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The Organization, Behavior, and Performance of the Informal Food Marketing System in Maputo

By
MOA/MSU Research Team

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Working Paper Series

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I. INTRODUCTION AND OBJECTIVES

The economic liberalization measures that began in Mozambique in 1987 under the Economic Rehabilitation Program (ERP) have unleashed enormous change in the way food is marketed in the country. Nowhere has the response been greater than in the so-called "informal" marketing sector of the capital city of Maputo.

The term "informal sector" has become increasingly common, even in academic circles, despite the lack of a precise and widely accepted definition. In this work, the term will be used with regards to any person participating in the food trade without a legal trader's license. This definition includes traders operating without licenses who nevertheless pay stall rental fees to municipal authorities. Such traders are in a legally ambiguous situation. While they may be argued to enjoy *de facto* legality, mere tolerance from authorities can change quickly in Mozambique's volatile setting. Recent heated public debate regarding the desirability of the continued existence of this sector underscores this point.

The informal sector has assumed a rapidly growing role in providing food for the mass of low income consumers in Maputo/Matola, and areas as far north as Gaza and Inhambane provinces. The more established informal market places in Maputo show strong links to the formal marketing system. Within Maputo, the informal system has almost entirely supplanted the urban ration system (*Novo Sistema de Abastecimento* - NSA), and its retail sales far outpace those of the formal sector retail shops known as *lojas*.

Despite the large and growing importance of this sector, little systematic information exists regarding its organization and function. Such knowledge is essential if the Government of Mozambique (GRM) is to design a coherent and socially beneficial response to this phenomenon. The need for such a response is made more urgent by the increased levels of organization and investment now reflected in much of the informal sector. It has become increasingly evident that this sector will not simply "go away".

For these reasons, the Ministry of Agriculture of Mozambique (MOA), in collaboration with Michigan State University Department of Agricultural Economics (MSU), and with funding from the United States Agency for International Development (USAID), undertook the first phase of the Maputo Market Study during June, July, and August 1992. This study was part of a broader set of research and policy dialogue activities carried out under the MOA/MSU/USAID Food Security Project in Mozambique. The work was specifically associated with and benefited from the ongoing data collection and research activities of the Agricultural Market Information and Analysis System (SIMA), which is operated under the Food Security project and located within the Division of Prices of the National Directorate of Agricultural Economics, Ministry of Agriculture.

The objectives of the Maputo Market Study were:

1. To develop an initial description and preliminary analysis of the structure and conduct of the informal food wholesaling and retailing sector in Maputo, with emphasis on the marketing of maize grain and flours,

2. To quantify the principal costs incurred and approximate margins earned by traders in the sector,

3. To analyze price behavior in the sector and assess the efficiency and effectiveness of its markets,

4. To evaluate the effects of food aid, especially commercialized U.S. yellow maize grain food aid, on the organization and behavior of the sector, and on prices paid by consumers,

5. To diagnose the principal problems facing the sector, and

6. To evaluate the consequences of alternative actions on the part of the Government of Mozambique (GRM) and donors to address these problems.

This study focused on the more established informal markets and their links with the formal sector, especially the licensed wholesalers known as *armazenistas*. No attempt was made to study the new, very small informal markets which continue to emerge. Too, the formal sector *lojas* were not studied except as they intersected with the informal sector.

This report is one of several based on the Maputo Market Study.[1] It focuses on the first two objectives. The report is organized as follows. Section II briefly describes the Maputo Market Study. Section III places the informal sector in context historically, in terms of its relationship to the formal sector, and with regards to the policy environment in which it operates. Section IV identifies and describes the function of the principal informal market places in Maputo. Section V examines the organization and behavior of informal food wholesaling in Maputo, while Section VI does the same for informal food retailing. Section VII discusses key findings and policy issues.

[1] Each of these reports provides a detailed analysis of selected aspects of the informal food marketing system in Maputo. See especially "The Maputo Market Study: Research Methods", for a discussion of the methods used and problems encountered during the study. Other reports are "Food Price Behavior in the Maputo Informal Sector"; "The Economics of Food Aid Pricing and Distribution: Lessons From Mozambique"; and "The Maputo Market Study: Synthesis of Research Findings and Policy Implications".

II. THE MAPUTO MARKET STUDY[2]

A. Overview of Study Activities

The research activities associated with the Maputo Market Study included rapid appraisals preceding the arrival of the research team, a series of formal interviews and data collection activities from late June through August 1992, and on-going data collection and analysis designed to extend and refine the knowledge gained during the first phase.

The research team began developing its knowledge of the informal food marketing sector in Maputo in late 1990 and early 1991, with the design of the SIMA. Rapid market appraisal activities directly related to the Maputo Market Study began in April 1992. Team members conducted systematic market visits, met with and interviewed members of the Association of Cereals Processors (APROC), and visited many local maize mills. Based on the knowledge gained, researchers made a tentative selection of markets to be studied, developed an initial design for the formal data collection activities, and produced questionnaire forms based on this design. Final rapid appraisal work in June allowed the design and questionnaires to be refined, and markets to be selected.

Formal data collection activities included regular price monitoring in Bazuca, the principal informal food wholesaling market in the city, Xipamanine, the largest retail market, and two other retail markets; periodic intensive monitoring of inflows and outflows from Bazuca; and a series of interviews with wholesale Bazuca traders and retail traders in selected markets. Since the end of the intensive formal data collection in August, price monitoring has continued on Tuesdays and Thursdays (in addition to the normal Saturday SIMA collection). The research team also designed two additional questionnaires to investigate changing supply sources over time, and the trading history of wholesalers. These have been completed periodically since August as needed. These and other questionnaires will be used strategically over time to continue investigating specific issues.

B. Market Events During the Study

This report draws heavily from the research activities just described. These activities were carried out in a highly volatile market with rapidly changing supply conditions and imperfect, unequally distributed information. One key finding of the study was that the behavior of the informal markets changes with supply conditions. Thus, it is important that these results be understood in the context of the market events which influenced them.

The top portion of Figure 1 presents the timing of selected market events and behavior from June 29 through the end of August, when formal data collection activities took place. The bottom portion of the figure presents the schedule of research activities carried out during this time.

Commercial yellow maize food aid last arrived before the formal data collection activities on May 9, when a ship with 32,000 MT of U.S. grain arrived in port. Yellow maize grain prices fell dramatically from very high levels following this arrival (Figure 2). As the study began in

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[2] See "The Maputo Market Study: Research Methods" for a more detailed description of the study.

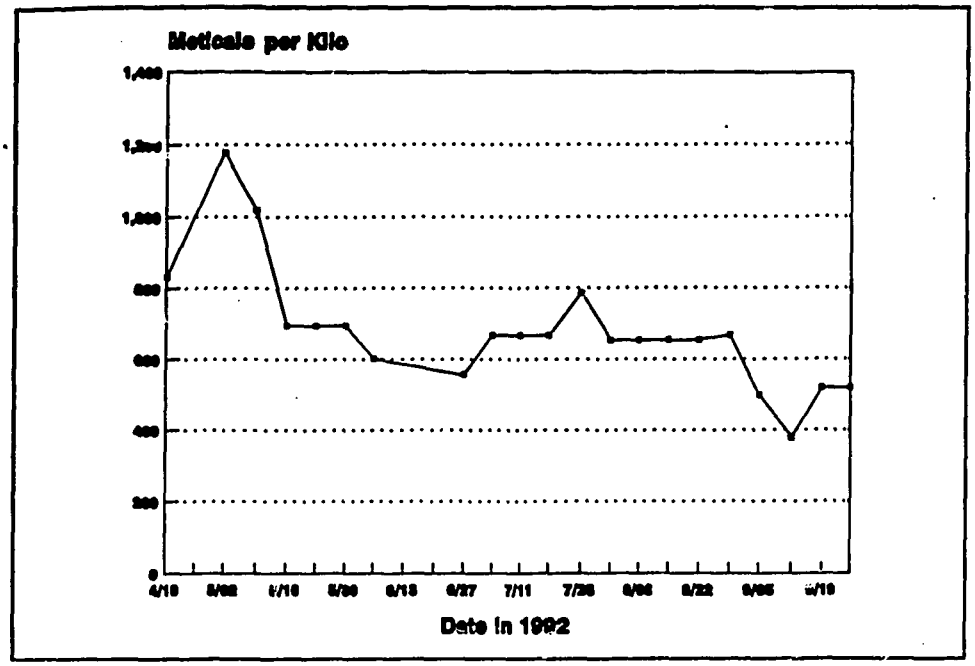
Figure 1. Research Activities Matrix, MOA/MSU/USAID Maputo Market Study (June 29 - August 25, 1992)

Key Market Events/Behavior	Weeks of June	Weeks of July				Weeks of August			
	29	6	13	20	27	3	10	17	24
Retail Prices for Yellow Maize Grain, Xip. Market									
- Retail weekly mean price (Mt/caneca[1])		567	444	575	732	480	475	525	433
- Maximum price		600	500	750	1000	500	500	600	500
- Minimum price		500	350	500	450	400	400	500	400
- Spread		100	150	250	550	100	100	100	100
- % Spread [(Max-Min)/Min]		20%	43%	50%	122%	25%	25%	20%	25%
Commercial Food Aid Arrival (Metric Tons Unloaded)									
- EEC Shipment	-	-	-	-	6000	7000	2000	-	-
- USAID Shipment	-	-	-	-	-	-	3200	4040	14970
Research Activities									
Retail Price Collection									
Xipamanine	X X X X	X X X X	X X X X	X X X X	X X X X	X X X X	X X X X	X X X X	X X X X
Componde	X X X	X X X	X X X	X X X	X X X	X X X	X X X	X X X	X X X
Vulcano	X X X	X X X	X X X	X X X	X X X	X X X	X X X	X X X	X X X
Redistributor Price Collection									
Basuca	X X X	X X X	X X X	X X X	X X X	X X X	X X X	X X X	X X X
Componde				X X X	X X X	X X X	X X X	X X X	X X X
Other Basuca Data Collection									
Product Inflow/Outflow	X X X			X X X			X X X	X X X	
Floor Trader Interviews									
- Yellow whole meal traders				X	X	X		X	
- Traders of all other products				X	X			X	
Census of traders and product present				X	X	X	X	X	X
Storage volume & costs									
Other Market Information									
Port visits					X	X			
Wholesaler interviews in "Baixa"									
Retailer interviews									
- Xipamanine		X	X	X					
- Componde				X					
- Vulcano				X					
Trader cost case studies									
Bag & can weight experiments	X	X		X	X	X		X	
Milling experiments & data from APROC								X	
EACM and COGROPA visits							X		
NSA shop visits			X				X	X	X
Interviews with donors/consultants					USAID sem.		EEC	Austral	

1 The "caneca" has become the standard unit of measure in informal sector Maputo markets. It is a 750 ml can that orignally held powdered milk. Filled over the rim with product from the market, it holds between 800 ml and 850 ml.

2 Retail prices were collected three to four times a week, as indicated by the number of X's.

Figure 2. Weekly Yellow Maize Grain Prices in Xipamanine Market, Late April-September, 1992



late June, however, a yellow maize scarcity was beginning to develop. The first row of Figure 1 reveals both a strong upward trend in retail yellow maize grain prices and increasing instability around that trend through the end of July. By the week of July 27, *caneca* prices reached a peak of Mt 1,000, only to fall to Mt 450 as commercial food aid grain arrived from a European Economic Community (EEC) shipment.[3] The price increases can be ascribed to the growing scarcity, while the growing instability might be explained by uncertainty regarding the timing of the ship's arrival. Once the EEC boat began to unload, prices fell quickly and dramatically. Within a week, they stabilized at lower levels. For each week thereafter, the spread between the weekly high and low prices was only Mt 100/*caneca*. Arrival of a commercial food aid grain shipment from the United States only two weeks after the EEC shipment likely strengthened this outcome.

Thus, the study was conducted across two distinct periods of yellow maize supply. The beginning of the study in late June through July was marked by a growing scarcity, with extreme price fluctuations. With the arrival of the EEC boat on July 28 and the U.S. boat two weeks later, August was a month of relative abundance and stability.

The EEC and the U.S. organized their maize distribution shipments quite differently, providing an excellent opportunity for study. The EEC delivered its 15,000 MT of grain in equal amounts to just two consignees. In stark contrast, 27 consignees unloaded 22,000 MT of grain from the U.S. shipment, and the largest received just 13.5% of the total. Through very careful price monitoring and frequent informal interviews in the market and in the

[3] The "caneca" has become the standard unit of measure for nearly all dry goods in informal sector Maputo markets. It is a 750 ml can that orignally held powdered milk. Filled over the rim with product from the market, it holds between 800 ml and 850 ml.

formal sector wholesaling area known as the *Baixa*, the research team documented an example of a short term price increase potentially caused by the market power created by the delivery of 15,000 MT to only two traders.

C. Products Studied

The Maputo Market Study included a number of the staple foods that are traded in the market, but focused most carefully on maize grain and meals, due to their predominance in the diets of low income consumers. A great variety of maize meals is traded in the market, and each tends to carry a different price. Thus, it is important to understand clearly the characteristics of each. The following discussion is adapted from Weber, et al.

Consumer preference in Mozambique for maize meal is affected by the color and level of processing of the final product. In general, white is preferred to yellow, and more processing is preferred to less. However, informal markets in Mozambique have clearly differentiated maize meals by price, with less refined yellow meals being cheapest, and more refined white meals being most expensive. The result is that poor consumers choose to consume the less refined yellow meals because of their low price, while higher income consumers purchase and consume more refined white meals or move out of maize meal entirely.

