market. A portion of the maize produced consistently entered the official market.

As far as the amount of total official maize procurement was concerned, things went satisfactorily. Tanzania enjoyed bumper maize purchases in 1977 and 1978. However, the overall operating expenses of the system continued to grow as production shifted to the distant areas. The severity of the obvious problem of the new system--high transport costs--began to be more apparent toward the end of the 1970s, as the country began to suffer from worsening macroeconomic conditions, particularly a shortage of foreign currency.

HIGH TRANSPORT COSTS

As a result of the national emphasis on increased food production, Tanzania went through difficult years in the mid-1970s. As far as this first priority was concerned, the results were fair, and the nation was able to secure a stable amount of maize through the official channel, at least for a few years.

The merits of the new system were soon to be offset, however, by high transport costs. Since the decision to implement panterritorial pricing was reached partly on the basis of political considerations, without expectation of covering real costs, the growing difficulty stemming from high transport costs was, in fact, not unanticipated. The difference between NMC costs and selling price was accumulated as an NMC deficit. (For producers and consumers it was an implicit subsidy.) Provisions to cover the implicit subsidy had not been worked out when the new system was started.

The question of high transport costs is not a difficulty unique to Tanzania. It has been a problem shared by all nonoil-producing countries in Africa. But the problem of maize distribution was particularly costly and hard to manage in Tanzania because the distance between main deficit areas and surplus-producing areas was exceptionally long. Also, in the years of poor harvest there was the additional expense of transportation for imported maize coming from main ports (Dar es Salaam, Tanga, and Mtwara) and going to distant, deficient areas, such as Mwanza, Shinyanga, and Kigoma. Because consumer prices were set by the uniform pricing system, regardless of the actual transport costs involved, interregional transfers of maize were extremely costly, as Table 5 shows.

The more the country increased its dependency on maize from the Southern Highland, the more evident was the costly character of the maize distribution system in Tanzania. With the concurrent dramatic decrease in the amount of official purchases from some former productive areas, such as Dodoma and Arusha, NMC maize purchases from the "Southern Four" became predominant, amounting to 86.7 percent of the total purchase in 1981/82. (In 1980/81, approximately 5,000 tons of maize were transported from Ruvuma to Dodoma. So Dodoma not only ceased to be surplus-producing, it had to purchase maize from other areas.)

Table 5--Estimated costs of required interregional transfers of maize, 1980/81

Departure Point	Destination	Cost/Ton
Dar es Salaam	Morogoro	140 TSh
" "	Mwanza	400 TSh
" "	Mara	475 TSh
" "	Kagera	470 TSh
Rukwa	Kigoma	800 TSh
" "	Shinyanga	1,200 TSh
Ruvuma	Lindi	1,050 TSh
" "	Dodoma	900 TSh

Source: Tanzania, Ministry of Agriculture, Price Policy Recommendations for the 1981/82 Agricultural Price Review (Dar es Salaam: Government Printer, September 1980).

Under this system, the costs of domestic maize brought to Dar es Salaam either for consumption there or for further interregional transfer tended to be higher than the cost of imported maize at the store. In 1981/82, the out of storage cost of imported maize at Dar es Salaam was TSh 2,313 per ton. For one ton of Ruvuma maize to be transported to the capital, NMC operational costs were TSh 738 and transport costs were TSh 655 (Songea to Makambako by truck and Makambako to Dar es Salaam by train). Therefore, for the price of domestic maize from Songea, purchased in Dar es Salaam, to equal the price of imported maize, the farmgate price should have been TSh 920 a ton [TSh 2,313 - (TSh 738 + TSh 655) = TSh 920]. But the actual producer price paid to farmers that year was TSh 1.50 a kilogram, bringing the price for a ton to TSh 1,500. Therefore, in that year, every ton of maize moved from Ruvuma to Dar es Salaam was TSh 580 higher than imported maize.

Although the nominal loss on a ton of Ruvuma maize was TSh 580 in 1981/82, this does not necessarily mean that the domestic maize was inefficient compared to imported maize, which will be discussed later. However, relative efficiency was no consolation to the NMC, who purchased 20,000 tons in Ruvuma in that year for an apparent loss of TSh 11,600,000 or U.S. \$1.4 million at the official exchange rate.

HUGE DEFICITS INCURRED THROUGH NMC OPERATION

Besides the problem of soaring transport costs, there were other factors that contributed to NMC's high operational costs, among them managerial problems and shortage of storage and milling facilities. Apart from maize, the inclusion of subsistence crops into the NMC purchase and marketing system also turned out to be costly, due to insufficient demand in the market. The policy of purchasing maize from growers at prices reflecting their production costs and then selling it to consumers without fully incorporating intermediary costs inevitably pushed NMC into deep financial crisis. Striking a rational balance between cheap imported maize and relatively more expensive domestic maize was an issue that should have received more attention, especially in view of the special locational advantage of Dar es Salaam. Dar es Salaam was both an international seaport, with easy access to imported maize, and the biggest center of the domestic maize distribution system. The policy emphasis was on self-sufficiency in staple foods: the NMC tried to secure the required amount of food crops through domestic purchase. Imports could be planned only after it was proved that the target would not be reached through domestic procurement.

In addition to the transport subsidy, there were distortions in the maize trade from the difference between maize flour prices and maize grain prices. Maize flour required further processing (and a 10 percent loss in volume) and, therefore, logically should have cost more, but actual selling prices of maize flour were lower than those of unprocessed maize grain. Naturally, more consumers tended to buy the finished product rather than maize grain, which required household labor for processing. Consequently, NMC's financial loss further increased. The estimated NMC ex-store cost of maize was TSh 2,209 per ton in the crop year 1980/81, whereas its actual selling price was TSh 1,879 per ton, and the NMC loss was TSh 330 per ton.¹² As for maize flour, the NMC ex-store cost was TSh 2,771 per ton, and yet the actual selling price was only TSh 1,134 per ton, making the NMC loss TSh 1,637 per ton. In 1980/81, the estimated amount of sales of maize flour reached 252,000 tons and the total amount of implicit subsidy spent for milling maize was approximately TSh 412.5 or U.S. \$50.3 million.

