Grain Market Research Project

MEETING FOOD AID AND PRICE STABILIZATION OBJECTIVES THROUGH LOCAL GRAIN PURCHASE: A REVIEW OF THE 1996 EXPERIENCE

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EXECUTIVE SUMMARY

Ethiopia has been a food deficit country for many years. Since 1994, however, grain production has increased steadily, with the largest crop on record reported in 1995/96. The apparent transition to food self-sufficiency is welcomed, yet it brings with it new development challenges. Grain prices in recent years have fallen far below their historical average. Concerns have arisen that lower prices may reverse the recent gains made in promoting use of fertilizer and improved seeds by smallholder farmers. In addition, national food self-sufficiency has not overcome the chronic food insecurity problem facing many people. Despite increased production and lower grain prices, a large segment of the rural population continues to be unable to secure an adequate food supply. The current situation is therefore one of food self-sufficiency co-existing with widespread poverty.

Therefore, while there remains a clear need for continued food assistance for vulnerable groups, the typical method of importing food aid from donor countries was viewed as likely to exacerbate the country's existing supply glut and further depress cereal prices to the detriment of agricultural production growth. To address this problem, the Government has arranged with donors to procure food aid from domestic markets through purchase from local traders. The objective of the program was to buy grain locally to fulfill domestic food aid requirements. However, local purchase programs can also be designed to support other policy objectives, including stabilizing market prices during supply gluts and encouraging the development of the marketing system. Supporting producer prices of maize and wheat was an explicit policy objective of the Government of Ethiopia in 1996.

The objective of this paper is to identify factors that can improve the ability of future local purchase activities to achieve a range of national food policy objectives. This analysis reviews the design and implementation of 1996 local purchase activities in Ethiopia in relation to three key policy objectives: price stabilization for farmers; promoting the development of a competitive and low-cost food marketing system; and procuring food aid resources in a cost-effective manner.

The analysis of the 1996 Ethiopia experience provides potentially valuable lessons for the design of future local purchase programs throughout Africa. The major conclusions of the study are:

1. The EU local purchase program has been clearly successful in meeting its primary objective: building up emergency food reserves. Almost 100,000 tons of grain were procured under the program in 1996, at an average cost of $251 per ton. This cost was slightly below the landed import cost of comparable quality grain at most of the specified delivery sites.

2. There appear to be opportunities to significantly reduce the procurement cost of local grain purchase in the future. Several aspects of the program inflated the costs of grain procurement and hence reduced the amount of grain that could have been procured for relief and stabilization purposes with the amount of funds devoted to the Program. This include (a) the issuing of tenders of fixed lot sizes that were too large to enable most Ethiopian grain traders to participate in the program; (b) stringent grain quality specifications; (c) regionalization of the tender/auction process; and (d) segmenting the auction process for individual lots. Segmenting the auction process for individual lots is estimated to have caused the EU to pay 9.8% more than it would have had the tenders not been segmented by region. Details are presented in Section 3 of this study.

3. The evidence suggests but does not prove a lack of competition in the bidding process in 1996. The 1996 Program paid about 12% more for the grain it purchased than prevailing market values for comparable quality at the specified delivery markets. To some extent, this result may also be the consequence of an unpredictable market environment. The costs of local purchase programs can be potentially reduced in the future through improved market information and forecasting systems that are widely disseminated through radio and newspapers. Details are presented in Section 3 of this study.

4. The local purchase of 108,000 tons of grain in 1996 amounted to about 5.4% of the marketed grain output from the 1995/96 meher season. Program purchases of maize, wheat, and sorghum are estimated at about 8.3%, 10.3%, and 18.4% of the total volumes marketed of these three commodities. It is difficult to estimate the effect of the program on producer prices. Grain prices generally remained atypically flat through most of the 1995/1996 marketing year. However, it is likely that producer prices would have been even lower than they were without EU's intervention.

5. Traders submitting bids under the local purchase program in 1996 appeared to differ in some important respects from the broader cross-section of Ethiopian grain traders. Traders able to submit bids were generally more diversified in their business activities, had greater access to bank credit, and were more likely to own their own trucks than the typical grain wholesaler. This may provide an indication of the types of entry barriers to participation in the 1996 program (see Section 3.7).

The report provides a number of options for consideration to improve the functioning of potential local purchase activities in the future. These include: (1) increasing competition in bid process through reduced contract lot size; (2) holding one auction rather than a set of localized auctions; (3) reviewing the costs and benefits of requiring stringent grain quality standards; and (4) changing the timing of local purchase activities to earlier in the marketing season when a greater proportion of farmers are selling their crops and can potentially benefit from the increased demand of local purchase activities.

ACKNOWLEDGEMENTS

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Contents

1. INTRODUCTION

1.1 Problem Statement

For years, Ethiopia has not produced sufficient food to feed its people. Importation of cereal food aid ranged from 0.3 to over 1.1 million tons over the past decade. However, since 1994, food production has increased steadily. Ethiopia experienced the largest grain harvest on record in 1995/96. The recent production upsurge is due to a combination of favorable weather, increased use of fertilizer, strengthened agricultural extension programs, and grain market liberalization (Mulat et al 1997; Asfaw and Jayne 1997). The 1995/96 harvest has been followed by another bumper crop in 1996/97.

While the transition from chronic national food deficits to food self-sufficiency is welcomed, the new situation has created its own problems for agricultural policy. First, grain prices have fallen far below their historical average, especially in the major cereal-producing regions. Throughout 1996, maize and teff prices in major producing regions were only 60% to 80% of their average levels over the past decade (GMRP 1996a). Concerns have arisen that such low prices might depress farm production, inhibit adoption of fertilizer and improved seed currently being aggressively promoted through government extension programs, and retard the country's recent progress in achieving food self-sufficiency.

A second concern is that the impressive growth in food production at the national level might lead to a sense of complacency that the country's hunger problem has largely abated. In fact, a large proportion of the rural population remains unable to secure an adequate food supply.[1] The growth in food production clearly has not overcome the fundamental problem of widespread poverty, which prevents the poor from being able to buy sufficient food to feed themselves even at current low prices. The current situation is therefore one of food self-sufficiency and historically low prices co-existing with large numbers of hungry people.

Therefore, while there remains a clear need for continued food assistance for vulnerable groups, the typical method of importing food aid from donor countries was viewed as likely to exacerbate the country's existing supply glut and further depress cereal prices to the detriment of agricultural production growth. To address this problem, the Government has arranged with donors to procure food aid from domestic markets through purchase from local traders. In late 1995, some donors such as the European Union (EU) and World Food Program (WFP) agreed to provide cash instead of food aid to facilitate the local purchase of cereals. By procuring grain locally, the program was envisaged to reduce the cost of delivering food aid to distribution areas compared to food aid imports. Price support to producers was not a stated objective of the local purchase programs implemented in 1996. However, by reducing the volume of grain circulating in local markets, local purchase of food aid may also support the objective of stabilizing farm-gate cereal prices during surplus periods. Supporting cereal prices, especially for maize and wheat, was an explicit policy objective of the Government of Ethiopia in 1996. Another potential objective of local purchase is to contribute directly to

[1]According to the 1996/97 FAO/WFP Crop and Food Supply Assessment Mission to Ethiopia, about 1.9 million Ethiopians will require food assistance in 1997.

new entry and increased investment in the grain marketing system, thereby promoting long-term market development objectives.

Local purchase programs are a relatively new tool in the development agenda.[2] Historically, the major donors have provided food aid grain from their own countries. However, it is likely that local purchase programs will become more important in the future, as some donors' have become more flexible in the form of procuring food aid resources. Analysis of the 1996 Ethiopian experience provides potentially valuable lessons for the design of future local purchase programs in Africa.

1.2 Objectives

The objective of this paper is to identify factors that can improve the ability of local purchase activities to meet key food security and food policy objectives. The analysis in this report considers the design and implementation of local purchase programs in relation to three key national policy objectives:

(1) supporting and stabilizing farm-gate cereal prices to encourage use of productivity-enhancing inputs;
(2) promoting the development of a competitive and low-cost food marketing system; and
(3) procuring adequate food aid resources in a cost-effective manner.

