



The Maze of Maize:

**Improving Input and Output Market Access for Poor
Smallholders in Southern African Region, the
Experience of Zambia and Malawi**



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Executive summary

This study aims to better understand the causes of the food crisis in Zambia and Malawi in 2001-03. In most years many people are unable to secure a satisfactory food intake. In 2001 a production shortfall of maize, followed by unprecedented high maize prices caused severe food insecurity. Many more people found themselves unable to buy maize, or were forced to sell assets to buy food. Nutrition and health deteriorated, and there were numerous hunger-related deaths. This study asks: How did this come about? And, what can be done to avoid such crises in the future?

The study is based on interviews conducted in Zambia and Malawi in April and May 2003, in addition to a review of various written sources. We have also undertaken a survey of the international literature in policies for stabilising agricultural markets, and compared this with the experiences of the two countries.

Zambia and Malawi experienced two good harvests in 1999 and 2000. The 2001 maize harvest, however, was much smaller in the two countries and their neighbouring countries. Crop forecasts and estimates around harvest time and in subsequent months indicated a shortfall of maize, but above normal harvest of roots and tubers. A debate ensued about whether the harvest of cassava, sweet potatoes, potatoes, sorghum and millet were indeed increased by as much as the forecasts indicated – and whether this was sufficient to compensate for the maize shortfall. The governments of Zambia and Malawi declared they would undertake food imports to compensate for the shortfall, and also requested donor assistance to import food to compensate for the maize shortfall. Donors were reluctant, claiming that crop diversification had been more successful, and harvests of other crops more plentiful than what the governments believed. In the case of Malawi, donors were also hesitant to provide support, based on concerns about poor governance and corruption – including in the management of the strategic grain reserve. The donors eventually decided to support food imports. However, the imports only started arriving towards the end of 2001, and only in small quantities. In the meantime maize prices soared to unprecedented levels. In Zambia maize prices increased by 350 per cent in 8 months from May 2001 to January 2002. In Malawi the increase was even higher, by 450 per cent, during the same period. At these levels many households were unable to buy maize. Toward the end of 2001 there were many reports of people having to resort to consuming very low quality foods (e.g. maize husks)– items that would not normally be considered fit as food even by the poor. There were also reports of starvation and hunger related deaths. Eventually, food imports began to arrive, and emergency food deliveries started to reach the population, providing some relief from the crisis.

The 2002 maize harvest was also perceived to be deficient, but this time the governments and donors were more speedy in organising food imports and relief operations. Private traders were also very active in importing maize from Tanzania and Mozambique. Consequently, maize prices had a moderate price increase through the 2002/03 season. And at the end of the season, toward the 2003 harvest, both the Zambian and Malawian government found themselves holding large stocks of maize that they were unable to sell without incurring losses and depressing producer prices at harvest time.

Initial estimates of the 2003 harvest indicate that this will be sufficient to avoid large-scale food imports and food relief operations in the current year. The issue remains, however. There are large groups of the population who are more or less permanently food insecure – even in a

“normal” year. What policies can the government, together with donors, put in place to assure food security, while maintaining incentives for longer term economic growth? In order to answer this, it may be useful to review the recent food crisis.

What were the causes of this food crisis? We differentiate between what we call “immediate”, “proximate”, and “fundamental” causes. These relate to causes of the maize harvest shortfall in 2001, as well as to why the shortfall caused a food emergency.

Among the *immediate* causes were:

- unfavourable weather in the growing season – droughts and floods – reduced maize yields across the region;
- low prices in the previous season, as well as limited programmes for input supply, may have reduced plantings;
- weaknesses in the crop forecasts and estimates contributed to delayed response to the crisis;
- a lack of strategic reserves, both financial and in kind; and
- delayed food imports because of limited harbour capacity, road and rail breakdowns, and problems with transit through Zimbabwe.

A similar harvest shortfall might not have become a crisis elsewhere – or indeed perhaps not even in the same two countries ten or twenty years ago. The more *fundamental* causes of the crisis are:

- the high reliance on one crop, maize, that is harvested once a year, and that is susceptible to high climatic variability;
- the low incomes of the population of the two countries, which implies that large parts of the population are food insufficient even in “normal” years. Most people spend much of their income on food, making them very vulnerable to food production shortfalls and price increases in the staple foods;
- the low incomes, which mean that the governments have few resources for creating safety nets for ensuring food security, and recurrent fiscal deficits imply that the governments are unable to borrow (– except from donors), or at very high interest rates and short term loans;
- high transport costs related to the world market because both countries are landlocked ;
- the HIV/AIDS epidemic that has made the population more susceptible to crisis. As infection and mortality rates have increased, resources are being diverted to caring for the sick and mourning the dead, and valuable human resources are being lost.
- the accumulated effect of soil degradation which may contribute to increased susceptibility to adverse weather shocks. Especially in Malawi, population density is high, and crops are grown year after year on the same plot of land with little input of organic or inorganic plant nutrients. In the long run this is bound to cause a decline in yield, as soils are mined of their nutrients and eventually degraded.

In addition to the above sets of explanations, there is also a set of what might be referred to as *proximate* causes. These relate to how government and donor policies in the two countries have failed to achieve higher and broad based income growth, accumulation of assets and food security even in “normal” years.

Until the middle or late 1980's, agricultural markets, and particularly that for maize, were largely government controlled, through systems of marketing boards, government set pan-territorial and pan-seasonal prices, trade restrictions and various input subsidies. Since then the countries have moved to liberalise their agricultural markets. Claims have been made that this liberalisation is the cause of the food crisis, and that governments should intervene more in the food markets to stabilise prices, ensure supplies and subsidise inputs. In fact governments still play a major role, especially in the markets for maize and inputs. In these markets liberalisation is incomplete. Government interventions include the following:

- In Zambia, the government has sold maize below market prices to selected big millers, thus disadvantaging the main competitors in the system that the market reform process was intended to promote – small scale traders and millers. Even poor consumers suffer, since the big millers produce more refined and thus more expensive maize flour. (Jayne et al., 1999; Mwiinga et al., 2002; Nijhoff et al., 2002).
- During the two good harvests of 1999 and 2000 the strategic grain reserve in Malawi accumulated stock. This prevented producer prices from falling further than they did at the time. However, the existence of such stocks exerts a longer-term downward pressure on producer prices, because of the expectations created. Traders will be more hesitant to purchase and stock maize when they know that the government holds large stocks. Demand at harvest time will be lower, and farmers will receive lower prices.
- When the maize shortfall of 2001 was announced, the governments declared their intentions to import maize, to be sold at subsidised prices. Fearing that they would have a hard time in competing with subsidised government sales, traders may have been less active in purchasing maize, both domestically and from abroad, than they would otherwise have been. It turned out that both governments were unable to import as much and as fast as they had declared. Shortages ensued.
- Prohibited maize exports, or export being subject to government license, has hindered regional trade and risk spreading to larger markets.
- The institutions established to intervene on behalf of government, the food reserve agencies, have been insufficiently funded to accomplish their mandates. In Zambia the Food Reserve Agency (FRA) was also charged with distributing farm inputs on credit. Due to very low repayment rates this severely worsened the financial position of the FRA.
- The programmes of free inputs and input subsidies may have hampered the development of efficient input supply systems, even if serious efforts have been made to avoid this. Logistical, financial and management delays within the public programmes for free or subsidised input delivery very often cause the inputs to arrive late, or they are of the wrong type, thus reducing the economic returns of utilising these inputs. They also hamper incentives for private sector investment in input supply systems.
- Government interventions have been very costly. Strategic grain reserves and various parastatal enterprises in agriculture and elsewhere have been managed in ways that have contributed significantly to the fiscal deficit. For example, in Malawi in 2001 the government was obliged to take on and service from the National Food Reserve Authority and ADMARC loans, loan guarantees, and other liabilities amounting to about 2.75% of GDP (World Bank, 2003a). The fiscal deficit has led to domestic government borrowing and money creation. This caused real interest rates in excess of 20% p.a., high inflation, and currency depreciation. All of these are crippling constraints on investment and growth in the private sector – including in agriculture.

Policy Issues

The governments of Zambia and Malawi have expressed their commitment to ensure the food security of their populations. The governments do not, however, have the resources to feed the population. They can only realize this commitment by adopting policies that will ensure that food is available, and that the whole population has the entitlements to gain access to sufficient food. This requires policies that promote broad based growth in incomes, and provide safety nets to those who for some reason are unable to access food by other means. Devising such policies is no trivial task.

The policy debate often seems to be based on the premise that markets are imperfect, while the state has unlimited resources and will act to maximise social welfare. However, in Zambia and Malawi (and many other countries) both the markets and the state are imperfect and poorly developed. On one hand we find markets that do not function well due to weak capital base; weak capacity and competence; poor infrastructure; and weak legal and institutional foundations. These foundations include the legal system to enforce contracts and validate property rights; a stable and trustworthy currency; a banking and insurance system; and market information for consumers and producers about prices, quantities and qualities. On the other hand the governments have severely limited resources and capacity for implementing costly and complex policies. They are unable to satisfy demand, even for fairly basic services in fields such as education, health and infrastructure development. This is true even if we include donor assistance. Corruption also appears to be an issue. The policy challenge is thus to find an optimal sharing of responsibilities between the state and the private sector – firms, households, farmers. Policies must acknowledge current weaknesses and aim at strengthening the functioning of both the state and markets, in a manner that promotes food security.

In discussing food security, it is important to differentiate between policies to ensure food availability and policies to ensure access to food. Food must be made available – either through domestic production or imports. The state may undertake these tasks itself – or it may stimulate private sector agents – farmers and traders – to undertake production, imports and distribution within the country. Availability is a necessary, but not sufficient condition for food security. People must also be able to access the food, primarily through their own production or through purchase. However, public intervention, e.g. targeted programmes for income generation or food distribution, will be necessary to ensure access to food for all.

It is also necessary to differentiate between the normal situation and years with crop failure. Crisis years, such as 2001/02, may call for a higher degree of government intervention in food systems than more normal years. Adopting appropriate interventions will be demanding in terms of information collection and policy design. It also requires that the government actually has resources to intervene. An important challenge is to ensure that crisis interventions do not increase the risk of future crises, but are as far as possible conducive to longer-term growth.

Concerns about high price volatility were important in bringing about this report. Crop prices vary considerably both spatially and temporally, within the season and between seasons. A higher degree of price stability and predictability would reduce uncertainty and be conducive to investment and growth (Gadre-Madhin et al., 2003). But when price instability is due to underlying variations in supply, it can be very costly to achieve price stability. The issue is thus not whether more stability and predictability is desirable – it is – but to find the least

costly approach to achieving higher stability – and to determine the appropriate trade-off between stability and cost.

Recommendations

Although there are numerous differences between Zambia and Malawi, we find the similarities in economic policies, including agricultural policies, to be striking. The approaches and experiences are so similar that we feel justified in presenting joint recommendations.

- Governments should commit to a consistent, predictable, and transparent policy towards agriculture and rural growth, in order to establish conditions for growth in the agricultural sector in general, and among smallholders in particular.
- Governments should provide for better monitoring and information systems of trade flows and prices, improve infrastructure, remove export and import bans, and reduce interest rates.. A vicious cycle seems to have developed, in which the government, uncertain of the private sector's ability to import maize, arranges for imports itself, stores grain and releases supplies onto local markets. But by intervening in this way, the government discourages private agents from investing in maize trading and storage, thus making the concerns about a weak private sector self-fulfilling. . Recent experiences indicate that the private sector is able to import maize. However, its abilities need to be further improved.
- Proposed policies must be evaluated against the alternative of reduced spending, improved balance, lower interest rates and lower inflation, as well as against other policies that might address the same objectives. Large government budget deficits cause high inflation and high interest rates in both Zambia and Malawi. Proposals for public subsidies and activities need to take into account the budgetary consequences.
- Public strategic grain reserves should be small. Holding public grain reserves is costly, both in terms of storage cost, risk and discouraging private storage activity.
- Public strategic grain reserves need very clear rules as to when and how reserves should be released and how and when reserves should be restocked.
- Policies should stimulate storage by households and firms. The system of warehouse receipts and inventory credit is a promising initiative that should be supported in both Zambia and Malawi.
- Invest in improved communication and transportation infrastructure to facilitate a rapid import response when an impending emergency is identified.
- Efforts to improve market information systems should be further strengthened. Markets function better when information is available in the public domain of the stocks, flows and prices of commodities in various localities.
- Continued efforts to diversify food production and consumption (away from maize) will contribute to reducing the sensitivity of the economy and households to variations in maize yield, and reduce price volatility.
- Increase productivity through research and extension and better infrastructure, as an alternative to seed and fertiliser subsidies. . These measures have the advantage of providing longer-lasting effects in terms of reducing the cost of food production.
- Food for distribution by government and donors should as far as possible be purchased domestically. Subsidised food imports, by government or donors, tend to depress producer prices and reduce the ability and incentives for planting the crop and applying inputs in the next season.

- Well-targeted programmes to assist the poorest will be needed to ensure food security, even during “normal years”. Such programmes could include public works programmes with payment in cash or in kind (food or inputs), subsidies for investment in human capital (education and health), but also transfers in cash or in kind, e.g. to those without the physical capacity to participate in work-based programmes.
- In both Malawi and Zambia there is a need to improve administrative capacity to deal with land property rights formalisation and transactions. For financial reasons, and because large-scale proactive programmes may cause as many problems and conflicts as they solve, emphasis should be placed on making current procedures simpler and less expensive, facilitating a demand-driven process of formalisation.
- Most studies of the effects of HIV/AIDS point to the need for finding labour saving techniques and means, and diversification in food production and income generation, as well as the need for strengthening knowledge dissemination on production methods and technologies to new generations of farmers. Measures to increase the output per unit of labour input would, however, be crucial for poverty reduction even if there were no HIV/AIDS epidemic. Increasing labour productivity in agriculture, through increasing yields, is fundamental as a means for generating a broad based growth process. The HIV/AIDS epidemic does not change this argument. It only makes it even more urgent.

1 Introduction

It is hard not to be impressed by the challenge faced by the governments of Zambia and Malawi in shaping policies that will secure food and livelihoods for the population in the short run, while ensuring appropriate incentives for long-term economic growth – and growth in agriculture in particular. The challenge is exacerbated by the low income and weak asset base of the population. Low incomes imply that household livelihoods are sensitive to price changes in the staple food. Maize plays a very important role in both economies and household food security and welfare is intimately linked to the harvest of this crop. Few economies are so reliant on one annual rain-fed crop with high variability in yields. The variability is due to uncertain rainfall, variable growing conditions, and low ability to use improved seeds and fertiliser. High transport costs, leading to higher prices in times of deficit (import parity price) and low prices in times of surplus (export parity price), can cause prices to oscillate wildly from season to season.

During the past two years food security has been particularly precarious. Prices of maize have climbed to unprecedented levels, there has been starvation, and both countries have had to call on the international community for massive emergency food delivery operations.