Maize meals are made commercially and by hand pounding. Hand pounded meals are typically considered to be of the highest quality, and are generally produced only with white grain. There are three major types of hand pounded meals, each of which is produced by purchasing maize grain and then hand processing it. All forms of these traditional products remove the germ and bran (know as *farelo* in Portuguese). **Hand Pound Meal-Pilão** is a very high quality meal that is made by first removing the germ and bran by hand pounding in the *pilão*, next soaking the remains in water for 1 to 2 days (deixar de molho), and then preparing the final meal, also by hand pounding in the *pilão*. The meal that emerges from the second pounding must be sun dried, which can take another day, depending on the weather. **Hand Pound Meal-Alguidar** is an alternative method used mostly in the South of the country to make a maize paste that is cooked immediately, in contrast to meal which can be stored for a number of days. This product is made by first removing the germ and bran by also hand pounding in the *pilão* and then soaking the remains for 1 or 2 days. Next the soft corn remains are placed directly into a shallow bowl (*alguidar*) and slowly mashed with a wooden instrument. After preparing, a paste like material is carefully placed, a little bit at a time into boiling water to prepare the *chima*. This product still requires at least two days to prepare, although it is quicker than making a final meal in the pilão. **Hand Pound/Custom Milled Meal** is a variation on the first method. The first stages are similar, with the *pilão* being used to remove the *farelo*. Then the final stage of processing is done in a small custom hammer mill located in the neighborhood, rather than in the consumers' own *pilao*. Grain can thus be de-germed and made into meal in the same day, as the de-germed grain can be immediately taken from the first state processing in the *pilão* directly to the local hammer mill (if there is one) without having to soak the remains for 1 to 2 days. This method of preparation, while faster, still takes a number of hours, given the various steps.

There are also three main types of wholly machine processed maize meals. **Whole meal** is produced by small custom service hammer mills spread throughout the cities of Maputo and Beira, and in many rural areas as well. Dry whole grain is placed directly into the hammer mill. Since the germ and bran are not removed, whole meal has a 97-99% extraction rate. Thus, except for minor impurities, almost all of the grain put into the mill emerges as meal. Across much of Southern Africa this meal is referred to as *mugaiwa*. **Partly de-germed meal**

has had only a part of the bran and germ removed by a commercial process. Normally produced only in large commercial mills in Maputo and Beira, this meal generally has an 80-96% extraction rate per 100 kgs. of grain. This product is referred to as partly sifted meal, bolted meal, or roller meal in most SADC countries. **Fully de-germed meal** has had most of the bran and germ removed by a commercial milling process. This has a 60-75% extraction rate per 100 kgs. of grain. It is referred to as super-sifted meal or sometimes breakfast meal in SADCC countries. Prior to independence, this product was made in Mozambique and was sold under the brand name *Celeste*. Many consumers still refer to this brand name as a type of very high quality maize meal. This quality meal is also referred to in Mozambique as *farinha matabicho* because it is consumed at breakfast (*matabicho*). Most of the white maize meal which is imported informally from Swaziland and Zimbabwe is this high quality *farinha matabicho*. Commercial mills in Maputo and Beira have the milling equipment to manufacture this quality product, but produce very little, if any, for the open market.

To make matters more complicated, machine processed maize meals exhibit quality differences within each type, depending on the milling technique utilized, the quality and degree of impurities in the grain, and whether or not vitamins have been added to enrich the meal. Each of these characteristics may affect price, but are not immediately apparent to researchers.

Rapid appraisal interviews with hammer mill operators indicate that the product made by the small hammer mills spread throughout the neighborhoods of Maputo and Beira is generally whole meal. Some consumers take hand pounded maize without germ and bran to be milled in these informal establishments, although mill operators say this is a relatively small part of their business. White and yellow meal manufactured by the large commercial mills in Maputo (CIM) and in Beira (Mobeira) generally has some of the germ and bran removed, and hence the meal is considered to be of higher quality than whole meal.

An objective of maximizing benefits of maize as food aid for low income groups would generally result in the decision to encourage poor consumers to acquire grain directly and/or to acquire and consume whole meal. Likewise, to the extent that food aid in the form of maize grain is milled into higher quality meals, the aggregate supply of products for direct human consumption will be diminished.

III. THE INFORMAL SECTOR IN CONTEXT

The informal food marketing sector in Maputo exhibits three characteristics which must be appreciated if its current status and future prospects are to be understood. First the informal sector is still very new and is evolving rapidly. Second, it emerged in the midst of a formerly centrally controlled economy undergoing great stress. Finally, it operates within a policy environment that creates great uncertainty regarding the sector's current practices and future prospects.

A. Historical context

The informal sector first began to appear openly in 1987, shortly after the beginning of the ERP[4]. Groupings of traders, overwhelmingly women, began to appear on street corners selling very small quantities of basic foods to passersby. These incipient markets were illegal and suffered from frequent police harrassment, thus the use of names, still common today, such as *dumbanengue* ("trust your feet" in the local dialect). Today, this sector is a rapidly evolving system of wholesale and retail markets supplying a wide range of food items to the great majority of consumers in Maputo and Matola. More recently, this sector has exhibited growing internal differentiation. New retail markets much like the original *dumbanengues* continue to emerge on street corners and empty lots, with little or no supporting physical infrastructure. At the same time, many of the original *dumbanengues* have developed into established market places with large numbers of traders and increasing physical infrastructure. As the informal retailing sector has expanded, informal wholesalers have emerged to serve them. This informal wholesale trade shows clear and direct links to the registered wholesalers (*armazenistas*) and retail store owners (*lojistas*) of the formal marketing sector. Thus, the distinction between the formal and informal sectors is beginnning to blur.

This emerging commercial system has now extended north into Gaza and Inhambane provinces (Figure 3), moving commercial food aid and other products back and forth and helping to equalize prices and relative supplies in the two areas. Within Maputo, it has almost entirely supplanted the urban ration system (*Novo Sistema de Abastecimento*), as product officially destined for these stores is marketed through the informal sector. Depending on the product analyzed, the sector's total value of sales is between three and 14 times greater than that in the *lojas*.[5]

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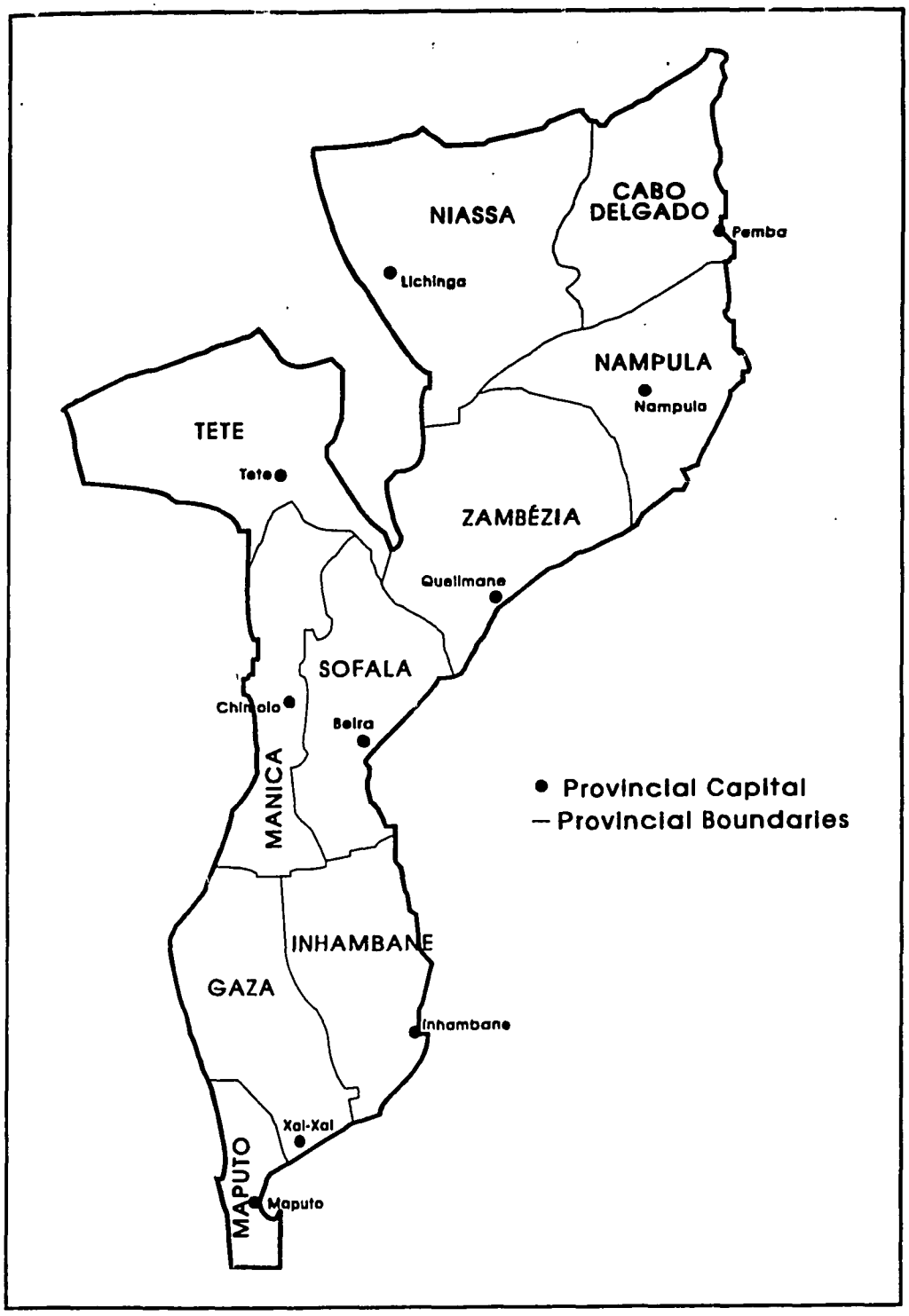
[4] Little (1992) indicates that informal markets existed in the early 1980's, and that prices were liberalized for these products in 1985. Even so, the ERP in 1987 "completely transformed" the nature of trade in vegetables and fruits, as informal marketing grew extremely rapidly. The ERP also transformed trade in the food staples that this report considers, but the response in these products was slower, since price regulation proceeded at a slower pace.

[5] See Sahn and Desai, 1992.

Figure 3. Map of Mozambique



The evolving nature of the informal sector is illustrated by developments in the area around *Xipamanine* market since 1990[6] (Figure 4; see also Figure 5 for the location of *Xipamanine* in relation to other markets in the city). By at least late 1990, *Xipamanine* had become the most important retail market for low income consumers in Maputo. Already by this time, retail traders had expanded beyond the established portion of the market, which enjoyed a concrete floor and hundreds of individual trading stalls. Many stalls were made of thatch, and erected on bare ground. Wholesale activity took place just outside the retail area. Trucks pulled-in and sold product by the bag either directly to retailers or to an emerging set of small scale wholesale traders. Dominantly women, these traders bought numerous bags from trucks and resold to retailers. Some bought yellow maize grain, had it milled into locally processed meal, and sold the meal by the bag to retailers. Wholesale activity of this kind, while not merely sporadic, did not occur every day.

By early 1991, this activity was large enough that it could no longer be conducted immediately outside *Xipamanine* market. At this point, wholesale transactions were shifted to the area known as *Bazuca*, some 300 meters beyond *Xipamanine* and very near what had become a bus terminal. With the establishment of *Bazuca*, the informal wholesaling sector began to grow and establish itself. It is dominated by women (86% of the total) who obtain their product by the bag from various sources, pile their bags on the ground at Bazuca, and sell by the bag to retailers from the immediate area and from other informal retail markets in Maputo. Called "floor traders" or "redistribution wholesalers" in the present study, these traders provide the crucial link between the informal retail trade and the formal sector *armazenistas* and state enterprises which serve as the ultimate supply sources for many products.

With growth in the volume of product moving through *Bazuca*, retail traders began to spill out of the established portion of *Xipamanine* market, until they lined the road all the way to *Bazuca*. About a year later, by early 1992, retail activity had spread further and taken over what had been a soccer field. This new market, appropriately called *Campo de Futbol*, is similar to the early *dumbanengues* in that it has no physical infrastructure of any kind. Traders sit on the floor with their product in shallow baskets (*peneiras*) or on cloth spread on the ground. The market is much larger than any of the early *dumbanengues*, however, and now exceeds *Xipamanine* proper in the number of traders.

Thus, over the course of a year-and-a-half, the number of retail traders in the area increased several times while creating a completely new retail market, and a specialized wholesaling area emerged and grew very rapidly. The research team does not have similar first hand observation over time of other markets in Maputo, but interviews with traders indicate that other informal retail market places experienced rapid growth during the same time.