Only the third objective — procuring adequate food aid resources in a cost-effective manner — was an explicitly stated objective of the 1996 EU program. However, all three objectives were explicitly addressed in the Government of Ethiopia's Food Security Strategy (1996). As noted above, local purchase arrangements have often been advocated as a means to support the achievement of a range of objectives, such as raising food production incentives and promoting new entry and competition in the grain marketing system. It is with these criteria in mind that the report analyzes the 1996 experience with local purchase in Ethiopia. The objective of the paper is not to evaluate the EU program per se, but rather to identify factors that can improve the ability of future local purchase programs to achieve a range of important national policy objectives in a cost-effective manner.

1.3 Research Questions

The following research questions were addressed:

1. *Were there particular characteristics of traders that submitted bids to sell grain to the Program?* Was the Program designed in such a way as to favor traders with certain characteristics and preclude others from participating? If so, what were the

[2] In recent years, local purchase programs have also been implemented in Uganda, Mozambique, and, to a limited extent, in Zambia.

characteristics of traders submitting bids compared to those who did not? What were the major barriers to participating in the bid process?

2. *What effect did the contract lot size have on the competitiveness and cost-effectiveness of the Program?* To participate in the Program, traders had to bid in lot sizes of 3,000 tons. This study assesses whether lot sizes of this magnitude constituted a barrier to entry for smaller traders and reduced competition in the bid process. If so, what effect did a fewer number of participating traders have on the average bid price, and the cost-effectiveness of the Program? By "cost-effectiveness," we mean the ability of the program to procure grain for food aid purposes at the least possible cost, thereby maximizing the volume of grain that can be procured for a given amount of cash. Donor funds are a scarce resource. As will be shown below, cost-effective use of these scarce resources will maximize the potential contribution of the program to the three policy objectives specified in Section 1.2.

3. *What effect did the timing of tender announcement and delivery have on the Program?* Grain production and sales in Ethiopia have distinct seasonal patterns. The months in which tenders are announced, awarded and due for delivery may affect the cost-effectiveness of the Program and the functioning of the grain marketing system.

4. *What was the effect of grain quality specifications on the competition and cost-effectiveness of the Program?* The Grade I quality standards required under the terms of the Program in 1996 were very stringent, and often required traders to undertake additional grain cleaning and fumigation costs before delivery to Program sites.

5. *What effect did "region-specific" tenders have on the competitiveness and cost-effectiveness of the Program?* The 1996 EU Program featured a set of regional auctions rather than one national auction. Thus, traders who submitted bids in different regions did not compete against each other. This paper assesses the effect of the regionalized auction process on the competitiveness and cost-effectiveness of the bid process.

6. *What effect did the separation of tenders by lots have on the competitiveness and cost-effectiveness of the Program?* Within each region, lots of grain for 3,000 tons were auctioned separately. As will be shown, this did not necessarily result in the lowest average bid prices being contracted, even within a given region. We examine whether competition would be enhanced (and whether total costs of grain procurement from traders would be reduced) if all lots and regions were combined into one auction.

1.4. Methodology

To address the research questions listed above, the Grain Market Research Project conducted a survey of over half of the participating traders, both winners and losers during August and September, 1996. Over 47 traders showed interest in the program and only 43 submitted bids to EU (14 traders won the bids). Of these, 27 were surveyed, 10 winners and 17 losers. A structured questionnaire was used to ask questions about how the traders viewed the bid

process and contract specifications of the EU program. In addition, questions were asked specifically to the bid winners and to the bid losers separately. Descriptive statistics were used to examine the specified research questions.

To examine the competitiveness of the bid process, we also compare the contract prices agreed upon by the bid winners and the EU with the actual market prices in the respective delivery markets. Data on wholesale market prices are reported by the Ethiopian Grain Trading Enterprise (EGTE). It is important to note that differences between forward contract prices and market prices could be due to several factors, including unpredictability in market conditions, lack of public market information that might otherwise be incorporated into future price expectations, quality differences between contracted grain and grain monitored by EGTE, and/or barriers to entry or lack of competition in the bid process.

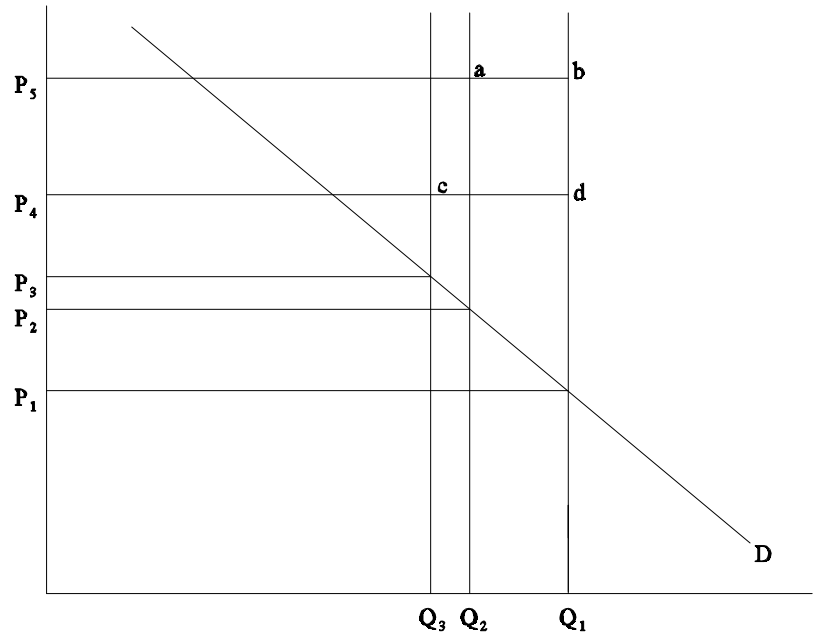
2. CONCEPTUAL FRAMEWORK

The EU local purchase program has been the first of its kind in Ethiopia. Historically, Ethiopia has relied heavily on imported food provided by donors for its relief programs. While procuring grain for relief purposes from local markets is expected to be less costly than importing it from donor countries, this option was never seriously considered in Ethiopia until recently due to the country's longstanding status as a chronic food deficit country. In recent years, however, the procurement of food aid from local markets also became consistent with the Government's efforts to support and stabilize cereal market prices in response to rapidly increased production. In recent years, local market prices have been far lower than import parity prices. In addition, proponents of local purchase underscore positive multiplier effects. Money spent by donors on grain purchase is directed to the local economy rather than to international grain trade companies. Benefits accrue to Ethiopian traders, but also expand to local traders, farmers, grain cleaners, and transporters.

To understand the mechanisms by which local purchase can affect market conditions and trader behavior, market relationships must be understood. In theory, as more grain is taken off the market through local purchase (to be used in non-market activities such as food aid), the market supply decreases and this puts upward pressure on prices. In addition, perhaps counter-intuitively, it will be shown that the lower the average bid price is, the more likely the program is to succeed in supporting producer prices.

The Ethiopian grain market is represented by Figure 1 below. After the harvest, production is fixed in the short run. The quantity produced and peasants' consumption and sales behavior determine the supply of domestically produced grain, Q_1. The marketed supply of grain, being largely a function of production, is also considered relatively unresponsive to price in the short run. The demand for grain in domestic markets is a downward-sloping curve representing the inverse relationship between grain prices and quantity of product purchased by consumers. In a good harvest year, such as that represented by $Q_{1,}$ grain prices are

Figure 1. Effect of Local Purchase Procurement Price on Local Market Price



relatively low, and the equilibrium condition is determined by the market price, P_1, where demand equals supply.