In January 1980, the retail prices of rice and wheat flour were substantially raised, though that of maize flour was reduced by 29 percent (Figure 6). These changes coincided with a 17 percent increase in sugar prices and gave consumers an impression that the government was trying to balance the increase in sugar, rice, and wheat prices

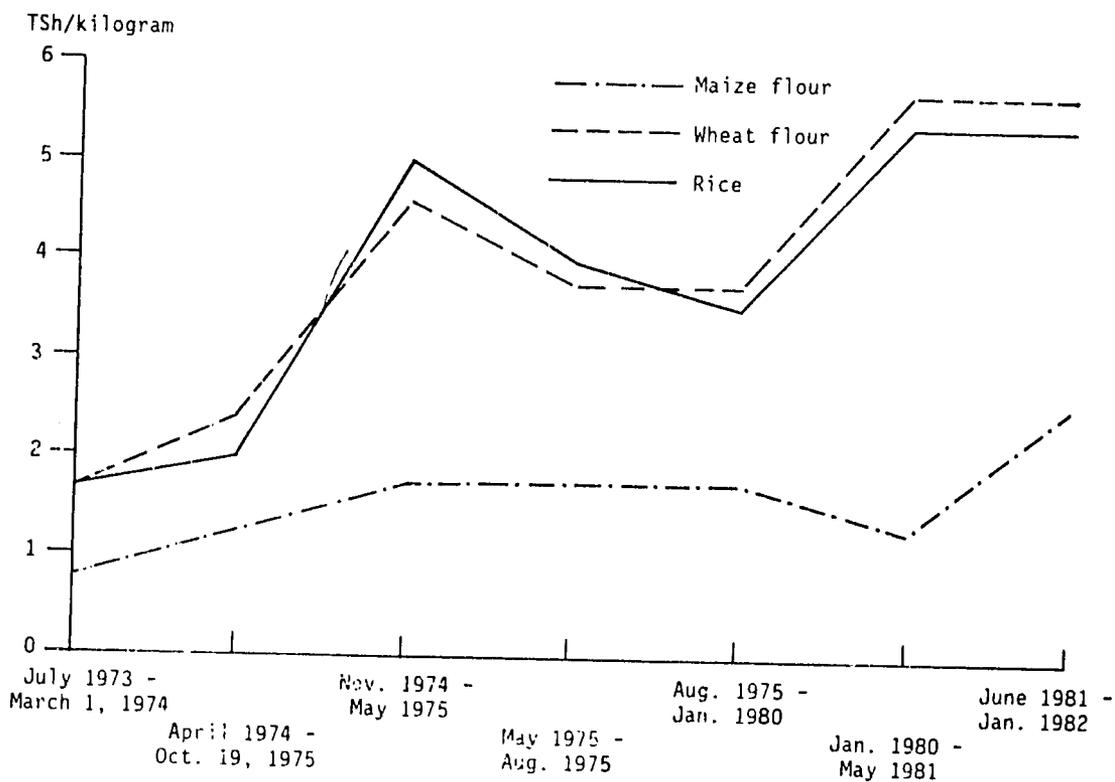
¹²Data provided by the Marketing Development Bureau of the Tanzania Ministry of Agriculture.

with a reduction in the price of the most popular staple, maize flour. It was explained that the decision was aimed at helping low income earners who would be most hit by the removal of the subsidy on the prices of rice, wheat flour, and sugar. (Later, rice and wheat flour prices arrived at a break-even position, though the accumulated loss of NMC incurred from maize distribution and milling continued to grow bigger). NMC sales of milled maize were always substantially larger than sales of maize grain, as Table 6 shows.

The problem of striking the proper balance between the amount of maize flour sales and maize grain sales remained an issue until June 1984, when the system was amended and the question of maize flour pricing was left in the hands of regions.

The panterritorial pricing system did not end with maize distribution alone. Parallel to this system, there was the introduction of a "fertilizer subsidy," composed of, first, a subsidy for fertilizer and

Figure 6--Retail prices of maize and wheat flour and rice, 1973/74-1981/82



Source: Tanzania, Ministry of Agriculture, Marketing Development Bureau, Agricultural Price Review 1982/83 (Dar es Salaam: Government Printer, 1982).

Table 6--National Milling Corporation sales, domestic production and imports, 1977/78-1980/81

Commodity	1977/78	1978/79	1979/80	1980/81
	(1,000 metric tons)			
Maize flour	100.9	140.6	176.3	231.9
Maize	3.6	n.a.	27.6	44.4
Rice	75.6	70.1	61.5	80.5
Wheat flour	71.7	72.8	41.1	32.0

Source: Tanzania, National Milling Corporation.

Note: n.a. means not available.

second, a subsidy for the transportation of fertilizer. The costs of the fertilizer subsidies are given in Table 7. The first subsidy was the difference between ex-factory costs of various domestically manufactured fertilizers and their actual selling prices. It was understood to cover the high manufacturing costs of domestic fertilizer compared to imports. This subsidy was between 30 and 52 percent of ex-factory fertilizer prices, depending on the type of product.

The second category of fertilizer subsidy was started in June 1976 and was meant to cover the full cost (a 100 percent subsidy) of transporting fertilizer between storage centers and regions of usage. Here also, the four southern regions (Ruvuma, Rukwa, Iringa, and Mbeya) emerged as big consumers and absorbed approximately 80 percent of the total transport subsidy. This system must have certainly given further incentive to the maize-growing farmers in these fertile regions to increase their production of maize, as the resultant procurement figures show. It was, however, achieved at the cost of the nation's already meager financial capability.

All these implicit subsidies added to NMC's operational losses. Bank overdrafts at the sole commercial bank, the National Bank of Commerce, totaled more than TSh 2,000 million (approximately U.S. \$242 million at the official rate) in 1980/81. To liquidate this overdraft, the government intervened and arranged to repay the debt to the bank within eight years.