This nascent marketing system will continue to evolve in the future, both physically and in the type of behavior it exhibits. The path it takes, though, will be strongly influenced by government policy and possibly by formal sector pressure. Each can have an enormous

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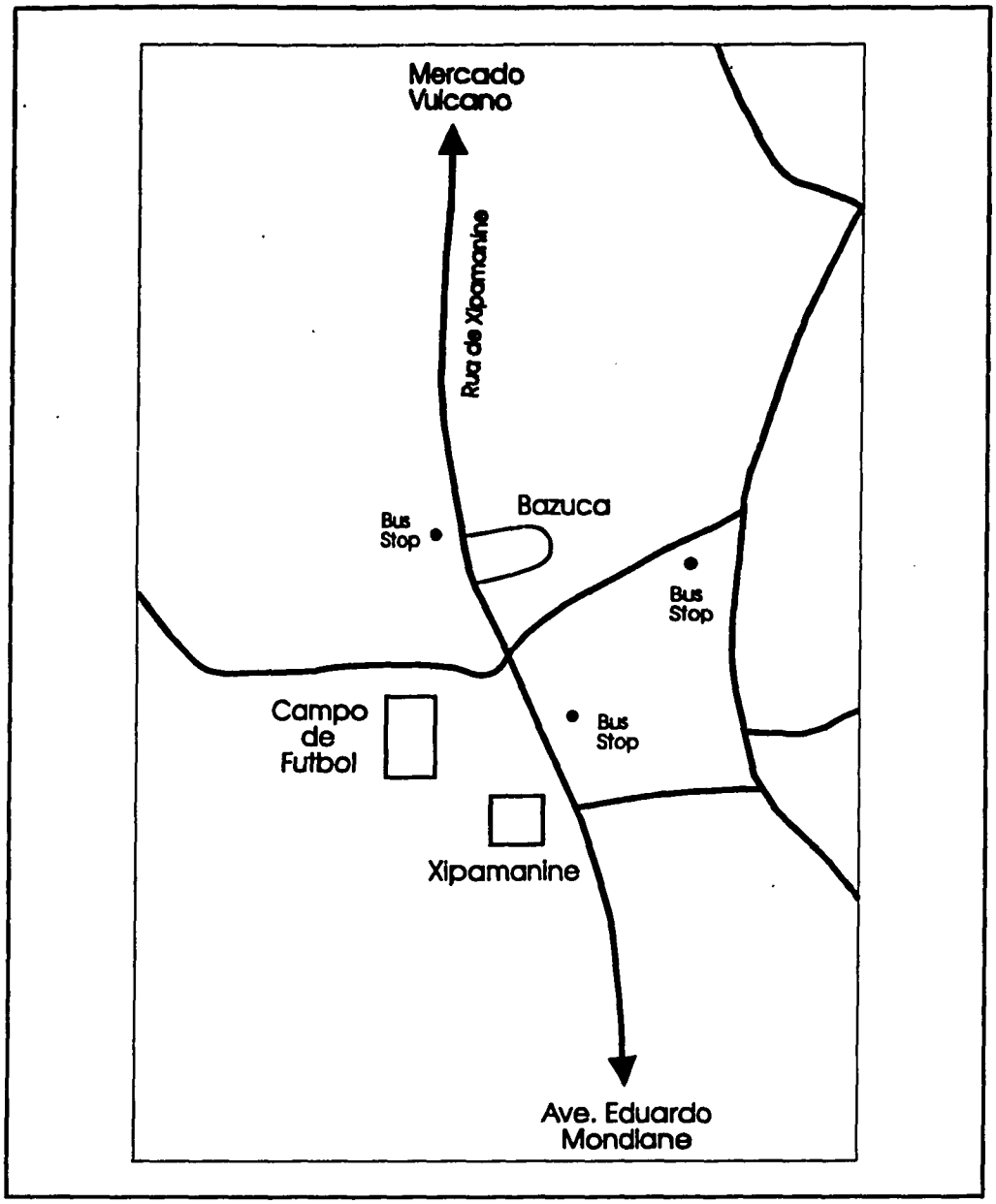
[6] This very brief history of the develoment of the Xipamanine area was developed from information collected during rapid appraisal missions in October 1990; January, March, June-July, and November 1991; and February and April, 1992; from the Maputo Market Study of June-August, 1992; and from interviews with traders in 1993 regarding the development of the area.

Figure 4. The *Xipamanine* Area



effect on how the system develops and on the role it ultimately plays in meeting the needs of poor consumers in Maputo and beyond.

B. Relationship to the Formal Sector

As the informal sector has grown in size and organization, it has forged ever greater links with the formal sector. These links are especially strong with the officially licensed wholesalers known as *armazenistas*. The consignees that have first access to food aid are *armazenistas*, as are many of those the consignees sell to. *Armazenistas* also dominate commercial imports of rice and other products that arrive in the port of Maputo. As such, informal traders depend on these well capitalized firms for their supply of these products. Floor traders interviewed in Bazuca frequently mentioned the names of specific *armazenistas* as their supply source. Many informal traders have also forged links with the official wholesale trade in Swaziland. Whether individual men with relatively abundant capital, or groups of less capitalized women pooling their money to rent a truck together, these traders conduct an active cross-border trade in sugar, refined white maize meal, wheat flour, and vegetable oils, among other products. Finally, state enterprises have become important suppliers of yellow maize and rice to the informal sector through sales of commercial food aid.

The relationship between informals and *armazenistas* is highly symbiotic. Informals provide formals with an alternative market outlet, often at prices above those officially set by the government. Without supplies from the formals, the informal traders would likely have access to a far more narrow set and smaller volume of products to trade.

Informals' relationship with formal sector retailers (*lojistas*) is more ambiguous. The most obvious aspect of this relationship is competitive: informal retailers sell to consumers that would otherwise have to buy in the *lojas*. But there is also a symbiotic dimension to this relationship. Shop owners who receive quotas of yellow maize grain and flour as part of the NSA may choose to sell to informal redistribution wholesalers rather than in their own shops. While difficult to confirm, researchers are confident that they observed such transactions during the study.

This partial symbiosis betwen informals and formal sector retailers may largely be a result of the continued existence of administrative distribution mechanisms through the NSA. One might expect such a relationship to end if the NSA is eliminated and not replaced with a similar system. But the direct competition between the two may also be temporary. As the entire food marketing system develops over time, it seems likely that the formal and informal sectors will both undergo a process of differentiation, with each becoming well established in different market niches. As is typical in many other countries, the informal sector will continue to serve primarily the poorest consumers, while the formal sector will provide a somewhat different and broader set of products and enhanced services to a higher income clientele willing to pay higher prices. This differentiation has already begun in the formal sector, as small supermarkets accepting local currency have emerged, driving some duty-free shops (which accepted only foreign exchange) out of business.

The complementary relationship between the informals and the *armazenistas* will likely continue in the area of imported foods. With neither the capital nor the organization to manage international imports, informals will have little choice but to depend on the large formal sector wholesalers. Informal sector expansion could, however, be dramatic in domestically produced foods. Research has already established that some Maputo informals

C. The Policy Environment

The emergence of the informal sector was met first with official opposition. Trading was disrupted and traders jailed for selling without licenses. This government reaction was beginning to recede by 1989, but without any clear new policy to replace it. Whether due to ambivalence regarding the proper response to the phenomenon, or some other reason, government largely stood back as the sector expanded enormously. The vast majority of informal traders never received trading licenses, but many were charged fees by municipal authorities, based on the space they occupied or the approximate value of product they transacted. The result was a very large and very important economic sector operating in an uneasy state of quasi-legality. More recently, vocal pressure from *lojistas* has forced a reexamination of the desirability of the informal sector as it currently exists. Proposals to curtail its activities by various means have been given prominence in the official press.

It seems highly unlikely that government, even if it desires to, will be able to reduce or even control the size of this sector. Informals have emerged and expanded their activities in the food marketing systems of practically every developing country that allows, or cannot effectively prohibit, private trading of food. There appear to be two fundamental causes, often referred to as "demand pull" and "supply push", of this worldwide phenomenon. On the demand side, informals serve the market demand of poor consumers in a way that the formal sectors, as they have operated to date, have not. They do so by providing different products and packaging them differently than in the formal sector. A good example in Mozambique is maize meals. Unrefined yellow whole meal is the cheapest staple on the market, other than yellow maize grain. Furthermore, since a consumer purchasing yellow grain would have to hand pound it prior to consumption, the convenience value of the already milled grain is very high for urban consumers, even the very poor. *Lojas* do not sell this meal, but many hundreds of informal retailers do. Partially refined meal is found in both sectors. But in *lojas*, it is often sold pre-packaged in 2.5 kg or 5 kg bags. Informals sell the same product in much smaller quantities, which is preferable to poor consumers who tend to make daily purchases of small amounts. Finally, formal sector stores provide a "service" - a more sanitary and orderly shopping environment - that is valued by higher income consumers, but which many poor consumers would rather not pay for. Thus, formal and informal sectors typically provide different products and a different bundle of services, and thus serve different clientele. As long as significant numbers of poor consumers exist, the informal sector will likely continue to serve it.

This "demand pull" on the informal sector is often complemented by a "supply push". This term refers to the existence of large numbers of very poor people with few alternative income earning opportunities. Thus, the supply of labor is very high. Petty trade generally has low entry barriers, such that anyone with some amount of capital may enter. Thus, poor consumers are "pushed" into petty trade for lack of more remunerative and accessible alternatives. These supply effects have certainly been important in Maputo, with the large number of displaced persons from the war. Their importance relative to demand side effects can easily be exaggerated, however. This study did not collect information on the amount of time traders have been resident in Maputo. But Little, in his study of vegetable and prepared food traders, found that 71% had been resident in the city for at least 15 years. None of these traders could be plausibly argued to be displaced by the war. Of the remaining 29%, it does not appear reasonable to assume that all have been displaced. Thus, less than 30% of vegetable and prepared food traders surveyed by Little appear to be displaced by the war. Further research is needed to determine the length of residence in Maputo of staple traders.

Government policy may have enormous impact on how well the informal sector can serve its poor

clientele. Will the government take an active role in facilitating and shaping the development of the sector into a more efficient and effective means of distributing healthy and low cost food to the large masses of poor consumers? Or will it ignore and periodically hinder the sector? The latter will likely condemn the informal sector to a low-level equilibrium of small traders eking-out a living, providing food to poor consumers at prices higher than would be found in a more progressive and dynamic system. The negative welfare effects of such a policy on poor consumers could be severe.

IV. PRINCIPAL INFORMAL MARKET PLACES IN MAPUTO

The urban zone[7] of Maputo has at least seven relatively large and established informal retail market places (Figure 5). These markets are served by the redistribution wholesale market of *Bazuca*, located very near *Xipamanine* and *Campo de Futbol*. Wholesalers in *Bazuca* obtain their product from two principal sources. Private sector *armazenistas* are most important, and most have their warehouses in the area near the port known as the *Baixa*[8]. Many traders also cite the state enterprises EACM (*Empresa de Abastecimento da Cidade de Maputo*), CIM (*Companhia Industrial-Matola*), and COGROPA as important supply sources. Yet the unquestioned heart of the informal food marketing system in Maputo is the *Xipamanine-Campo de Futbol-Bazuca* complex.

A. Large Scale Wholesaling: *Armazenistas* and State Enterprises

The informal food trading sector in Mozambique ultimately depends on the formal sector for its supply of many goods, especially imports. Findings from three separate data collection efforts indicate that private sector *armazenistas* are the single most important supply source for Bazuca floor traders, followed by state enterprises and trade with Swaziland. First, monitoring of product arriving in Bazuca during four different three day periods of July and August, 1992, indicated that 75% of all product entering the market had been purchased from Mozambican *armazenistas*. State enterprises (EACM, COGROPA, and CIM) followed with over 12%, and Swaziland and South Africa were close behind with 11%. Second, separate interviews with Bazuca floor traders during July and August, 1992, indicate that they purchased 52% of their total volume of maize grain and meals, wheat flour, rice, sugar, and peanuts in the *Baixa*. Finally, in a separate survey carried out weekly from September to November 1992, 56% of all traders interviewed indicated that they had obtained their maize grain and flours from suppliers in the *Baixa*. Thirteen percent cited state enterprises. Thus, while the product groups, timing of the interviews, and exact numerical results differ, all sources coincide in showing *armazenistas* in the *Baixa* to be the single most important supply source for informal wholesalers. Two of the three also show state enterprises to be significant suppliers. It is worth noting that the drought which affected the entire Southern African region in 1991/92 drastically reduced the flow of product, especially white maize meal, from Swaziland to Maputo. Had this drought not occurred, the importance of supplies from Swaziland would have been far greater. With the peace accord, domestic supplies of many products should also increase substantially.