If the average bid price of the Program is high relative to prevailing market prices, e.g., P_5, the Program will be able to purchase quantity Q_1Q_2 from the market, assuming that the total funds available for local purchase are abQ_1Q_2. The supply of grain available in the market will be reduced to Q_2, and as a result, the market price shifts up to P_2 where demand intersects the new market supply schedule (after the offtake of Q_1Q_2 from the marketed supply). To show the inverse effect of the bid price on market prices, now assume that the average bid price under the program were relatively lower, e.g., P_4. At P_4 the Program would be able to purchase a greater quantity of grain for the same fixed amount of money available under the Program. Assuming that the area abQ_1Q_3 is equal to cdQ_1Q_3, then the amount capable of being purchased at P_4 would expand from Q_1Q_2 to Q_3Q_1. Thus, the market supply curve shifts even further to the left, Q_3, and the corresponding market price rises to P_3 where the new supply curve intersects demand. Thus, for the same amount of money, if the Program can reduce the average contracted price paid for grain, then it can buy more off the market for food aid purposes and hence exert greater upward pressure on market prices.

In theory, it follows that an increase in wholesale market prices will also exert upward pressure on producer prices. However, it does not follow that higher non-market prices (e.g., prices awarded to traders under local purchase programs) will necessarily result in higher prices to producers in local markets. If traders are able to receive greater profits by receiving higher-than-market prices for grain contracted under non-market arrangements (e.g., local purchase by donors), it is not clear that any of these excess profits would be passed along to producers. Assuming that private traders pursue profit maximizing objectives, then they can

be expected to offer the lowest price to producers that the market will bear, regardless of the price at which they are able to sell to donors. Producer prices would be influenced by local purchase only to the extent that the program alters the supply and demand conditions of the market, or expectations about future market conditions.

The extent to which local purchase programs affect domestic market prices depends ultimately on (a) the quantity of grain to be purchased; (b) the volume of grain circulating in domestic markets; and (c) the price elasticities of demand for cereals (i.e., the extent to which consumers shift their grain purchase patterns as relative prices of cereals change). The more grain taken off the market relative to the size of the market, and the more unresponsive is cereal purchase patterns to price, the greater is the expected rise in market prices.

The ability of local purchase programs to achieve desired objectives depends crucially on accurate information on these variables. Without such information, the appropriate amount to purchase is not clear, and there is the risk that either too much will be purchased with the effect of driving up prices excessively for consumers, or not enough will be purchased to have any meaningful effect on producer prices or production incentives.

The potential adverse effects of purchasing too much should not be minimized in a country such as Ethiopia. For example, nationally-representative data from 1996 indicate that about 48% of Ethiopia's rural population are net buyers of grain, i.e., they only purchase grain or purchase more than they sell (Daniel and Jayne 1996). These households are likely to be adversely affected by programs that increase the price of grain in local markets. In fact, it is possible that some households that would have had sufficient income to purchase their residual grain requirements from the market may no longer be able to do so if local purchase programs appreciably raise local market prices.

Another issue to consider in using local purchase to influence market prices is the concentration of marketed grain output. Again using nationally-representative data from 1996, it was found that 10% of Ethiopia's rural households accounted for over half (52%) of the marketed grain. Over 40% of the country's rural households sold no grain crops of any kind. These results indicate that the marketed grain supply originates from a narrow segment of the rural population, and that policies and programs designed to support grain prices may be captured disproportionately by a relatively small number of farmers. Against these considerations must be weighed the relevance of crop revenues in affecting the incentives to use productivity-enhancing inputs such as fertilizer, and expected supply-price response estimates.

3. IMPLEMENTATION OF 1996 LOCAL PURCHASE ACTIVITIES

3.1 Description of the Local Purchase Program

The 1996 EU Program was to be implemented in two rounds. However, the second round was postponed until after the 1996/97 *meher* harvest at which time the longer-run market situation could be assessed. For the first round, tenders for 108,000 tons (24,000, 42,000, and 42,000 tons of wheat, maize, and sorghum) were issued in February and March 1996 for delivery in June and July to specified locations. The EU announced the tenders in national newspapers and in regional newsletters of the Southern, Amhara, Oromia and Tigray Regions. Efforts were made by the Regional Governments to provide estimates of local production and marketable cereal surplus to the Local Purchase Steering Committee, chaired by the Disaster Prevention and Preparedness Committee (DPPC).

The EU issued 36 tenders, each in lots of 3,000 tons (Table 1). The location of deliveries was as follows: 45,000 MT at Mekele; 45,000 MT at Kombolcha; 9,000 MT at Dire Dawa; and 9,000 MT at Shashemene. The recipient of the grain was to be the Emergency Food Security Reserve Administration (EFSRA) except in Tigray Region, where the non-governmental organization REST was to receive 33,000 tons of sorghum.

Table 1: Specifics of tenders issued by the EU for grain purchase in Ethiopia in 1996 (MT)

Particulars	Wheat	Maize	Sorghum	Total
Kombolcha				
March	(6,000)	(6,000)		
May	24,000	15,000	6,000	**45,000**
Dire Dawa	-			
March			3,000	
May		6,000		**9,000**
Shashemene	-		-	
May		9,000		**9,000**
Mekele	-			
February			(33,000)	
March		12,000	(33,000)	
May			33,000[1]	**45,000**
Total	**24,000**	**42,000**	**42,000**	**108,000**

Source: European Union, Addis Ababa, Ethiopia, 1996.
Note: Number in parentheses are tenders that were canceled.
[1] Contracted to EuronAid

In most cases, the bids were awarded in late March and April 1996. A trader could submit bids for an unlimited number of lots. Over 100 bids were received from 43 private traders, holding companies, and the government-parastatal EGTE. Among these, 14 came out winners. Two trading firms won 14 lots, nearly 39% of the total. Five traders won only one lot each, and 4 traders won 2 lots each. For various reasons (e.g., in some cases the lowest-priced bids submitted were in excess of landed import costs), tenders were in some cases reissued and/or canceled. Ultimately, a total of 97,283 tons were purchased in 1996 from Ethiopian markets under the Program. Of this, 20% of the grain was delivered to the specified delivery sites by July 1996; 61% was delivered by September 1996, and 86% had been received by November 13, 1996. Deliveries of this first phase of the Program were completed in January 1997.

The 1996 program took place with very little hard information available as to the size of the market. For these reasons, it was difficult to determine in advance the desired amount to purchase locally. However, to the authors' knowledge, national marketed cereal supply was for the first time estimated and published from nationally-representative smallholder survey data in 1996, after the major aspects of the Program had already been implemented. Data in Table 2 shows the volume purchased under the Program in 1996 relative to the estimated volume of grain marketed from the 1995/96 *meher* harvest. The data indicate that the 1996 Program purchased about 8.3%, 10.3%, and 18.4% of the maize, wheat, and sorghum marketed by the smallholder sector. Since these estimates of national grain sales do not include state farms or private commercial farms, the proportion of total grain supply purchased by the Program were somewhat lower than that stated here.

Table 2. Production and marketed supply of grain, Peasant Sector (*meher*), 1995/96

	Production	Grain marketed*		EGTE purchases		EU purchases	
Grain	tons	tons	%	tons	% of total marketed	tons	% of total marketed
Maize	1,696,801	506,436	29.8	29,825	5.9	42,000	8.3
Teff	1,313,035	409,799	31.2	9,468	2.3	-	-
Wheat	836,250	233,904	28.0	22,223	9.5	24,000	10.3
Barley	853,979	217,661	25.5	420	0.0	-	-
Sorghum	1,342,251	228,613	17.0	2,315	1.0	42,000	18.4
Millet	200,230	38,027	19.0	70	0.2	-	-
Pulses	583,346	244,080	41.8	2,849	1.2	-	-
Oilseeds	148,956	115,975	77.9	4,435	3.8	-	-
Total	6,974,956	1,994,495	28.6	71,605	3.6	108,000	5.4

Source: Asfaw and Jayne, 1996 and EU, 1996.
Note: * This does not include the marketed grain by state farms and private commercial farms.