In 1981, as a part of efforts to determine an effective means to ease the worsening economic crisis, the panterritorial system of

Table 7--Fertilizer costs and implicit subsidy in 1980, based on 1981/82 prices

Year	Quantity of Fertilizer Required (metric tons)	Value of Fertilizer c.i.f. (US\$ million)	Domestic Production (tons)	Foreign Currency Exchange Component of Imports and Production (US\$ million)	Ex-Factory Value of Domestic Production + Value of Imports c.i.f. (TSh million)	Amount Paid by Farmers (TSh million)	Implicit Subsidy		
							Price	Trans- port	Total
1980	104,407	25.0	55,000	23.1	335.7	226.6	109.1	79.9	189.0

Source: Unpublished data provided by Tanzania, Ministry of Agriculture.

Notes: The figures are based on these assumptions: the transport cost is TSh 765 per ton; the farmer's price is TSh 2,170 per ton; the fertilizer provided is 25 parts of nitrogen to 5 parts each of phosphorus and potassium; the price at the factory is TSh 4,290 per ton; and the c.i.f. price for imports is U.S. \$245 per ton at 1981/82 prices.

pricing food crops at the points of production was reviewed and was abolished in July of that year. But the abolition was not immediately implemented all over the country; the system was only brought to a complete halt in 1984. The fertilizer subsidies on both price and transport continued until June 1984.

STRUCTURAL ADJUSTMENT

It should be noted that in a nonoil-producing developing country like Tanzania, the transport sector is especially vulnerable to a foreign currency crisis because approximately 80 percent of total transport cost is spent for imported products.

At the same time that the panterritorial pricing policy was abolished, the pricing system itself was reviewed in order to add more flexibility to the pricing mechanism. The intent of the changes adopted was expressed in the Structural Adjustment Program of June 1982.

NMC's present practice of announcing stable producer prices and stable consumer prices ahead of the crop season will be made more flexible. A sliding scale price system (developed by MDB in association with NMC) will be introduced under which both producer and consumer prices are adjusted within an announced range depending on the actual supply situation. Prices being increased in years of scarcity and reduced in years of good harvests....¹³

Despite these policy changes, the importation of preferred staples was not reduced. The country's imports (including aid) amounted to 348,421 tons of cereals in 1981/82, of which 231,699 tons were maize; 161,432 tons of cereals in 1982/83, of which 122,684 tons were maize; and 326,330 tons of cereals in 1983/84, of which 228,550 tons were maize.

In June 1984, the panterritorial maize flour subsidy, which had grown to TSh 475 million in the previous year, was abolished at the same time as the fertilizer subsidy. It was also made clear that NMC's future operations would be reduced, especially the scope of area covered and primary procurement. Primary procurement at the village level would thereafter be taken care of by revived agricultural cooperative unions.

In his budget presentation speech of June 1984, Ndugu Msuya, the finance minister, explained how maize (and maize flour) pricing should

¹³Tanzania, Ministry of Planning and Economic Affairs, Structural Adjustment Program for Tanzania (Dar es Salaam: Government Printer, 1982).

be carried out in the future: "In order to prevent Cooperative Unions from incurring deficits and debts like NMC, it is better that prices of grain especially maize and sembe (maize flour) be controlled commercially and regionally."¹⁴ The use of the word "commercially" in itself indicates a departure from the strict government-directed pricing policy that had prevailed.

Panterritorial pricing policy did not originate in Tanzania; it was adopted in many other African countries as well. The common aim was to help poorer regions, and the results were similar: scarce public resources were absorbed, regional specialization was impeded, and competition between private and official trade was distorted. What made the Tanzanian case more costly, perhaps, was the distant location of the most suitable regions for food crop production.

¹⁴Tanzania, Ministry of Finance, Speech by the Minister of Finance, Ndugu C. D. Msuya, M.P., Introducing the Estimates of Public Revenue and Expenditure for the Financial Year 1984/85 to the National Assembly on 14th June, 1984 (Dar es Salaam: Government Printer, 1984).

5. COMPARATIVE ANALYSIS OF ALTERNATIVE OPTIONS

Although the panterritorial pricing policy for maize was untenable in the long run, it did achieve its stated goal of "encouraging farmers in remote areas to produce more for markets by subsidizing their transport costs."¹⁵ The budget burden on the NMC proved to be too much because the underlying reasons for regional inequality and the high transport costs were never examined.

In spite of the policy's failure to be fiscally sound, the southern producers were not as inefficient and the overall costs not as severe as might appear at first. To examine this paradox, it is necessary to reexamine the relative costs of imported and domestic maize.

