

Market Reforms, Research Policies And SADCC Food Security



Edited by

Mandivamba Rukuni & J.B.Wyckoff

University of Zimbabwe UZ/MSU Food Security Research in Southern Africa Project

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Mandivamba Rukuni
J.B. Wyckoff

Malawi : Food Marketing Liberalisation and Household Food Security - Preliminary Results From Baseline Surveys

Ben Kaluwa and Wycliffe Chilowa

INTRODUCTION

The marketing of food crops, typically produced by smallholder farmers, was liberalised in 1987 in response to:

- rising transportation and other costs and falling commodity prices on the world market; and,
- structural problems within the state marketing board -- the Agricultural Development and Marketing Corporation (ADMARC) -- which had over-extended its operations.

These problems, combined with cross-subsidies on an extensive country-wide network of some 1,139 markets together with food crop marketing operations (including the maintenance of strategic grain reserves) led to unprecedented financial difficulties for ADMARC in the 1985-86 trading year. Private traders had always operated in Malawi and their operations had official recognition but no legal basis. Hence, their operations tended to be small-scale except where they operated as agents of ADMARC. The Agricultural General Purpose Act of 1987 established a legal basis for private trader operations defining eligibility criteria and rules of conduct. The market liberalisation programme has been implemented as part of wider reforms under the structural adjustment programmes initiated in 1981.

The two major objectives of the 1987 economic liberalisation programme were to relieve the financial burdens of ADMARC and improve the efficiency of the marketing structure through competition. In order to facilitate the first objective, ADMARC started to withdraw from markets with low throughput and confine their activities to those more directly related to marketing functions. By the end of 1988, 15 percent of ADMARC's markets had been closed.

THE THEORETICAL BASIS OF THE REFORM

The two basic objectives of the market liberalisation -- improving efficiency and food security -- are based on a theoretical model of market integration which can be easily illustrated and provides direction for the investigation reported in this paper.

The model predicts that, under competition, seasonal commodity price differentials will reflect storage costs, regional (spatial) price differentials will reflect transport costs and both will facilitate arbitrage. For simplicity, the model can be split into two components -- one spatial and the other for seasonal integration of the market.

We consider the case with two regions, Y (exporting) and X (importing); and two seasons, k (producing) and s (consuming). P represents price, S storage costs and T transportation costs. The market integration models are then:

$$P_y + T_{yx} = P_x \quad (1)$$

$$P_k + S_{kj} = P_j \quad (2)$$

In Malawi, official prices are pan-territorial and pan-seasonal. Hence $P_y = P_x$ and $P_k = P_j$, despite the fact that $T_{yx}, S_{kj} > 0$. Hence, price intervention suppresses pricing signals that would indicate relative shortages. This means that ADMARC's transportation and storage operations are necessary to move grain from one region to another or to store it from one season to the next.

Under the previous ADMARC system, grain was moved from regions such as Mzuzu Agricultural Development Division in the Northern Region, to the strategic grain silos in Lilongwe, stored and moved back in the hungry season for distribution. This has been one of the root causes of ADMARC's food crop trading deficits. These were cross-subsidised by its trade in non-food crops for which, on average, $P_y + T_{yx} < P_x$ where P_y is controlled and P_x is the auction price. This provided the basis for the belief that liberalisation and competition, in conjunction with a differential spatial pricing policy, would lead to more efficient resource allocation and reduce cross-subsidies and crop trading losses. Multidirectional commodity access to food would also be provided through relative scarcities triggering price signals and, hence, the necessary functions such as storage and distribution.

Unfortunately, the model and its predictions rely on the assumption of perfect competition entailing free entry and exit among traders and among consuming groups. In practice, with free prices, large price differentials can persist implying segmented markets spatially or inter-seasonally which can lead to persistent deficits in some areas or seasonal deficits in areas which are otherwise surplus producers. This will only be the case if inhibiting factors such as an underdeveloped transportation system, storage system and technology; or simply inadequacies in complementary markets (such as the capital market), unequal purchasing power or imperfect information flows exist. Government storage and food distribution policy can also affect private trader entry and participatory response.