Table 2 also shows the volume of grain purchased in the 1995/96 season by the EGTE. Between November 1995 and June 1996, the EGTE was mandated to offer farmers a minimum support price for maize and wheat (at 70 and 116 birr per quintal, respectively). However, EGTE was unable to secure sufficient credit to purchase substantial volumes of grain and defend the support price. Maize prices in particular were well below the EGTE support price in many areas of the country throughout 1996. EGTE's share of the market was small for all crops, which compromised its ability to influence prices in the market. It is noted that EGTE won five contracts (15,000 tons total) for delivery of maize under the 1996 EU auction.

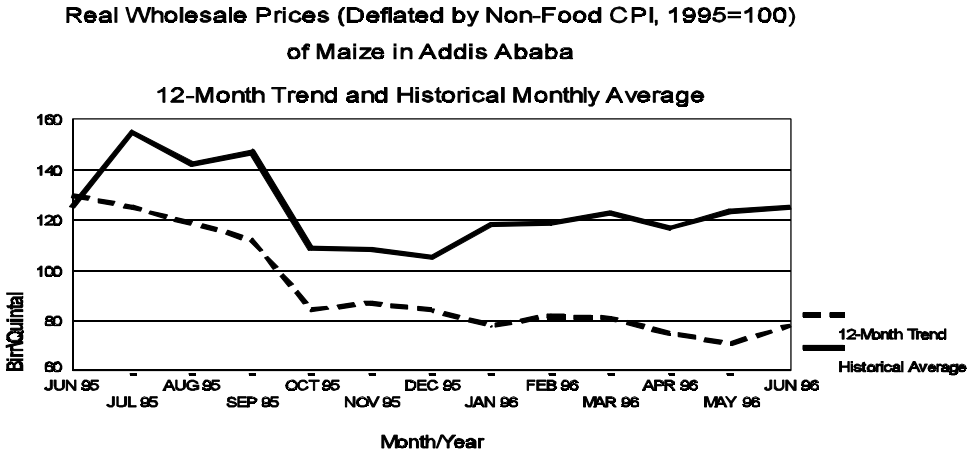
3.2. Timing of Tender Announcement and Delivery

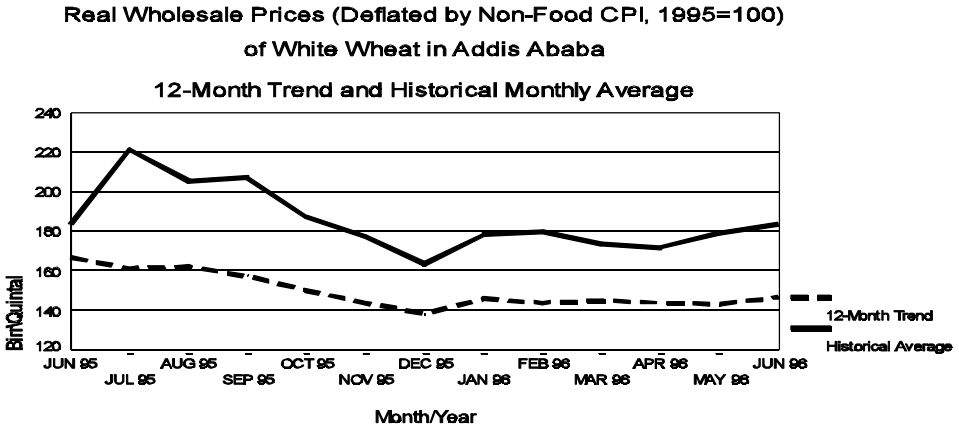
The success of local purchase activities in meeting desired objectives may be affected by the timing of tender announcement and delivery. Due to potential seasonality in grain prices, the timing of tender announcement and delivery may affect the price of bids received as well as the subsequent movement in market prices.

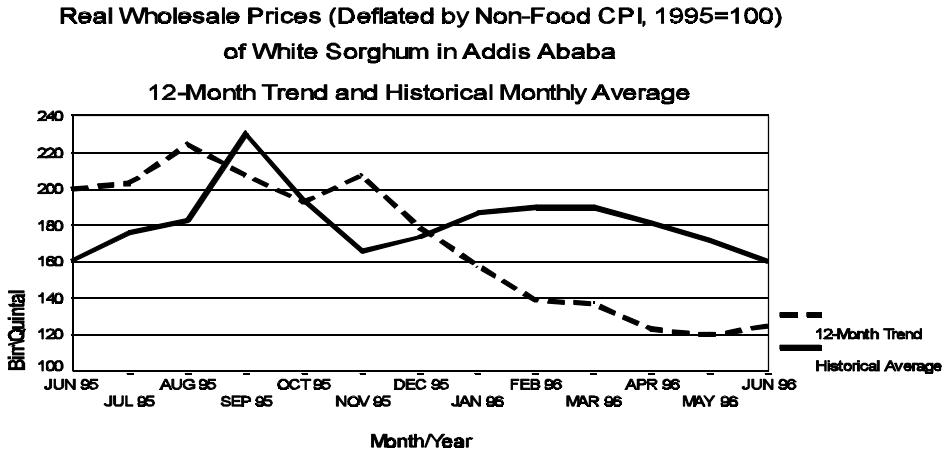
There is a strong seasonal trend in grain prices in Ethiopia. In general, prices are at their lowest right after the larger, *meher* harvest, and then rise steadily until the smaller, *belg* harvest where prices fall, but rise again to a high before the next *meher*. Figures 2, 3, and 4 show the average monthly prices of maize, wheat, and sorghum based on the 10-year period 1985-1996 as well as the price pattern between June 1995 and June 1996. December is historically the low-price month for wheat; prices for maize are typically lowest between October and December; and sorghum prices are at their nadir typically in June to November. Data from nationally representative household surveys in 1996 indicate that by May, about 90% of farmer grain sales have already occurred (GMRP 1996b). In fact, it is likely that most rural households participating in the market during the May-September period are purchasing grain. Since grain is typically most plentiful on local markets during the several months after the harvest, it would appear that grain could be purchased at lowest cost, and exert the greatest benefit on farmer crop revenues, by setting delivery dates not long after the period of greatest farm grain sales.

In 1996, the tenders for local purchase were issued in February and March. Due to cancellations most of the tenders were launched in April. Contracts were generally awarded in March and April. Delivery dates were specified for May and June in most cases, but actual delivery typically occurred later. From this, it appears likely that much of the grain purchased by participating traders occurred in the April-June period after most farmers already sold their grain. According to the 10 bid winners interviewed, more than 50% of the grain they purchased to meet the terms of the local purchase contracts were from other traders. Many traders attributed their failure to delivery grain by the specified delivery date to difficulties in sourcing grain at this time. It is likely that average bid prices could be reduced in the future by purchasing earlier in the crop season. This in fact is being pursued by the EU during the second phase of local purchase activities in 1997. However, the potential for reducing procurement costs at harvest time must be weighed against the higher cost of storage that would be incurred by purchasing earlier in the season.

Figure 2,3, and 4: 12-Month and Historical Grain Price Trends







Source: MEDAC, EGTE, July 1996, "Grain Market Research Project, Market Infomation Bulletin," Bulletin #1, July 1996**.**

The 1996 local purchase program specified that grain was to be delivered within 60 days of the contract date. There was a penalty for late delivery, set at 0.1% per day of the total nominal value of the consignment. More than half of the winning traders delivered at least some of their contract tonnage after the delivery deadline. The primary reason stated for the delay was that transport and/or quality grain was not available. During the first half of 1996, the government imported a large amount of fertilizer. This engaged the nation's trucking capacity for some time and often traders were not able to rent trucks which delayed delivery. A few traders felt that a longer delivery time is required in the rainy season due to the poor road conditions.

3.3. Lot Size

The 1996 local purchase program offered tenders in lots of 3,000 tons. It is hypothesized that lot sizes of this volume constitute a barrier to participation and that smaller lot sizes would increase the level of competition in the bid process. This may in turn lead to reduced average grain procurement costs for local purchase (other factors held constant) and thereby save scarce donor resources for other forms of assistance.