DOMESTIC MAIZE COSTS AND THE REAL EXCHANGE RATE

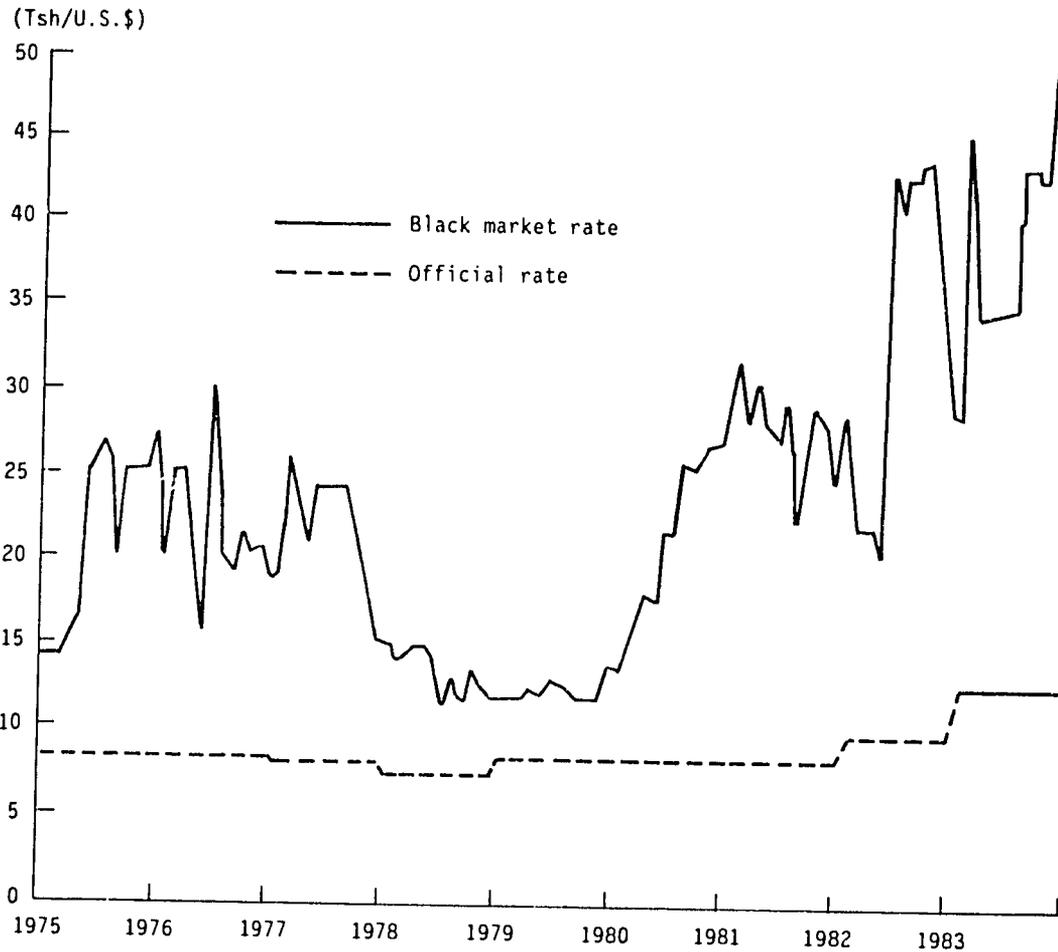
Recalling the example of Ruvuma maize presented in Chapter 4, where a ton of domestic maize cost TSh 2,900, while a ton of imported maize priced at the official exchange rate cost only TSh 2,313, the costs can now be recalculated with the foreign exchange components valued at a shadow or "real" rate.

In 1982 the monthly black market exchange rate, as measured in the national capitals of neighboring countries, ranged from 20 to 40 Tanzanian shillings to the U.S. dollar (Figure 7). Even accepting that the lowest figure for that rate is an upper limit to the shadow rate (whereas the official rate is the bottom limit), the efficiency of domestic versus imported maize can change dramatically. The World Bank estimates that the foreign exchange component of domestic maize in Tanzania is 45 percent.¹⁶ Taking that figure, the foreign exchange component can be conservatively estimated at 40 percent of the total. The loss from paying farmers TSh 1,500 instead of TSh 920 becomes essentially zero, as is shown in Table 8.

¹⁵Tanzania, Ministry of Agriculture, The Agricultural Policy of Tanzania (Dar es Salaam: Government Printer, 1983).

¹⁶World Bank, Tanzania Agricultural Sector Report.

Figure 7--Official and black market exchange rates, 1975-83



Source: Philip P. Cowitt, ed., World Currency Yearbook, 1984
(Brooklyn, N.Y.: International Currency Analysis, 1984).

This finding has ramifications far beyond the panterritorial pricing policy. It not only implies that at the shadow exchange rate the domestic resource cost of foreign and domestic maize is equal, but also, because a ton of imported maize costs its whole price in foreign exchange and a domestic ton only 45 percent of its price, each U.S. \$1.00 spent on a domestic ton substituted for a foreign ton will save more than U.S. \$2.00 in foreign exchange.

The relative efficiency of domestic maize does not mean that the panterritorial pricing policy is exonerated from the problems that beset it. While a more efficient operation might be a candidate for

POSSIBILITY OF GROWING COMPETITIVE CASH CROPS

Among Tanzania's major traditional cash crops (coffee, tea, sisal, cotton, cashew nuts, tobacco, and pyrethrum), tobacco is the only crop that has been grown extensively in the southern regions, which are now counted as major maize producers. The biggest single producer of tobacco, however, is still the Tabora region, which is not one of the Southern Four.

Therefore, the benefits of tobacco growing need to be compared with those of maize growing in the southern area. Maize growing in the southern regions was boosted by the subsidized transport costs. Because panterritorial pricing worked in favor of high-bulk, low-value crops, such as maize, it can be assumed that the policy tended to adversely affect production of competitive, high-value-but-less-bulky crops, such as tobacco, whose profitability is less sensitive to transport costs. Yet there is little evidence that official procurement of tobacco in these regions diminished after the adoption of the panterritorial pricing policy (Table 9). This is borne out by a comparison of the returns of the typical, traditional smallholder farmer. MDB data for 1981/82 indicate that the net return per labor day was TSh 12.7 for flue-cured tobacco, TSh 5.2 for fire-cured tobacco, TSh 7.4 on traditional maize, and TSh 15.4 on the highest quality of maize.

Table 9--Tobacco purchases by selected regions, 1972/73-1979/80

Year	Iringa	Mbeya	Rukwa	Ruvuma
1972/73	2,901	877	...	2,504
1973/74	3,801	493	...	1,855
1974/75	4,346	333	303	2,980
1975/76	3,438	500	278	2,259
1976/77	4,148	838	319	4,522
1977/78	4,266	1,222	351	3,592
1978/79	3,352	1,931	673	4,028
1979/80	2,400	1,830	831	3,500

Source: Unpublished data provided by the Tobacco Authority of Tanzania.

Note: Tobacco from Iringa, Mbeya, and Rukwa is flue-cured; that from Ruvuma is fire-cured. The ellipses indicate a nil or negligible amount.

subsidies to further the goals of regional equality and improved income distribution, the NMC was not such an organization. However, given the severe scarcity of foreign exchange in Tanzania, the domestic maize allows resources to be spent on vital inputs to both the agricultural and nonagricultural sectors.