It is the recent woes that have prompted this study. The questions posed in this work relate to how government policies and donor programs can be improved upon. In particular, the purpose is to provide insight on the following sorts of questions:

- Are there policies that would be better suited to achieve the aims of food security and livelihoods for the poor, while at the same time being conducive for economic growth and poverty reduction in the medium and long term?
- What role have past policies and/or current policies played in the current problem?
- Which policy adjustments would be conducive to achieve the stated aims?
- What role should the government have in holding food stocks and trading in food?
- Which actions should the government take or not take in regulating food markets?
- What should be done to increase agricultural output and productivity?
- What role should there be for input subsidies?
- For which input, how and for whom should subsidies be allocated?
- What role should the private sector play in production and marketing of food crops?
- How can donors assist?

Although the study is not specifically written to advising on Norwegian aid policies, there are some recommendations that serve that purpose.

The study emphasises policies relating to maize marketing and input supply. This is not because we do not believe in further diversification of farming away from maize. Indeed, further diversification in agriculture would be a desirable outcome. However, despite considerable diversification in cropping and diets in recent years, maize is still the most important crop in food supply. Moreover, this crop takes on special symbolic importance in the politics of these two countries. Government intervention has been predominantly in the maize market, and the policy debate revolves around maize. For example, the current debate centres on whether low maize prices are in the interest of the poor, and which policies – if any

– should be implemented to result in lower maize prices. Therefore, in this study there is an emphasis on maize policies, highlighting how these policies affect related crops and to other aspects of policy.

The next section provides an overview of the social, economic and policy context in Zambia and Malawi, with particular reference to agricultural production, land tenure and food policy. Of particular interest is the experience of the recent years leading up to the food crisis from 2001, which is reported in the third section. In the fourth section, the basic agricultural market stabilisation and price analysis framework is presented in the context of discussing the main conclusions from the economics literature. This framework is used to illustrate how policies actions and the market situations relate to the food crises, and to discuss some of the pertinent policy issues following from the experience. Finally, we conclude by offering some recommendations for policy improvements.

2 Background situation

2.1 Maize prices

The policy debate concerning food and food security in both Zambia and Malawi revolves around maize. There are price thresholds above which the government would fear outbreak of food riots. Hence, maize prices are carefully monitored, so that government action can be taken to prevent shortages.

The following section examines the development of maize prices in the two countries during 1996-2002. The study is based on monthly prices collected in different markets across countries. The data were obtained from FEWS NET¹ in Zambia and Malawi, respectively. First, the general price patterns are presented and then examined in more detail in regards to the seasonal structure of prices and the degree of integration among regions and countries.

2.1.1 Zambia

Figure 1 presents the development of maize prices in Zambia from May 1996 to February 2003 to illustrate the large variations from market to market. Each month's highest and lowest price is graphed together with the national mean. As is evident, the regional as well as the seasonal differences can be substantial, but there are relatively clear seasonal patterns nevertheless. During the chosen period maize prices have varied from Zambian Kwacha ZK 2500 in the beginning of the period to more than ZK 25000 in January 2002. A large part of this price increase can be attributed to general inflation. When denominated in US dollars, for instance, average maize prices have been relatively stable. However, the second half of 2001 is clearly an extreme period with price increases far away from the "normal".

¹ FEWS NET is a regional network that collaborates with international, national, and regional partners to provide timely and rigorous early warning and vulnerability information on emerging or evolving food security issues. FEWS NET professionals monitor various data and information—including remotely sensed data and ground-based meteorological, crop and rangeland conditions—as early indications of potential threats to food security. FEWS NET utilises and disseminates price data collected by the Ministry of Agriculture, Irrigation and Food Security in Malawi, and by the Central Statistics Office in Zambia.

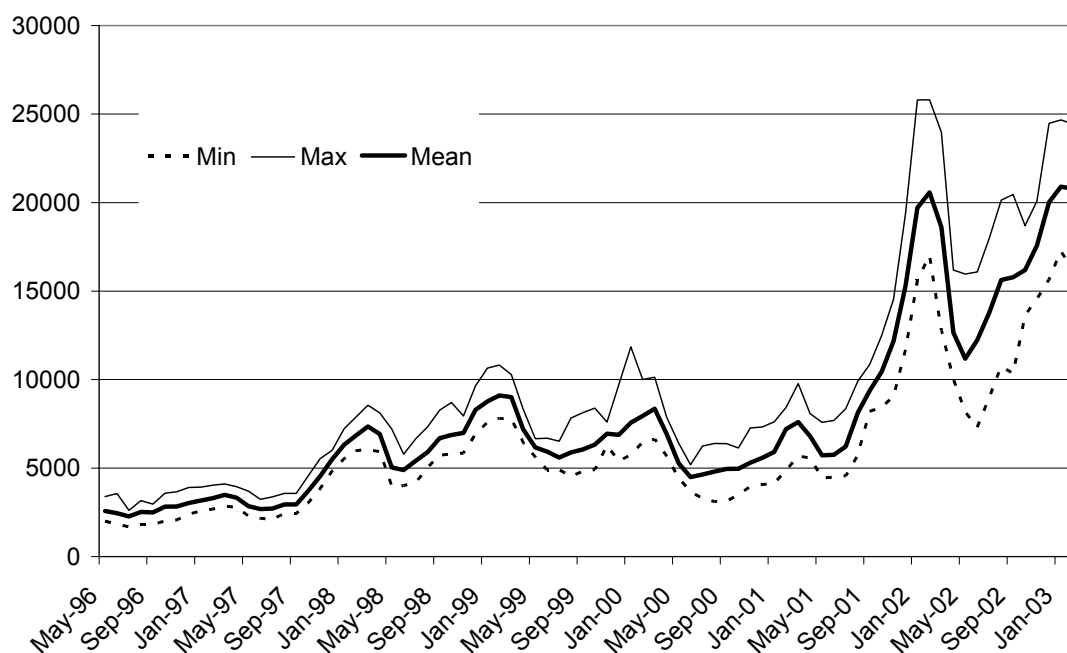


Figure 1: Nominal wholesale maize prices, May 96- April 03, Zambian Kwacha per bag (15 kg) (Source: FEWS NET, Zambia)

In Table 1, prices from different districts are aggregated into provinces, summarising the main descriptive statistics for wholesale maize-prices in Zambia's 9 provinces (in ZK per 15 kg), as well as the monthly price changes (in per cent), January 1996 – February 2003. As can be seen, the statistics emphasise the visual impression. There are some rather large differences in both the means and variances for maize prices across the provinces. Take one example: The mean price of maize in North-western Province is more than ZK 1000 lower than in Lusaka.

Table 1: Descriptive Statistics on Regional Wholesale Prices of Maize, Zambia (January 1996 – February 2003)

Region	Mean	Median	Standard deviation	Coef-ficient of variation	Mean absolute percent change	Std.dev. monthly per cent changes	Mean Relative Price *
<i>Copperbelt</i>	7975	6421	5208	0.65	0.101	0.134	1.037
<i>Eastern</i>	7854	5848	5997	0.76	0.104	0.153	0.973
<i>Southern</i>	7429	5531	5533	0.74	0.108	0.149	0.931
<i>Northern</i>	7304	6209	4335	0.59	0.134	0.177	0.972
<i>Central</i>	7338	5932	5071	0.69	0.126	0.178	0.932
<i>Western</i>	7782	6601	4762	0.61	0.130	0.164	1.031
<i>Lusaka</i>	8395	6664	5403	0.64	0.099	0.130	1.105
<i>Luapala</i>	8050	6955	4744	0.59	0.099	0.144	1.082
<i>N-western</i>	7077	6197	4533	0.64	0.135	0.187	0.938

*) Relative to grand mean
(Source: FEWS NET, Zambia)

As regards regional price variability, the general picture is one of great price risk, with

coefficients of variation very often above 60-70% and the annualised standard deviations of monthly per cent price changes seldom below 30%. There are also great differences in the price risk (measured as the standard deviation of relative price changes) across markets for identical products. Overall, the volatility in the prices is much higher than what is normal for agricultural commodities in developed markets. Looking at mean absolute percentage price changes, it is evident that price on average increases or decreases by more than 10% from month to month.

2.1.2 Malawi

As with Zambia, the lowest and highest price together with the mean for all the Malawian markets is presented in Figure 2. The situation in Malawi looks very much like the one in Zambia. However, there are larger differences between the highest and lowest prices in Malawi than in Zambia. There are quite often situations when the price in one market in the country is more than the double the price in another part of the country. As with Zambia prices are relatively stable in the beginning of the period, but vary more and more after 1998.

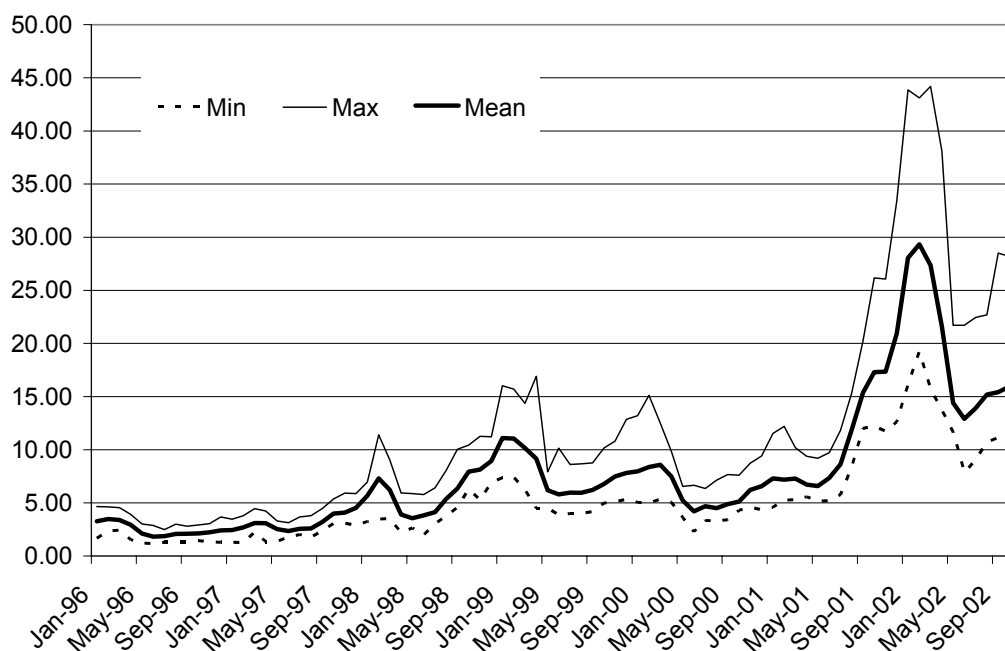


Figure 2: Nominal wholesale maize prices, May 96- October 03, Malawi Kwacha per kilogram (Source: FEWS NET, Malawi)

Malawi is divided into three regions that are further divided into administrative districts. Prices of selected commodities are monitored in a few selected markets across the three regions as outlined in Table 2.

Spatial price differences are very high in Malawi, and even much higher than in Zambia. The price in Chitipa is, for instance, on average 80% of the national average price. For Nkhotoka, however, the price is on average 25% higher than the national average. Maize prices in Malawi are also more volatile than those in Zambia. The coefficient of variation is close to unity and monthly average price changes of up to 20% is a signal of rather inefficient markets.

Table 2. Descriptive Statistics on Regional Wholesale Prices of Maize, Malawi (Source: FEWS NET, Malawi)

Market	Mean	Median	St.dev	CV	Mean absolute percent change	St.dev monthly per cent changes	Mean Relative Price *
<i>Bangula (Southern Region)</i>	6.862	5.414	4.878	0.711	0.176	0.235	0.995
<i>Chimbiya (Central Region)</i>	8.251	6.437	7.575	0.918	0.165	0.225	1.019
<i>Chitipa (Northern Region)</i>	6.455	5.135	4.815	0.746	0.149	0.202	0.803
<i>Karonga (Northern Region)</i>	7.146	5.885	4.636	0.649	0.187	0.268	0.949
<i>Lizulu (Southern Region)</i>	7.311	5.726	6.392	0.874	0.192	0.239	0.914
<i>Mchinji (Central Region)</i>	9.624	6.385	9.252	0.961	0.131	0.188	1.226
<i>Mitundu (Central Region)</i>	7.269	4.869	6.768	0.931	0.179	0.250	0.884
<i>Mzuzu (Northern Region)</i>	7.572	6.244	4.814	0.636	0.137	0.185	0.984
<i>Nchalo (Southern Region)</i>	7.881	6.950	4.764	0.604	0.198	0.260	1.086
<i>Nkhotakota (Central Region)</i>	9.584	7.659	8.441	0.881	0.144	0.209	1.262
<i>Rumphi (Northern Region)</i>	6.796	4.991	5.806	0.854	0.163	0.234	0.854
<i>Salima (Central Region)</i>	8.453	5.926	8.856	1.048	0.233	0.330	1.022

2.1.3 Seasonality

It has been argued that one of the main problems in the maize markets in the two countries studied is the extreme price fluctuation from one harvest to the next. Smallholders without access to credit will sell their crop cheaply just after harvest, only for them to buy expensive maize later in the year. Therefore, it is of interest to examine the seasonal structure of maize prices.

To illustrate the price path throughout the year, post-harvest price paths are presented in Figures 3 and 4 for Zambia and Malawi, respectively. Prices are presented for each “consumption” year and normalized to unity in May. In most years, prices are at their lowest just after harvest in June and July, and then gradually increase until they peak in February and March. The intra-year price differences are substantially higher in Malawi than in Zambia. While the highest price in an average year is twice the lowest price in Zambia, the number for Malawi is 2.5. In the crop year, 2001-02, prices in Malawi on average increased by 450% from May to January, while they increased by 350% in Zambia.

The difference between Zambia and Malawi is interesting, because there is no reason to believe that storage costs, the cost of capital and potential losses are higher in Malawi than in

Zambia. Hence, the seasonality in Malawi's maize prices have to be explained by other factors. However, this is also in a way promising, because it means that it might be possible to find ways to reduce the price variation in Malawi to the Zambian level.