Pricing policy, if not completely free, can be another inhibiting factor to free entry and competition as can other regulations. At worst, these factors can influence traders' views about the government's commitment to marketing reforms and can result in uncommitted entry where traders avoid sunk costs to facilitate easy exit. This will result in an unstable marketing structure and unpredictable outcomes making policy analysis difficult.

The foregoing indicates a number of areas for investigation. The spatial and commodity pattern of entry, scale of participation and the direction of trade movements can provide an indication of the extent of spatial market integration. Stocking behavior provides an indication of inter-seasonal integration. Problems in either of these or the pricing structures (spatial and inter-seasonal) exacerbate the vexing issue of what ADMARC's or any other intervention should be for the two objectives to be fulfilled simultaneously.

The reforms, in the wider sense, might not be delivering adequate incentives and the environment to motivate traders capable of entering into the areas from which ADMARC has withdrawn. Specifically, the study aims at assessing the impact of the reform measures, including liberalisation, on household income and food security, assessing the response of private traders to the new policy and investigating the constraints private traders may be facing.

METHODOLOGY

The main study is being undertaken in three Agricultural Development Divisions (ADDs) for a period of at least 12 months (*i.e.*, one crop year). Blantyre ADD (BLADD) in the southern region of the country is a food (grain) deficit ADD, Lilongwe ADD (LADD) in the central region is a food surplus ADD, while Mzuzu ADD (MZADD) in the northern region is marginally above average.

Two Rural Development Projects (RDPs) were selected from each ADD, some purposely food surplus (*e.g.*, Mwanza RDP in BLADD) and some food deficit (*e.g.*, Shire Highlands RDP also in BLADD).

From each RDP, two Extension Planning areas (EPAs) were randomly selected. Lastly, two sections from each EPA were randomly selected giving us a total of 24 for the sample. Seventy-five (75) households were selected randomly from each section for the household baseline survey comprising a total sample of 1,800 households. No known population existed for the trader baseline survey. Thus the census method was adopted to include all grain traders identified on the sections over a period of two months from the beginning of the field work. In addition to the households and traders' surveys, price monitoring is being undertaken in rural markets within the sections.

PRIVATE TRADER BASELINE

The first issue investigated was the extent to which the entry pattern of private traders, over time, had been influenced by liberalisation. The second was the extent to which the spatial pattern of their operations is influenced by remoteness from proximity to urban centres. The third is the extent of concentration in commodity trading.

Characteristics of the Traders

The survey covered 83 private traders -- 33 in BLADD, 50 in LADD and none in the MZADD. This distribution baseline conforms to the pattern of licensed traders for 1988-89. MZADD had the highest number of designated markets and yet accounted for only five percent of the traders. Some areas in MZADD are so remote that some of the private traders operating in the area offer to buy maize only on a transport cost sharing arrangement based on a uniform hire rate. This obviously depresses the margins of the more remote farmers.

Traders are predominantly male (95,2 percent) and polygamous (88,0 percent). All are over 21 years of age with 77,1 percent between the ages of 21 and 50 years. Sixty-one percent of the traders in the BLADD were educated to primary level IV or above, the level assumed to be the minimum for functional literacy. The corresponding proportion for the LADD was 70 percent. All the traders in the BLADD had public positions or were involved in activities such as farmers clubs and business associations, while only 58 percent were similarly involved in the LADD. Business association or farmer's club membership applied to 24,3 percent in BLADD and 14,0 percent in LADD.

In BLADD, 51,5 percent resided within the EPA and 78,8 percent within the RDP. In total, 93,9 percent were rural-based. The remaining 6,1 percent were based in the smaller urban centres rather than the cities. In LADD, things were significantly different. Only 70 percent were rural-based (46 percent within the EPA) with the rest being urban-based, mainly in Blantyre and Lilongwe.

Crop trading is the most important activity for the traders in BLADD and LADD (63,6 percent and 62,0 percent respectively) followed by farming (15,2 percent and 22 percent). Transporting was only mentioned by 12,1 percent of the traders in BLADD and none in LADD. The traders tend to have diversified activities beside crop trading (66,7 percent in BLADD and 58 percent in LADD), with those in BLADD tending to combine trading with retailing and grain milling while those in LADD combine trading with farming, retailing and grain milling in that order.