B. Redistribution Wholesaling: *Bazuca*

Informal wholesale traders provide the link between the large scale *armazenistas* and state enterprises, and the very small scale informal retailers. *Armazenistas* and state enterprises have no interest in selling small numbers of bags at a time, while most informal retailers do

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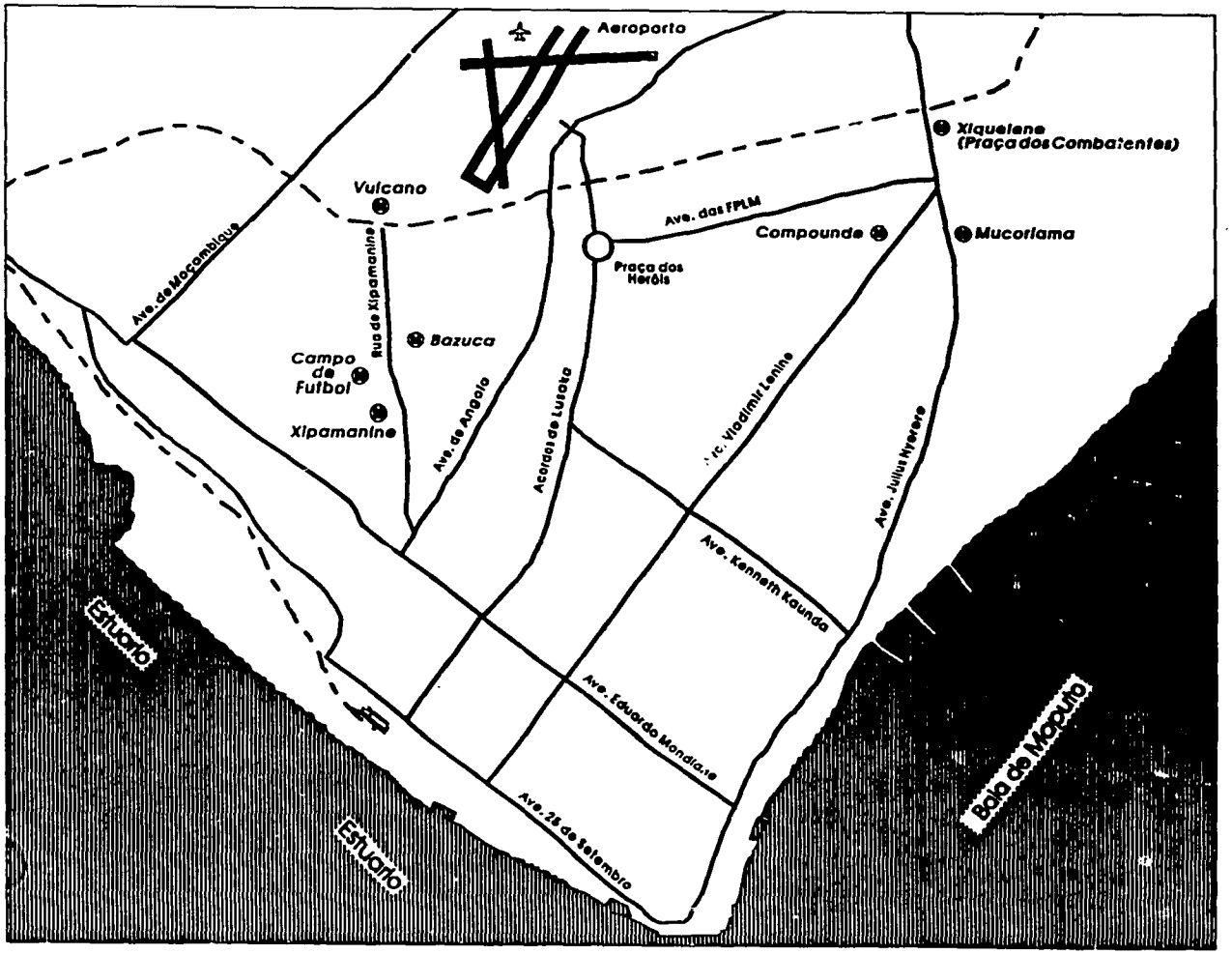
[7] This corresponds roughly to what is also called the "cement city". It is contrasted with the "peri-urban zone", which is also called the "cane city". The latter has grown up over the past decade, and is characterized by thatch huts and relatively little municipal infrastructure. The cement city was constructed earlier and in general has more permanent structures, paved streets, and other infrastructure.

[8] *Baixa* means "low-lying" in Portuguese, indicating that this area is lower in altitude than the rest of the city.

Figure 5. Partial Map of the City of Maputo, with Location of Principal Informal Market Places



not have sufficient capital to purchase more than one or two bags. Informal wholesalers bridge this gap, buying by the truckload from formal sector wholesalers and selling by the bag to retailers.

These informal wholesalers are centered in *Bazuca*. Retailers in five informal markets were interviewed on a weekly basis from September to November, 1992, regarding their supply source for white and yellow maize grain and meals. Over 60% indicated that they had purchased their product from informal wholesalers in *Bazuca*. Nearly 22% had purchased in their own market, and only 6.5% had purchased from wholesalers in the *Baixa*. *Bazuca* is also a very important supply source for the relatively small number of informal wholesalers operating out of Xiquelene and Compounde markets. While 50% of these had made their purchases in the *Baixa*, nearly as many (47%) had purchased in *Bazuca*.

C. Retail Markets

The seven principal retail markets are grouped in two different geographical areas (Figure 5). *Xipamanine*, *Campo de Futbol*, *Mafalala*, and *Vulcano* are located in the western part of the city. *Compounde*, *Xiquelene* (also known as *Praça dos Combatentes*), and *Mucoriama* are grouped closely together in the northeastern section of the city. There is some differentiation of function within these groups.

Xipamanine and *Campo de Futbol* are nearly contiguous and in practice may be considered a single market. Together, they are clearly the dominant retail market in the city. The established portion of *Xipamanine* during March 1993 averaged nearly 280 traders of the products monitored by the SIMA. These do not include items such as fish, fruits and vegetables, condiments, meat, and prepared foods. *Campo de Futbol* averaged nearly 350 traders of the same products during March. Each of these markets carried 16 of the 27 products monitored by the SIMA, the highest of any market surveyed. *Mafalala* averaged only about 190 traders and carried only 13 of the products, while *Vulcano* averaged 174 traders and only 11 of the 27 products.

The number of traders in clearly defined market places drastically underestimates the total number of traders active in the area. Too, many more food and non-food products are traded than the 27 monitored by the SIMA. For example, *Xipamanine* is a center of the fruit and vegetable trade, both at wholesale and retail. Throughout the *Xipamanine-Campo de Futbo-Bazuca* area, and considering all food and non-food products, nearly 5,000 people are involved in wholesale and retail trade on any given day.[9]

Together, the *Mucoriama*, *Xiquelene*, and *Compounde* markets cover a larger area and have more traders than *Xipamanine-Campo de Futbol*. Individually, *Compounde* is the largest market, with about 280 traders and 16 of the 27 SIMA products (in addition to others not monitored by the SIMA). *Xiquelene* is the smallest, with only 130 traders and 11 of the SIMA products. In the entire *Mucoriama-Xiquelen-Compounde* area, and counting all traders of all products, the area has over 8,000 retail traders on any given day. *Xiquelene* is an important wholesale redistribution point for the northeastern markets, however, as reflected in Table 1. To what extent *Xiquelene* operates independently of *Bazuca* in this regard is not clear. Researchers believe that *Bazuca* floor traders supply at least some of the small wholesalers in *Xiquelene*.

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[9] Based on actual trader counts conducted by SIMA enumerators.

V. INFORMAL FOOD WHOLESALING IN MAPUTO

The informal food trade in Maputo transacts many different products, including basic grains, various meals and flours, beans, fruits and vegetables, vegetable oils, condiments, prepared foods, and basic consumer items such as cloth, soap, kerosene, used clothing, and others. The Maputo Market Study examined yellow and white maize grain and flours, wheat flours, rice, beans, salt and sugar, and vegetable oils, but paid special attention to yellow maize grain and flours. These products are the single largest expenditure item in the food budgets of the poorest 20% of Maputo households (Sahn and Desai, 1992). This section will also focus most closely, though not exclusively, on these latter products.

A. Marketing Channels

1. *Bazuca* in the Retail Trade

Based on data collected from September to November, 1992, Bazuca is the principal supplier of maize grain and flours to retail markets within the urban zone (Table 1). Over the five

Table 1. Retail Supply Sources: Percentage of Traders Purchasing in Each Location, by Sales Market

RETAIL MARKET	SOURCE OF SUPPLIES								
	BAIXA	BAZUCA	OWN MARKET	XIQUELENE	XIPAMANINE	MATOLA	AV. ANGOLA	OTHERS	TOTAL
Xipamanine	7.5	78.8	6.9	2.5	.	.	1.9	2.5	100
Vulcano	.	86.0	.	.	2.3	1.2	2.3	8.1	100
Compondo	9.4	55.0	26.9	2.5	1.9	.	.	4.4	100
Mucoriama	11.8	38.7	25.8	16.1	1.1	.	.	6.5	100
Xiquelene	1.7	40.3	47.9	.	5.0	.	.	5.0	100
Total	6.5	60.2	21.8	3.7	1.9	.2	.8	4.9	100

retail markets surveyed, more than 60% of all traders had obtained their product in *Bazuca*. Nearly 22% bought in their own market, and only 6.5% bought in the *Baixa*. Enumerators did not survey *Campo de Futbol* and *Mafalala*, but informal interviews, and their location close to *Bazuca*, indicate that retailers in these markets also depend dominantly on this wholesale market for their supplies.

There is some variation across markets in the importance of *Bazuca*. *Xipamanine* and *Vulcano* are most linked to *Bazuca*, and we expect *Campo de Futbol* and *Mafalala* to fall into this group as well. *Bazuca* remains the single most important source for retail traders in *Compounde* and *Mucoriama*, but purchases from small wholesale traders in their own markets increase substantially. In *Xiquelene*, purchases by retailers within their own market

slightly outpace purchases from *Bazuca*. Note however, that Bazuca is likely an important supply source for the small scale wholesalers in these other markets.

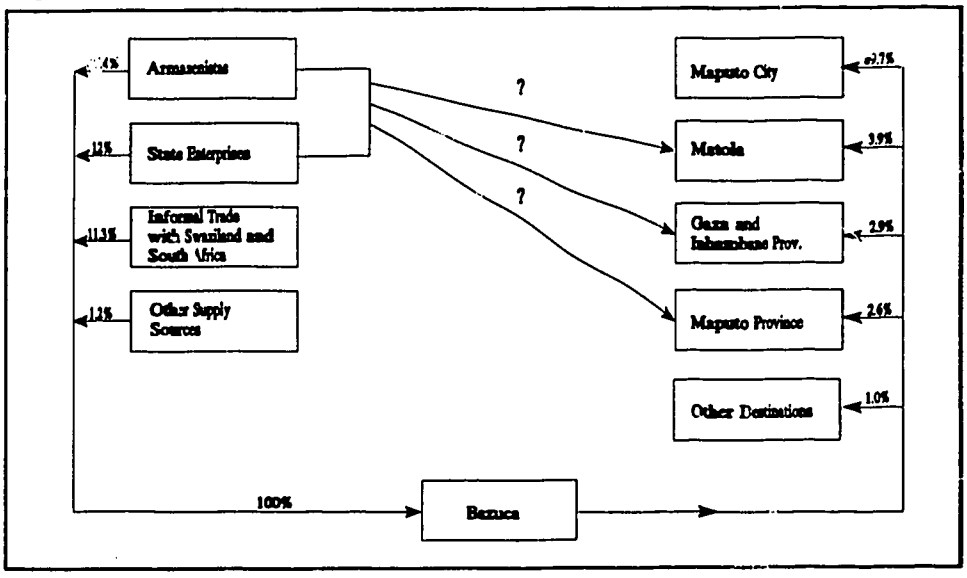
Table 1 hides some apparent variation across products. Processed yellow maize meal from *CIM* is obtained almost exclusively in *Bazuca*, even among traders in *Xiquelene*, *Compounde*, and *Mucoriama*. In contrast, supply sources for yellow maize grain are more varied. Overall, only 48% is obtained in *Bazuca*, 28% comes from other traders in the same market, and nearly 10% is obtained in the *Baixa*.

Thus, it is clear that some small scale wholesaling takes place outside of *Bazuca*, especially in *Xiquelene* market. Note, however, that retailers even in these markets tend to rely more on *Bazuca* than on small wholesalers in their own markets. Too, the volume of transactions in *Xipamanine*, *Campo de Futbol*, *Vulcano*, and *Mafalala*, each of which is dominated by *Bazuca*, is greater than that in the three northeastern markets. Finally, as noted earlier, Bazuca is likely an important supply source for these small wholesalers in other markets. Thus, *Bazuca* can be appropriately considered the wholesale hub of the informal maize trade in the urban zone of Maputo. Its role as a supplier for outlying markets of the Maputo/Matola area and beyond to the provinces of Maputo, Gaza, and Inhambane is less clear.

2. Product Flow Through *Bazuca*

Figure 6 summarizes study results on the relative importance of each supply source to *Bazuca* and the destinations of product leaving *Bazuca*. The figure is based on all products

Figure 6. Product Flow Through *Bazuca*, all Products, July-August 1992



entering and leaving the market when the research team monitored it. The dominant channel is from *armazenistas* to *Bazuca* floor traders, who sell to retailers from markets within the city of Maputo. Three-quarters of all product entering *Bazuca* during the periods analyzed originated with Mozambican *armazenistas*, and practically 90% was then purchased by Maputo city retailers.

The timing of the data collection during the drought may have increased the apparent dominance of *armazenistas*. Informal traders generally have very important roles in the white maize meal trade with Swaziland. They are also active in purchasing domestically produced white maize from farmers, though their relative share of this trade is unclear. White maize supplies were extremely scarce during this period, practically eliminating a major activity for informal traders. Researchers expect that the role of the *armazenistas* will be relatively reduced, though still quite important, when domestic production of white maize increases and supplies of white maize meal from Swaziland return to normal.

Figure 7 presents more detail on marketing channels through *Bazuca*. Two types of traders are worthy of mention. "Paper traders" have been observed primarily in yellow maize grain (GMA - *grão de milho amarelo* in Portuguese), selling a type of receipt conferring ownership of the product. These traders are clearly differentiable from traders in *Bazuca*. Unrefined yellow maize meal traders in *Bazuca* have also differentiated themselves from other *Bazuca* traders. Each will be dealt with in more detail below.