The efficiency argument can also be turned against the pricing policy. If domestic production was almost adequate in the 1960s (as one would suppose given the level of imports), there would seem to exist a better solution to the problem of regional wealth disparities: one that would not put so much pressure on the government budget. The requirements for improving regional income disparities are rooted in the relative underdevelopment of transport and other infrastructural items, as well as in the development of efficient markets. Simple price solutions are not the answer. Because large, expensive investments cannot be made properly when done in haste or without proper support, the Tanzanian government must look to other means to provide short-term relief for the southern region.

Table 8--Shadow exchange rate and relative efficiency of domestic maize

Cost	Official	Shadow Exchange Rate
		1.5 x Official
(TSh)		
Imported maize cost	2,313.0	3,470.0
Amount paid to farmers		
Domestic component	900.0	900.0
Foreign exchange component (40%)	600.0	900.0
Transport and operational costs		
Domestic component	835.8	835.8
Foreign exchange component	557.2	835.8
Net gain from production of one ton of domestic maize	(-580)	1.6

Source: Philip P. Cowitt, ed., World Currency Yearbook, 1984 (Brooklyn, N.Y.: International Currency Analysis, 1984).

Tobacco farmers were not totally ignored during the period. The tobacco industry in Tanzania received three International Development Association (IDA) credits: namely, the Flue-cured Tobacco Production Project, 1970/71 to 1975/76; the Tobacco Processing Project, 1976/77 to 1980/81; and the Tobacco Handling Project, 1979/80 to 1982/83. Therefore, investment for improvement and development of tobacco was made, thus perhaps sustaining production in the face of deteriorating internal terms of trade for tobacco.

According to the Marketing Bureau of the Ministry of Agriculture, farmers in the southern regions often used fertilizer on maize that was originally allocated to them for tobacco. If so, this could help explain why farmers continued to grow tobacco when it was seemingly discouraged. According to a study by Ellis, the trend in producer prices of these two crops was positive for both crops in nominal terms but negative in real terms for tobacco during 1973/74-1979/80.¹⁷

Tobacco production in the southern regions has not grown relative to the tremendous increase in maize output that took place after 1975/76. It would appear desirable to create, through an amended pricing policy, a more favorable environment for tobacco production to maintain regional growth prospects while alleviating the fiscal burden of maize transport.

Although tobacco is the only export crop suitable to the agro-ecological conditions of the southern area, both domestic and international conditions present a discouraging outlook for tobacco growing in Tanzania. First, there is a shortage of fuelwood, which is one of the essential materials in curing wet leaves. Increased production of tobacco would require more time spent in search of fuelwood, which would lead to higher processing costs.

Second, domestic marketing is a problem. Operational costs of the Tanzania Tobacco Authority (TAT), which is the sole official marketing organization for tobacco, are high, largely because of overstaffing and inefficiency. In Liwale, for example, TAT employed 3 accounting staff, 12 administrative officials, and 10 supervisors to handle an output of only 13 tons of tobacco per year. In 1979/80 TAT's deficit amounted to TSh 92 million.

Third, the quality of Tanzanian tobacco is declining mainly because the inspection system is poor. Tobacco of inferior quality is sometimes mixed into bales of high-quality tobacco and, as a result, the whole bale is classified as low quality.

¹⁷F. Ellis, "Agricultural Price Policy in Tanzania," World Development 10 (No. 4, 1982): 263-284.

Fourth, high value (and once world famous) Zimbabwean tobacco returned to the world market immediately after Zimbabwe achieved independence in 1980, thus changing the supply scene for African flue-cured tobacco. The price of flue-cured African tobacco dropped 20 to 30 percent, and 4 million kilograms of Tanzanian tobacco--almost a quarter of its total production--went unsold.

The prospects for tobacco as a leading growth element of the Southern Highlands are not good, but they could be fair if some of the more glaring short-term problems were resolved. Primary among them is improving the management and inspection system of TAT. Better quality tobacco commanding higher prices would improve sales and renew growth without large investments. The tobacco that is grown at present is losing value because of poor grading. Because of the fuelwood constraint, however, it seems unlikely that tobacco could be the stimulus for growth in the southern region, either in the short or long term.

POSSIBILITY OF EXPORTING MAIZE TO NEIGHBORING COUNTRIES

Because the possibility of shifting a part of southern maize production to cash crops seems limited, a cost-effective approach aimed at achieving national food sufficiency must be sought. Among the four major surplus maize-producing regions in the Southern Highland, Iringa and Mbeya are better located for rail transport because Tazara, the Tanzania-Zambia Railway, runs through these regions. According to the Ministry of Agriculture, the transport cost to move 1 ton of maize from Mbeya to Dar es Salaam was TSh 345 in 1982/83, while that from Ruvuma to Dar es Salaam amounted to TSh 743.

Taking into account the soaring transport costs and the present difficulty in finding suitable cash crops to replace maize, the best choice for Ruvuma and Rukwa would be to continue growing maize and to export the surplus to neighboring countries. Foreign currency gained from such a sale could then be spent to import maize for the capital area and needed agricultural inputs. Though the concept of exporting maize in the face of chronic food shortages in deficit areas within Tanzania might be hard for some to accept, this possibility should be considered for its cost effectiveness. Tanzania's food strategy of 1982 also hints at this alternative,¹⁸ though no actual calculation is made.

Tanzania has eight bordering countries. The possibility of exporting maize from Tanzania to three of them--Mozambique, Zaire, and Zambia--is considered here.

¹⁸Tanzania, Ministry of Agriculture, National Food Strategy.