Liberalisation and Entry

Only 15,2 percent of the traders in BLADD began operating after liberalisation compared to 48 percent in LADD. Entry in BLADD, induced by liberalisation was

smaller compared to LADD. Sixty-seven percent of those in BLADD had been trading for six years or more while the proportion for LADD was 78 percent.

Private Trader Activity

The majority of traders (78 percent) in LADD felt that they bought enough crops. This question was not answered by most of those in BLADD. Although buying extends to September (BLADD) or August (LADD) most of the traders concentrate their buying within three months of harvest, *i.e.*; April to June for BLADD (78,8 percent) March to May for LADD (78 percent). Buying stops between August and September for 57,6 percent and 46 percent of the traders in BLADD and LADD respectively with some activity before and after. For the most part, buying is between April and September for BLADD and between March and September in LADD. This suggests quite a significant amount of early buying in the latter (44 percent starting in March).

Although a significant proportion of traders indicated that there was no fixed selling period, most traders sold immediately after purchase (57,6 percent in BLADD and 72,0 percent in LADD). Storage behavior supports these observations although there was more storage in LADD than in BLADD. In BLADD, 72 percent did not store for more than a month while in LADD the proportion was 36 percent. Thus, a majority (64 percent) stored for at least one month. The explanation for these differences stems from the fact that, although a sizeable proportion of the LADD crop trading was town-based, a significant proportion of the traders (23,7 percent) were selling in slow-moving town outlets (markets and directly to households). Twenty-eight percent of the selling in Blantyre was to processors compared to eight percent in LADD.

The responses indicate that rural area crop markets are better served by private traders than previously assumed (24,6 percent of the responses in BLADD and 27,6 in LADD). But the critical issue is whether these operations are sustained throughout the year. Household level results provide an indicator.

With little variation between the ADDs, the most important crops in which traders deal are maize, including hybrids, (38,4 percent in BLADD and 43,5 percent in LADD) and pulses (43,0 percent in BLADD and 38,1 percent in LADD). There is some specialisation in LADD where potatoes are grown in Ntcheu district. Overall, there is a tendency towards crop concentration which is probably a reflection of supply and demand conditions. High throughput crops (buying and selling) are logically favoured.

Generally, the traders in BLADD appear to be comprised of more small-scale traders dealing in less than 100, 90kg bags. Some of these small-scale traders may be specialists in higher value crops like pulses. This increases the value of their limited turnover. Perhaps the most significant and interesting result is that over 15 percent of the responses relate to quite large transactions of over 1 000, 90-kg bags. Thus, private traders are providing competition for ADMARC and fulfilling their

expected role in buying. On the other hand, only 15 percent and 10 percent of the traders in BLADD and LADD, respectively, sell inputs (all types). Their terms are cash in BLADD (100 percent) and other than cash in LADD (85 percent). It is not expected that an element of subsidy is involved in such transactions. On the contrary, the traders will expect to make considerable margins in order to undertake such activities, especially considering that some of the areas may be remote.

Market Structure and Profitability

Despite the fact that over 70 percent of the traders in both ADDs said that there was more competition now than before liberalisation, a similar proportion said that they were better off now than before (72,7 percent in BLADD AND 74 percent in LADD). This is despite the fact that a majority of the traders felt that general price regulations resulted in higher buying and lower selling prices than would otherwise be the case. A possible explanation is that, although floor prices exist and are used as a guide for actual buying prices, they are not enforceable. Messages relating to ceiling prices are poorly defined (Scarborough, 1990). In any case, with the current maize scarcity, ceiling prices are difficult to enforce. ADMARC selling prices could be regarded as a guideline by the traders and perceived to be restrictive.

Trading Constraints

The most important trading constraints are credit (36,6 percent in BLADD and 20 percent in LADD), transport availability (19,7 percent in BLADD and 14,9 percent in LADD) and transport costs (11,3 percent in BLADD and 15,8 percent in LADD). The perceived importance of credit is understandable since finance can be channelled into any area. The presence of fairly large-scale traders means that the demand for credit is significant. The transport constraint, both availability and cost, limits the likelihood of urban to rural trade in crops at any time due to relatively depressed conditions in the latter. Food sold in the rural areas is, therefore, likely to originate there. This is supported by results from the household survey.