3. The Food Trade Outside of *Bazuca*

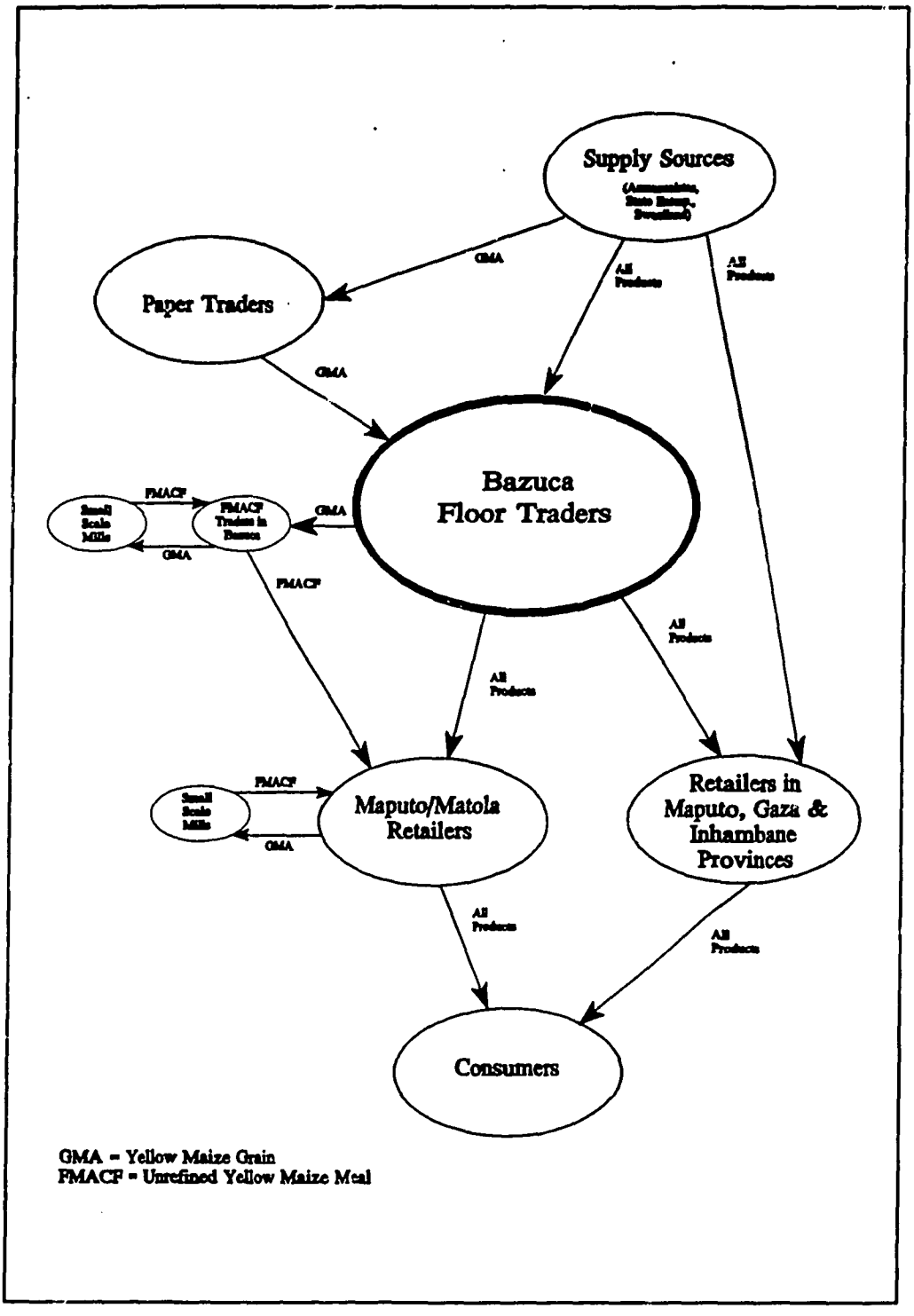
Study results indicate with some certainty that *Bazuca* is the key wholesale redistribution point for the urban zone in Maputo. Data in Figure 6, and retailer responses from urban zone markets regarding supply sources for maize grain and meals support this conclusion. *Bazuca*'s role in two other important aspects of the marketing system is less clear. First, what proportion of supplies reaching the peri-urban zone and Matola pass through *Bazuca*? Second, does any significant portion of the product reaching Maputo, Gaza, and Inhambane provinces from Maputo city pass first through *Bazuca*?

Study results will not allow a definitive answer to these questions, but they do provide relevant information. First, observation and informal interviews with traders in the *Baixa* indicate that significant amounts of yellow maize grain leave for Gaza and Inhambane provinces directly from this area, without ever passing through *Bazuca*. Second, reasoning would suggest that the largest traders in these areas do business directly in the *Baixa* rather than in *Bazuca*. Those with enough capital to buy in the minimum quantities offered by *armazenistas* would do so, thereby reducing their cost. Those who cannot purchase in these large quantities due to capital or other limitations would be forced to trade through *Bazuca*.

A rough idea of *Bazuca*'s share in the total volume of maize flowing through Maputo can be gleaned from survey data on inflows to *Bazuca*, combined with data on daily ship unloadings. Late in the day on August 12 1992, the U.S. ship Lash Atlantic arrived in Maputo port and began unloading grain. Through August 21 (a period of 10 days), consignees unloaded approximately 5,200 MT. During five of these 10 days, the research team monitored arrivals and departures from *Bazuca*. Expanding the data on registered U.S. maize grain arrivals in *Bazuca* during these five days to cover the whole 10 day period results in an estimated flow through this market between August 12 and August 21 of approximately 1,090 MT, or 21% of the grain that was unloaded. If we adjust for the 526 MT of grain that was allocated directly to CIM off the boat during these same days, then 23% of all the grain that could have passed through *Bazuca* actually did so.[10]

[10] 1090/(5200-526) = .233. CIM mills its grain into refined maize meal.

Figure 7. The Structure of the Staple Food Trade in *Bazuca*



These results apply only to the time period analyzed. Different periods may give different results. Too, the analysis assumes that consignees quickly sold all the 5,200 MT that they unloaded during this time. If some of this grain went into storage, then *Bazuca*'s implied share would increase. So the results should be taken as the minimum share that *Bazuca* would have had for this time period, but should be understood as indicative only and subject to further corroboration. Nevertheless, the implication is that, while *Bazuca* is extremely important for the urban zone of Maputo, it may have a less important role in supplying the peri-urban zone and beyond to the provinces.

B. Wholesale Marketing Practices

Informal food wholesaling in Maputo is generally small scale, with rapid turnover of product and little storage beyond three days to one week. Most traders of the products analyzed have been engaged in the activity for less than a year. Exchange is nearly always by cash in the spot market. Two characteristics of the market are of special interest. First, "paper trading" involves the buying and selling of a type of warehouse receipt. It may represent an authentic commercial innovation which helps reduce transactions costs. Second, a sharp differentiation among floor traders in terms of supply source and purchase volumes is an interesting market adaptation which requires further study.

1. Trading History

Over two-thirds of all floor traders in *Bazuca* have been in the wholesale trade for 12 months or less, with a mean of 10 months. Wheat flour and rice traders have the most experience, averaging nearly 13 months each. Yellow maize grain and meal traders have the least experience, with an average around nine months. White maize grain and meals were absent from the market during the survey period, so no information is available on traders of those products. These findings compare with those of Little (1992) in a study of prepared food and vegetable traders, who found that, as of 1991, nearly two-thirds of interviewed traders had been in the trade for two years or more.

This relatively short tenure of staple food traders is perhaps unexpected, given that wholesale trading at Bazuca has been active for at least two years, since early 1991. This pattern would not seem to be a reflection only of the rapid growth which has occured in the number of traders at wholesale, since only two percent (3/150) of interviewed traders had as many as 24 months of experience at this level. The pattern could indicate a high rate of trader entry and exit. This suggestion is more consistent with the data. It is also reasonable to expect a relatively high rate of entry and exit, in light of the low barriers to entry, few sunk costs, and great volatility of the market. It is easy for traders to get into the market, and they do not have to invest in large amounts of fixed capital to operate. If they decide after some time that the trade is too risky or not sufficiently remunerative, or they have better alternatives, they lose little by exiting.

It is also possible that individuals enter the wholesale trade by transacting small volumes of the least expensive items, and, if successful, gradually increase their volume and move into higher value products. These higher value products might be some not monitored in this survey, such as sugar or fruits and vegetables. This pattern is suggested by the fact that the most common "path" for wholesale traders was to begin as retailers of unrefined yellow maize meal (the cheapest staple in Maputo) and then advance to selling yellow maize grain as floor traders in *Bazuca*. Seventeen of the 150 traders interviewed followed this path,

while no more than eight followed any other. Too, traders of both rice and wheat flour, which are often two to three times more expensive than yellow maize grain or meals, have on average more experience than maize traders.

Thus, both rapid entry and exit and progression into higher value products are consistent with the data. It seems likely that some combination of these factors is at work. Further research is need to determine which is most important, and what other explanations might exist.

Over 60% of traders began at the retail level, though only 11% currently sell at that level in addition to their wholesale activities. Men were more likely to skip the retail trade and enter directly into wholesaling. Fifty-five percent of the men interviewed had done this, while only 36% of the women had done so. Of those who initially sold at retail, 38% sold unrefined yellow maize meal.

Traders tend to specialize in a single product. Thirty-one percent indicated that they never sell a product other than the one they were selling when interviewed. Sixty-one percent said that they "sometimes" do so, and only 2% claimed to do so "frequently".

2. Scale of Operation, Product Turnover, Storage and Transport

The scale of operation of informal wholesalers tends to be small, though there are clear differences across traders and products. Product turnover is very rapid for all products, so that storage is very short term (Table 2).

Table 2. Purchase Volumes and Turn-Over, by Product, July/August 1992

Product	Mean Purchase Volume, All Traders (kg)	Median Purchase Volume (kg)	Percent Purchasing 10 sacks or more	% of Product Purchased Yesterday or later
Unrefined Yellow Maize Meal	292	200	20	77
Yellow Maize Grain	3,132	2,000	84	74
Refined White Maize Meal	1,249	600	63	100
Rice	1,344	1,250	100	100

By any measure, yellow whole meal traders are the smallest. Among those interviewed in July 1992, average purchase volumes of yellow grain for milling were about 300 kg, or six sacks. Typical purchases were of only three to five sacks, with a median and modal purchase of four. Only 20% purchased 10 sacks or more. Turn-over was rapid. Thirty-six percent had purchased their product the day of the interview, and only 23% had purchased two days ago or more.

Turn-over was also rapid for other products, but average purchase volumes were far larger. Sellers of yellow maize grain purchased a mean of more than 3,000 kg, or 60 sacks, with a

median purchase of 2,000 kg. Eighty-four percent purchased 10 sacks or more. Rice and refined white maize meal traders each purchased a mean of about 1,300 kg, though the median purchase of rice (1,250 kg) was more than double that of refined white maize meal (600 kg). Refined white maize meal also had more small traders, with 37% purchasing less than 10 sacks. All rice traders purchased at least 10 sacks.

These characteristics of small purchase volumes and rapid turnover are consistent with the fundamental role of the informal wholesaling sector, this being to serve as a bridge between the large *armazenistas* and the very small scale informal retailers. Were the food retailing sector in Maputo to be comprised only of better capitalized *lojas*, the informal wholesaling sector would likely exhibit significantly different characteristics from the one reported on in this study.

3. Paper Trading

"Paper trading" is an interesting innovation which researchers first observed immediately after the arrival of the EEC boat on July 28. Recall that the 15,000 MT on this shipment were delivered in equal amounts to only two consignees. In attempting to finance such a large purchase[11], at least one of the traders sold a form of warehouse receipt to a relatively small number of traders before the boat arrived. Most of these appear to have been formal sector *armazenistas* who had no quota for this shipment, and possibly had less access to capital as well. Whether these "paper traders" paid cash for the receipts at the time they received them is not clear. What researchers observed were floor traders in *Bazuca* who had purchased these receipts from the paper traders, paying in cash before receiving the grain. In essence, *Bazuca* floor traders financed some portion of the 15,000 MT for the *armazenistas*.

Researchers also observed a form of paper trading on grain delivered to public sector consignees from the August 12 U.S. shipment. In this instance, it appears that *lojistas* belonging to the NSA, who have a right to certain quantities of grain from EACM, may have sold portions of these quotas to *Bazuca* floor traders without ever taking physical possession of the grain. Floor traders were then able to use the quotas they had purchased to obtain grain at EACM.

This latter paper trading appears to be predicated on the existence of an administered system of grain distribution, and on the willingness of those within the system to sell outside of recognized channels. If the NSA is replaced with an income transfer scheme, as has been proposed (Teller, et al.), then this type of trading would likely disappear. Paper trading between *armazenistas* and floor traders, on the other hand, may be an authentic commercial innovation with positive payoffs for the food marketing system. Such trading may reduce the costs of transactions by separating exchange of ownership rights from physical exchange of the good. By eliminating the need for physical exchange each time the good is sold, handling and transport costs are reduced.

Trading of warehouse receipts is widespread in industrialized countries, and has typically preceded the development of modern commodity futures markets. An owner with physical possession of product deposits the product in a warehouse and is issued a receipt. The owners of the warehouse legally certify that product is in inventory, hence the buyer of the

[11] EEC representatives indicated that they required 100% advance payment for the grain.

receipt is assured that actual product can be obtained if necessary. The system was designed and has functioned in such a way that all actors in fact trust that possession of a receipt guarantees real ownership of a good. Thus, the receipts have become widely traded, eliminating many physical transactions which would otherwise have to take place.