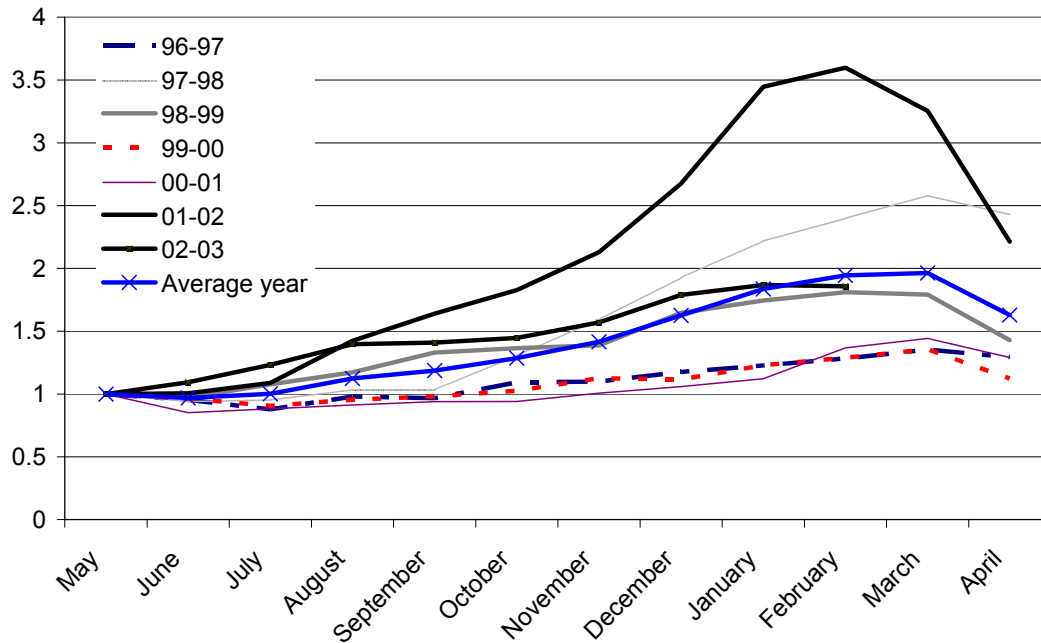


Figure 3: Post harvest price paths, average nominal wholesale prices from Zambia (Source: FEWS NET, Zambia)

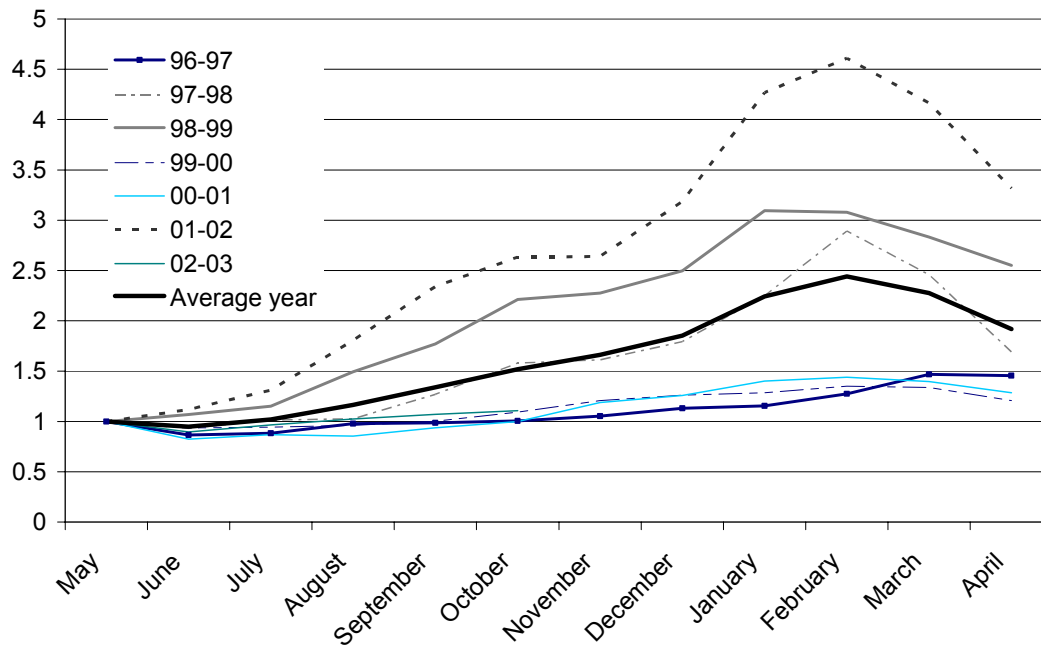


Figure 4: Post harvest price paths, average nominal wholesale prices from Malawi (Source: FEWS NET, Malawi)

With hindsight it is also interesting to note from Figures 3 and 4 how the exceptional price increase in 2001/02 started early in the season (July and August), and how prices could indeed be valuable early indicators of the shortages that followed. 2001/02 also stands out clearly as an exceptional year. Inter-seasonal price variation has been less both before and after.

2.1.4 Integration between regions

Well functioning markets are integrated across regions. A shift in supply and/or demand in one geographical location should be rapidly transferred to other locations. Differences in prices across regions within an integrated market reflect transportation costs and any other transaction costs. Conversely, if markets are neither integrated nor well functioning, then prices of identical or similar products would be expected to differ widely in both the actual price level and in variations in prices over time.

To evaluate the degree of *economic* (in addition to statistical) market integration, it is necessary to establish measures of the transactions costs. This is, obviously, no easy task. For example, transportation costs can fluctuate dramatically in response to variations in the availability of trucks relative to demand for trucking services. Another factor to consider in an integrated market is the existence of a central market. A central market is one where the price of a commodity is determined, and exercises a dominant influence on the pricing in one or more peripheral or provincial markets.

A preliminary study of the economic market integration for Zambia has been attempted. Tests for bivariate proportionality between prices and in some cases for price leadership (i.e., the existence of a central market) have produced somewhat mixed results. However, none of the regional markets are well integrated. Some regions seem to be integrated, while other regions appear to be “maize islands” where prices do not react to price changes in nearby regions. The North-western Province (the province with the lowest prices) seems to behave as if some sort of a central market, while the Eastern Province seems to behave as if isolated from other regional markets. This is in contrast to what was expected, i.e. that Lusaka and Central are central markets and the Northern and Northwest are isolated markets.

No such relationships have been tested for Malawi; however, a quick study of the “spaghetti”-graph in Figure 5 and the above presented statistics, our expectations are that those markets are not very well integrated either.

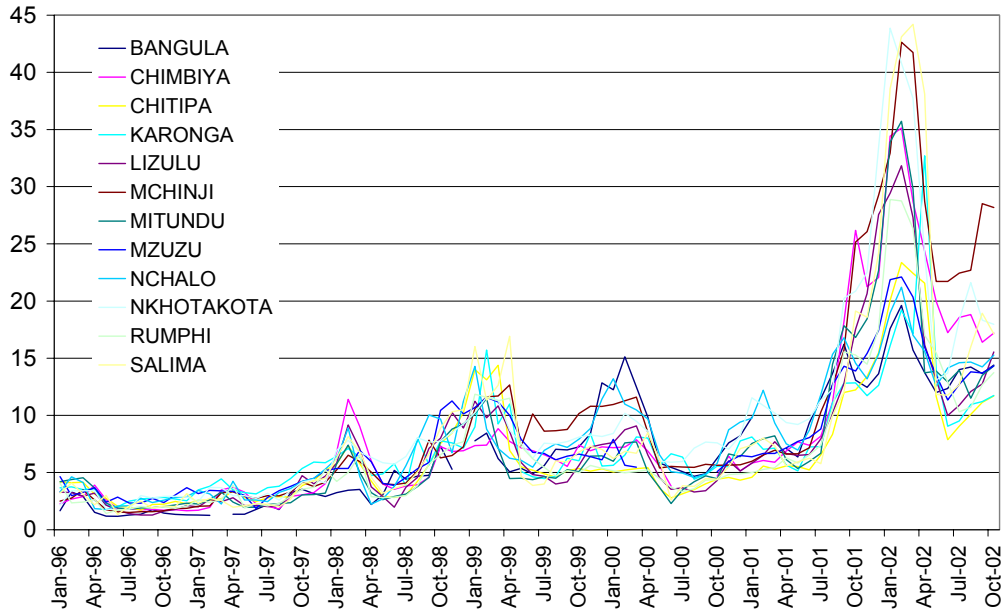


Figure 5: Development of prices 14 different markets in Malawi Jan 96 to October 02.
(Source: FEWS NET, Malawi)

2.1.5 Integration among countries

Integration of markets is not only interesting for prices between regions of a country. The degree of market integration between countries is of similar interest. Both Malawi and Zambia have borders with other potential import/export areas. It is for instance much shorter and cheaper to transport maize from the Eastern Province in Zambia to Malawi than it is to transport the same maize to the Copperbelt. Figure 6 presents national maize prices from Zambia, Malawi, Mozambique and South Africa (Safex). All prices are presented in US dollars per ton. Malawi, on average, has the highest prices, while prices are generally lowest in South Africa. Prices on Safex are also less volatile. They did not go sky high in January 2002, despite the very high demand from the other countries in the region.

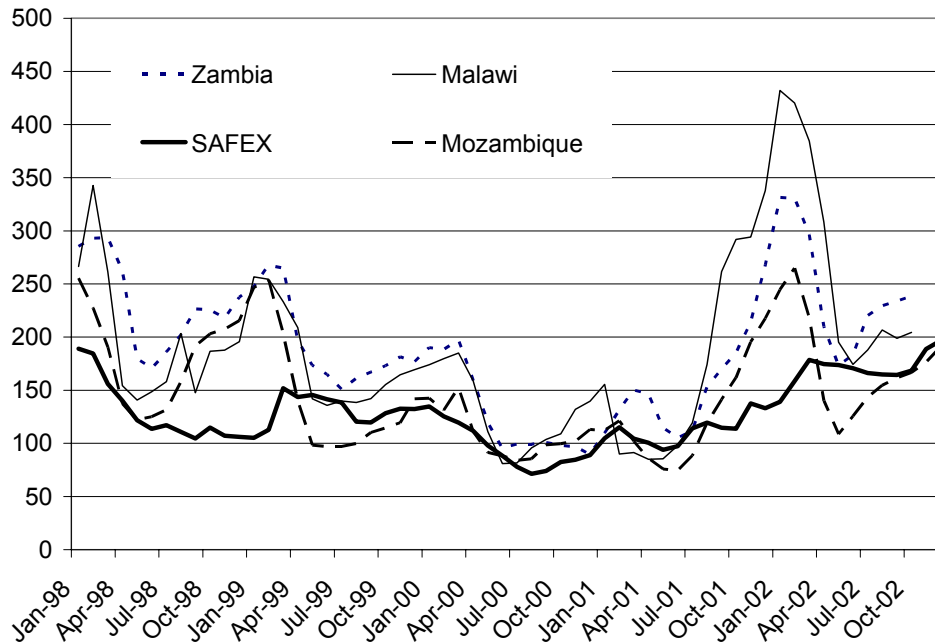


Figure 6: Maize price development January 1998 – December 2002 for Zambia, Malawi, Mozambique and South Africa (prices in US\$/MT) (Sources: Safex, FEWS NET)

It is of particular interest to ask why the price differential between Safex could greatly exceed the transport cost between South Africa and Malawi and Zambia, as it did for several months in 2001/02. Bottlenecks and breakdowns in transport infrastructure played an important role. But government announcement of plans for public imports to be sold at below market prices also contributed to deter private imports (Nijhoff et al., 2002). We will return to this issue in section 3.

2.2 Zambia

2.2.1 Socio-political situation

Zambia experienced a successful transition from one-party rule to multi-party democracy and a change of government in 1991, when the United National Independence Party that had ruled the country since independence in 1964 lost elections to the Movement for Multiple Party Democracy. However, the rebirth of democracy in the country has had its hurdles. Some constitutional changes introduced just before the parliamentary and presidential elections of 1996 debarred certain individuals from standing for the office of president, and there were imposition of states of emergency and frequent arrests of opposition leaders.

These developments caught the attention of donors who reacted by temporarily reducing the flow of aid until the government committed itself to implementing a document on good governance. The donors subsequently made good governance, protection of human rights, press freedom, fighting corruption and capacity building conditions for any future assistance. It was against this background that the new government, formed after the 2001 elections, committed itself to respect the rule of law and to fight corruption.

Zambia's policies focus in health, water and sanitation, and education sectors, poverty reduction and environmental protection. The policy objectives are to enhance quality of and access to education and training, improve quality of health delivery services and the health status of all Zambians through implementing the Health Sector Reform Programme, promote sustainable water resources and access to clean water and poverty. Poverty is further to be alleviated by undertaking various social safety net programmes and projects.

The problems in these areas relate to the discrepancy between policy objectives and action. There is poor funding, which is worsened by the increased dependence on donor support, poor prioritisation of programmes and the emergency of more administrative structures. The supply of drugs, equipment and health personnel is erratic. The preventative disease control faced logistical and financial problems. The increased incidence of preventable diseases exerts severe pressure on the curative health care delivery system. High prevalence of HIV/AIDS continues to undermine the national health and economic status.

Table 3: Selected economic and social indicators, Zambia.

		Year
Land area (km ²)	752,610	
Population (million)	10.2	2001
GDP at 1994 factor cost (ZMK mn)	2,628,937	2001
Average annual GDP growth (%)	0.8	1990-2001
GNI per capita (USD)	320	2001
Annualised inflation rate (%)		
Maternal deaths per 100,000		
Under-5 mortality per 1000 children	186	2000
Life expectancy (years)	38	2000
Total fertility (births per woman)	5	2000
Adult illiteracy rate (%)	22	2001
Improved water source (%)	64	2000

Macro economy and policies

Zambia liberalised its markets in 1991. The process began in 1989 under the sponsorship of the International Monetary Fund (IMF) and the World Bank (WB), under a policy package that became known as the stabilisation and structural adjustment programme (SAP). The main elements of the SAP were policy measures that focused on fiscal and monetary restraints such as the:

- removal of price controls,
- removal of subsidies,
- liberalisation of the exchange rate, current and capital accounts,
- liberalisation of external trade (removal of quantity restrictions and tariff reductions),
- privatisation of parastatal companies,
- reform of state-owned and parastatal enterprises, and
- civil service reform.

The medium-term macroeconomic policy aims at achieving high and sustained economic growth and poverty reduction by maintaining macroeconomic stability and continuing with structural reforms. This was to be achieved through continued implementation of policy measures to strengthen the basis of a more diversified, market-based, and outward-oriented economy, complemented by social policies aimed at poverty reduction and human resource development.

Agricultural market reforms formed an integral part of the broader and ambitious programme of liberalisation initiated in the past decade, designed to open up the economy from a highly regulated and over-centralised to a more market-oriented one.

In 2001, Zambia's Poverty Reduction Strategy Paper was launched to mainstream poverty reduction into economic policies. To facilitate the development of sector programmes that act as pillars for implementing poverty reduction programmes, the Transitional National Development Plan (TNDP) was launched in December 2002. Zambia's pro-poor economic policy framework, as articulated in the PRSP and TNDP entails a special role for agriculture. This is because the sector has unique characteristics of not only enhancing economic growth, but also promoting equity.

Real GDP per capita declined by an average of 0.5 percent per year over the period 1995 to 2002 (see Table 3). High government budget deficits were leading to high interest rates, high inflation and currency depreciation. The real lending interest rate increased from 16 percent in 1995 to 23 percent in 2002. The central bank's open market operations exert pressure on interest rates, due to the need to control money supply growth and meet the rising domestic debt service financing obligations. The growth in money supply has shown a somewhat declining trend, but still remained high and volatile, averaging 37 percent per year over the same period.

Table 4 reports on selected macroeconomic indicators. Efforts to control money supply growth have been insufficient to prevent the rate of inflation from remaining stubbornly high at an annual average of 28% over the same period, although with a declining trend.

Table 4: Macroeconomic Indicators, Zambia.

	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
Inflation (CPI %)								26,8	26.1	21.7	16.4
Interest rate (T-bill rate, %)	47.0	116	23.1	51.3	59.6	18.8	33.0				
Real GDP (% change)	2.1	-0.2	-8.6	-2.3	6.6	3.3	-2.0	2.4	3.6	5.2	4.3
External debt (\$bn)	4,981	5,102	6,397	7,041	7,085	6,971				5,730	
Budget deficit (%) excluding grant including grant											
Exchange rate (ZK/\$)				920	1265	1310	1947	2515	2780	2780	4385
Current Account Balance (US\$ bn)	-135	-30	47	-146	-122	-239		-533	-608	-743	-665
Export (fob, US\$ million)	1,133	994	1,066	1,186	993	1,191		755	746	871	833
Import (fob, US\$ million)								922	978	1,253	1,190
Balance (US\$ million)								-167	-232	-382	-357

Sources: IMF; PRSP Zambia; <http://www.oanda.com/convert/classic>, (World Bank, 2003b)

2.2.2 Agricultural sector

Zambia has cultivable land of 42 million hectares, of which only 14% is planted. Only 11.8% of Zambia's irrigation potential is utilized. Given the diversity of its agro-ecological zones, Zambia has a resource endowment for development of a wide range of crops, livestock and fish. Based on the land endowment there should be no need for food imports to Zambia.