Investment

Sunk investments in crop-trading operations imply that exit will not be easy. Thus, 'hit-and run' entry and exit by crop trading operators becomes more difficult. It is an indication of commitment and is "good" in light of the fact that one of the objectives of liberalisation is to foster competition.

Transport and storage are by far the most prevalent types of investment mentioned and are closely related to trading. They were mentioned in 77,8 percent of the responses in BLADD and 83,8 percent in LADD. In BLADD crop trading investments amounted to over K1 000 in value for 54,0 percent of the respondents compared to 57,7 percent in LADD. The investments had been completed for 86,5 percent of the cases in BLADD compared to only 27,9 percent in LADD.

THE HOUSEHOLD SURVEY

The sample size for both (BLADD) and (LADD) is 600 households each, whereas that for (MZADD) is 599.

On average, 47,7 percent of the entire sample of household heads were males and 52,3 percent females with no significant differences between ADDs. There are more female headed households (FHHs) in BLADD than in LADD and MZADD (30 percent, 15,7 percent and 13,4 percent respectively) because of BLADD'S proximity to the city of Blantyre where males migrate in search of employment.

Fifty-eight percent of all members of households in the entire sample were single, 32,3 percent, 36,5 percent and 38,5 percent were married in BLADD, LADD and MZADD, respectively. However, there are differences between ADDs in type of marriage (polygamous vs monogamous) and the divorce and separation variables. There are more polygamous marriages in MZADD than the other ADDs. Divorce and separation rates are less in MZADD due to the patrilineal type of marriage practiced there. Household heads comprised 19,4 percent of the sample population in BLADD, 19,1 percent in LADD and 20,4 percent in MZADD.

A large percentage of the sampled households farm their own land (41 percent, 41,5 percent and 44,1 percent in BLADD, LADD and MZADD respectively). An equally high percentage of the population is either at school or under school age (42,9 percent, 40,4 percent and 49,6 percent in BLADD, LADD and MZADD respectively). Only 3,9 percent are employed outside agriculture in BLADD, 1,5 percent in LADD and 0,7 percent in MZADD. There are differences within ADDs with Shire Highlands RDP in BLADD providing most of those employed outside of agriculture.

A large proportion of the sample population is illiterate, *i.e.*, those with no education and those who have reached standard three or less of the primary education (68,4 percent, 79,5 percent and 68,6 percent in BLADD, LADD and MZADD respectively). Christianity is the dominant religion.

Mean household size is 5,12 for BLADD, 5,25 for LADD and 4,90 for MZADD giving a mean for the entire sample of 5,09.

Farm Size, Crop Production and Sales

On average, BLADD has 5,3 acres per household compares to 3,6 acres in LADD and five acres in MZADD. The higher figure in BLADD results because Mwanza RDP was purposely selected as a food surplus RDP with larger fields. Mixed cropping is prevalent in BLADD and LADD but single cropping predominates in MZADD. More land is left fallow in MZADD as compared to the other two ADDs. Likewise, there are more fields per household in MZADD than in the other ADDs.

Local maize was the major food crop grown in the 1988-89 season by 98,7 percent of households in BLADD, 98,3 percent in LADD and 98,6 percent in MZADD. Cotton, beans and pulses were the main cash crops grown in BLADD in the 1988-89 season, beans, wheat and potatoes in LADD and hybrid maize, groundnuts and tobacco in MZADD. Local maize still claims the major share as a percentage of all crops grown in the 1988-89 season.

The following results, aggregated at the ADD level, should be interpreted with caution because some RDPs were selected purposely to include those that are food (grain) deficit and those that are food surplus within the same ADD (e.g., Mwanza RDP in BLADD is food surplus, whereas Shire Highlands RDP is food deficit).

There is a positive correlation between fertilizer use and grain harvested. The results indicate that the mean harvest is greatest in MZADD followed by LADD and BLADD. Maize fertilizer use is highest in MZADD followed by LADD and BLADD (62,8 percent, 44,7 percent and 42,9 percent respectively), and may be related to the relative availability of land.