In Mozambique, however, the system is at best incipient and suffers from some problems. Recall that prices were extremely high immediately prior to the arrival of the EEC boat. As the boat arrived, grain moved immediately to *Bazuca*, and prices fell rapidly. In the span of two days, retail prices of yellow grain fell from Mt 1,000/*caneca* to as low as Mt 450/*caneca*. Wholesale prices (prices charged by floor traders in *Bazuca*) fell from Mt 42,000/sack prior to the arrival to Mt 26,000/sack the day after. Prices then moved up slightly (see discussion of the reason for this in section VII below) until a ship with maize from the U.S. arrived on August 12. At this time, a group of floor traders paid a paper trader Mt 23,000/sack of yellow grain from this U.S. shipment. Unexpectedly, they had to wait two days in a market with rapidly falling prices before taking physical possession of the commodity. By the time they obtained the grain, the price at which they could sell had fallen to Mt 22,000-21,000/sack.

This episode reveals at least two problems. First, these informal traders could not obtain physical access to the good at will after purchasing the receipts with cash. While one of the main objectives of a system of warehouse receipts is to reduce the frequency of physical exchange, owners must be able either to take physical possession or to sell the receipt to another buyer at any point in time. If they cannot, they will be subject to the kinds of risks that the *Bazuca* traders experienced, and the system will not attract the volume of transactions it requires to function properly.

The more general problem is one of poor information. First, the *Bazuca* traders almost certainly expected that they could take rapid possession of the grain following payment.[12] One must presume that they did not know when they purchased the receipts that they would have to wait two days before receiving the grain. Had they known, they may have delayed their purchase or negotiated a lower price. Second, traders may not have been aware of how much grain had arrived and how quickly it was moving to the market. Thus, they were in a poor position to anticipate price movements over the days immediately following their purchase. The problem of poor information is a very important one in the Maputo market, and it will be treated in more detail below.

Questions remain about paper trading in Maputo's informal sector. First, who are the paper traders? One hypothesis is that they are *armazenistas* who held quotas to buy from the consignees. Legally, consignees are to sell grain at officially mandated prices, and only to a list of quota holders established by the Food Security Department of the Ministry of Commerce. These quota holders are then to sell to *lojistas* with whom they "normally" do business[13]. The system is meant primarily to ensure that some commercial food aid reaches areas outside of Maputo, in accordance with calculations of apparent need by the Food

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[12] See above for information on the rate of turnover practiced by *Bazuca* floor traders and informal retail traders. It appears that traders at both levels are quite averse to significant stockholding.

[13] As of March 1993, this system may no longer be in place. But prior to this time, and during the data collection periods, a quota system as described here did exist.

Security Department. In practice, much of the food aid moves out of this administered system and is sold at market determined prices to whomever will pay. At what point this happens - whether at the consignees' doors or later - is not yet clear. It may be that consignees often do make their first sales to quota holders, and that these become the paper traders. An alternative hypothesis is that the paper trade is entirely market driven, meaning essentially that there are no administrative barriers to being a paper trader and that the prices these traders pay consignees vary with supply conditions. A final hypothesis is that the paper traders are not independent, but rather agents of the consignees. Each possibility has different implications for the effects and importance of paper trading for the sector, and further research is warranted to evaluate each.

Who pays for storage if the grain is with the *armazenista* after he has sold the receipt? In a fully developed system, storage would take place with an independent storage firm, and each owner would pay storage from the time they take legal (not physical) possession of the product. In Mozambique, the system is not meant primarily for storage. Turnover is likely rapid, with the result that the trader with physical (but not legal) possession may cover all storage costs.

Finally, what are the prospects for this commercial innovation to develop into an effective and low-cost means of facilitating grain trading in Mozambique? The answer to that question will depend on the actions of private sector participants and the attitudes and actions of government officials in a position to influence commercial behavior through the legal powers of the state.

4. Specialization Among Floor Traders

Floor traders in *Bazuca* have clearly differentiated into two groups. In one are the 57% that purchase outside of the market, mostly from the *Baixa*, or from trucks that arrive in *Bazuca*. This group buys and sells the whole range of products found in the market, with the exception of unrefined yellow maize meal. Average purchase volume by these traders across all products was slightly more than 2.25 MT, or 45 bags. In sharp contrast, 43% of the traders purchased from other floor traders in *Bazuca*, and their average purchase volume was only 225 kg, or four to five bags. This group includes some traders of white and yellow grain and refined meals, but is dominated by traders of yellow whole meal. In fact, every trader of this product who was interviewed fell in this category. No traders of rice, wheat, sugar, or other products belonged to this group. Note that these much smaller traders did not resell at retail, by the *caneca*, but rather at wholesale, by the bag.

C. *Marketing Costs and Margins*

The informal wholesaling sector in Maputo might best be described as a low volume, low service activity. Marketing costs are not high relative to costs of purchasing the product, but few services are embodied in the product. Low volumes and strong competition from other traders mean that earnings are low.

The fact that few services are embodied in the product at this level does not mean that these services are unimportant. Essentially, informal sector wholesalers provide two needed services. The first is "breaking bulk" for very small retailers. *Bazuca* floor traders do this by typically purchasing between 25 and 60 bags from *armazenistas* or other large suppliers, and frequently selling a bag at a time to retailers. The capital limitation of informal retailers makes it essential that product be available for purchase in these small quantities. The

second service provided by informal wholesalers is a locational service. By providing a single point (*Bazuca*) at which retailers from all over the city can purchase their product, total travel time and transport cost for retailers is reduced. One positive result for the food system of the concentration of product in *Bazuca* is that price formation tends to be quite efficient. Prices across traders of the same product within *Bazuca* are practically identical except for quality differences, the price is easily observed (increasing market transparency), and this sends a strong price signal out to retail markets.

Costs incurred by informal wholesalers are for transport, storage of whatever proportion of their bags they do not sell during the day of purchase, and taxes. During July-August 1992, transport cost from the *Baixa* to *Bazuca* was a fairly uniform 500 Mt per bag. From Swaziland, the most typical cost was 1,500 Mt per bag. In each case, traders had to pay an additional charge of 50 Mt to have the grain unloaded from a truck to the point on the ground where they would conduct their sales. Any grain that the wholesaler does not sell during the day of purchase must be stored. A number of small warehouses around *Bazuca* provide this service, charging 200 Mt per bag per night. This cost is extremely high relative to typical long term storage costs. For example, for a bag of yellow maize grain costing 25,000 Mt, annual storage costs in these warehouses would amount to 292% of the purchase price. Use of an installation meant for longer term storage (such as the Manica warehouses) would be much cheaper[14]. Of course, these facilities around *Bazuca* are not meant for long term storage, and their very close proximity to the market (most are within 50 meters of the sales floor) is valued by the traders. Too, warehouses for long-term storage may not often be available to those with the relatively small quantities that these traders transact. At any rate, the result, as previously noted, is that informal wholesalers turn their product over very rapidly, thus minimizing storage costs.

Taxes are generally 200 Mt per bag per day. Tax collectors charge based on the number of bags on the ground. If a bag is on the floor at *Bazuca* during more than one day, the trader may be charged for that bag each day. In practice, the collector does not appear every day, so that traders can count on avoiding taxes on some days. Nevertheless, the manner in which the taxes are calculated provides a strong incentive for traders to put onto the floor only what they think they will be be able to sell in one or two days. Combined with high short-term storage costs, this provides a further incentive for rapid turn-over of product.

These costs - transport, storage, and taxes - generally amount to about 1% of the purchase price paid by floor traders. Since the costs are fixed per bag, their proportion of purchase cost is less for more expensive items. For example, transport, storage, and taxes averaged 2.3% of purchase cost for yellow maize grain traders, but only 1.2% for rice traders, and 0.95% for white maize grain traders.

Table 3 presents information on the net profitability of *Bazuca* floor traders of yellow maize grain, white maize grain, rice, and unrefined yellow maize meal. The data for these calculations were collected between July 28 and August 3, from single interviews with individual traders, and represent the earnings from sales of the last purchase the trader made. Thus, they reflect only the margins earned during this time, which happened to be a

[14] For example, in April 1992, *Manica* was charging only about 1,100 Mt per metric ton per month for storage. On a daily basis, this is less than 1% of the cost in the small warehouses around *Bazuca*.

Table 3. Net Margins of *Bazuca* Floor Traders, Selected Days of July-August 1992

Product	Mean Margin, Mt	Std. Dev.	Mean % Margin	Maximum % Margin	Minimum % Margin	Mean Daily Earnings	Median Daily Earnings	Prob. of Negative Margin	n
Yellow Maize Grain	83,873	211,348	3.60	16.0	-10.0	33,549	9,000	0.33	21
White Maize Grain	-8,500	53,868	1.20	11.0	-18.0	-3,400	-100	0.52	23
Rice	21,706	84,298	0.60	6.0	-8.0	8,632	9,690	0.25	8
Unrefined Yellow Maize Meal	30,650	29,875	19.00	48.0	-10.0	12,260	8,762	0.14	29

period of great price instability. Nevertheless, there is reason to believe that they are generally indicative of typical margins earned in the wholesale trade. First, price instability is the rule rather than the exception among staple foods in Maputo, so that this period was not unique. Second, the rapid product turnover which traders practice allows them to adapt quite quickly to changing market conditions.

Results in the table indicate that margins are generally positive but quite variable. On average, percentage margins for all but unrefined yellow maize meal are surprisingly low. In three of four cases, the margin standard deviation is larger than its mean, by factors that range from almost two to more than six. Mean percentage margins are well below 10% for all but unrefined yellow maize meal, and in every case, significant percentages of traders earned negative margins. Mean results for yellow maize grain and unrefined yellow maize meal are skewed upwards by a small number of traders who earned very large profits. Median earnings are much lower than mean earnings in these cases, especially for grain. Over all products, the probability of negative earnings was 31%, and median daily earnings were 7,680 Mt.

What do these earnings imply about the economic status of these traders' households? Addressing this question requires an examination of typical household structures, including number of income economically active members, and incomes needed to attain required calorie consumption levels. Del Ninno and Sahn define a poverty line of 31,904 Mt per capita per month, based on survey data collected between October 1991 and April 1992. Their definition is based on an econometrically estimated relationship between income and calories consumed, using data from 1,800 households surveyed in Maputo. The line is defined as the predicted per capita income needed to achieve the standard recommendation of 2,500 calories of consumption per adult equivalent, based on actual expenditure patterns.[15] Based on an average household size of eight (Little; Graham, et al.), earnings needed to reach required consumption levels were 255,232 Mt per month. The median daily earnings of 7,680 Mt from the Maputo Market Survey translate into median monthly earnings (assuming 6 work days per week and 4.3 weeks per month), of approximately 200,000 Mt. In other words, median trading income among those surveyed is approximately 80% of what is needed to keep a family of average size above the poverty line.

Results from other studies on the number of income earners per household are relatively consistent. Graham, et al. report that 72% of male headed households in the Maputo area have at least two adults earning incomes. Only 35% of female headed households had at least two adult incomes, but these households were only 17% of the total. Over all households, 64% reported at least two incomes. Little, in his sample of vegetable and food traders, reports a slightly higher percentage (24%) of female headed households. He reports that 70% of all trader households had income in addition to that from trading. This figure is close to the 64% reported by Graham, et al. for all types of households.

Thus, we may conclude that approximately one-third of households in Maputo have only one income earner. For these households, the median earnings of traders surveyed in this study are not sufficient to achieve acceptable levels of calorie consumption, given typical

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[15] In other words, the income is not calculated as that needed to achieve 2,500 per adult equivalent with some "least cost" consumption basket. The calculation is based on what households actually buy, and indicates the "typical" income level associated with a consumption of 2,500 calories per adult equivalent in the household.

expenditure patterns. For the approximately two-thirds of households with more than one income earner, trading income may be what makes the difference in keeping the family above the poverty line. Further studies which track trader earnings over longer periods of time would be useful in confirming these results.

VI. INFORMAL FOOD RETAILING IN MAPUTO

Informal food retailing in Maputo is overwhelmingly conducted by women, is extremely small scale, and has very rapid product turnover. Few services are embodied in most products, and earnings are very low.

Over the course of three months in late 1992, the research team collected information from 618 retailers of white and yellow maize grains and meals regarding their last purchase. Table 1 earlier in the report showed the supply channels used by these traders. *Bazuca* was most important, with over 60% of the market, followed by the trader's own market with nearly 22%. No other source exceeded 6.5%. Of the 618 traders, 99.7% were women. Turnover is quite rapid: 81% had purchased their product either the day of the interview, or one day earlier.

The rest of this section reports on retailers of unrefined yellow maize meal, which is the most commonly sold staple in the retail markets surveyed. Unrefined yellow maize meal represents the point of entry for many women into the informal food trade. Recall that the most common path for current *Bazuca* floor traders was from this meal at retail to yellow grain at wholesale. Across wholesalers of all staples, 23% originally sold unrefined yellow meal at retail. This is more than twice the figure for any other product. Due to the importance of this product at retail, the research team conducted a separate survey of 28 vendors, to determine purchase quantities and practices, sales practices, and marketing margins.

These traders are very small scale. The modal and median purchase was a single sack of 50 kg. There appears to be a significant difference, however, between those who purchase grain (18 of the 28 interviewed) and those who purchase the product already milled (10 of 28). Excluding a single outlier, purchasers of meal bought an average of only 32 kg, and half purchased 15 kg or less. Among those who purchased grain and had it milled, the mean purchase was 65 kg, and none purchased fewer than 30 kg. Thus, it is reasonable to suppose that those traders with the most extreme capital constraints purchase small quantities of meal for immediate resale. Those with a bit more capital will tend to purchase somewhat larger quantities of grain and pay to have it milled.