Zambia's agricultural sector is key to the development of the Zambian economy. Agriculture generates about 22% of gross domestic product (GDP) and provides a livelihood for more than 50% of the population. The sector employs 67% of the labour force and is by far the main source of income and employment for women who constitute 65% of the rural population.

Agricultural policy is aimed at stimulating a sustainable growth rate. Policy reform emphasised the withdrawal of government from direct involvement in agricultural marketing and input supply, freeing prices, removing subsidies, privatising agro-parastatals, liberalising trade in farm products, inputs and machinery, renting out and selling public storage facilities to the private sector, and overall removal of constraints and distortions to international trade in farm products. Under this policy framework, the perceived role of the government is the development of sustainable market support services, such as market information, extension,

finance and infrastructure. Where the government does have a direct role is in maintaining a food reserve to ensure national food security and in input supply.

There are three main categories of farmers in Zambian agriculture: small, medium and large-scale farmers. Agricultural production is dominated by the small-scale producers, who account for more than 70% of the farming population. The small-scale farmers are mainly subsistence producers that occasionally have a marketable surplus. At least 25 % of the small-scale are food insecure each year. Maize is the major crop for small-scale farmers, accounting for 60% of utilized land during much of the 1990s, followed by drought tolerant crops such as sorghum, millet and cassava. Cash crops form less than 10% of the planted area of the average small-scale farmer (SHEMP, 2003).

The performance of the agricultural sector has been disappointing. The share of agriculture in GDP dropped from 18 percent in 1995 to 15 percent in 2002, reflecting an annual average decline of -2.4 percent. This could be explained by several factors, dominant among which were: the poor weather at the end of the period, inadequate capacity utilisation; and lack of funding, and in particular over dependence on donor funding.

Development of maize production is also often used as a measure of growth in the sector. And by this measure growth has been poor. This may, however, mask the fact that there has been considerable diversification, with strong growth in the production of other crops, notably roots and tubers, but also some cash crops (Zulu et al., 2002).

Table 5: Area Harvested, Yield, and Production for Selected Products

	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
Maize											
Area	661	633	679	520	676	649	510	597	587	412	600
Yield	7.3	25.2	15.0	14.2	20.9	14.8	12.5	13.8	15.0	14.6	15.0
Total	483	1598	1021	738	1409	960	638	822	882	602	900
Rice											
Area	14	14	7	10	10	12	9	16	12	9	10
Yield	5.8	10.1	8.9	12.4	13.4	10.0	7.1	9.1	11.3	12.6	12.0
Total	8	14	6	12	13	12	6	15	14	12	12
Pulses											
Area	39	38	49	41	43	30	29	30	31	32	32
Yield	5.3	6.1	4.8	5.7	5.6	4.5	4.3	5.0	5.2	5.3	5.3
Total	20	24	23	24	24	13	13	15	16	17	17

	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
Tobacco											
Area	5	13	6	3	4	3	3	8	4	5	5
Yield	4.4	5.1	9.6	12.4	10.5	10.8	10.9	10.7	10.0	10.7	10.7
Total	2	7	6	4	4	3	3	9	4	5	5
Sugar											
Area	14	11	12	12	13	14	15	16	15	17	17
Yield	963	1061	1093	1092	1077	1071	1033	1031	1067	1059	1059
Total	1300	1220	1311	1310	1400	1500	1550	1650	1600	1800	1800
Groundnuts											
Area	55	65	85	81	80	110	135	130	132	108	125
Yield	3.7	5.3	4.1	4.5	4.3	4.2	4.2	3.9	3.9	3.8	3.4
Total	21	34	35	36	35	46	57	51	52	41	42
Cassava											
Area	110	120	120	120	120	113	132	170	165	165	165
Yield	62	62	62	62	62	62	62	57	49	58	58
Total	682	744	744	744	744	702	817	971	815	950	950
Roots and Tubers											
Area	114	125	125	124	125	118	136	175	170	170	170
Yield	65	65	65	65	65	65	64	59	52	60	60
Total	740	809	806	803	808	762	875	1033	877	1014	1014

Note: area = 1000 ha; yield = 1000 kg/ha; Total is total harvest in 1000 MT

Source: UN, FAO (<http://apps.fao.org>)

Crop diversification is one of Zambia's success stories. Cotton production has increased from some 20,000 MT in the early nineties to more than 100,000 MT of seed cotton in 2002.

Paprika has become an important cash crop, while tobacco production has also expanded among smallholder farmers. The production of cassava, millet and sweet potatoes has increased substantially in the past decade.

The supply response in sweet potatoes, Irish potatoes, vegetables and cassava chips, experienced in recent years, is a clear reflection of smallholder farmer responsiveness to market opportunities. Through private sector supported out-grower schemes providing input supply and market opportunities, major strides have been made in the production of export crops such as flowers, spices and cotton. For instance, a key smallholder export crop, cotton

production rose from 61,000 MT in 1996 to 84,000 MT in 1999 (Zulu et al., 2002). Table 6 shows how crop diversification has contributed to growth in exports of several crops.

Table 6. Non-Traditional Agricultural Exports Earnings 1990 - 2000 (US\$'000)

Year	Animal Products	Floriculture products	Horticulture products	Leather	Primary Agriculture Products	Total Agri. products	Total NTEs	%
1990	2291	1050	4544	1039	14542	23466	102202	23
1991	1185	1902	5807	675	22761	32330	121322	27
1992	456	2987	2934	375	19968	26720	101970	26
1993	740	5506	2391	1259	25072	34968	124091	28
1994	355	9110	2421	1235	10008	23129	138859	17
1995	654	18000	2589	1211	24000	46454	202498	23
1996	1972	4784	3286	2131	44527	56700	240824	24
1997	3412	7385	5637	2220	90959	109613	328557	33
1998	4116	32355	19002	3134	57642	116249	301792	38
1999	4374	42607	23128	1859	61973	133941	284946	47
2000	3374	33863	27355	4331	37103	106026	256236	41

Source: (Ministry of Finance and National Commission for Development Planning, 1990-1999)

2.2.3 Agricultural Market Institutions

The Zambian market experiences production and price instability. Especially for maize this instability is partly caused by a lack of markets to absorb excess production in surplus years, leading to low prices and subsequent reduced production, and high prices in deficit years that in turn encourage production during the subsequent season.

Maize and fertilizer market reforms in the last decade have entailed both public and private sector initiatives. A detailed chronology of these reforms is presented in Table 7.

Table7: Chronology of Maize and Fertilizer Market Reforms in Zambia 1991 - 2003.

Year	Agricultural Policy/ Direct or Indirect Government Intervention into the staple food market
1991	Economic Structural Adjustment Program introduced Decontrol of agricultural prices and market liberalisation State marketing Boards abolished
1991-92	Government intervention in markets through: Setting floor price Limiting number of traders in provincial markets Empowering cooperatives as marketing agents
1993	Collapse of cooperatives Principal buyer of last resort discontinued Establishment of Agriculture Market Information service (AMIC)
1994	Formulation of the Agricultural Sector Investment Programme (ASIP)

1995	ASIP Launched Privatisation of industrial milling sector Establishment of the Food Reserve Agency as a statutory body to manage food reserves Agricultural Marketing Act repealed and Food Reserve Act enacted paving way for private sector participation in the market
1997/98	Food Reserve Agency adopts fertilizer delivery and marketing role to smallholder farmers
2001	Formulation of the Agricultural Commercialisation Programme (ACP) Food Security Pack Programme established
2002/2003	Fertilizer Support Programme
2003	Formulation of the Crop Marketing Authority (CMA) Government announcement of producer floor prices

Source: Updated from (Jayne et al., 2002)

The first objective of agricultural policy, assuring national and household food security, has been attempted to achieve through state interventions. Zambia has moved through a period of government-set pan-territorial and pan-seasonal prices of maize, of maize meal and of seed and fertilizer inputs in the early 1980s, to liberalisation of markets, and back to a regime of government intervention in several aspects of maize and input markets. The state controlled marketing of agricultural produce and inputs involved substantial government subsidies. The cost to Government to support the crop marketing system increased over time to an unsustainable level. By 1990, maize subsidies were larger than the total budget deficit (Mwanaumo, 1994).

Agricultural markets have been liberalised, but in most years the government still intervenes in the markets for maize, fertiliser and seed in ways that have caused uncertainty among private agents, distorted markets and prevented the development of well functioning forward-looking markets. Important aspects of these policies are listed below.

- The government seems to have a fundamental mistrust in a liberalised market's ability to ensure food supplies. Consequently, in most years of perceived maize import needs, the Government has organised maize imports.
- Crop forecasts and food balance sheets produced during the time of harvest seem fairly consistently to overestimate maize deficits and import needs. When government imports have been carried out in accordance with these estimates the government has held surplus stocks at the end of the season – surpluses that later had to be sold at a loss.
- Logistical and financing constraints have often prevented the government from carrying out its interventions, i.e. imports or purchases, as originally announced. This has created uncertainty for other potential buyers or importers. Private agents have been sceptical to buy or store grain when they risked the government undercutting their price with subsidised sales.

- Maize procured by the government has often been sold to millers at prices well below market prices pertaining at the time (Jayne et al., 1999). This has been good for those who have been able to buy the subsidised maize, but unfavourable to those of their competitors who have not been able to buy the subsidised maize. It has also been an unnecessarily costly way of reducing consumer prices.
- The government has shown a preference for making subsidised maize available to the industrial, large-scale mills, rather than small hammer mills. The hammer mills have generally lower processing cost, and can provide substantially cheaper maize meal to the poor than the big mills are able to do if there are no subsidies (Mwiinga et al., 2002).
- A market information system has not been developed. A system that made available to anyone information about daily prices, import flows, planned imports and stocks held by various agents would reduce uncertainty and improve the efficiency of markets.
- There is an export ban on maize, intended to prevent exports from bidding up the domestic price.

Recent years have seen a reversal in the government's stance to intervention in food markets. A Food Reserve Agency (FRA) was established in 1994 with a mandate to maintain a strategic grain reserve. However, the FRA is also charged with managing government-owned storage facilities, developing markets. In 1999 the FRA mandate was expanded to also include the implementation of the Agricultural Input Support programme for government subsidized inputs provided on credit. This has compromised its effectiveness and affected its financial liquidity, and thus its ability to carry out its original functions. The FRA has been used by the government to create bounds on price variation in maize. This has been accomplished by subsidising imports in times of perceived scarcity, and by government maize purchases to prevent prices from falling too low.

Stakeholders in the agricultural sector perceive the FRA as having failed to meet their expectations, and the government has proposed to replace it with a new Crop Marketing Authority.

Agricultural Sector Policies

Up to the end of 2001, the Agricultural Sector Investment Programme (ASIP), was the government's agricultural policy framework. The key objectives of this programme were to:

1. assure national and household food security through dependable annual production of adequate basic foodstuffs at competitive cost;
2. ensure that the existing agricultural resource base is maintained and improved upon;
3. generate income and employment to maximum feasible levels through full realization of both domestic and export market potential;
4. contribute to sustainable industrial development through the use of locally produced agro-based raw materials in line with international comparative advantage; and
5. expand significantly the sector's contribution to the national balance of payments by expanding agricultural exports.

The Agricultural Commercialisation Programme (ACP) has been formulated as the agricultural component of the Poverty Reduction Strategy Paper (PRSP). Specific objectives of the ACP are to:

1. promote development of a competitive private sector-driven agricultural marketing system;
2. facilitate the establishment of an effective, efficient and sustainable private sector-driven agricultural finance system;
3. facilitate the development, rehabilitation and maintenance of agricultural infrastructure and promote land development and settlement in potentially productive areas;
4. promote demand-driven technology development and dissemination; and
5. facilitate efficient utilization of financial, human and physical resources.

The Food Security Pack came into being in 2001, when planting materials and fertilizer were distributed to vulnerable but viable farmers on a matching grant basis. The Fertilizer Support Programme started in 2002 as a government programme to supplement the FSP but with a focus on subsidized inputs. The programme targets small-scale farmers capable of cultivating at least one hectare of maize. The Programme aims at improving access of smallholder farmers to agricultural inputs by rebuilding their asset base through direct income transfers (a subsidy) of 50%.

Several private sector initiatives have been facilitated and promoted by the overall market liberalization environment in the last decade. The establishment of agricultural commodity exchanges in Lusaka and Kapiri Mposhi, the promotion of innovative out-grower models such as the Dunavant Distributor Model, CARE's REAP, and the more recent establishment of the Warehouse Receipt System being cases in point. In addition, several donor projects have been initiated to support market reforms. These include, Smallholder Enterprises Marketing Programme (SHEMP), Support to Farmer Associations (SFAP), Zambia Agribusiness Technical Assistance Centre (ZATAC).

The Agricultural Commodity Exchange (ACE) provides centralised trading facilities to sellers and buyers of agricultural commodities. It also provides market information and estimates of future prices. Although the ACE was established as a commodity exchange, in actual fact it operates as a commodity broker due to low capitalisation as a consequence of lack of funding by the shareholders. Moreover, the ACE is also faced with a number of external problems, the major ones being lack of medium and long term finance, unpredictable intervention and direct trading by government in the market. ACE is one of the three commodity brokers operating in Lusaka.

The Dunavant Model is a private sector-based initiative developed as a marketing and financial out-grower system for smallholder farmers. The model provides an operational framework for raising motivation and credibility, through appropriate organizational structures, distribution and collection systems. It also provides a legal framework that ensures provision of commercial services to farmers in a sustainable manner. The system has so far offered reliable and long-term markets and provided inputs and finances, extension messages and transport. In addition farmers are paid cash, thus further strengthening farmer and out-grower confidence. Consequently, Dunavant has raised its loan recovery rate to over 90 percent, compared to for example the single digit recoveries under some of the government input programs such as the Agricultural Credit Marketing Program.

CARE has sponsored the Rural Enterprise and Agri-Service Promotion (REAP) program, also supported by IFAD, to promote market-oriented enterprises, linking large private sector agribusiness, manufacturers and distributors with farmers in rural areas. The REAP program area was the Copperbelt Province and its main thrust was to reduce transaction costs for

private sector operators in geographically disadvantaged areas. REAP facilitates the establishment of networks of community-based agricultural traders and agents to create economies of scale attractive to major private sector agribusiness companies for inputs and outputs. The programme brings inputs, fertilisers, seeds, crop chemicals, farm implements, spare parts, building materials and other household supplies closer to the farmer at market prices. It also provides market opportunities, especially for small-scale farmers through assisting agricultural traders to organise and negotiate bulk marketing of grains to millers and other buyers.