Experienced smaller traders may not be able to mobilize enough working capital to procure 3,000 tons. A random survey of 219 wholesale grain traders interviewed in September 1996 indicated that less than 10% of them purchased more than 3,000 tons of maize during the entire 1995/96 marketing year. The 10% of the traders purchasing the most maize during 1996 averaged only 521 tons purchased per trader. The trader deciles purchasing the most wheat and sorghum during 1996 averaged only 978 tons and 567 tons purchased per trader, respectively (Gebremeskel and Shaffer, forthcoming). These results suggest that in order to participate in the program, almost all Ethiopian grain traders would require access to much more credit and/or working capital than they currently utilize.

The distinctions between those who submitted bids and the 219 wholesalers surveyed in 1996 becomes apparent by examining their views about the appropriateness of the 3,000 ton lot size. Of the 219 traders selected randomly, 6.8% of them submitted bids to participate in the local purchase program. Of the 143 traders that did not submit bids and gave a response as to why they did not participate, 34% identified the large lot size as the primary reason, while 24% mentioned it as the second most important reason. When asked to identify a lot size that would enable them to submit bids for future local purchase programs, 45% of the traders specified 500 tons or less, while 86% of the traders specified 1,000 tons or less.

By contrast, among those purposively interviewed traders that submitted bids to supply grain under the local purchase program (n=27), 52 percent said the lot size was appropriate. And of the traders who won bids, all stated that the lot size of 3,000 tons was appropriate. Larger traders didn't respond favorably to the idea of a smaller lot size. They agreed that participation by smaller traders would increase, but they indicated that they may not participate because if they only won one or two small lots then they would not be able to cover their administrative costs.

Overall, it appears that a 3,000 ton lot size is a barrier to entry for most Ethiopian grain traders. In response to this, it has recently been announced that the second phase of the EU local purchase program will be specified in terms of 500 ton lots. According to our trader survey results, this will be expected to increase the total number of bids received, other factors constant, and possibly reduce the number of very large traders submitting bids. We also anticipate that by increasing the number of bids, the smaller lot size will increase competition and reduce the average bid price received, again holding other factors constant. However, it is also likely that administrative and supervisory costs of implementing the program will increase (per unit of grain to be purchased) if the number of traders participating greatly increases.

3.4 Pre-Announcement of Amount to be Purchased

An important design issue for local purchase programs is whether to announce in advance how much will be purchased in a given season. It is hypothesized that by ensuring that wholesale traders are well aware of the volume to be purchased, this information will be incorporated smoothly into future price expectations and reduce the potential for volatile market reactions that might occur if large volumes were purchased without advance knowledge of most actors in the grain marketing system.

Apparently, many grain traders were unaware of the local purchase program in 1996. Of the 219 traders randomly surveyed in September 1996, 49.3% of them stated that they were unaware of the program. Moreover, as information on market conditions during 1995/96 continued to trickle in, the Government and EU agreed to modify somewhat the amount and timing of grain procurement in 1996. The "Phase II" activities, originally designed to purchase an additional 78,000 tons in mid 1996, was delayed until 1997.[3] On the one hand, the ability to adjust the timing and amount of grain purchases provides flexibility to respond to new information on food relief needs and market conditions. On the other hand, announcing *a priori* the amount to be purchased would allow this information to be fully incorporated into market price expectations and eliminate a degree of price risk incurred by traders from having to respond *ex post* to the market effects of changes in the timing and volume of local purchase.

3.5 Quality Standards

Quality standards as specified by the 1996 local purchase program were thought to be too stringent by most participating traders. However, the ramifications of the quality requirements on the average bid price received by the Program and the development of efficient markets have not been fully examined.

Grain quality standards were based on EFSRA's storage requirements. The quality inspection was carried out by SGS, an international surveying company designated by the EU, at the source (loading) and at the delivery point (EFSRA's warehouses). The quality inspection task

[3] See FEWS-EU, 1996. "Monthly Food Security Bulletin/April 1996," Famine and Early Warning System/European Union Food Security Unit, 18 May 1996, Addis Ababa, p. 1.

of taking samples from every lot at the loading stage clearly reduced the volume of grain that otherwise might have been rejected by EFSRA's stringent quality specifications. The quality standard of the EU tenders originally required 94% purity grain for maize and wheat, and 91% for sorghum with itemized tolerable impurity levels. Some easing of quality standards was introduced which allowed for the percentage of colored grain in the total supply of white sorghum and maize to be increased from 1% to 10.5%. In spite of this easing of quality standards, many winners felt that the standards were still too high and added an unexpected cost to their business.

Overall, about 63 percent of traders interviewed that submitted bids said they were capable of meeting the quality standards set for maize, wheat, and sorghum. However, the winning respondents were split evenly in their opinion to whether the quality grain for maize and wheat are obtainable on the market. In fact, when traders were asked how they might improve the design of local purchase programs in the future, "lowering quality standards" was the most popular response. A few traders were unable to deliver their grain because it didn't pass the required quality inspection upon delivery. Traders also commented that achieving the standards set by the EU increased their costs above their calculated figures. Some traders such as EGTE and RADIA International installed new cleaning plants at Nekempt and Shashemene respectively. Others commented that they had to clean the grain themselves or took it to a cleaning station, especially for maize. Cleaning fees varied between birr 3.50 and 6.00 per quintal.

The results from the random survey of 219 grain wholesalers interviewed in September 1996 indicate that the stringent quality standards actually reduced the number of traders submitting bids to the Program. For those traders that chose not to submit bids, 24.4% of them indicated that the high quality standards was either the most important or second most important explanation for their decision.

In general, however, the use of quality specification in contracting eliminates some of the risks and transaction costs in trading and encourages investment. The contract specifications as designed by the EU reflect its intent to strengthen contract discipline and market efficiency of grain trade in Ethiopia. However, quality standards that are too strict and not actually required, based on end-user needs or storage considerations, may serve to reduce competition in the bid process and thereby introduce additional costs (in terms of average bid price received) that may overwhelm the benefits of high quality standards.

3.6 Actual Bid Price and Market Price Comparisons

While not an explicitly stated objective of the 1996 local purchase program in Ethiopia, procuring grain from traders at least-cost market prices is important for maximizing the benefits of local purchase for a given bundle of resources devoted to the program. As explained in Section 2, procurement costs above market prices are likely to (a) pass windfall profits to grain traders without passing any benefits along to farmers; and (b) expend scarce resources that otherwise could have been used to create other benefits. This section now considers the average bid price received by the Program in relation to prevailing market prices during the months of specified delivery. If it is discovered that the bid prices are significantly

higher than market prices for grain of corresponding quality, then this may indicate, among other things, a lack of competition in the bidding process. This might also indicate the potential in the future to procure more grain for an allotted budget (or conversely the same amount of grain at lower cost, thus saving donor resources for other purposes), other factors constant.

Two alternative methods are used to derive reasonable shadow prices against which to compare the actual 1996 bid prices received under the program.[4] In the first Scenario, we take the actual wholesale market price of the specific grain at the specified delivery point at the specified month of delivery, and add to this a cleaning cost of 5 birr per quintal to upgrade the quality to Grade I as specified in the contract terms.[5] These quality-adjusted prices (column E of Table 3) may be seen as representing the cost of moving grain to the specified location at the specified delivery date. These prices are compared to the actual winning bid prices in column D. In most cases, the bid price is higher than the corresponding market price. For example, the winning price for maize delivered at Kombolcha was 119 birr per quintal, but the price in Kombolcha at that time was 103 birr per quntal. Adding up the cost differential across all the grain contracted under the Program in 1996 (column E - column D), the EU would have saved about Birr 20.2 million (US$3.16 million) if it had received the prevailing market prices. This amounts to 11.6% of the 172 million birr spent by the EU on local grain purchase in 1996.

In Scenario II, we calculated the least-cost source market at the time of specified delivery plus transfer costs to the delivery point based on price data for 26 wholesale markets monitored by EGTE. Cleaning costs (birr 5 /qt) are added to these costs to arrive at a landed destination price (Table 3, column G). This represents the least-cost method of procuring and delivering a particular grain to a particular market. For example, in the first contract of wheat to Kombolcha, the lowest observed market price of 102 birr per quintal (column F) plus transport and handling costs from that market (Bale Robe) to Kombolcha plus cleaning costs was equal to 129 birr per quintal as recorded in column G. This compares to the winning bid price of 151 birr per quintal under the Program (column E).