Mean *per capita* maize harvest is positively correlated with fertilizer use among the ADDs. However, there are no significant differences between those who use fertilizer and those who do not in the Blantyre ADD. Due to land constraints in the Shire Highlands RDP of BLADD, use of fertilizer on already small holdings may not increase harvest significantly.

These preliminary results show that those who use fertilizer harvest more grain. They also show that, for those who do not use fertilizer, the larger the landholding, the larger the harvest. The mean size of harvest ranges between 400,9kg (BLADD) and 698,6kg (MZADD) for those with less than 0,5ha, progressively rising to between 826,6kg (BLADD) and 1 986,3kg (MZADD).

The results reveal that the mean total value of maize sales increases with landholding size. For example, for BLADD, the mean sales are K6.2 for those with less than 0,5ha and rises to K236,0 for those with over 2,0ha. The corresponding range for LADD is K0.0 to K420.7 and for MZADD, K0.0 to K400.7. Only in BLADD do households with 0,5ha or less sell their grain at harvest. These are the "distress selling" deficit households who have to buy back grain after they have depleted their meagre stocks. Analysis of mean total field size by categories of maize sale clearly indicates the positive relationship between landholding size and maize sales.

Diagnostic Analysis

Reform Issues

Analyses of the diagnostic information collected in the baseline survey are discussed in this section. Changes are examined that occurred prior to and after the food marketing liberalisation policy (pre 1986-87 season). Some of these changes may be

attributable to the ongoing SAPs while others can be linked specifically to the food marketing liberalisation.

Slightly over half of the respondents in the sample ADDs affirmed that they had crop changes between 1986-87 and 1988-89 crop seasons, (51,9 percent, 50,8 percent and 52,8 percent in BLADD, LADD and MZADD respectively). In Blantyre ADD households increased crops grown more than in the other ADDs (76,1 percent) compared to only 44,7 percent and 43 percent for LADD and MZADD respectively. Reasons for these increases are that crops grown now are more profitable, more money is needed and improved land husbandry is being used. The importance given to each reason differs among ADDs.

Those in BLADD and LADD reporting a reduced area of crops grown, encountered a land constraint while in MZADD, there was a shortage of fertilizer. More households in BLADD increased fertilizer use on maize as compared to the other two ADDs. Three reasons given by households for increased fertilizer use in all ADDs were increased price of output, better prices of inputs and higher yields. Increased input prices and lack of money feature prominently in all ADDs for those decreasing fertilizer use together with land constraints in BLADD and distant selling points in MZADD.

A high percentage of households sold to an ADMARC market in 1988-89 that is now closed (40,3 percent in BLADD, 71,1 percent in LADD and 91,1 percent in MZADD). Other marketing channels were households - direct - local and households - direct-town in BLADD, and ADMARC markets in LADD. The main reason households sell to agents are pressing cash needs, proximity and attractive prices. More households in MZADD sold maize during the 1986-87 season than in BLADD and MZADD (55,1 percent, 19,5 percent and 24,2 percent respectively). Most households have not changed the place where they sell their maize. Those that have changed were affected by the closure of ADMARC markets and accessibility/transport/proximity problems.

Compared to the pre-1986-87 period, most households in LADD and MZADD report they are having increased difficulties in transporting their crops, *i.e.*, 37,7 percent in BLADD, 61,0 percent in LADD and 68,8 percent in MZADD. Asked if, over the past four years, they had sold some of their grain crops at harvest and bought grain later during the year, most respondents answered in the negative in all ADDs (85,5 percent in BLADD, 87 percent in LADD and 74,4 percent in MZADD). When those who sold were asked why they had done so (while being cognisant of the fact they did not have enough to meet their yearly needs) the two main reasons given in all ADDs were to buy household necessities and to repay loans.

In this survey we also tested the hypothesis that people are responsive to price incentives. To operationalise this, we asked respondents whether the price they expected or believed they would receive influenced their crop plantings. Only in Lilongwe Agricultural Development Division did most of the respondents answer in

the affirmative. Affirmative responses were BLADD, 46,4 percent; LADD, 61,8 percent; and MZADD, 37,8 percent.