Through a mechanism by which agribusiness companies are allowed to stock consigned inventory up to a level that can be replaced when rolled over, REAP has been able to minimise risks undertaken by agricultural input providers. This process has helped determine the credit worthy traders in a particular area. By emphasising job creation and transfer of organisational and business skills, REAP has been able to minimise private sector institutional development costs in the difficult-to-reach areas, and thus strengthen smallholder farmer linkages to the private sector and sustainable services delivery.

The Warehouse Receipt System (WRS) is a national system based on transferable document of title – a warehouse receipt – as evidence of deposit of a specified quantity and quality of a commodity at a stated location. It is robust, entails independent oversight of certified warehouses without which a widely accessible system cannot develop. Consistent with the policy of liberalisation, the WRS is private-sector-driven commercial warehouse operations.

The WRS has potential to increase agricultural marketing by facilitating access to commodity finance and thus making agricultural trade liquid and competitive. This will lead to reduced trade margins, benefiting producers and consumers. Storage will occur in well-run warehouses leading to reduced post-harvest losses, while the option of deferred sale will reduce supply and price variability and thus benefit urban/rural poor consumers. The WRS may improve commodity trade through promoting grades and standards. These will facilitate “sight-unseen” trade, e.g. a farmer-group in an outlying area can strike deal with a miller in Lusaka.

Though a relatively new system to Zambia, the WRS plans to expand the range of commodities, expand off the line of rail, increase penetration of smallholder areas and contribute to development of a commodity exchange. Inbuilt in this future strategy is the smallholder bias that entails, identifying areas of high productivity, working with NGO’s that offer extension and marketing services such as CLUSA, PAM, CARE, train growers and managers in grades and standards and marketing, and also certify warehouse or link to ZACA-approved facility.

ZACA’s Regulatory Role is to certify warehouse operators that meet and maintain minimum requirements. This includes capital adequacy and solvency, insurance cover and performance guarantee (or bond), technical and managerial competence; integrity and record keeping. In addition, ZACA ensures warehouses meet physical standards, certifies graders, samplers and weights, ensures frequent unannounced visits by “examiners”, and applies penalties for non-performance. These may include suspension, revocation and publication of the names of defaulters. ZACA is also responsible for conducting external reviews.

The Smallholder Enterprise and Marketing Programme (SHEMP) is IFAD funded. SHEMP targets small-scale farmers that cultivate on average below five (5) hectares. The programme

facilitates formation and strengthening of farmer enterprise groups, improvement of physical access to input and output markets and empowerment of smallholders by providing them with requisite skills and resources to diversify their production opportunities. It also facilitates the development of an efficient and competitive network of agri-business/trading enterprises serving the smallholders and the improvement of the policy, institutional and legislative environment to serve the interests of smallholder farmers.

Support to Farmer Organizations in Capacity Building (SFAP) is NORAD funded. As a joint partnership with the Zambia National Farmers Union (ZNFU) and the Agribusiness Forum (ABF) the project enhances capacity of the farmer organisations and agribusiness companies in market oriented agriculture to improve agricultural performance. The project thus aims to minimise the risk of default, streamline the extension overhead costs of supported out-growers, and lower the transaction costs by bulk input supply and marketing arrangements and provide an incentive in commodity prices offered to credible entities that capture savings accrued by the out-grower companies as a tool for attracting farmers to organise themselves into groups.

The Zambia Agribusiness Technical Assistance Centre (ZATAC) is USAID funded. ZATAC focuses on the creation and expansion of markets for agricultural products, increase incomes of smallholders through partnerships with agribusinesses, associations and cooperatives and enhance the development of agribusinesses and other rural agro-enterprises.

Despite the above-stated initiatives, there are still persistent gaps in services and investment in the agricultural sector. Zambia's agricultural marketing and finance systems are characterised by highly variable supply and prices of commodities; wide distribution margins; under-capitalised traders and illiquid markets; and limited risk management opportunities. The private sector capacity to fill the gaps in the provision of services is still constrained by factors such as unclear policy signals through the involvement of the FRA, inadequate effective demand, high transaction costs, poor infrastructure, low turnover, lack of capital, poor loan recoveries, and high risks involved in rural trade.

Lack of infrastructure, such as roads and market centres is often a main constraint to rural marketing in Zambia. Other constraints to rural marketing are weak and disorganised farmer organisations, liquidity problems and general lack of agricultural credit, and political interference in the marketing activities.

The agricultural productive potential for Zambia is not being fully utilised. There is decrease in the use fertilizer, not only because it is not profitable economically, but because of availability constraints which are exacerbated rather than alleviated by government interventions (Olinto and Deininger, 2000). Developing fertilizer markets and improving productivity-enhancing farming practices among smallholders remain significant challenges in Zambia. All government driven interventions in the fertilizer market have failed lamentably. Such institutions include NAMBOARD, ZCF, CUSA, Lima Bank, and the latest being the Food Reserve Agency (FRA). The private sector's response to the challenges of market reforms is sensitive to government actions. When influential politicians criticise the market reforms they are supposed to champion as part of the policy of liberalisation, the private sector incorporates such mixed signals in its expectations of the payoffs and risks to their future investments. The politicians' prophecies that market liberalisation reforms will not work (and that therefore state interventions are needed), may thus be self-fulfilling.

As fertilizer markets are developed in Zambia, recent research by the Food Security Research Program has shown that fertilizer alone is not a “silver bullet”, and by itself will not necessarily increase profitability and maize productivity. Fertilizer application by smallholders in many regions is highly risky in terms of economic returns, and has resulted in farmers incurring financial losses (Ministry of Agriculture and Cooperatives et al., 2002).

Complementary farming practices and inputs, and other investments are required to maximise the returns from fertilizer use. For example, the use of improved seed and farm management practices are important factors that contribute to profitable use of fertilizer. It is therefore important that input programs become integrated with broader agricultural programs that focus on increasing productivity.

2.3 Malawi

2.3.1 Socio-Political situation

Malawi's experienced an upheaval in the early 1990s as the country was released from a dictatorship lasting almost 20 years. In 1994, a multiparty parliament ushered in a new constitution. Democratic elections were held in 1994 and 1999 in what international observers considered free and fair processes. Elections are again to be held in 2004 at a time when domestic and international accusations of corruption within the government have been circulating (Economist Intelligence Unit, 2003).

The difficult social conditions mirror the slow economic growth experienced in the 1990s. Poverty in Malawi is endemic. The country ranks among the ten least developed countries in the world, a situation made more difficult by a high population density.

Table 8 presents some economic and social indicators that highlight the challenges. Income is distributed unequally and the difficulty with targeting social programs is compounded by the fact that nearly 60% of the population lives below the poverty line (i.e., the expenditures needed to afford the minimum nutritional requirements and a basket of basic non-food goods and services). The unchanging level of poverty in the 1990s stands in contrast to the trends in real per capita GDP growth. Low, and decreasing, life expectancy rates, increasing maternal mortality rates and high illiteracy (although the rates are decreasing since 1994, adult female illiteracy rates still exceed 50%) over the past decade will continue to be reflected in poverty levels and unequal income distribution.

Finally, the HIV/AIDS epidemic will exacerbate the poverty situation. Households will have fewer adults contributing to productive activities and will require that time must be allocated to non-household management activities. Increasing numbers of orphans and foster children places added pressure on the meagre resources of relatives and necessitates other forms of formal and informal social support (SADC FANR Vulnerability Assessment Committee, 2003).

Table 8: Malawi: Selected economic and social indicators

	Value of the indicator	Year of the statistic
Land area (km ²)	118,000	
Population (million)	10.8	2003
GDP at 1994 factor cost (MK million)	163.572	March 2003
Real GDP growth (%)	2.4	March 2003
GDP per capita (Kw; USD)	15.146 \$172	March 2003
Annualised inflation rate (%)	10.2	March 2003
Maternal deaths per 100,000	621	1994
Under-5 mortality per 1000 children	221	1994
Life expectancy (years)	44	1994
Total fertility (births per woman)	7.6	1994
Adult literacy (%)	44	1995
Access to water (%)	53	1994

Source: World Bank.

Macroeconomic Policy Reform

The economic performance in the past decade has been volatile. In the mid-1990s, international institutions and donor countries alike called for an economic transformation, including macroeconomic austerity, privatisation, price liberalisation and fewer restrictions on the private sector, necessitated by having to constrain the budget deficits and external debt.

The Government of Malawi (GOM) committed itself to an adjustment program designed to re-establish financial stability as a platform for sustainable economic growth. Three factors led to the deterioration of the financial situation in 1994-95 which ensured a long-term commitment to reform the economy: 1) the poor economic performance in the agricultural sector from a drought significantly reducing the 1994 harvest; 2) the problems of controlling government expenditures (in advance of the first multiparty elections); and 3) the administrative difficulties with the collection of revenue.

In 1990/91 the collection of income taxes and customs duties were rationalized to minimize the protection level. Trade revenues declined with reductions in their rates (both import tariffs and export taxes) and have continued to be replaced with domestic taxes. Direct and indirect taxes were reduced, but a surtax was expanded in 1991/92. The surtax exemption for domestically produced goods was eliminated in 1992/93. Imports on raw materials were to be fully rebated. In 1999 excise taxes were raised and the surtaxes, which had been imposed on a variety of items, were later to be converted into a VAT.

Fiscal expenditures were to be restrained through rationalisation of the public sector and a reduction in the size of the government. By 1997-98, the dedication to the fiscal austerity program was producing lower budget deficits. The tightening of monetary policy, which also occurred after 1994-95, complemented the sharply lower budget deficits. However, monetary policy has contributed to poverty through the inaccessibility of credit. In periods when there was an increase in public sector debt, it “crowded out” private borrowing. The lack of domestic and foreign investment has not eased this problem.

Table 9 provides selected macroeconomic indicators for Malawi. The data show how the inflation rates accelerated in 1995, fuelled in large part, by the surge in food prices (IMF). A structural adjustment program targeted the reduction in inflation, improvement in the balance of payments, and increased GDP growth rates. Changes in the annual growth rates in GDP demonstrate the effects of droughts, but also suggest a tendency of positive (and more stable) growth rates with implementation of the structural adjustment programs in the latter half of the 1990's.

Table 9: Macroeconomic Indicators for Malawi

	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
Inflation (CPI %)	23.2	22.8	34.7	83.1	37.7	9.1	29.8	44.8	29.6	27.2	16.7
Interest rate (T-bill rate, %)				46.3	30.8	18.3	33.0	42.9	39.5	41.7	
Real GDP (% change)	-9.0	10.0	-11.0	12.0	10.0	5.1	3.0	4.0	2.6	2.2	3.0
External debt (US\$ bn)						2.2	2.4	2.8	2.8	2.8	2.9
Budget deficit (% of GDP) excluding grant		-8.8	-29.5	-12.7	-8.3	-9.0	-12.8	-11.0	-14.4	-13.8	
including grant		-6.1	-17.4	-4.7	-3.7	-5.5	-6.6	-4.5	-5.1	-7.0	
Exchange rate (MK/US\$)	3.6	4.4	8.8	15.3	15.3	16.4	31.1	44.1	59.5	72.3	78.9
Export (fob, US\$ million)	400	318	363	461	506	579	539	447	406	407	
Import (fob, US\$ million)	415	340	639	631	618	783	579	573	563	582	
Balance (US\$ million)	-15	-22	-276	-170	-112	-244	-40	-226	-158	-175	

Sources: (International Monetary Fund, 1997; Economist Intelligence Unit, 2003; World Bank, 2003a)

In the early 1990s, Malawi devalued the Malawi Kwacha (MK), several times against the basket of currencies to which it was tied. There were devaluations in 1990, 1991 and two significant devaluations in 1992, 15% in March and 22% in June. These devaluations served the twin goal of restoring export competitiveness and cushioning the effects of import liberalisation, restoring economic competitiveness to levels equivalent to 1987/88. In 1994, the Kwacha was put under a managed float against the U.S. dollar.

In Table 10 the average annual percentage growth in GDP and growth by sector over the 1980s is presented for comparison with the annual averages over the 1990s. GDP growth and sectoral activity grew in the 1990s relative to the 1980s (with the exception of industrial activity and services). Although GDP varied considerably from year to year in the 1990s, largely on account of droughts affecting agricultural production and export, and international export prices for tobacco, the agricultural sector seems to have been a sustainable engine of

growth for the economy. Real GDP growth rates have been positive since 1995, and the agricultural sector's growth has exceeded the total since 1990.

Table 10: Growth of Output (average annual percentage growth)

	GDP	Agriculture	Industry	Manufacturing	Services
1980-90	2.5	2.0	2.9	3.6	3.6
1990-97	3.6	8.6	0.9	5.1	-0.2
1997-01	3.3	5.5	-	0.1	-

Source: (World Bank, 1999; Economist Intelligence Unit, 2003)

The GOM's agreement with the IMF in December 1995 ushered in substantial regulatory reform and an institutional commitment to structural changes in 1996. To promote competition and improve the efficiency of the domestic economy, the state-owned productive sector was being transformed and the passing of the Privatisation Act ensured a continued momentum for private sector participation in the economy. The privatisation program included the liberalisation of the agricultural marketing system, a reduction in public sector economic activity through sales of state-owned agribusinesses, and lifting of price controls or the end of state purchases. The GOM also committed itself to improve the efficiency of the customs administration and the installation of modern systems of procedures and improvement in infrastructure. The GOM also liberalised restrictions on capital movements by non-residents, and foreigners were allowed to make direct investments, and repatriate profits without constraints in 1995.

2.3.2 Agricultural Sector

Malawi's overall economy remains susceptible to the effects of drought because it is predominantly agriculture based. In 1992 and 1994, extreme droughts substantially reduced agricultural output and adversely affected GDP growth rates. More than one third of GDP is from agriculture and an additional fifth is related to distribution and retailing, which is linked to the rural economy. Agricultural exports account for about 90% of the foreign exchange earnings, for which tobacco accounts for about 70%. The population is predominately rural and is engaged in agricultural or rural activities, accounting for about 75% of total employment. The country is small, land-locked, has but a single rainy season, and the soil fertility is declining.

Agriculture in Malawi is bi-modal, consisting of large-scale producers (estates) and small-scale producers (small land holders). In the 1970s and 1980s, land area occupied by estates expanded rapidly. However, as a condition on the agricultural adjustment loan from the World Bank, the GOM had to cease the transfer of land from "customary tenure" by small-scale producers to "leaseholder" status (Economist Intelligence Unit, 1999).

Despite the fact that the smallholder agricultural sector plays a leading role in Malawi's developmental efforts, the post-independence development strategy lay emphasis on estate-led growth at the expense of smallholder agriculture (Harrigan, 2003). The structural adjustment programmes to some degree reversed this selective priority on estates. Table 11 presents evidence of some early positive effects, in terms of the performance of the

agricultural sector that occurred during the years in which regulatory reforms and structural changes were implemented.