Purchasers of grain must clean it, transport it to a mill, and transport it to the point of sale after milling. The only cash cost that most incur is milling. All the grain purchasers clean it themselves, and two-thirds transport the grain to the mill themselves, carrying it on their heads. All surveyed markets have small mills near them, generally within 100 or 200 meters. Milling chargers were either 1,500 Mt or 2,000 Mt, though no difference in meal quality was noted based on the cost. Retailers generally do not pay for storage, preferring to take home the partial sack remaining after a day's work. Retailers who purchased flour generally reported incurring no cash costs other than for purchase of their maize meal or grain.

Results show that margins are extremely low. Margins appear also to vary systematically depending on whether the trader purchased flour or grain. Table 4 presents indicators of net margins for retailers of unrefined yellow maize meal. Daily earnings of those purchasing grain are much higher, though more variable, than of those purchasing meal. Neither trader would be able to support an average size family simply from their earnings as traders. Those purchasing grain and working six days a week would earn only 70,018 Mt per month, barely enough to achieve acceptable consumption levels for two people, based on del Ninno and Sahn's analysis. Those purchasing flour would earn only 14,690 Mt per month.

Table 4. Profit Indicators for Retailers of Unrefined Yellow Maize Meal

	Mean Daily Earnings	Mean % Margin	Probability of Negative Margin	n
Purchased Grain	2,693	19.0	0.23	13
Purchased Flour	565	8.3	0.00	6

VII. KEY FINDINGS AND POLICY ISSUES

Key issues in the informal food marketing system of Maputo are extreme price variability and the associated issue of food aid impacts on the market, poor market information, and the very low volumes of most traders and low service content of most products.

A. Food Aid and Price Instability

Figures 1 and 2, and the discussion surrounding them, made it clear that maize staple prices in the Maputo informal sector were highly volatile during the period of the study. In fact, this volatility has been a fundamental characteristic of most products in the sector for at least three years (Figure 8). All three key staples, yellow maize grain, white maize grain, and rice, have shown tremendous instability, with monthly average prices on occasions doubling or falling by half in as little as two or three months. Weekly prices show even greater instability.

Figure 8 suggests that, for yellow and white maize grain, probably the key factor leading to this instability has been irregular arrivals of yellow maize food aid.[16] There have been two periods of very sharp price increases for yellow maize since January 1990: a) from July/August 1991 to October/November 1991, when prices nearly doubled, and b) from January 1992 to April-May 1992, when prices again approximately doubled. In both instances, white maize prices followed those of yellow maize with a one or two month lag.

Discontinuities in arrivals of commercial yellow maize food aid coincide exactly with these sharp price run-ups. Arrivals were practically continuous from July 1990 through July 1991, averaging approximately 8,500 MT per month, with only two out of twelve months with no arrivals (August 1990 and February 1991). Then, during August, September, and October 1991, no food aid arrived. Yellow maize prices rose each month, reaching a peak in October and remaining high in November. White maize prices began their rise a month later, and continued their rise through November.

In November and December 1991, nearly 49,000 MT of GMA from the U.S. arrived in Maputo. Prices of both yellow and white maize fell sharply, with yellow prices bottoming out in January. With no food aid arrivals during four months, until May 1992, yellow prices rose very sharply through April and remained high in May. Once again, white prices continued their rise one month past yellow prices.

Even the one month price rise of July 1992 can be associated with discontinuities in yellow maize food aid arrivals. In May 1992, 32,500 MT of GMA arrived, breaking the price rise and decreasing yellow prices that month and in June. But then no maize arrived for two months, until August. Prices increased substantially in July. It took two large arrivals in August and continued arrivals in October and November to keep the price on a moderate downward trend.

Very short term price instability, specifically price increases, may also be associated with the delivery of maize grain to one or very few consignees. Recall from Section II.B that the

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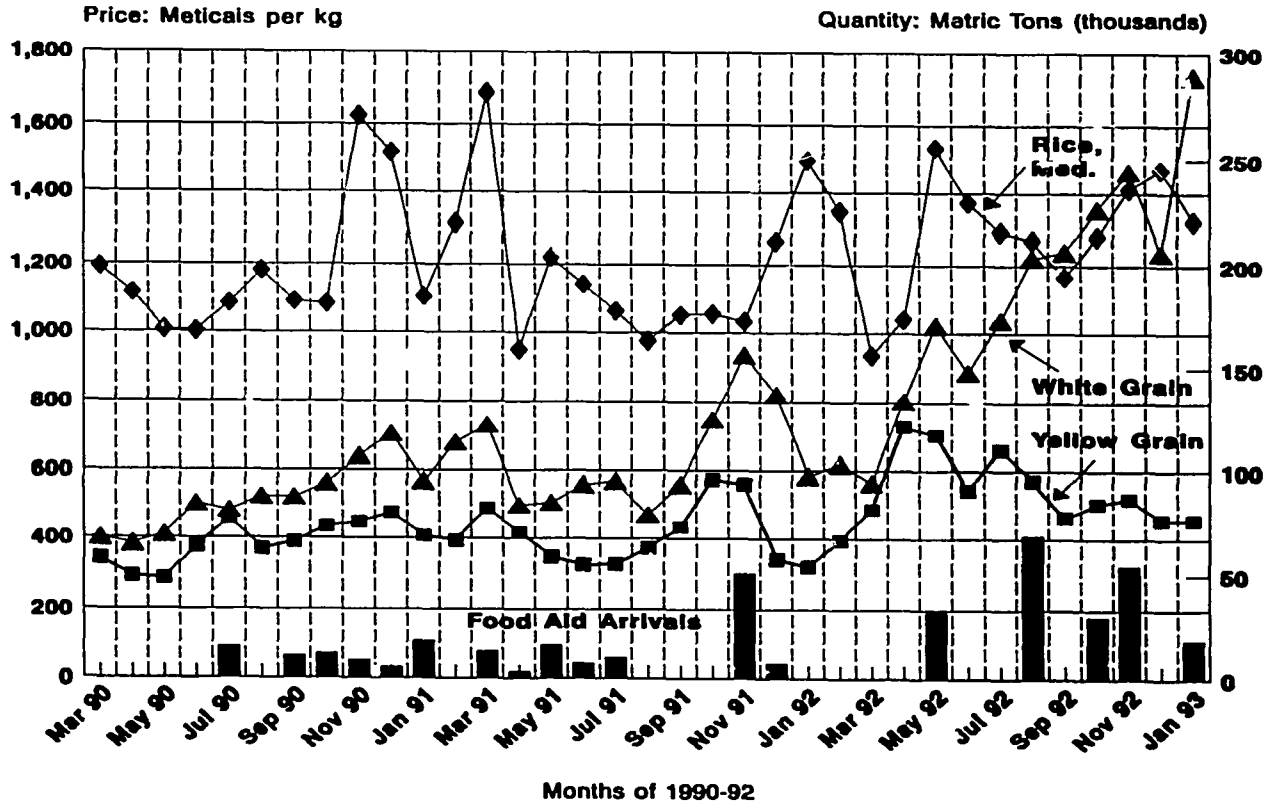
[16] A forthcoming document entitled "The Economics of Food Aid Pricing and Distribution: Lessons From Mozambique", investigates this issue in far more detail.

Figure 8. Staple Prices and Yellow Maize Commercial Food Aid Arrivals in Maputo, March 1990 - January 1993



Source: Mozambique Ministry of Commerce, Food Security Department, "Food Aid Pledges and Shipments, 1990/91" and same for 1991/92; USAID unpublished price series. Shipments arriving after the 25th of a month attributed to the following month.

EEC delivered its 15,000 MT of yellow grain from the July 28 arrival to only two consignees. One important reason for the EEC decision was to ensure payment of the counterpart funds. Nevertheless, it may be argued that such a distribution policy has important negative consequences for the market.

In this case, one of the consignees did not sell any grain in the Maputo area, instead shipping it north to Inhambane province for milling and sale. As a result, the other consignee enjoyed a monopoly position in the Maputo market until the arrival of the U.S. boat on August 12. Section II.B of this report documented the dramatic decrease in prices following the EEC arrival, but noted that prices also showed a short price jump which may have been due to market power on the part of the consignee. This price jump can be seen clearly in the *Bazuca* market. Yellow grain prices in this market reached their peak just prior to the EEC arrival, exceeding 850 Mt/kg. After the arrival, prices fell each day, reaching 505 Mt/kg on August 3. However, interviews with *Bazuca* traders on August 4 indicated that the consignee selling the EEC grain in Maputo halted sales for two days (the reason for this action was not clear). Prices on August 5 jumped 10%, to 550 Mt/kg, before resuming their downward trend on August 6. From August 10 to August 12, they again jumped almost 10%, from 495 Mt/kg to 540 Mt/kg. August 12 was the day that the U.S. ship arrived, though product did not begin arriving in *Bazuca* until August 13. Thus, the first price jump of 10% is clearly associated with the temporary suspension of sales by the consignee, who was the only supplier of yellow maize at the time. The second price jump is quite difficult to explain when a ship holding 22,000 MT of grain was sitting in port about to begin unloading. Researchers suggest that both price increases may not have taken place had their been a larger number of consignees of the EEC grain.

Rice prices have also been markedly unstable. This instability does not show an easily discernible relationship with yellow maize arrivals, but economic theory suggests that substitution by consumers in response to price changes will transmit some of the yellow maize price instability to rice. Substitution between yellow and white maize is clearly the reason for the very close relationship between these two prices. Rice is imported both commercially and as food aid, and these arrivals are likely the principal determinants of price movements for this product.

As the production and marketing system in Mozambique recuperates following the end of the war and the improvement of the policy environment, the country's dependence on food aid will decline. This progress toward a self-reliant status may be slow, however. Marketing infrastructure in rural areas, including roads and rural stores, has been severely damaged. Past policies of tight control over economic activities have combined with the war to practically eliminate competitive marketing in many areas. In response, producers have adopted a strongly subsistence oriented food security strategy (MOA/MSU Research Team, 1992). This orientation, along with scarce marketing credit and the sheer magnitude of investment needed to reconstruct the rural marketing system, all mean that producer supply response is likely to be slow.[17]

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[17] The Food Security Project has observed important changes in the rural marketing system. Increasingly, itinerant traders (*comerciantes ambulantes*) are entering the market, and appear in some cases to be providing competition for more established *lojistas*. Too, some *armazenistas* are beginning to expand their rural collection networks. The project will continue to monitor these positive developments over time.

Thus, yellow maize, rice, and other aid will likely continue to represent very significant portions of total food availability for some years to come, especially in urban areas. Too, as the marketing system becomes better integrated, the effects of food aid on urban markets will be increasingly transmitted to rural areas. Already, maize and rice prices in Inhambane and Gaza provinces appear to be strongly influenced by Maputo prices. This tendency toward improved market integration will only strengthen over time. Spatial market integration, and the strong relationship between yellow and white maize prices demonstrated in Figure 8, also raise serious questions regarding the effects of continued yellow maize food aid on incentives for domestic production of white maize. Thus, it is imperative that mechanisms be developed so that food aid will, at a minimum, not increase the level of price instability in Mozambique. Attention must also be directed toward minimizing any disincentive effects of the food aid on domestic production incentives.[18]

B. Market Information

The problem of market information in Maputo has a number of dimensions. The first and overriding dimension is that information is "assymetric", meaning that, in any given transaction, certain market actors tend to have systematic informational advantages over others. Other dimensions relate to the timing and quantity of commercial and especially food aid ship arrivals and unloading, prices in geographically separate markets, product quality, and the size of bags at wholesale. Assymetry is a problem in each of these.

1. Timing and Quantity of Ship Arrival and Unloading

The most dramatic evidence of assymetric information regards the timing and quantity of ship arrival and unloading. In light of the effects that such arrivals have on the market, information regarding them is of the utmost importance, especially for wholesale traders. Consignees, all of them formal sector *armazenistas*, have the best information regarding food aid. Informal sector floor traders in *Bazuca* tend to be very poorly informed on this critical issue. The market place is the center of much speculation regarding when boats are to arrive and with how much product, but little authoritative information is available at this level. Section V.B.2 discussed the problems that some floor traders encountered due to their poor information.

Possibly the clearest evidence of poor information among floor traders on this issue is the startling lack of anticipatory pricing in *Bazuca*. In a well functioning market, prices reflect not only current but **anticipated** supply conditions. Commodity markets in the U.S. and other industrialized countries react in anticipation of announcements of prospective harvests and other events which influence supply or demand. If the actual announcements are what was expected, they will typically have very little effect on the market, which has already incorporated the information into its prices.

In contrast, prices in *Bazuca* tend to react to ship arrivals only when the product begins to arrive at the market. At this point, the reaction can be dramatic. The arrival of the EEC ship on July 28, 1992 is the best documented case. The day the ship arrived in port, prices

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[18] Tschirley and Weber (1992) have proposed a means by which food aid might serve as an anchor of stability around which an active production and private trading sector might emerge and flourish. The forthcoming project publication "The Economics of Food Aid Pricing and Distribution: Lessons from Mozambique" will contain a detailed discussion of these two issues.

remained extremely high in *Bazuca*, around 42,000 MT per bag. They only began to fall as product began to arrive at the market place, and then fell rapidly to 26,000 Mt/bag. It is striking that the market did not react even when the ship was actually in the port, but rather required actual product flow to respond. The research team believes that the reaction to the U.S. arrival in May was similar, though it did not conduct intensive price monitoring at that time to document the market's behavior.