In all the sample ADDs, most households planned to produce crops for sale in the 1990-91 crop season. Current ADMARC markets are where most of them plan to sell the crops. ADMARC market closures could have an impact since private traders are not mentioned as alternative agents except in LADD where potatoes are not bought by ADMARC. However, most households in BLADD and MZADD expect to receive more than the ADMARC buying price. Those in LADD expect less. Most households in MZADD are skeptical about storing crops because of the near absence of private traders and local markets where they can sell their produce. In some of the remote areas reached by private traders, the traders have devised transport-sharing arrangements between farmers and themselves which penalise the remote farmers to the extent that their transport costs are not subsidised.

Households planning to purchase fertilizer next year totaled 57,5 percent in BLADD, 73,3 percent in LADD and 82,8 percent in MZADD. The main reason for not buying was that they could not afford it. For those planning to use fertilizer, most would use it on local maize (65 percent in BLADD, 74,9 percent in LADD and 76,4 percent in MZADD), as compared to 28,9 percent, 19,1 percent and 23 percent in BLADD, LADD and MZADD respectively, who would use it on hybrid maize.

The research team investigated the reception of respondents to the pending relaxation of restrictions on smallholders designed to enable them to produce a high value crop, namely burley tobacco. Most respondents, in all our sample ADDs, said they would not produce burley tobacco if it were permitted, 71,8 percent in BLADD; 70,2 percent in LADD and 51,6 percent in MZADD. Almost all of those who said they would grow it gave profitability as the reason they would do so. However, those who answered in the negative gave several reasons why they would not grow it ranging from inadequacy of landholdings, expensive inputs, unsuitable soils and climate, the need to grow food, to not knowing how to grow it.

The majority of the respondents in all the sample ADDs said they would not put all their land into tobacco and use the earnings to buy food for the household, (95 percent in BLADD, 96,8 percent in LADD and 93,7 percent in MZADD). This reinforces the point that smallholders in our sample area are risk adverse, especially with respect to food crops.

The majority of households in the sample, plan to produce all of their household requirements, *ceteris paribus*, (80,7 percent in BLADD, 86,2 percent in LADD and 87,6 percent in MZADD). Those who said they did not plan to produce all of their food requirements next year, on average, expected to have 5,31, 5,71 and 5,15 months of own food supply in BLADD, LADD and MZADD respectively.

The majority of the households said their plans for next year are primarily influenced or affected by household food considerations (92 percent in BLADD, 70,5 percent in LADD and 95,3 percent in MZADD). Most respondents said they would

deal directly with ADMARC next year, (67,3 percent, 76,5 percent and 82,4 percent in BLADD, LADD and MZADD respectively). The main transactions anticipated with ADMARC were selling and buying maize and buying fertilizer.

The majority of smallholders in MZADD expect to buy inputs from ADMARC next year. Hence, the consequences of ADMARC closures in this ADD could be disastrous. Asked if an ADMARC unit had closed recently in their area, 57,8 percent, 53,3 percent and 48,7 percent in BLADD; LADD and MZADD answered affirmatively. The majority of the respondents either had bought or sold maize to that unit. Asked if it made a difference to them that an ADMARC market had closed, 89,8 percent in BLADD, 86,7 percent in LADD and 77,6 percent in MZADD answered affirmatively saying it is now difficult to buy and sell produce or buy maize inputs.

The household baseline survey sought to capture households' survival mechanisms in times of hardship. Local maize is the main staple food for almost all households in the sample ADDs (99,8 percent in BLADD and LADD and 89,7 percent in MZADD). The majority of households are food insecure for at least 6 months per year. But fertilizer uptake does make a difference because those who use fertilizer have fewer months of food insufficiency. The majority of those that deplete their stocks before the next harvest do so between December to March in all the sample ADDs. Information from other sources indicate that there is a significant level of food depletion before September. This is quite high in some BLADD RDPs (46 percent in Blantyre RDP; 27 percent in Blantyre/Chiradzulu and 52 percent in Thyolo) compared to other ADDs (e.g., 21 percent in Ntcheu RDP and 19 percent in Thiwi-Lifidzi) (Mann *et al.*, 1988).