Table 11 Economic Activity by Sector (percentage of GDP)

	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Agriculture	28	39	31	37	43	33	37	38	39	39
Manufacturing	15	12	14	13	12	14	13	13	13	12
Transport and distribution	19	16	17	16	16	29	29	26	25	25
Utilities and construction	7	6	7	7	7	3	3	4	4	4
Total agriculture, annual % change	-25	53	-29		25.5	0.1	10.3	10.1	5.4	1.8
small holders	-37	85	-34	44	32	-4	19	13	1.7	6.2
estates	9	3	-18	30	10	11	-12	-2	2.1	-13.9

Sources: (International Monetary Fund, 1997; Economist Intelligence Unit, 2000, 2003)

Small-scale producers were given the right to plant cash crops and could respond to price signals from the liberalisation of the agricultural marketing system, which included the end of the monopsony marketing parastatal that purchased the output of the small-scale producers at fixed prices. The marketing of inputs was also liberalised, which invited the private sector to take on input supply activities. By liberalising production and marketing arrangements, small-scale producers were encouraged to diversify their output towards drought-resistant crops. Moreover, the lifting of the constraints on production of tobacco by small-scale producers meant that they could augment their income by producing cash crops. Marketing reforms and greater choice in production decisions meant that the supply of labour available to large-scale producers (estates) became scarcer. As a result, large-scale producers shifted away from labour-intensive crop production such as tobacco toward crops that were more amenable to large-scale operations, e.g. maize production. This result helps explain the improved performance of small-scale producers relative to large-scale producers with liberalisation in the mid-1990's.

During 1992-96, planting of drought-resistant crops increased, and production of tobacco and cotton, important exportables, also increased substantially. Small-scale producers still had difficulties affording inputs and had difficulty in improving yields. In 1995 and 1996, real GDP growth and agriculture's contribution improved in large part due to favourable weather and government-sponsored programs that distributed free seed and fertilizer to small-scale producers. There has been some transition of the smallholder farming community from a purely subsistence agriculture to more commercially oriented smallholder activity as indicated by the shift from allocating more land to local maize into hybrid maize, and the emergence of other crops such as burley tobacco, cassava and pulses. Land allocation to maize and cotton has shown a positive and significant relationship with structural adjustment policies (Table 12).

Table 12: Production of Selected Agricultural Commodities

	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
Maize											
Area	1368	1327	1129	1229	1248	1234	1293	1369	1435	1446	1500
Yield	4.8	15.3	9.2	13.5	14.4	9.9	13.7	18.1	17.4	11.0	10.7
MT	657	2034	1040	1661	1793	1226	1772	2479	2501	1589	1603
Rice											
Area	18	39	27	33	41	40	42	46	44	50	56
Yield	13.0	16.8	15.2	15.6	17.6	16.2	16.4	20.3	16.5	18.6	16.9
MT	24	65	41	52	73	66	69	93	72	93	94
Pulses											
Area	395	406	402	416	435	441	450	433	434	435	523
Yield	5.3	5.5	5.4	5.6	5.6	5.6	5.6	5.1	5.2	5.2	5.2
MT	208	224	218	232	244	246	253	223	226	228	270
Tobacco											
Area	131	130	79	106	114	115	114	116	119	114	122
Yield	9.7	10.0	12.5	12.2	12.4	13.8	10.9	7.3	8.3	7.2	5.7
MT	127	130	99	129	142	158	125	85	99	83	69
Sugar											
Area	18	14	18	18	18	18	18	17	19	18	18
Yield	1.1	0.8	1.1	1.1	1.1	1.1	1.0	1.0	1.1	1.1	1.1
MT	1900	1100	1900	1900	1860	1750	1900	1700	2000	1900	1900
Groundnuts											
Area	64	61	95	89	72	100	141	171	169	181	208
Yield	4.0	9.0	3.2	3.6	5.6	6.9	6.9	7.3	6.9	8.1	7.6
MT	26	55	31	32	40	69	97	125	117	148	158

Note: area = 1000 ha; yield = 1000 kg/ha; MT is total harvest in 1000 MT

Sources: UN, FAO (<http://apps.fao.org>)

Table 13: Total NPK Consumption (1000 MT) and Use (kg/Ha)

	1990	91	92	93	94	95	96	97	98	99	00	01	02
Consumption	48	70	74	74	21	44	58	57	75	71	75	-	-
Use	29	41	43	43	13	25	34	33	43	41	43	-	-

Source: (International Fertilizer Development Center (IFDC) et al., 2000)

Over the last few years, there has been an increasing emphasis on agricultural diversification. There has been a shift in resource allocation, particularly land. This has entailed a shift from traditionally dominant crops, such as local maize, to hybrid maize. There has also been an emergence of other crops in both the smallholder and estate sector. For instance within the smallholder sector there has been increased production of burley tobacco, cassava, pulses, paprika, and chillies. Within the estate sector, there has also been a change from concentration on tobacco, to production of other commercial crops like paprika and macadamia nuts.

The rate of diversification among small-holders is curtailed by food security considerations, whereby the need to reserve a certain portion of land for the production of own food crops overrides other considerations. The diversification strategy has resulted in attention to other crops, e.g. roots, tubers and groundnuts that were neglected in the past. Production of horticultural crops, under both rain-fed and irrigated conditions, is being promoted among the smallholder farmers. There has been increased attention to crops like paprika, chillies, fresh vegetables, and other horticultural crops.

Food security considerations and limited sizes of land holding dominate smallholder decisions on cropping patterns. Smallholders allocated more land to local and hybrid varieties of maize than any other crop in the period from 1982/83 to 1996/97. It was during this period that government policy generally emphasised food self-sufficiency as the main pathway towards food security. However, over the years, there has been a noticeable shift from allocating more area under local maize to hybrid maize varieties. The shift from local to hybrid maize varieties suggests concerted government efforts in encouraging farmers to plant the high yielding varieties. Cropping patterns have also been influenced to a large degree by drought. Land allocation to cassava increased in 1994/95 and 1995/96, mainly due to the 1994 drought, which induced government to conduct a campaign for people to grow more cassava and other drought tolerant crops. The campaign towards the cultivation of more drought resistant crops such as cassava still continues, and smallholders have reacted positively to this campaign (see Table 14).

Table 14: Estimates of National Area and Production for Cassava and Sweet Potatoes

YEAR	CASSAVA		SWEET POTATOES	
	Area (ha)	Production (MT)	Area (ha)	Production (MT)
1990/91	71619	167818	48384	176999
1991/92	63965	128827	19886	43074
1992/93	75050	216005	36846	210572
1993/94	72149	250066	37151	165322
1994/95	94651	328424	60701	317705
1995/96	116523	534549	68804	596469
1996/97	108478	706422	70908	900485
1997/98	152,876	755,970	137,848	1,632,832
1998/99	166125	895420	150120	1680313
1999/00	180758	2757186	163524	1877032
2000/01	198470	3313126	187897	2528790
2001/02	101408	1512792	84930	1054829

There has been a noticeable decline in area under maize in the 1990s and an increase in other crops. The removal of constraints to smallholder burley tobacco production has meant that producers who had long wanted to join tobacco growing have now been given an opportunity to do so.

Trade Liberalisation

In the mid-1990s, the GOM removed all restrictions on external trade transactions, including current account transactions. Liberalising capital transactions, and permitting foreigners to make direct investments and repatriate profits without constraints in 1995, helped add to the productive capacity and to exportable surpluses in agriculture. The depreciation of the currency has helped make Malawi exportables more competitive on the world market, complementing the export-led development orientation. The tendency to maintain an overvalued currency prior to the reforms acted as a tax on Malawi exports, discriminating against the growth sectors of the economy.

In Table 15 the export earnings of selected products (or categories) are presented as a percentage of total exports. Although the GOM made an effort to expand non-traditional exports during 1992-96, tobacco continued to be the principal export, accounting for 64 percent of total exports in 1996 and 74 percent in 1992. In the late 1990s, tobacco still accounted for two-thirds of the export earnings. Nevertheless, production and exports of non-traditional products, consisting primarily of clothing goods, continued to expand during the 1990s (doubling between 1992 and 1996) even though as a share of total exports it is still small.

Table 15: Export Earnings (% of total export value)

	1992	1993	1994	1995	1996	1997	1998	1999 ^a
Total exports	100	100	100	100	100	100	100	100
Tobacco	74	69	70	65	64	66	67	40
Sugar	7	5	7	7	8	5	8	6
Tea	8	12	8	7	6	8	8	23
Non-traditional	7	10	8	12	14	-	-	-

Sources: (Economist Intelligence Unit, 2003)

The trade regime was liberalised with phased reductions in the temporary export taxes (which were introduced in 1995) and reductions in import tariffs. The weighted average tariff declined from 18% in 1994 to 15% in 1996. Progress continued in 1996 when trade reform reduced the maximum tariff rate from 45 to 40%, and reduced the weighted average to 15%. In 1997, the maximum tariff was again reduced to 35 percent and the export tax on tobacco, tea and sugar (initially at 10% in 1995) was reduced to 8% in 1996 and to 4% in 1997. However, coffee was added to the list of exportable items subjected to an export tax.

Table 16 presents a list of selected agricultural commodities produced to show how the production mix changed as a result of legislative reforms and trade liberalization.

Table 16: Trade in Selected Agricultural Commodities (volume in 1000 MT, value in \$1000)

	92	93	94	95	96	97	98	99	00	01
Volume imported										
Cereals, of which:	439	576	511	305	176	172	402	120	72	157
Maize	347	490	389	235	83	54	325	28	8	51
Wheat	82	74	63	41	76	103	72	90	60	102
Value imported										
Maize	99	94	103	56	28	15	71	7	2	13
Wheat and flour equiv	15	16	12	6	15	19	13	7	7	13
Total value of imports	172	156	164	98	75	74	120	45	39	83
Volume exported										
Sugar	22	26	34	66	55	30	72	48	48	58
Coffee, tea, cocoa	47	41	40	39	40	47	45	36	74	75
Tobacco	97	96	99	98	112	117	130	96	90	93
Value exported										
Sugar	14	14	25	20	34	24	39	28	25	29
Coffee, tea, cocoa	46	43	45	45	40	61	56	50	68	69
Tobacco	295	214	198	296	314	353	359	373	336	313
Total value of exports	371	285	288	389	411	484	490	475	435	417

Source: FAO: <http://apps.fao.org>

2.3.3 Agricultural market institutions

From independence food security and maize self-sufficiency were high priorities of the government. Pricing policy was used as a means to pursue these objectives, subsidising inputs (fertilizer and hybrid maize seed), supporting producer maize prices, and subsidising consumer maize prices. This was achieved through policy restrictions whereby the only legal body through which the smallholder farmers sold and bought their farm produce and inputs was the Agricultural Development and Marketing Corporation (ADMARC). Smallholder farmers sold their maize to ADMARC at pan-territorial prices. The use of marketing boards follows a tradition from colonial times, but the agricultural marketing system has undergone numerous changes, as indicated in Table 17.

Table 17: Chronology of Marketing and Input Policies

Year	Agricultural Marketing or Output Policy Intervention into the staple food market
1949	Maize Control Board (MCB) established to regulate and control maize marketing.
1956	Agricultural Produce and Marketing Board (APMB) established and replaced MCB.
1961	Markets for all smallholder crops liberalised except for cotton and tobacco.
1962	Farmers Marketing Board (FMB) established and replaced APMB. State monopoly on marketing of virtually all smallholder crops reimposed.
1971	Agricultural Development and Marketing Corporation (ADMARC) established and replaced FMB.
1981	Special Crops Act introduced and prohibited smallholders from producing and marketing high value crops such as burley and flue cured tobaccos. Commencement of Stabilization and Structural Adjustment Programs (SAPs) supported by financial and technical assistance from the World Bank, IMF and bilateral and multilateral donors.
1987	Marketing of smallholder produce liberalised except for cotton and tobacco. Producer prices for the smallholders were still being set by the government. Agricultural Produce (Marketing) Regulation Act introduced and banned private exports of groundnuts, beans and pulses.
1990	Special Crops Act amended and smallholders allowed to grow burley tobacco for the first time.
1991	Cotton production and marketing liberalised.
1994	Agricultural Produce (Marketing) Regulation Act revoked and ban on private exports of all agricultural produce lifted with the exception of maize.
1995	Tobacco marketing liberalised. Pricing for smallholder produce liberalised except for maize. Price band for maize set for the first time.

Input Policies

1983	Smallholder Fertilizer Revolving Fund (SFRF) created and took over the procurement and distribution of smallholder fertilizers from ADMARC.
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- 1988 Smallholder Farmers Revolving Fund of Malawi (SFRFM) established as a trust fund and took over responsibilities of SFRF.
- 1990/91 MH17 and MH18 hybrid maize seed released as result of research policy to focus on development of high yielding flint maize varieties.
- 1993/94 Fertilizer market liberalised. Production and marketing of maize seed liberalised.
- 1994/95 Hybrid maize seed subsidy removed.
- 1995/96 Fertilizer subsidies completely removed.
Drought Inputs Program (DIP) involving distribution of free hybrid and/or sorghum seed and fertilizer to over 800,000 households affected by the 1994/95 drought.
- 1996 Fertilizer, Farm Feed and Seed Remedies Act amended by Parliament. Licensing, registration and reporting procedures for importing, selling, distributing fertilizers, farm feeds and seeds streamlined.
-

The Agricultural Development and Marketing Corporation (ADMARC) was given responsibility to:

- stimulate the production of marketable (particularly) exportable smallholder produce such as dark fire cured tobacco and cotton;
- maintain an efficient system for supplying agricultural inputs to smallholders; and
- develop the produce marketing system so as to generate increased consumption of Malawi's agricultural produce at home and abroad.

Various factors combined with the liquid nature of ADMARC's investments, its increasing number of employees, and its operational inflexibility, led to a weakening of its capacity to sustain the quality of its activities. By 1982, ADMARC's ability to fulfil its developmental and marketing functions was seriously impaired. ADMARC resorted to substantial borrowing from the commercial banks in order to finance its crop purchases. Despite the borrowing, ADMARC was still unable to buy all that was offered to it for sale or meet demand for fertilizer.

Government intervention in markets has been defended on the grounds of promoting national food security and ensuring that all smallholder farmers, including those in remote areas, had access to markets for their products, and protection from exploitation by intermediaries (Smith, 1995). These policies may have induced a maize supply response, as evidenced by the national maize surplus enjoyed by Malawi until the 1980s. However, these policies proved to be unsustainable, as the cost of the subsidies contributed to the current large budget deficits (Blackie et al., 1998).

In 1990/91, smallholder farmers were allowed to grow burley tobacco, following the amendment of the Special Crops Act, which prohibited smallholder farmers from producing and marketing high value crops such as burley and flue cured tobacco. Cotton marketing was liberalised in 1991. The Agricultural Produce (Marketing) Regulation Act was revoked in 1994, so that only private exports of maize are currently banned because of the crop's strategic

importance. Tobacco marketing was also liberalised in 1994, so that farmers now have a choice of selling their tobacco directly to auction floors, to intermediate buyers or to ADMARC. Previously smallholders were allowed to sell their tobacco to ADMARC only.

Input use and policy

During the 1964-90 period, the fertilizer supply system mirrored the dualistic structure of the overall agricultural sector with its separate marketing and support systems. In the smallholder sector, the public sector had a monopoly in procurement and distribution of fertilizer. The GOM set heavily subsidized prices across regions and seasons. For the estates, fertilizer requirements were met on a commercial basis. Inputs for the estate sector were imported directly by large-scale end users and by two specialist companies: Optichem (Malawi) Limited and Norsk Hydro Malawi. From 1991-94, there was a partial liberalisation of the fertilizer marketing system. The private sector was allowed to import fertilizer and distribute it, but the government continued to subsidise prices, regionally and seasonally. After 1994, there was no fertilizer subsidy, and the fertilizer market was liberalised. Since then, any firm can import and sell fertilizer to smallholders or estates. Fertiliser subsidies were completely removed beginning 1995/96. In 1993/94, production and marketing of hybrid maize seed was liberalised, and the subsidy on hybrid maize seed was removed a year later.