Export to Mozambique

There is a precedent in this case: Tanzania exported 49,000 tons of maize to Mozambique in 1978/79, when Tanzania had a bumper harvest and a temporary shortage of storage capacity. Ruvuma maize could be moved to Mtwara port for export to Mozambiquean ports. NMC already has storage facilities for 7,600 tons of maize in Mtwara. On the demand side, Mozambique has had a chronic food deficit and has constantly imported maize and other staples, through aid or other arrangements. So Mozambique might be willing to import Tanzanian maize provided the export price is competitive with the international price of maize.

Table 10 shows the exporting costs for 1 ton of maize transported to Mtwara from Ruvuma, calculated at 1980/81 rates. The total amount of TSh 2,365 was, by the old rate, U.S. \$288.40. This was 40 percent higher than the c.i.f. cost of maize at Tanzanian ports, including Mtwara, which stood at U.S. \$205.00 in 1980/81 according to MDB data.¹⁹ This higher cost is largely due to Southern Tanzania's underdeveloped transport system. The River Ruvuma, which separates the two countries, also hinders the smooth flow of goods between Southern Tanzania and Mozambique.

However, the possibility of maize exports to Mozambique still should be considered because devaluation of the Tanzanian shilling has not been taken into account. A comparison of up-to-date prices was not made here because data were not available. Adjusted figures might show an export price competitive with the international price of maize. In any case, the opportunity cost of foreign exchange, given the precarious nature of the balance of payments, is certainly higher than the official exchange rate. Thus, possibilities should be sought for selling southern maize to a donor country or organization, which then would move it to Mozambique as part of its food aid program.

Export to Zambia

Zambia also has previously imported maize from Tanzania (28,000 tons in exchange for rice in 1979/80). But Zambia's maize imports have fluctuated widely in recent years. From 1976/77 to 1978/79, Zambia was self-sufficient in maize. In 1979/80, however, Zambia imported 110,000 tons of maize, followed by 250,000 tons in 1980/81, and only 25,000 tons in 1981/82, when area sown in maize increased. On this basis, Zambia seems likely to import Tanzanian maize only in years of short-fall.

¹⁹Data provided by Tanzania Ministry of Agriculture, Marketing Development Bureau.

Table 10--Costs of exporting Ruvuma maize from Mtwara port (in 1980/81 prices)

Item	Estimate (TSh/ton)
Producer price	1,000
Village levy	90
Transport from village to branch (50 kilometers x TSh 1.8 per ton/kilometer)	90 ^a
Bank interest	28
Crop insurance	7
Cash insurance	13
Bags (11.1 gunny bags per ton of maize at TSh 11.50 each)	128
Shrinkage (4 percent of the total of the above)	54
Branch overhead charges	451
Transport to port (200 kilometers)	360 ^a
Agency fees	1
Storage and shore handling charges	43 ^a
Export tax	100 ^a
Total	2,365

Source: Tanzania, Ministry of Agriculture, Marketing Development Bureau, Price Policy Recommendations for the 1981/82 Agricultural Price Review (Dar es Salaam: Government Printer, 1980).

^aThis figure was estimated based on data provided by the government of Tanzania, Ministry of Agriculture.

Another aspect that should be taken into account is the financial problems facing the Tazara Railway, which would be used to transport exports from Tanzania to Zambia. (In February 1981, the railway raised its freight charges by 21.8 percent.) The availability of wagons at railheads when required could also be a problem.

Export to Zaire

Contrary to the other two countries, Zaire has not imported maize from Tanzania, at least not during the last two decades. From the demand standpoint, however, Zaire regularly imports maize. The average volume of Zaire's annual imports of maize (including food aid) between 1976/77 and 1981/82 was 174,000 tons, with relatively little year-to-year fluctuation. (Among the sources of imports are the United States, South Africa, and Zimbabwe.)

Because of a lack of detailed data, costs cannot be estimated here. The following route for exporting maize from southern Tanzania to Zaire seems feasible. First, maize from the northwest area of Rukwa could be hauled by road to Kigoma, an average distance of 340 kilometers. Then, maize could be stored at NMC storage facilities in Kigoma, which have a present capacity of 7,500 tons. Finally, the maize could be transported by ships (operated by Tanzania Railway Corporation) across Lake Tanganyika to the Zairian lake port of Kalemie.

In this case, the only difficulty seems to be the price and availability of oil in Rukwa and Kigoma for fueling trucks and ships. Some regions even closer to the capital suffered serious oil shortages in 1984. Because the distance to be hauled is long and railway services are not available between Rukwa and Kigoma, the final export prices would be strongly affected by fluctuations in oil prices.

POSSIBILITY OF REDUCING DISTRIBUTION COSTS

The long distances between productive southern regions and main deficit areas have constantly eroded the cost-effectiveness of the maize distribution system. The problem is becoming more serious, especially against the background of a deteriorating transport-related infrastructure. The government seems to intend to cope with this problem through several measures. First, it hopes to repair and to improve the present railway system: requests for massive aid for the improvement of existing railway transport capacity were made to the international donor community last year. Second, it aims to shorten the distance between surplus-producing and deficit areas by dividing the whole country into six zones. The ultimate goal is zonal self-sufficiency of food by 2000, but that target will not be achieved easily unless the people can be persuaded to demand less of the preferred staples such as wheat and rice in favor of more traditional food crops. Campaigns toward this end have already started by encouraging farmers to grow drought-resistant crops such as cassava, sorghum, and millet.

Regional specialization in food production, to be attained by 2000, was proposed in the government's Food Strategy of 1983. Probably to avoid the growing of maize in marginal areas, major and moderate emphasis regions have been designated for each crop. For maize, eight regions (Arusha, Morogoro, Tanga, Tabora, Iringa, Mbeya, Rukwa, and Ruvuma) are listed as major emphasis regions, while Kagera and Kigoma are under the moderate category. Listing of the regions that were once surplus-producing but have ceased to be so could be construed as a sign of the government's determination to ease the factors restricting flows of surplus maize into the official marketing system.

In brief, on a medium-term basis, the possibility of reducing maize distribution costs mainly depends on two variables: first, effective use of the present transport capacity, through the purchase of necessary spare parts and some repair work; and second, easing restrictions on the parallel market and reducing official price rigidity, so that maize production in the potential surplus-producing areas near deficit areas can be revitalized.