Households have various sources of food after they have depleted their own stock. These include ADMARC, 'Ganyu' labour, supplementary crops, *etc.* In both LADD and MZADD more households turn to supplementary crops after they have depleted their staple food stock compared to those in BLADD. However, in BLADD private traders and the local market provide alternative sources of food following depletion. These results confirm that farmers in remote areas have a real reason for being risk-averse with respect to food supplies and cropping decisions. They can expect to have little access to private traders as a food source in their areas.

Asked what they would do to get the additional resources needed to acquire food in case of a poor crop year, a majority of the sample indicated that they would resort to 'ganyu' labour. Asked if food availability had changed between the pre and post liberalisation periods, most respondents in LADD and MZADD thought food was less available now. Low availability now was due to bad weather, less labour, closure of ADMARC markets and low incomes, among other reasons.

Respondents were asked about the number of additional days of labour that their households could work off their farms without reducing their farms' production. The mean number of days in BLADD was seven, 22 days in LADD and 26 in MZADD at the wage rate of K2.36, K4.79 and K4.66 per day, respectively.

While the results of the survey show that smallholders in our sample are very willing to work both on food for work or food for cash projects in the hungry season, it is also clear that their expectations with respect to what they should earn are very high relative to the statutory minimum wage -- currently less than K1.50 in all areas including urban centres.

The Acceptability of Hybrid Maize

When respondents were asked if they planned to plant any hybrid maize for household use, 55,7 percent in BLADD said yes, compared to 50,1 percent in LADD and 52,9 percent in MZADD. Households generally would rather plant hybrid maize only for sale because of its poor processing, poor storage and high labour input characteristics. It was only in LADD that poor taste was given as a second most important reason for not planting hybrid maize for household use. The two main reasons given for growing hybrid maize for sale are high yields and profitability.

Crop Storage

The desire for self-sufficiency should be backed by a willingness and ability to store food at the household level. A majority of the respondents in all ADDs think that their storage is adequate although losses do occur.

POLICY IMPLICATIONS AND CONCLUSION

Food marketing liberalisation and the increase of private traders have been largely detrimental to the smallholder sector -- particularly households in remote areas. These areas have experienced closure of uneconomic ADMARC markets and private traders have been reluctant to penetrate such areas for the same reason. Mzuzu ADD, has the largest number of designated markets where private traders can operate yet it had the lowest number of licensed traders in the 1987-8 and 1988-9 marketing years.

Even where such traders operate, they typically purchase for sale in other areas. Some large traders in the Mzuzu ADD have devised transport cost-sharing schemes which reduce the returns to farmers in the most remote areas.

These results have a number of implications. ADMARC's retrenchment has led to a withdrawal of marketing outlets for selling crops and for buying food and inputs. Inputs are in higher demand in remote, relatively land-abundant areas with surplus production where ADMARC outlets are being closed. Thus, withdrawal has the potential of threatening national food security.

Second, remote households have access to fewer alternative sources of food. The government's drive towards greater export crop diversification is undermined in these areas by risk-aversion with respect to food supply. This encourages food crop specialisation. Thirdly, distress selling of food crops soon after harvest is more

prevalent in the Mzuzu ADD than in the more land constrained Blantyre ADD. The main reason for selling was to obtain cash for paying off farm credit. Three factors are causing this result; high dependence on fertilizer, rising fertilizer costs, and transport cost sharing arrangements with private buyers which reduces net selling price.

Fourth, the orientation of private traders towards outside grain sales has led to greater reliance on locally available food sources. Apart from alternative food crops, the sources are typically other farmers who are able to buy or grow and store excess maize. They realise high margins by trading maize for *ganyu* labour when the labour supply is high (the hungry season) and maize is in short supply. By neglecting their own farms, short-term food deficit farmers can find themselves in chronic deficit situations. This problem will persist as long as local food supplies are not available on the open market.

These are all examples of marketing problems with implications for household food security as well as national food security and general economic development. This is especially true for a country whose economy is heavily dependent on agricultural production.