In theory, in a perfectly competitive market with open markets and spatial price differences equal to transfer costs and no risk premia, the least-cost means of delivering grain to Kombolcha during the delivery month should have been close to 129 birr per quintal. Adding up the cost differential across all the grain contracted under the Program in 1996 (column D -

[4]Shadow prices here refers to the price of specific grain commodities that might be expected in a competitive and well-functioning auction situation.

[5]The five birr per quintal cleaning cost is slightly above the mean cost incurred by the bid winners who paid for cleaning and fumigation charges to meet the EU quality specifications.

Table 3: EU bid prices and alternative pricing scenarios (birr per quintal)

Grain Type	Destination Market	Contract signed 1996	Winning bid price	Market Price at Destination at delivery date + cleaning fee	Lowest price + cleaning fee in market of column H	Price in column (F) plus transfer costs to delivery point	Markets with lowest price in May and March
A.	B.	C.	D.	E.	F.	G.	H.
wheat	Kombolcha	May	149.9	151	102	129	Bale Robe
wheat	Kombolcha	May	163.9	151	102	129	Bale Robe
sorghum	Dire Dawa	Mar	129.4	175	110	136	Gonder
maize	Dire Dawa	Mar	127.1	140	59	91	Jimma
maize	Dire Dawa	Mar	127.1	140	59	91	Jimma
maize	Shashemene	Mar	104.9	73	73	73	Shashemene
maize	Shashemene	Mar	93.9	73	73	73	Shashemene
maize	Shashemene	Mar	93.9	73	73	73	Shashemene
wheat	Kombolcha	Mar	178.7	151	112	139	Bale Robe
wheat	Kombolcha	Mar	177.0	151	112	139	Bale Robe
sorghum	Kombolcha	Mar	178.8	133	110	138	Gonder
sorghum	Kombolcha	Mar	176.0	133	110	138	Gonder
maize	Kombolcha	Mar	119.3	103	59	96	Jimma
maize	Kombolcha	Mar	119.3	103	59	96	Jimma
maize	Mekele	May	116.5	121	42	89	Jimma
maize	Mekele	May	116.9	121	42	89	Jimma
wheat	Kombolcha	Mar	165.9	151	112	139	B.Robe
wheat	Kombolcha	Mar	169.4	151	112	139	B. Robe
wheat	Kombolcha	Mar	175.7	151	112	139	B. Robe
wheat	Kombolcha	Mar	156.2	151	112	139	B. Robe
maize	Kombolcha	Mar	104.1	103	59	80	Jimma
maize	Kombolcha	Mar	104.1	103	59	80	Jimma
maize	Kombolcha	May	104.1	103	42	73	Jimma
maize	Mekele	May	117.6	121	42	89	Jimma
maize	Mekele	May	117.6	121	42	89	Jimma
sorghum	Mekele	May	226.2	154	106	136	Gonder
sorghum	Mekele	May	226.2	154	106	136	Gonder
sorghum	Mekele	May	226.2	154	106	136	Gonder
sorghum	Mekele	May	226.2	154	106	136	Gonder
sorghum	Mekele	May	226.2	154	106	136	Gonder
sorghum	Mekele	May	217.9	154	106	136	Gonder
sorghum	Mekele	May	212.6	154	106	136	Gonder
sorghum	Mekele	May	198.6	154	106	136	Gonder
sorghum	Mekele	May	184.3	154	106	136	Gonder
sorghum	Mekele	May	203.4	154	106	136	Gonder
sorghum	Mekele	May	213.1	154	106	136	Gonder

Source: European Union, Addis Ababa, 1996.

column G), the EU would have saved about Birr 47 million (US$7.4 million) if it had received the prevailing market prices.

Of these two Scenarios, we feel that Scenario I represents a more reasonable estimate of the additional procurement costs over and above prevailing market price levels. The figures in Scenario II assume that Ethiopian grain traders are able to quickly source grain from all over the country to take advantage of least-cost procurement opportunities. This is not likely to be feasible for the majority of grain traders in the country. Scenario II does not account for the potential problems of purchasing in the lowest cost areas and then securing adequate transport for shipping the contracted grain to the delivery location. Scenario I, on the other hand, simply assumes that traders are capable of purchasing product in the market of the delivery location sometime during the specified month of delivery, and using this to satisfy the contract. The information in Table 3 indicates that the EU could have saved US$3.16 million by simply buying the specified grain in the local market of the delivery location at the specified time of delivery. This would have reduced Program expenditures on local grain purchase by 11.6% (or alternatively would have allowed roughly 11% more food to be procured for relief efforts with the given amount of funds provided for the Program by EU).

To some extent, this result may also be the consequence of an unpredictable market environment. Due to the large harvest in 1995/96, grain prices did not rise later in the year according to their typical seasonal pattern. It is likely that traders incorporated the expectation of a seasonal price rise into their bid prices, since delivery dates were specified as at least 5-6 months after the main harvest. However, market risks and uncertainty can be mitigated through timely and accurate market information. The costs of local purchase program can be potentially reduced in the future through improved market information and forecasting systems that are widely disseminated through radio and newspapers. Such systems are now being implemented in Ethiopia by EGTE; information from this grain market information system is being broadcasted on FANA radio twice a week and is being released through flyers faxed to regional administrations each week.

The cost-effectiveness of local purchase can also be reduced in the future by designing the program so that a greater number of traders are able to bid on local purchase contracts. Examples of this include offering contract lots of lower volume to enable smaller traders to enter bids (discussed in Section 3.3) and holding one auction nationally rather than limiting the geographical domain from which bids and grain procurement can be accepted (discussed in Section 3.8).

3.7 Importance of Traders' Asset Level in Determining Participation

This section examines whether there are particular attributes that influence the likelihood that that a trader is able to submit a bid to the Program. As mentioned earlier, the lot size of 3,000 tons was far larger than the purchases of most Ethiopian grain wholesalers over the entire 1995/96 marketing year. It may therefore be expected that particular asset levels and access to credit may distinguish those that submitted bids under the 1996 local purchase program from the broader profile of Ethiopian grain traders. To address this question, we report key asset levels identified by the 27 trading firms interviewed that submitted bids under the program and compare these with asset levels identified by the 219 randomly-chosen grain traders (all of whom did not participate in the program). The specific assets examined here include truck ownership, ownership of storage, access to credit, and businesses other than grain trade.

As shown in Table 4, there are some important differences in the attributes of those submitting bids and the broader cross-section of Ethiopian grain wholesalers. On the other hand, there are very few differences in the attributes examined between the bid winners and bid losers. First, it appears that those submitting bids under the local purchase program were more diversified in their activities than the average grain trader. Almost 85% of the bid winners and 90% of the bid losers were involved in other business activities. By contrast, only 46% of the 219 randomly sampled grain traders were engaged in other businesses (Gebremeskel and Shaffer, forthcoming). Also, 71% of the bid winners and 50% of the bid losers owned trucks, compared with only 15% of the wider sample of grain traders. Of those traders submitting bids for sale under the local purchase program, 67% financed their grain purchase using bank credit, compared with 61% for the wider sample of non-participating traders. Finally little difference in ownership of storage facilities was noted between participating and non-participating traders.

The results indicate that, in general, once a trader submits a bid, there are no distinguishing characteristics that increase or lower his or her probability of winning a contract. Bid winners were chosen based on whether they submitted the lowest-priced bid for a particular contract in a particular region. However, there do appear to be important differences in the asset levels, particularly truck ownership, between those firms that submitted bids and those that did not. Also, those firms submitting bids tended to be larger and more diversified in their activities than those not participating in the local purchase bid process. This may have been primarily due to the 3,000-ton lot size in the 1996 program, which probably constituted a barrier to participation for most grain traders.