After 1997, the GOM, with donor assistance, began experimenting with the starter pack programs (in the 1998/99 and 1999/00 crop years), and later the targeted input programs (in the 2000/01 and 2001/02 crop years). The starter pack (SP) program reached nearly 3 million farmers distributing 15 kg bags of fertiliser per recipient. Good weather in 1998/99 and 1999/00 resulted in large crops. Levy and Barahona (2002a) estimated that about 16% of the maize crop from smallholder farmers was attributable to the input program. The targeted input program (TIP) replaced the SP program, reaching 1.5 million farmers in 2000/01. The TIP was estimated to contribute to about 80,000 and 40,000 MT of maize in the two crop years, respectively. Village leaders were asked to distribute the packets to the poorest 52% and 35% of the households during each crop year. There was some indication that the distribution of the packets was not as effective as had been envisaged. (Starter packs and TIP are discussed in greater detail in section 5)

Agricultural Credit

The Smallholder Agricultural Credit Administration (SACA), a government organization established within MOA in 1988, was the only agency involved in supplying smallholders with credit through farmers' clubs. The credit was in kind in the form of inputs (e.g., fertilizers and seeds) using ADMARC markets. The loan recovery performance was among the highest in the third world, averaging 90%, partly because of the strict enforcement of the recovery of the group's previous loan as a condition for a new loan. However, recoveries dropped to 25% in 1991/92 and to 16% in 1993/94. Factors identified to have contributed to the problem include: the breakdown in recovery system; low gross margins; political dispensation; the 1992/93 drought; and the de-linkage of extension and credit activities.

To overcome some of the credit problems, SACA was converted into the Malawi Rural Finance Company (MRFC) in October 1994. Unlike SACA, which subsidized smallholder interest rates, MRFC institutes market determined interest rates to ensure availability of credit and adequate profit for the financial intermediary. Interest rates were decontrolled in 1987 to make it possible for banks to cover the full cost of their rural operations.

Other sources of credit available for smallholders include the following: Smallholder Crop Authorities which provide funds to finance inputs for their particular crops (coffee, tea, sugar, and tobacco); the Small Enterprise Development Organization of Malawi (SEDOM) which provides loans for development of small-scale rural industries and agro-industries; Malawi Union of Savings and Credit Cooperatives (MUSCO); and informal sources, such as local money lenders, relatives and friends. Unlike the estate sub-sector, which receives its credit from the commercial banks, smallholders have always had limited access to commercial banks loans due to problems of collateral.

2.4 Land tenure

2.4.1 Land Ownership and Land Use in Zambia and Malawi

The potentially explosive nature of issues related to land ownership in Southern Africa, and the manner in which rights over land may affect an economy, has been illustrated by recent events in Zimbabwe. It might be argued that land rights were merely a convenient tool that the ruling party used in an attempt to draw attention away from economic malpractices and dwindling political support. Yet the fact that the land ownership issue was capable of helping the president at least partially achieve his goals is illustrative of the power and intensity with which these questions reverberate around Southern Africa.

Of the other countries in the region, Angola is still struggling to emerge from decades of civil war. The remaining countries – Botswana, Lesotho, Malawi, Mozambique, Namibia, South Africa, Swaziland, and Zambia – have all either passed or drafted major land legislation within the last decade.

As mentioned in previous sections, a major distinction between Zambia and Malawi relates to population density and availability of arable land. The discrepancy in overall population density is exacerbated by the fact that while 92 percent of the population in Malawi lives in rural areas, the corresponding figure for Zambia is only around 50 percent. The arable land per capita in some areas of Malawi is as low as 0.024 hectares, and 80 percent of all smallholder households possess less than one hectare of land. In Zambia, in contrast, even in those areas traditionally regarded as densely populated – the Copperbelt, Central, Lusaka, and Southern Provinces – a substantial fraction of customary agricultural lands have been lying idle since input subsidies were cut in the mid-1990s.

The difference in population density must, of course, be seen in historical terms, and in light of the fact that lands in Malawi generally have been more fertile than in Zambia. Yet population growth and land degradation in Malawi have to some extent erased the fertility differences, and Malawi has also had substantial lands appropriated by the leasehold estate sector. An illustration of the contrast can be seen in the scope of land reallocation. While the Malawian government, in the new Land Policy, has committed to the reallocation of 14,000 hectares of arable land, Zambia, in 1973, reallocated 2.3 *million* hectares of farmland.

2.4.2 History of Formal Land Rights in Zambia and Malawi

The story of the evolutionary paths of rights to rural land in Zambia and Malawi is one of striking similarities but also significant differences. In the formal, legal sense at least, the origins are similar, with the colonisation by British interests beginning in the late 19th century.

There are, of course, substantial variations between the two countries also in terms of colonial history. For example, while Nyasaland was officially declared a British Protectorate in 1893, Northern Rhodesia was administered by the British South Africa Company until 1924. The dates, specific codes, and wording of various Orders in Council differ somewhat. While the main colonial interest in Northern Rhodesia was in mining, Nyasaland was attractive more for its fertile lands. And while freehold titles to land were awarded to settlers in Northern Rhodesia from the outset, they were not officially recognised in Nyasaland until 1950.

In what is now Zambia, there was also the peculiarity of Barotseland, whose King made a deal with the British South Africa Company already in 1900 (revised in 1909 and confirmed in 1911) whereby Barotseland was guaranteed continued independence.

Yet the main thrust of colonisation, in terms of land ownership and instruments used, was similar in the two countries. The principle that only vacant lands should be appropriated by the colonisers was routinely ignored. While the most fertile and accessible lands were appropriated for European settlers, Africans were bundled together in Native Reserves. Vast tracts of land were withheld as Trust Lands, in the anticipation of an influx of white settlers that largely failed to show up. Taxes and other obligations were imposed on the native populations in order to force them away from subsistence farming and into wage employment in the mines and on settler farms. Between 1953 and 1963, colonial authorities also formed a federation between Northern Rhodesia, Nyasaland, and Southern Rhodesia.

The year of liberation, 1964, is also identical for the two countries. And both countries retained the formal colonial legal classification of land – Zambia until 1995, and Malawi up until the present. It is, however, primarily in the post-independence period that differences in the approaches to land rights and land administration begin to show up.

Independence in Malawi was followed by a brief flurry of land legislation in the late 1960s. These acts – the Registered Land Act, the Customary Land (Development) Act, the Local Land Boards Act, and the Land Amendment Act – were mainly devised to facilitate the acquisition of freehold titles, an objective in which they largely failed (Simpson, 1976), and to transfer the powers and responsibilities of the colonial governor to the new government.

A further and brief experiment with provision of freehold titles – this time to customary land holders – was attempted in the early 1970s, through the Lilongwe Land Development Programme. Again, at least in terms of its own objectives, it was a failure, with very little overall impact.

In the following 25 years, almost nothing was done in terms of significant new legislation with respect to land ownership. Consequently, the law governing land ownership in Malawi today is largely that inherited from the British colonisers.

Significant developments in more recent times are the abolition of the tobacco monopoly in 1992 and the initiation in the late 1990s of a process of revision of land policy, culminating in the publishing of the new Land Policy of the Republic of Malawi (MOLHPPS, 2000). The latter will be discussed shortly.

In contrast to Malawi, Zambia waited more than a decade after independence before revising its land laws. The first major legislation came in the 1975 Land (Conversion of Titles) Act. This act vested all rights to Zambian land in “the President on behalf of the Zambian people,”

and converted all freeholds into 100-year leaseholds. Moreover, land – titled or not – could no longer be sold. Since – according to the 1975 act – “land has no value,” alienation could only involve the value of fixed improvements undertaken by the lessee. Only a few minor distinctions remained between Trust and Reserve Land.

Further legislation was enacted in 1985. A 1985 Land Circular (Procedure on Land Alienation) required a letter of consent from the chief for acquisition of title deeds on customary land. An amendment to the 1975 act stated that for a foreigner to obtain a deed on customary lands, the personal signature of the president would be needed.

Both of these latter stipulations were repealed by the 1995 Land Bill, as was the 1975 stipulation that land had no value and could not be transacted. In the eyes of the public, and by private admission of the Minister of Lands at the time, the main objective of the bill was to facilitate transactions in land and to simplify the acquisition of title deeds. Further changes involved the establishment of a second land registry in the Copperbelt, to relieve pressure on the overburdened registry in Lusaka, and the creation of a Land Tribunal for adjudication of land disputes.

A significant part of the Zambian experience with land law since liberation, however, has been the formal recognition of customary rules and rights through the High Court Act, Subordinate Court Act, and Local Courts Act. The latter, in particular, has been important in land matters. In Zambia, every Chiefdom has a local court with justices and clerks, and in such courts locals have generally found a functional tool through which to air grievances, settle disputes, and reaffirm the law of the land as it crystallises and evolves in various indigenous cultures. Of course there are occasional problems related to corrupt justices and despotic chiefs (who may exert influence in both the selection of justices and in the interpretation of custom in specific cases), but the advantages far outweigh the problems.

In contrast, Malawi, after independence, hardly took any position at all with respect to customary land tenure, and certainly did not move towards any formalisation or protection of customary rules. On the contrary, the most significant development in Malawi with respect to land rights has been the gradual expansion of the leasehold estates sector at the expense of customary lands. The estates, which until 1992 enjoyed the monopoly on tobacco cultivation, generally employed exploitative tenancy arrangements while achieving neither efficiency nor productivity gains over the smallholder sector (Dickerman and Bloch, 1991). According to the World Bank (1987), the estate sector covered 691,000 hectares in 1987. In the 1990s, however, since the lifting of the tobacco monopoly, the estate sector has been in decline, and 30 percent have idle land (MOLHPPS, 2000).

What of Malawi today? The new land policy, though it has yet to be enacted, sets out the priorities and instruments for future land ownership and administration. The policy aims to solve problems of un- and under-utilised lands, land shortages, squatting, corruption, tenure insecurity, administrative bottlenecks, and conflicts over land. It will attempt to do this both by addressing “underlying causes” such as population pressure and land scarcity but also through instruments related to respect for law, clearer definitions of rights, and promotion of “stable tenure.” A new categorisation of land – somewhat confusing, since both private and customary tenure cut across the new categories – is proposed. Titles on customary land will become easier to obtain, thereby promoting markets in land. Women will be given the same rights over land as men. A ceiling on land ownership by a single entity is recommended, and recognition of traditional authorities and customary rules is, for the first time, built into

Malawian land policy. Foreign control of land is heavily curtailed; only Malawian citizens and businesses with a Malawian shareholder majority will be allowed to hold land for purposes other than land investment, and land held for investment by foreigners will be limited to leases of 50 years.

At present, Zambia and Malawi again seem to be converging with regard to many *positions* on land law and administration. Recent legislation (Zambia) and policy (Malawi) emphasise the need to allow land markets to evolve and expand. Land (or radical title to it) is vested in the nation's leader. Freehold title is curtailed, especially on customary lands, but formalisation of rights is encouraged. Customary rights should be formally respected, and traditional leaders are given significant – albeit carefully defined – powers in terms of allocation and governance of customary land.

An important point, however, is that Zambia and Malawi have approached some of these positions from opposite directions. In the initial post-independence legislation, while Malawi promoted freehold, Zambia abolished it. And while Zambia specifically recognised customary tenure, Malawi ignored it. The role of traditional leaders in the new Malawi Land Policy is in many ways similar to that envisaged in the Zambian Land Act from 1995; yet, while Malawi's new policy represents increased recognition for traditional leaders, Zambian chiefs consider the 1995 act an erosion of their authority.

The different paths are also reflected in stated objectives. While the Zambian Land Act wishes to facilitate increased activity and investment in land and agriculture by foreign individuals and corporations, the Malawi Land Policy wishes to curtail unfettered foreign ownership of land. These goals must be interpreted in an historical context. In Zambia, where vast tracts of land are uninhabited, unused, and unimproved, corporate investment in agriculture has been very limited; in Malawi, in contrast, corporate entities have gradually absorbed lands from a customary sector where land already is in short supply. Yet, again, the present legal positions on agricultural land acquisition by foreigners are not all that different, and mainly relate to economically inconsequential differences in the length of leases.

Only in the matter of land markets can both the histories and the current positions be seen to be congruent. In both Zambia and Malawi, rural land markets have been scarce and in many areas non-existent. Both countries wish to address this through recent legislation and policy formulation, arguing that markets are necessary to ensure the transfer of land from inefficient to efficient uses and to mobilise financial credit for farmers.

2.4.3 Customary Land, Efficiency, and Equality

The nature and effectiveness of indigenous land ownership in Africa has been the subject of more than a century of research and intense disagreement. One line of thought has it that all indigenous African land tenures (and possibly all global tenures) have developed, or are developing, along similar paths, and that discrepancies can be attributed simply to the distance travelled along this path. Others see fundamental differences in culture and tenurial adaptations between different societies and even communities. In terms of the effectiveness of customary tenures, three “stylised” positions can be distinguished. First, those who tend to see customary tenures as superior and who argue for codification of these tenures as they are. Second, those who feel that customary tenures are adaptable and that they will seamlessly transform into more modern rights systems when benefits of such a transition exceed the costs. Third, those who basically see customary tenures as archaic and counterproductive and

who argue for state intervention to replace them with modern freehold or leasehold systems (for a more detailed presentation and critique of these positions, see Platteau (1996; 2000)).

Indigenous, agricultural land tenures across Sub-Saharan Africa, despite the many variations, do generally possess some common features. These include the linking of land to ancestral lineages and spirits, the attendant conception of land as ultimately belonging to communities rather than individuals, the logical consequence that permanent alienation of land by individuals is prohibited, the establishment of individual usufruct rights through use and land improvement, and the guarantee for every member of the community of the right to *some* land.

Given the long common border, many Malawian and Zambian tenures traditionally share a particularly high number of adaptations. In contrast to Zambia, however, customary rules and norms in Malawi were not only neglected but contradicted by formal law even after independence. Consequently, custom is probably more coherent and entrenched in neighbouring countries today than in Malawi (MOLHPPS, 2000).

The argument against customary tenure as an effective property system rests mainly on three principles: First, customary tenure, because it is insecure, does not provide sufficient incentives for investment and prudent land use. Second, prohibitions against land sales will prevent a redistribution of land from less to more efficient users. Third, the combination of inadequate security and prohibitions against alienation will deny customary holders the capacity to secure investment funds through use of land as collateral.

Empirical evidence available from Sub-Saharan Africa, including evidence from Malawi and Zambia, goes against these arguments (see Platteau (2000) for a review of this evidence). Provision of freehold titles or other forms of modern security have generally increased neither investment demand, credit supply, nor agricultural productivity or efficiency. Nor have land markets generally led to efficient redistribution – in many cases the opposite has occurred, as lands have been purchased for speculative purposes and left idle. Land reforms aimed at a wholesale replacement of African customary tenures with modern, Western-style rights systems have also mostly been failures.