The first possibility cannot be achieved unless massive foreign aid for the rail transport sector is forthcoming, and the possibility of Tanzania's securing such aid appears to be slim at the moment, when most major donors are refraining from extending large-scale credit to Tanzania.

The only other way to effectively reduce distribution costs would be to concentrate on effectively shortening the long haulage distances for maize. If Tanga and Morogoro regions, for instance, were willing to transfer their surplus maize to Dar es Salaam and Coast regions, in substitution for more expensive southern maize, then transport costs for maize distribution in the country would be substantially reduced. This alternative requires a thorough restructuring of the existing official supply and demand pattern in Tanzania, which was established when the panterritorial pricing policy was adopted in 1976.

According to Tanzania's Food Strategy (originally compiled in 1982 and officially released in 1983 after some amendment), the government expects that surplus maize production in the Southern Highland regions will continue to predominate to the turn of the century, when Tanzania hopes to achieve self-sufficiency (see Table 11).

This would not be a bad outcome for Tanzania if the preceding two points--improved transport and less price rigidity--were implemented. It has already been shown that southern maize is competitive with imported maize if real exchange costs are calculated. With an improved and more efficient marketing system (a step that requires better management, not large investment) and improved transport facilities, the surplus from the south could become less costly. Also, a more integrated grain market will limit price disparities, reduce unofficial trade, and provide a sound basis for planning of imports to feed the urban centers, if necessary.

There is one last step that is nominally unrelated to maize pricing but critically important. The system for obtaining export cash crops, such as tobacco in the south, must become more efficient and competitive in the international market. Only then will farmers feel comfortable allocating their resources to specific crops to attain their potential comparative advantage.

Table 11--Estimated supply and demand balances for major food crops by zones, 2000

Zone	Maize	Rice	Wheat	Millet	Sorghum	Cassava	Bananas	Pulses
(1,000 metric tons)								
Dry Central and Northern	4.8	29.4	-25.8	40.0	30.4	147.1	-4.3	-22.1
Northern Highlands	36.9	-48.8	176.0	-1.4	-5.2	-0.3	6.3	39.6
Southern Coast	5.6	67.9	-2.6	0.8	13.0	98.0	8.3	6.1
Coast	-244.7	-1.7	-236.1	-23.3	56.5	-218.5	-36.6	-20.1
North and West Central	-6.7	35.5	-15.3	-5.3	-6.0	105.8	98.8	32.5
Southern Highlands	423.7	220.7	103.4	5.9	34.9	27.4	3.4	77.8

Source: Tanzania, Ministry of Agriculture, Food Strategy of 1982 (Dar es Salaam: Government Printer, 1983).

6. CONCLUSIONS

Tanzania's food production in recent years has not been too different from that of other African countries. High prices of modern inputs, insufficient storage and transport facilities, high marketing costs, and overvalued exchange rates have combined to make domestic food staples expensive relative to imports. In addition, in Tanzania, large-scale government intervention in the form of the panterritorial pricing policy produced a dramatic spatial swing in maize production from the north to the southern highlands.

In light of Tanzania's desire to foster regional equality the decision to adopt panterritorial pricing is understandable. Although the government now seems to regret adopting the policy because of the huge financial deficits it incurred, it did bring forth a dramatic shift in the location of production. Now that it has been shown that the South can and will produce, given the proper economic incentives, the future of agricultural price policy in Tanzania should be oriented to continue those incentives while reducing costs.

As the Food Strategy of 1982 shows, the basic pattern of production is unlikely to change through the year 2000.²⁰ But the problem of high transport costs must be resolved while still maintaining the two ultimate goals of food self-sufficiency and regional equality. Tanzania clearly cannot move toward these ends without assistance from the international community.

More insight and analysis of the actual situation, origin, and nature of the problems in developing countries such as Tanzania is required before the donor community allocates its development aid. There seems to exist, for instance, an unspoken agreement among donors that food-exporting countries should not be granted any type of food aid or aid for increased food production because they are surplus-producing. Without examining the structural problem that has led to exportation of food crops from some areas of the country, the donor community often concludes that countries with a surplus are not eligible to be recipients of food aid. Each donor country or organization should review its criteria for food aid so that eligibility is assessed on the basis of the policy efforts and intrinsic, structural difficulties that face the developing country being considered.

²⁰Tanzania, Ministry of Agriculture, National Food Strategy.

Tanzania, for example, will not be completely self-sufficient in subsistence food for some years, but it can move toward that goal by producing surplus food in the areas that can support it. The most efficient policy would be to sell that surplus to neighboring countries to earn foreign exchange to buy much-needed inputs. If the donor community decides that Tanzania is a competing exporter and thus is not deserving of food aid or assistance to develop its transport facilities, then there will be almost no possibility of long-term growth in food production. Tanzanian farmers need assured markets for their produce, and urban consumers need food to live. If donors take a narrow short-term viewpoint, they could easily prevent the long-run growth of Tanzania's food sector and the whole economy.

Development of a new attitude by the donor community, considering dilemmas in developing countries in light of regional problems, is critical. Simply looking at aggregate figures can disguise problems and prevent innovative solutions. Positive efforts on the part of the donor community could eliminate invisible psychological barriers within developing countries and open a way for them to take a cost-effective approach toward their own goals of attaining national food sufficiency without having to fear repercussions from outsiders.

Tanzania's problems are serious and deep-rooted, but if both the domestic government and the donor countries reevaluate their policies, they can move toward providing the equitable growth with added stability of food production that the country needs.