Table 4: Distribution of assets between EU participants and traders that did not participate in the local purchase program (percent)

Assets	Traders that submitted bids (n=27)[1]		Randomly sampled grain wholesalers (n=219)[2]
	winners (n=10)	losers (n=17)	
Own other businesses (% yes)	85	90	46
Own trucks (% yes)	71	50	15
Own storage warehouse (% yes)	50	55	58
Access to back credit (% yes)	67	59	61

Source: GMRP survey data, 1996.
[1] Surveyed in August 1996
[2] Surveyed in September 1996

3.8 Regionalization of Tenders

Another issue of inquiry is whether the regionalization of the program is an effective method of promoting a competitive market environment. Segmenting the auction process into regions serves to reduce the number of competing bids in an auction. This may have the undesirable effect of raising the regional average bid price above that which would have prevailed if the auction system was nationalized.

The EU initiated the tender process by advertising for bids for a particular grain and destination in four regions: Oromia, Amhara, Southern (SNNPR), and Tigray. Traders were

able to source grain wherever desired and were not constrained to source grain from the region carrying out the auction. Interestingly, the destination points and types of grain to be procured were by and large the same across all regional tenders. For example, the bids issued in SNNPRS, Amhara, and Oromiya regions all featured the purchase of wheat for delivery to Kombolcha (Table 5). The bid process has been designed such that there would be separate auctions by the type of grain and destination in the different regions undertaken simultaneously. The stated rationale for regionalizing the auction process was that some traders operating specifically in one or two regions might have difficulties in submitting bids in a wider national-level auction. It was also perceived that a national-level auction in Addis Ababa might give unfair advantages to traders based in Addis. In fact, many traders based in Addis traveled to other regions to submit bids. Also, some traders submitted bids in all of the participating regions, while others preferred to bid only in their respective regions.

The evidence indicates that the regional segmentation of the auction created additional transaction costs for the traders of registering in numerous auctions and limited the number of traders submitting bids. As a result, the segmentation of the bid process led to a situation in which bids were accepted that were the lowest prices received within a particular regional auction, but not necessarily the lowest bid price received overall. For example, the average bid price submitted for wheat delivered to Kombolcha was 6 percent less in the Oromiya auction than in the Amhara auction. If traders in both regions were forced to compete against one another, some traders in Oromiya who submitted lower-priced bids for the delivery of wheat to Kombolcha would have been accepted in lieu of traders submitting higher-priced bids in the Amhara auction.

In sum, it is concluded that regionalization of the bid process caused bid prices to be higher than if all bids were pooled nationally. This process hinders the development of an efficient market and reduces the Program's ability to minimize costs. Concerns about allowing regional traders to be able to participate could be accommodated by allowing traders to submit their bids to regional administrative units, which in turn would forward all bids to the appropriate national level organization implementing the auction process. This should alleviate the transaction costs associated with traveling to Addis to participate in the program and remove any potential advantages to Addis-based traders.

Table 5: Tenders issued by region (figures in metric tons)

Region	Wheat	Maize	Sorghum	Total
SNNPRS	6,000 (all delivered to Kombolcha)	15,000 (6,000 to Dire Dawa, 9,000 to Shashemene)	3,000 (all delivered to Dire Dawa)	24,000
Amhara	6,000 (all delivered to Kombolcha)	12,000 (6,000 to Kombolcha, 6,000 to Mekele)	6,000 (all delivered to Kombolcha)	24,000
Oromiya	12,000 (all delivered to Kombolcha)	15,000 (9,000 delivered to Kombolcha, 6,000 to Mekele)	--	27,000
Tigray	--	--	33,000 (all delivered to Mekele)	33,000

Source: European Union, Addis Ababa, Ethiopia, 1996.

3.9 Separating Tenders by Lots

As shown in the previous section, the number of bids may differ across regions for the same grain to the same destination. However, it was also possible that within the same region, the number of bids would differ across the various 3,000-ton contracts that were issued simultaneously in the region. This program design could again hinder the competitiveness of the bid process and thus raise the average bid price.

Traders can bid for multiple lots within one region and for the same destination. For some contracts (lots), as many as 17 traders submitted bids (Table 6). For other lots, as few as two bids were received from the same region and for the same grain and delivery point. As a result, some traders were awarded contracts whose bid price was higher than other traders who lost bids for the same grain and delivery point in the same regional auction. This method of segmenting each 3,000-ton contract into separate auctions resulted in a higher average price to the EU.

Table 6: Number of bids submitted per 3,000-ton contract

Grain type and destination	Number of bids submitted
wheat/Kombolcha	8
wheat/Kombolcha	17
wheat/Kombolcha	7
wheat/Kombolcha	4
wheat/Kombolcha	13
wheat/Kombolcha	10
wheat/Kombolcha	8
wheat/Kombolcha	9
maize/Dire Dawa	7
maize/Dire Dawa	6
maize/Shashemene	10
maize/Shashemene	12
maize/Shashemene	8
maize/Kombolcha	10
maize/Kombolcha	7
maize/Kombolcha	6
maize/Kombolcha	5
maize/Kombolcha	4
maize/Mekele	14
maize/Mekele	13
sorghum/Kombolcha	2
sorghum/Kombolcha	2
sorghum/Dire Dawa	6
sorghum/Mekele	4
sorghum/Mekele	4
sorghum/Mekele	4
sorghum/Mekele	4
sorghum/Mekele	4
sorghum/Mekele	4
sorghum/Mekele	4
sorghum/Mekele	4
sorghum/Mekele	4
sorghum/Mekele	4
sorghum/Mekele	4

Source: European Union, Addis Ababa, 1996.

The EU purchased Birr 172 million worth of grains in Ethiopia in 1996. Column D in Table 7 shows the value of grain purchased by type and by destination. Column E indicates the value of grain acquisition of the total amount of one type of grain destined for a certain destination if a single auction would have been held across all lots rather than in multiple lots. In this case, the EU would have saved 16.8 million birr (Column F), or approximately 9.8% of the Program's total grain procurement cost in 1996. It is noted that about 89 percent of this savings would have resulted from combining lots for sorghum delivered to Mekele.

Overall, combining lots of the same grain and destination would increase competition and reduce the average bid price. It appears that the cost-effectiveness of local purchase activities could be improved in the future through combining bids across all lots specifying the same grain and delivery point rather than segmenting the auctions by lot.

It was also found that some traders were unaware that they could submit multiple bids for one grain type at one delivery point. This confusion might have occurred because some traders were unaware that they could refuse a contract offer. If a trader won a bid which he/she could not deliver, he/she would not have been obligated to sign the contract.

Traders had an advantage if they knew to submit as many bids as possible. Traders who submit multiple bids and win a contract in which they were competing with only a few other traders had an advantage over traders that competed against many other traders. In addition, the likelihood that they win a bid improves if they bid in one lot that has few competitors. Many traders who did offer multiple bids, offered different prices for the same contract in hopes that a higher bid price would win. The average number of bids submitted was 10 for winners and 2 for losers. However, for individual winners the number of lots won was not in proportion to the number of bids submitted. Some traders entered 2 bids and had a 100 percent success rate. Other traders entered up to 19 bids, but won only 6.

Table 7: Relative value of purchases by separate and combined lots (000' birr)

Grain Type	Destination point	Bid value (actually won)	Bid value if one auction was held	**Savings**
A.	B.	D.	E.	F.
wheat	Kombolcha	40,109.4	38,787.3	1,322.1
maize	Kombolcha	16,522.5	16,360.5	162.0
maize	Shashemene	8,786.9	8,484.3	302.6
maize	Dire Dawa	7,302	same	0
maize	Mekele	14,062	14,058.3	3.7
sorghum	Kombolcha	10,645.2	same	0
sorghum	Dire Dawa	3,882	same	0
sorghum	Mekele	70,827.6	55,733	15,094.6
Total		**172,137.6**	**155,252.3**	**16,885**

Source: European Union, Addis Ababa, Ethiopia, 1996.