The lack of anticipatory pricing in the informal sector suggests that poor information may contribute to short term price volatility. Had *Bazuca* floor traders correctly anticipated the EEC ship arrival and incorporated this expectation into prices ahead of time, prices may not have risen so high nor fallen so low as they did.

2. Relative prices in spatially separate markets

Food markets in Gaza and Inhambane provinces are increasingly integrated with those in Maputo (Tschirley, 1993). Such integration is predicated on the possibility of physical transport of goods, price signals to serve as incentives for such transport, and the existence of traders with the capacity to respond to these signals. Information is key. Until recently, there was no formal system of price monitoring in Gaza and Inhambane provinces. The emerging trade in the area depended on individual traders informing themselves of relative prices in dispersed markets. This information gathering was often by trial and error, thus imposing large costs on the marketing system. The research team during July 1992 was able to document a case of a *Bazuca* floor trader who purchased a truck load of 50 kg bags of yellow maize grain in Maputo at a price of 24,000 Mt/bag, shortly after the arrival of the EEC boat with 15,000 MT of grain. Recall that prices in Maputo had been extremely high prior to this arrival. Informal interviews with traders indicated that prices were even higher in Gaza and Inhambane provinces. Like many traders, this trader intended to transport the product to Gaza, and expected to sell at more than 30,0000 Mt/bag. With transport costs of 2,000 Mt/bag, she anticipated earning an attractive profit. Unfortunately, by the time this trader arrived at her destination, prices in Gaza had fallen to 24,000 Mt/bag as well. The trader decided to truck the grain back to Maputo rather than sell in Gaza.

The research team does not believe this incident to be isolated. The informational difficulties are exacerbated by the fact that many informal traders have very little experience in the business.[19] These traders have not been able to develop the network of informational contacts so crucial in any business, and especially in the absence of publically available, timely information. By contrast, many formal sector *armazenistas* had commercial businesses in these provinces, and can be expected to be better informed of market conditions. In December 1992, the SIMA expanded its coverage into the capitals and selected districts of Gaza and Inhambane provinces. The price and qualitative supply information the SIMA provides could play an important role in diminishing the informational assymetry and generally raising the level of information among traders regarding relative prices in the region. In addition to this information, it is imperative that food aid arrival data be released in a timely manner prior to ship arrival, and that it be made easily available to anyone desiring it. This step alone could have extremely positive effects on market stability.

[19] See section V.B.1.

3. Product quality

The lack of grades and standards in Mozambique means that nominally identical products in the same market and on the same day can show great variability in quality. This quality variability may or may not be reflected in price differentials. Purchasers, whether other traders or consumers, must therefore be well informed and alert to these differences. To the extent that they are not, market performance suffers. And even if they are sufficiently informed and alert, the effort this requires implies that transactions are more costly than they might otherwise be.

Maize meals provide probably the best illustration of varying product quality. Section II.C. described six different maize meal types, and noted that even these six did not fully reflect the extent of quality variation. For the uninitiated, even distinguishing between refined and unrefined meals is not straightforward. First, many traders will insist that their unrefined meal is refined. Second, unrefined meals can mimic refined meals if they are milled with a relatively coarse screen (local millers use three different types of screens). Finally, the research team has documented that some retail traders mix refined and unrefined meals.

Among the refined meals, there is a continuum of levels of refinement, rather than a clean distinction between refined and unrefined. The local industrial mill, CIM, produces the least refined flour type, and some traders claim that the level of refinement of CIM meals varies. Refined white meal from Swaziland is generally considered to be more refined and thus more preferred[20]. When sold by the *caneca*, however, it may be difficult to distinguish between meals from Swaziland and from CIM. Finally, the highest quality refined meal is hand pounded. These meals are generally distinguishable from other meals, but they show quality differentiation, based primarily on the level of cleaning of the grain prior to hand pounding. In short, there is no simple distinction between refined and unrefined meals. Information and knowledge available to traders and consumers is imperfect, and this imposes costs on the system.

Other products also present difficulties related to quality. During periods of scarcity and high prices, very poor quality maize grain typically appears in the market. At retail, the quality deterioration is apparent. But at wholesale, where the product is bagged, it may be very difficult and in practice impossible to get a consistently accurate determination of product quality. Rice shows sharp price differences without any corresponding classification scheme. The common terms of *corrente* for rice of normal quality (with regards to grain length and brokens) and *extra* for better quality rice are often not used by traders. Two samples may each be called *corrente*, but have significantly different prices. Often the traders base the price differences on country of origin, but whether this is associated with objective quality dimensions is not clear. Wheat flour is either imported or produced domestically. Imported flour is generally considered to be more refined and therefore preferred to the national flour. Once the flour is out of its original bag, however, it can be extremely difficult to distinguish between the two types.

The lack of agreed upon grades and standards, and the difficulty in distinguishing between different qualities of product, put a heavy burden of knowledge and alertness on traders and

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[20] Note that the use of the term "preferred" makes no reference to price and therefore says nothing about actual choices in the market. Many poorer consumers choose to consume unrefined yellow maize meal because the price is lower than all other meals.

consumers. This in turn provides room for opportunistic behavior on the part of traders who know the actual quality of the product. Uncertainty and transactions costs increase, and market performance diminishes.

4. Bag sizes at wholesale

Bazuca floor traders of unrefined yellow maize meal often sell bags of product that weigh less than 50 kg. Researchers frequently observed this phenomenon for this product, but very seldom observed it for others. Though careful empirical confirmation is difficult, researchers believe that the proportion of bags weighing less than 50 kg increases significantly as the price of yellow maize meal rises. By producing unrefined yellow maize meal and selling it in bags weighing as little as 25 kg, *Bazuca* floor traders may be argued to be providing a valuable service to capital constrained retailers. These retailers may have only a fixed amount of cash with which to purchase their supplies. Should the cost of a 50 kg bag exceed this amount, they would be forced, at least temporarily, out of the market. By having the option of purchasing smaller bags, the probability of their having to leave the market is reduced.

Selling in bags of less than 50 kg also introduces a serious informational problem, however, and provides scope for opportunistic behavior. This practice may thus be argued to increase transactions costs in the market and thereby increase prices to consumers. In practice, the 50 kg bag has become the standard unit of trade at wholesale. Yellow maize grain and rice food aid is bagged off the ship in 50 kg bags, and many other products are first packaged in that weight. Certain products such as refined white maize meal from Swaziland are packaged in 60 kg bags, but this is widely known and thus presents few if any informational difficulties. When floor traders resell product without first opening it, buyers can be confident that the actual weight is equal to the declared weight. Once the bag is opened, as sellers of unrefined yellow maize meal must do to mill the grain, the buyer can no longer have such confidence. In the specific case of unrefined yellow maize meal, floor traders may have bags of many different weights on a given day. Moreover, the traders tend to insist that their bag weighs 45 or 50 kg even when the weight is clearly less than that. Retailers must become quite adept at judging bag weights if they are to avoid serious losses upon resale.

Thus, bag weights below 50 kg when prices are high provide benefits but also impose costs on retailers, and by extension, on consumers. Whether the benefits outweigh the costs is an empirical issue which may not easily be resolved.

C. Low Volume, Low Service Operations

Analysis presented earlier in this paper documented the low volume of most informal traders, and the low service content of most products sold through the informal system. The low service content may be an appropriate and beneficial characteristic at this point in Mozambique. Most Maputo consumers are very poor by common standards, and are likely unwilling to pay the additional cost that would be required for the market to provide these services. The massive use of informal market places instead of *lojas* would seem to validate this conclusion. It may be argued that informal markets provide an important benefit to consumers by giving them the option of purchasing products which embody fewer services than those found in *lojas* (see section III.C for more discussion of this issue).

The very low volumes and high rate of product turnover of most traders are best interpreted as an adaptation to severe capital constraints and the lack of attractive alternatives for most

traders. With very little capital, traders can purchase only small amounts of product at a time, and cannot afford to store for any significant period. Thus, volumes are small and turnover rapid. With few employment alternatives, many poor city residents are willing to engage in this activity for relatively low levels of remuneration. This is especially true of retailers.

These characteristics do not appear to hold significant benefits for consumers. In fact, they likely stand in the way of the kind of investment and associated innovation which is needed if the informal sector is to become a more progressive and low cost operation. It should be noted that simply relieving the credit constraint for traders would at best be a partial solution. As long as there are significant number of underemployed residents of the Maputo area, the supply push (see section III.C.) will likely continue to result in large numbers of very small traders eking out a living and able to invest little or nothing in the growth of their business.

D. The Legal Status of Informal Activities

The legal status of informal traders is ambiguous. Most operate without licenses, but pay municipal fees for use of market space or on the volume of product they transact. Many of the products they trade are either officially meant for other distribution networks (yellow maize through the NSA), or arrive in Maputo without clear customs declarations (white maize meal and other products from Swaziland). The legality of selling food outside of established market stalls is still open to question, yet the vast majority sell in this way (see Section IV.C.). While the absence of a clear legal status is not likely to lead to the disappearance of the sector, it may seriously inhibit the type of investment and long term planning that are needed if the sector is to provide increasingly high quality products and services at lower prices for poor consumers.

E. The Policy Challenge

The informal food marketing sector in Maputo has shown itself to be energetic and dynamic in responding to more open policies to provide needed products to millions of poor consumers in the southern three provinces of the country. The sector has thrived and will likely continue to do so in large part because of its ability to meet the demand of poor consumers in ways that the formal food marketing sector has not. Nevertheless, this study has identified a number of problems and challenges facing the sector. Prices are highly unstable, imposing costs on traders, consumers, and ultimately producers as well. Information is very poor and unequally distributed, especially in regards to the arrival of food aid and commercial imports. Partly as a result, the informal sector exhibits almost no anticipatory pricing, as would be expected in a better developed market. Lack of standard qualities and measurement units contributes to the information problem. Most wholesale traders are very small scale, and do not hold stocks for more than two or three days. This is in part an adaptation to price instability, but also contributes to it, as traders respond to, rather than anticipating, market conditions. Retail traders are extremely small, and most of those studied appear to earn the barest of livings. Credit, though not directly addressed in this study, appears to be sharply limited throughout the informal sector.

The marketing sector links producers with consumers. As such, it has enormous effects on the welfare of both. An inefficient or stagnant marketing system results in lower prices for producers, higher prices for consumers, and little innovation to bring new products, technologies, and services to each. An incomplete or very high cost marketing system in

rural areas will make it very difficult for producers to respond to improved price and other policy incentives for food or cash crops. Both producers and rural and urban consumers will suffer. In short, the agricultural marketing system has a key role to play in the transition from poverty agriculture to sustained rural and urban economic growth.

The fundamental policy challenge facing Mozambican policy makers and donors is how to create the conditions in which the marketing sector can transform itself from the commercial equivalent of T.S. Schultz' "efficient but poor" farmer into a progressive marketing system anticipating consumer needs, investing for the future, and efficiently serving both consumers and producers. A number of steps are needed if this is to happen. One of the first should likely be a comprehensive review of all legal statutes affecting the commercial sector. The legal system needs to reflect the new reality of a market economy in Mozambique, and should facilitate rather than impede full legal participation in that system. Secure legal status for all traders meeting minimal standards is a necessary building block for future development of the marketing sector.

Investment in market infrastructure is badly needed. A key challenge will be to achieve the proper mix of public and private participation in this investment. Free rider, social trap, and other problems argue for some government role in the provision of infrastructure such as physical market places. It is imperative that the planning and implementation of these investments be done in a collaborative way which recognizes the needs and limitations of the marketing sector as it exists today.[21] Roads are also obviously needed, and fall clearly in the public domain. Other investments such as storage capacity might be more appropriately left to the private sector, yet government and donors may have roles in facilitating such investments.

Donors have an opportunity to use food aid for two purposes. First, a properly managed food aid program could bring much needed stability to the staple food market in the country. Such stability is badly needed if traders and producers are to begin undertaking the kind of medium and long range planning and investment that the country will need to emerge from its current crisis. Second, food aid may be used to supplement shortfalls in supply as Mozambique's domestic cereals production begins to recuperate. At the same time, without careful management, food aid may create serious disincentives to the emergence of a dynamic production and private trading network.[22]

It is important that information on commercial and emergency food aid arrivals be made widely available. The lack of such information, except among consignees and distributors of emergency grain, has contributed to the market instability which was demonstrated in this

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[21] In late 1992, the government cleared-off an area next to an unused stadium on Ave. Acordos de Lusaka, and made small investments to create a suitable surface for market stalls. Authorities then attempted to move vendors from surrounding streets into this area. As of April 1993, the area was still unused, and small retail traders could be found in their same locations along streets and walkways. One would hope that lessons could be learned from this experience before more expensive investments are undertaken in other areas. Numerous Third World cities have large, expensive market places financed with development or public funds which sit unused or which are used far below capacity.

[22] See the forthcoming "The Economics of Food Aid Pricing and Distribution: Lessons From Mozambique" for more detailed analysis and recommendations in this regard.

report. Simply ensuring that informal sector traders have access to the same level of timely information in this regard will do much to level the playing field, and should help smooth price movements. Of course, stabilizing actual arrivals is also necessary.

Finally, timely market information on prices and supply conditions in cities and districts is of the utmost importance. The Agricultural Market Information and Analysis System of the Ministry of Agriculture has a key role to play in this regard. The recent expansion of this system into the southern three provinces, and continued efforts at timely dissemination of the information, should help improve the level of information for many traders.

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