If private traders are now permanent actors in the agricultural marketing system, one possible approach would be to interest them in input trade. One possibility is to develop a system of differential input prices (between buying points and selling points) similar to the one devised to encourage them to act as buying agents for ADMARC. For subsidised inputs, the subsidies could be paid directly to the producer/wholesalers so that the traders could buy at appropriate prices for them and get a reasonable return.

The problem of food availability in remote areas can only be resolved through storage facilities located close to the target areas. One possibility would be to foster competition among those that currently provide storage for local supply by providing credit and technical assistance for storage technology. The aim would be to facilitate the storage of even the hybrid maize which is being increasingly accepted for household consumption. ADMARC already has little known facilities for providing services related to storage technology. The alternative would be for ADMARC to take the lead and develop a decentralised grain storage system. The present system is oriented towards regional depots with its associated high costs of moving grain from and back to the rural areas. Incentives need to be devised to encourage private traders to move the grain to specific areas when needed. The longer term solution will likely lie in encouraging locally-based businessmen to provide storage.

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APPENDIX I

Number of private traders registered, by ADD and characteristics

Region/ ADD	Population ^a ADD (000)	Population ^a Urban (000)	Food Balance ^b (000mt)	Registered 1987/88 (No.)	Traders 1988/89 (No.)
Northern		44			
Karonga	261		-6	-	7
Mzuzu	709		-7	22	35
Central		234			
Kasungu	1 085		+142	10	27
Salima	369		+19	20	28
Lilongwe	1 880		+191	113	128
Southern		374			
Liwonde	1 550		-90	109	224
Blantyre	2 130		-259	99	417
Ngabu	558		-79	14	51
Total	7 983	653		387	917

Notes:

^a Urban population refers to that of the four major urban centres as follows: Northern = Mzuzu; Central = Lilongwe; Southern = Blantyre and Zomba. There is a close relationship between the urban population and remoteness.

^b This is in maize equivalents of the difference between production and consumption.

Source: Scarborough, 1990; National Statistical Office, 1987.

APPENDIX II
Destination of sales by traders : all crops

	BLADD (%)	LADD (%)
ADMARD	26,1	30,3
Town	16,9	23,7
Estate owner	3,1	6,6
Processor	27,7	7,9
Rural	24,6	27,6
Export	-	3,9
Other	1,6	-
	100,0	100,0

APPENDIX III
Scale of trader operations : crop purchases^a 1989

90kg bags	BLADD	LADD
Up to 99	43,5	28,6
100 - 499	12,3	30,0
500 - 999	15,2	13,1
1000 +	19,8	15,7
Don't know	9,2	12,6
	100,0	100,0

^a All crops

APPENDIX IV
Month of food depletion

	BLADD (%)	LADD (%)	MZADD (%)
Never depleted	23,4	23,8	28,7
December to March	49,7	51,8	38,6
April to November	26,9	24,3	32,7

APPENDIX V
Number of months food insufficient

	BLADD (%)	LADD (%)	MZADD (%)
1 to 3 months	49,9	52,0	48,9
4 to 6 months	34,3	33,9	33,1
7 to 9 months	9,5	11,7	12,1
10 to 12 months	6,1	2,4	5,9

APPENDIX VI
Source of food after depletion

	BLADD (%)	LADD (%)	MZADD (%)
ADMARC	63,1	26,7	34,0
Worked for food (Ganyu)	20,1	40,0	31,5
Used supplementary crop	0,9	20,6	18,5
Given by relatives	1,3	0,8	7,8
Bought from other household	2,4	6,7	5,0
Private traders	7,8	0,5	0,2
Local market	4,4	1,9	0,0
Food aid	0,0	2,7	3,1

APPENDIX VII
Source of additional resources during serious food shortages^a

	BLADD (%)	LADD (%)	MZADD (%)
Ganyu labour	73,2	76,7	78,3
Gifts from relatives	17,7	7,8	30,7
Loans from relatives	15,5	10,2	18,7
Loan from trader	12,4	9,5	10,1

^a Totals to more than 100 percent as some households accessed more than one source.



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