4. CONCLUSIONS AND POLICY IMPLICATIONS

This report identifies factors affecting the performance of the 1996 local purchase program in Ethiopia and options for making future local purchase activities more compatible with a range of national food policy objectives. The analysis considers the design and implementation of local purchase programs in relation to three key national policy objectives:

(1) price stabilization for farmers during periods of unusually low cereal prices;
(2) promoting the development of a competitive and low-cost food marketing system; and
(3) procuring food aid resources in a cost-effective manner.

Only the third objective — procuring adequate food aid resources in a cost-effective manner — was an explicitly stated objective of the 1996 EU program. However, it appears that other policy objectives may also be supported without additional cost through appropriately-designed local purchase activities. The analysis indicates that there are feasible design changes that could improve the competitiveness of the program and reduce the average bid price offered to the Program. Lower bid prices would enable the Program to purchase more grain with the same resources, and thereby increase the potential for local purchase programs to meet the Government of Ethiopia's policy objective of supporting farm-gate cereal prices during years of supply gluts and expanding the availability of cereal for food-insecure households.

4.1. Summary of Main Findings

The following conclusions can be drawn about the 1996 local purchase activities in Ethiopia:

1. The EU local purchase program has been clearly successful in meeting its primary objective: building up EFSRA's emergency food reserve. Almost 100,000 tons of grain were procured under the program in 1996, at an average cost of $251 per ton. Given relatively high world market prices for wheat, maize, and sorghum during 1996, the local purchase of food aid at $251 per ton was somewhat cheaper than the landed import cost of comparable quality grain at most of the specified delivery sites.

2. However, there appear to be opportunities to significantly reduce the procurement cost of local grain purchase in the future. Several aspects of the program inflated the costs of grain procurement and hence reduced the amount of grain that could have been procured for relief and stabilization purposes with the amount of funds devoted to the Program. The most important aspects of the 1996 program that inflated procurement costs were (a) the issuing of tenders of fixed lot sizes that were too large to enable most Ethiopian grain traders to participate in the program (Section 3.3); (b) stringent grain quality specifications (this was especially noted by the participating grain traders themselves, see Section 3.5); (c) regionalization of the tender/auction process (Section 3.8); and (d) segmenting the auction process for individual lots (Section 3.9). Segmenting the auction process for individual lots is estimated to have caused the EU to pay 9.8% more than it would have had the tenders not been segmented by region.

3. The average contracted prices of wheat and sorghum under the 1996 Program were far above the prevailing market prices at the specified local delivery markets. This suggests, but does not prove, a lack of competition in the bidding process in 1996. However, it is clear that the 1996 Program could have reduced its costs of grain

procurement by 20 million birr (US$3.16 million) by simply buying the contracted 108,000 tons of grain in the local market of the delivery location at the specified time of delivery. This would have reduced Program expenditures on local grain purchase by 11.6% (or alternatively would have allowed roughly 11% more food to be procured for relief efforts with the given amount of funds provided for the Program by EU).

To some extent, this result may also be the consequence of an unpredictable market environment. Due to the large harvest in 1995/96, grain prices did not rise later in the year according to their typical seasonal pattern. However, market risks and uncertainty can be mitigated through timely and accurate market information. The costs of local purchase programs can be potentially reduced in the future through improved market information and forecasting systems that are widely disseminated through radio and newspapers.

4. The local purchase of 108,000 tons of grain in 1996 amounted to about 5.4% of the marketed grain output from the 1995/96 *meher* season. Program purchases of maize, wheat, and sorghum are estimated at about 8.3%, 10.3%, and 18.4% of the total volumes marketed of these three commodities. It is difficult to estimate the effect of the program on producer prices. Grain prices generally remained atypically flat through most of the 1995/1996 marketing year. However, it is likely that producer prices would have been even lower than they were without EU's intervention.

5. The greatest evidence that the EU local purchase operation has actually raised market prices is in Tigray, where bids for 33,000 tons of sorghum were launched in February. Tigray is generally regarded as a grain-deficit region, and wholesale sorghum prices in Mekele were already higher than in most other regional markets for which data is available. In February, the wholesale price of sorghum rose from 131 birr/quintal to 160 birr/quintal, and rose again in March to 168 birr/quintal, despite the fact that sorghum prices declined or stayed flat over this period in almost all other regional markets covered by EGTE. Although this tender was canceled in March because bid prices exceeded the cost of importing sorghum to Tigray from the world market, it is likely that grain had already been purchased before this in anticipation of participation.

6. State farms produced about 12.5% of the grain supplied to the Program by the winning traders. Smallholder and commercial farmers accounted for 12.5%, 50% came from other traders, and the remaining amount delivered to the Program by winning traders was delievered from a combination of these sources. The fact that the bid winners purchased such a large proportion of the grain from other traders indicates that the benefits of the program probably extended to a wider group of grain marketing participants beyond the 10 bid winners only.

7. Traders submitting bids under the local purchase program in 1996 appeared to differ in some important respects from the broader cross-section of Ethiopian grain traders. First, the traders submitting bids were more diversified in their business activities, had greater access to bank credit, and were more likely to own their own trucks than the typical grain wholesaler. This may provide an indication of the types of entry barriers to participation in the 1996 program.

4.2 Options for Further Consideration to Improve the Functioning of Local Purchase Activities

1. *Increase competition in bid process through reduced contract lot size:* The cost-effectiveness of local purchase can be improved in the future by designing the program so that a greater number of traders are able to bid on local purchase contracts. Perhaps the most important change to increase the number of bidders is to offer contract lots of lower volume to enable smaller traders to enter bids. As this report goes to press, it is noted that the Second Phase of the EU's local purchase activities features contract lots of 500 tons, down from the 3,000 ton lot size in 1996.

2. *Hold one national-level auction rather than a set of localized auctions:* In section 3.8, it is shown that the regionalization of the auction process constrained competition in the bid process and increased the average bid price received under the Program. As a result, some traders did not win bids despite submitting lower-priced bids than other traders that did win bids (for comparable grain types, delivery points, and delivery months). This issue is discussed in more detail in Section 3.8.

3. *Do not segment bids by contract*: Combining bids across all lots specifying the same grain and delivery point (rather than segmenting the tenders by lot) is expected to increase competition in the bid process and thus reduce the average bid price. In 1996, this would have saved the program 16.8 million birr for other developmental purposes, amounting to 9.8% of the total grain procurement costs under the program.

4. *Review the need for stringent Grade I grain quality standards:* For storage purposes, it is possible that Grade I quality is absolutely required for the Emergency Food Security Reserve Authority. However, most traders that participated in the program complained strongly about the extra costs and time involved in meeting these quality standards. They reported that Grade I quality is not readily available from smallholder grain production. A broader random survey of 219 local grain traders also indicated that of those that heard of the local purchase program in 1996, 24.4% of them indicated that the high quality standards was either the most important or second most important explanation for their decision not to submit a bid.

5. *Change the timing of local purchase activities to earlier in the marketing season:* Farmers may benefit by changing the timing of tender issuing, awarding contracts, and delivery dates to occur earlier in the marketing season when a greater proportion of farmers are selling their crops and can potentially benefit from the increased demand of local purchase activities. It is likely that moving the auction process forward in the marketing season will also result in reduced bid prices, other factors held constant (see Section 3.2). It is noted that tenders for the second phase of the EU local purchase activities were already launched in December 1996, several months ahead of the timing in 1996.

4.3 Future Research and Monitoring

These conclusions are based on information currently available after one year's experience. Monitoring can be important in learning from each year's experience and for adjusting the Program to the conditions faced in each new crop year. Information predicting crop size, stock holdings and expected marketed quantities as well as information on current and past prices are important in determining the appropriate future design of local purchase programs.

Important areas of research beyond that considered in this report include inquiries into the long run implications of the Program on the food security situation of different groups, the costs of storage by different types of market participants, the stockholding and marketing strategies of farm households and their implications for the design of local purchase programs, and evaluations of local purchase programs in the broader context of a food and agricultural development strategy for Ethiopia.

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