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BIBLIOGRAPHY

- Ahmed, Raisuddin, and Rustagi, N. "Agricultural Marketing and Price Incentives: A Comparative Study of African and Asian Countries." International Food Policy Research Institute, Washington, D.C., May 1984 (mimeographed).
- Agarwala, R. "The Challenge to Food Production and a Need to Redirect Production Strategy in East Africa." International Food Policy Research Institute, Washington, D.C., December 1977 (mimeographed).
- Berry, L.; Mascarenhas, O.; and Steward, S. Eastern African Country Profile: Tanzania. Worcester, Mass.: Clark University, 1982.
- Bodoegaard, T. Climate and Design in Tanzania. Dar es Salaam: Tanzania Ministry of Lands, Housing, and Urban Development, 1981.
- Brown, M. L. Farm Budgets: From Farm Income Analysis to Agricultural Project Analysis. Baltimore: John Hopkins University Press, 1979.
- Coulson, A. African Socialism in Practice: The Tanzanian Experience. Nottingham: Bertrand Russell House, 1982.
- Cowitt, Philip, editor. World Currency Yearbook, 1984. Brooklyn, N.Y.: International Currency Analysis, 1984.
- Deboeck, G., and Kinsey, B. Managing Information for Rural Development: Lessons from Eastern Africa. Washington, D.C.: World Bank, March 1980.
- Dinhan, B., and Hin, C. Agribusiness in Africa. London: Earth Resources, 1983.
- Dumont, R. Tanzania Agriculture after the Arusha Declaration. Dar es Salaam: Ministry of Economic Affairs and Development Planning, 1969.
- Ellis, F. "Agricultural Price Policy in Tanzania." World Development 10 (No.4, 1982): 263-284.

- Kaberuka, D. P. "Evaluating the Performance of Food Marketing Parastatals." Development Policy Review 2 (No. 2, 1984).
- Keeler, Andrew G.; Scobie, Grant M.; Roskow, Mitchell A.; and Franklin, David L. "The Consumption Effects of Agricultural Policies in Tanzania." Final report prepared for U.S. Agency for International Development, Sigma One Corporation, Raleigh, N.C., 1984.
- Mascarenhas, A. C. Agriculture, Food Production and Population Change in Tanzania. Research Paper No. 36. Dar es Salaam: University of Dar es Salaam, 1975.
- Mellor, John W. "Food Price Policy and Income Distribution in Low Income Countries." Economic Development and Cultural Change 27 (No. 1, 1978): 1-26.
- National Milling Corporation. Unpublished data.
- Nyerere, J. K. Decentralization. Dar es Salaam: Popular Printers, 1980.
- Nyerere, J. K. Five Years of CCM Government. Dar es Salaam: Government Printers, October 1982.
- Putterman, L. "Extrinsic vs. Intrinsic Problems of Agricultural Cooperation: Anti-incentivism in Tanzania and China." Journal of Development Studies 21 (No. 2, 1985): 175-204.
- Sandbrook, R. The Politics of Basic Needs: Urban Aspects of Assaulting Poverty in Africa. Toronto: University of Toronto Press, 1982.
- Tanzania. The Annual Plan for 1978/79. Dar es Salaam: Government Printer, 1978.
- _____. Second Five-Year Plan for Economic and Social Development. Dar es Salaam: Government Printer, 1969.
- _____. Third Five-Year Plan for Economic and Social Development. Dar es Salaam: Government Printer, 1976.
- Tanzania, Ministry of Agriculture. The Agricultural Policy of Tanzania. Dar es Salaam: 1983.
- _____. National Food Strategy. Dar es Salaam: Government Printer, 1983.
- _____. Price Policy Recommendations for the 1981/82 Agricultural Price Review. Dar es Salaam: Government Printer, September 1980.

- Tanzania, Ministry of Agriculture, Marketing Development Bureau. Agricultural Price Review, 1982/83. Dar es Salaam, Government Printer, 1982.
- Tanzania, Ministry of Agriculture and Food and Agriculture Organization of the United Nations. The Availability of Food in Tanzania: In 1981/82. Dar es Salaam: Government Printer, 1981.
- _____. Tanzania's Cereal Import Requirements for 1981/82. Dar es Salaam: Government Printer, 1981.
- Tanzania, Ministry of Finance. Speech by the Minister of Finance, Ndugu C. D. Msuya, M.P., Introducing the Estimates of Public Revenue and Expenditure for the Financial Year 1984/85 to the National Assembly on 14th June, 1984. Dar es Salaam: Government Printer, 1984.
- Tanzania, Ministry of Planning and Economic Affairs. The Economic Survey, 1981. Dar es Salaam: Government Printer, 1981.
- _____. The Economic Survey, 1982. Dar es Salaam: Government Printer, 1982.
- _____. Structural Adjustment Program for Tanzania. Dar es Salaam: Government Printer, 1982.
- Temu, P. E. Marketing, Board Pricing, and Storage Policy with Particular Reference to Maize in Tanzania. New York: Vantage Press, 1984.
- Tibaijuka, A. K. "An Economic Survey of Village Projects in Iringa, Mbeya, and Ruvuma Regions, 1979." Economic Research Bureau, University of Dar es Salaam, March 1981 (mimeographed).
- U.S. Department of Agriculture, Foreign Agricultural Service. "Production, Supply and Distribution of Agricultural Commodities Tape, 1984." USDA, Washington, D.C., 1984.
- Yeager, R. Tanzania: An African Experiment. Boulder, Colo.: Westview Press, 1982.
- Yoshida, M. Agricultural Marketing Intervention in East Africa: A Study in the Colonial Origins of Marketing Policies, 1950-1965. Tokyo: Institute of Development Economies, 1984.
- World Bank. Accelerated Development in Sub-Saharan Africa: An Agenda for Action. Washington, D.C.: World Bank, 1981.
- _____. Tanzania Agricultural Sector Report. Washington, D.C.: World Bank, 1983.

_____. Toward Sustained Development in Sub-Saharan Africa: A
Joint Program of Action. Washington, D.C.: World Bank, 1984.

Ziche, J., and Slih, M. A. M. "Traditional Communal Labour and Rural
Development: Examples from Africa South of the Sahara." Quarterly
Journal of International Agriculture 23 (No. 4, 1984).