It is undoubtedly true that the state, in much of Africa, of rural technology, rural infrastructure, rural finance and insurance, local and central government capacity, and rural product markets, makes the operation of the “property rights model” difficult. Yet the model also possesses inherent conceptual weaknesses, failing to recognise the built-in insurance and scale advantages of customary tenure, as well as the fact that investments incentives – because investments also serve to secure individual rights – may be just as high or higher in customary tenures (Besley, 1995; Sjaastad and Bromley, 1997).

As noted in documents from both Malawi and Zambia, as well as elsewhere in Africa, the main source of insecurity of tenure on customary lands is state interventions – either directly through reform or expropriation, or through the granting of titles on such lands to individuals or corporations with no historical claims. A further threat comes from the erosion of customary norms themselves. When indigenous systems of norms and rules disintegrate, and there is nothing to replace them, chaos, lawlessness, degradation, and conflicts often ensue (Simukonda, 1992; Sjaastad, 1998; MOLHPPS, 2000; Platteau, 2000). Substantive changes to customary land ownership would solve neither of these problems, and could cause quite a few new ones.

Place and Otsuka (2001) state for Malawi, “From a policy point of view, direct interventions aimed at the traditional tenure systems themselves would be difficult and risky, and likely not a direction worth pursuing” (p. 96). A similar conclusion, on similar grounds, has been reached for Zambia: “Zambia, in terms of further legislative efforts relevant to indigenous land rights, should do nothing” (Sjaastad, 1998, p. 291).

One of the main tenure-related problems faced by both countries is how to provide security for customary holders while at the same time encouraging involvement and investment by corporate entities, also on customary lands. In 1997, the Zambian Government paid for a 16-page commercial supplement in *The Times* (England), boasting of vast unused land and investment opportunities. The desire to lure foreign investors to Zambian agriculture through the allocation of large blocks of land has also recently been confirmed in the Zambian PRSP. In Malawi, this challenge involves an attempt to reform the leasehold estate sector and strengthen customary rights without discouraging genuine corporate interest in land use.

In terms of law and macro policy, expedient ways to address this problem involve safeguards against land grabbing, the provision of long-term leases (rather than freehold titles) to investors, and the stipulation of land development requirements to prevent speculation. All of these are basically taken care of in recent legislation or policy in the two countries. The challenges instead concern administrative capacity, simpler administrative procedures, enforcement, and devolution of power. Despite ostensibly good intentions, administrative bottlenecks for e.g. titling of land, dispossession, conflicts, and theft of equipment and standing crops remain a problem.

In terms of formalisation of land tenure, this is – in both Malawi and Zambia – a more urgent issue among the poor in and around urban centres than in rural areas. Formalisation of tenure may, as envisaged by de Soto (2000), ease access to rural credit for poor land holders, and also produce benefits in terms of divisible and fungible assets, accountability, and communication. Given the current state of rural credit markets in Malawi and Zambia, and the potential value of land, formalisation is unlikely to make land viable collateral. Massive rural formalisation programmes may instead engender increased opportunism and conflict. Instead, any rural formalisation process should be demand-based, allowing those with the incentives and resources to register their land to do so. In this respect, simpler and less expensive titling procedures are required in both countries.

Improved administrative capacity and rule of law require funds, and increased public spending – regardless of purpose – does not sit well within the current political vogue in the two countries. Devolution of authority and decentralisation of responsibilities may be a solution, but, as pointed out by Wiley (2000), Malawi and Zambia are here lagging behind the rest of the region. How to allow communities to decide for themselves how they wish to develop and modify systems of rights? In many areas of Zambia and Malawi, interpretation and modification of custom is inclusive and participatory, but not everywhere. Some chiefs abuse their power, and there is an inherent conflict between individuals seeking modern and titled rights to their land and the frequent desire among traditional leaders to retain control. Perhaps a Botswana type model – where chiefs initially were given important but not autocratic powers – is a useful starting point.

2.4.4 Land Ownership, Land Use, and Price Fluctuations

How do price fluctuations for agricultural commodities influence land tenure?

First, whenever land rights are based on, or linked to, land use, any policy or exogenous influence that fundamentally affects land use may also affect land rights. This is of particular importance in some areas of Zambia, where rights – because of low population densities and extensive, often shifting, cultivation – have not yet “coagulated” spatially.

In short, any policy or change that increases land clearing, agricultural activity, and investment will tend to increase rights appropriation and long-term security of tenure. What about price increases and decreases? In an open economy, price increases will tend to increase activity and investment – and thus appropriation and security – while in a closed economy, or one with pervasive market failures, the opposite may be true (Angelsen, 1999).

Second, price instability and uncertainty in agricultural commodity markets may spill over into land markets. The price of agricultural land comprises the discounted net flows from agriculture plus premiums related to capital gains and collateral value. Land prices, based as they are on more long-term considerations, should be more stable than product prices. But in an economy where agricultural commodity markets are highly uncertain and prices fluctuate, there will also tend to be a thin market for agricultural land. And low turnover equilibria for land will tend to reinforce themselves (Basu, 1986). In both Malawi and Zambia, the market turnover of agricultural land is extremely low. Both countries have also recently sought to remedy this condition. Price instability in agricultural product markets may, however, serve to scupper any policy measures aimed at freeing up land markets. Markets characterised by uncertainty and price fluctuation will also tend to favour those with superior information and an ability to bear risk, and uncertain commodity markets may therefore also promote speculative market activity in land rather than efficient redistribution.

Third, low price stability in agricultural commodity markets may have a more direct effect on smallholders, in that they during low years will have to seek other sources of income, perhaps causing migration to urban centres. Attendant effects may be reduced tenure security and distress sales. Thus, in the latter case, price fluctuations in commodity markets may increase rather than decrease sales of land, as in the previous case. Also in contrast to the previous case, the effects are here unambiguously negative. Low price stability will also discourage investment and, as noted earlier, investment in fixed land improvements is one of the traditional ways of securing land rights. In general, low price stability may cause or contribute to greater instability in land tenure and more conflicts.

Of the above points, the second – how low price stability in commodity markets may render land tenure policy obsolete – is the most important for Malawi and Zambia. However, in the present context, and for policy purposes, the opposite causality – how does land tenure influence price stability? – is probably of greater interest.

If it is correct that secure tenure encourages investment (Binswanger et al., 1995), then policies that increase security of tenure should cause greater productivity. This will, initially, only cause a reduction in prices (although even this depends on market structure). However, if such investments are in technologies that reduce risk – for example, irrigation investments that reduce the impacts of a volatile climate – then increased security of tenure may eventually be a cause of more stable commodity markets. In this context, recent efforts in Zambia and Malawi to provide greater security of tenure on customary lands may eventually

contribute towards greater investment, increased productivity, and more stable commodity prices.

Finally, an additional or complementary effect of increased security is the reduction of land disputes, also with a potentially positive effect on price stability. This section started with a brief note on recent developments in Zimbabwe, and there can be no better illustration of the potentially disastrous effects disputes over land may have for stability of agricultural markets and the economy in general than the recent developments in Zimbabwe.

3 The crisis situation 2001-2003

3.1 Zambia

3.1.1 The 2001-2002 season²

In July 2001 the crop forecast and food balance sheet indicated the need for a commercial maize import of 200,000 MT. In August 2001 the government announced its intention to organise import of this amount of maize to be sold at a subsidised price. It made arrangements with importing firms and with buyers (mills) to import 200,000 MT of white maize over the period October 2001 through April 2002. However, because of financing problems imports were delayed. They only started arriving in December 2001, and by May 2002 only 130,000 MT had arrived. Already in November 2001 shortages were evident, and the domestic price increased rapidly.

Why did private importers not start importing outside the government programme? Between August and December private agents knew that the GOZ was working to sort out financing and other modalities, and that the government sponsored imports would eventually be coming in and be sold to selected millers at USD 160 / MT, while maize imported commercially from South Africa would have a landed cost in Lusaka of USD 220 – 260 /MT. (For contracts signed after January 2002 the subsidy would be reduced and the maize be sold to millers at USD 200/MT.) Once the government-sponsored maize started arriving, it would be hard to sell the commercially imported maize in competition with the subsidised maize. Private importers were reluctant to take this risk, and abstained from importing, even though domestic prices eventually rose to levels that would have made imports from South Africa very profitable (Nijhoff et al., 2002). The anticipated arrival of subsidised government imports deterred private agents from risking commercial imports. When government imports turned out to be smaller and later than planned, shortages occurred and prices reached unprecedented levels. Once the government imports eventually did arrive, and households could start harvesting from the 2001/02 crop, the prices fell rapidly.

The government tried to make sure that the subsidy received by the mills was passed on to consumers. This proved hard in practice. Shortages in maize meal persisted, making it hard to maintain a price based on the subsidised maize price plus a normal mark-up for processing and handling. In general, when an input (which is what maize is to the mills) is subsidised and rationed at the same time, the subsidy will primarily be an income transfer to the lucky recipients of the rationed subsidised input, while the price of the output (maize meal) will be determined by supply and demand in the market. Whereas maize prices fell from USD 350/MT in January to USD 160/MT in May, i.e. 75%, breakfast meal prices in Lusaka only fell by 15% during the same period (Nijhoff et al., 2002). The subsidies incurred major cost to the government budget, but failed to prevent the price spike observed from December 2001 to February 2002. During this period the price far exceeded what would have occurred in a well functioning market, i.e. the SAFEX price plus about USD 120 /MT for transport and handling (if the import levy of 5% is enforced, if it is waived then the difference reduces to US\$ 100 /MT) (see Figure 7).

² adapted from Nijhoff et al. (2002)

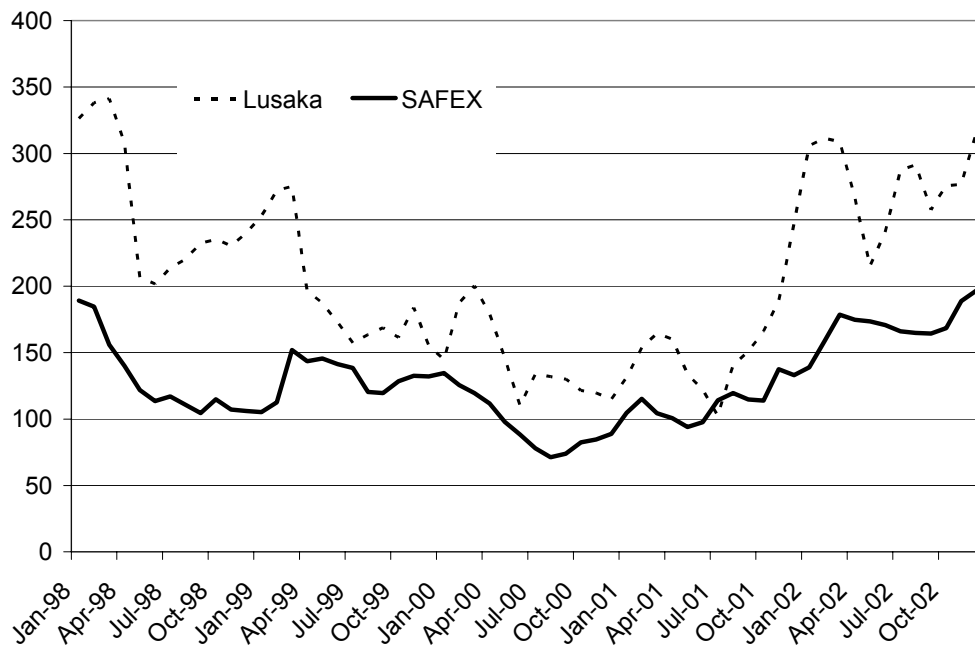


Figure 7: Monthly nominal maize prices, SAFEX and Lusaka, USD/MT (Sources: FEWS NET and Safex)

3.1.2 The 2002-2003 season

The food balance sheet estimated that the 2002 harvest would give a food deficit of 600,000 MT. Following the announcement of this there was an abnormally early price increase in June 2002, with traders buying up maize in expectation of further price increases as experienced in the previous year. The government entered into a memorandum of understanding with the millers that they would import 300,000 MT, while the government would import 180,000 MT as food relief and 120,000 MT for disposing with the Food Reserve Agency. In the event there were no imports by the millers until December.

More domestically produced maize than expected was offered for sale after the 2002 harvest. Prices stayed high, however. Consumers may therefore have cut back on their purchases, consuming more of other staples, or relying more on relief food. Food aid imports were, however, held up by several months because of a ban on GMO maize. Relief operators had to reorganize their pipeline to supply non-GMO maize. Government imports were as usual late in arriving, some only arriving as the 2003 harvest was being marketed. Several thousand tonnes of maize purchased at prices as high as US\$ 270/MT were arriving in Zambia as farmers were offering their new crop at prices below US\$ 180/MT. The budgetary cost of this is, however, hard to calculate as it seems impossible to get reliable data on how much maize the government imported, what price was paid, and how much was being held in storage at any point in time. If we assume that 100000MT were purchased at prices US\$ 90 per ton above domestic market price the extra cost of this amounts to US\$ 9 million.

3.1.3 Recent developments

The 2003 harvest seems to be good. In mid-May maize was traded for US\$ 120 /MT on the Agricultural Commodity Exchange. Millers were lobbying for a lifting on the export ban on maize, to maintain demand by exporting to the DRC and thereby maintain remunerative producer prices for maize farmers.

More recently the GOZ has announced a floor price of maize. In early May 2003 the Government Chief Spokesperson announced a maize floor price for the economically disadvantaged remote areas. The price will be ZK 30,000 per 50 kg bag. This translates into ZK 600,000/MT or approximately US\$128/MT. In arriving at the floor price, the GOZ took into account the following: cost of production, profit margin, need for increased production, interest of millers/consumers and to safeguard the interest of farmers. The Spokesperson stated that the Food Reserve Agency would buy from the selected areas and that in other areas, market forces would dictate the price based on demand and supply “so as to conform with the policy of economic liberalisation.”

Stating an explicit floor price is a new development. It remains to be seen whether the government will have the financial resources to buy all the maize that will be offered at this price, and when and at what price it will be selling the maize.

Recently the Minister of Agriculture has announced a ban on maize imports in order to prevent the price from falling too low.

3.2 Malawi

3.2.1 The 2001 – 2002 season

Over the past 10-15 years, Malawi has shifted from being a nationally self-sufficient producer of maize in non-drought years to being dependent on commercial food imports and foreign assistance to achieve a national food balance. In view of the magnitude of poverty in the country, the Malawi government attempts to alleviate poverty through market liberalisation and targeted rural development programmes.

In February 2001, 13 out of Malawi's 27 districts experienced serious flooding. On February 22, the President of Malawi declared the flood situation a national disaster. It can be argued that this situation was the beginning of the hunger one year later.

The flooding was the main reasons why the second round maize crop estimates presented in March 2001 were revised downwards and indicated a 24% lower yield in 2001 than the year before. However at the same time crop estimates for several other of the important food crops indicated major increase in production (24% increase in rice production, 27% increase in groundnut production, 15% increase in cassava production). Based on this and later numbers, FEWSNET in early July 2001 stated that “Malawi will experience a 437,775 MT food surplus this year due to high root crop production.” This turned out to be too optimistic.

In July maize prices started to climb in a dramatic way, and the possible food shortage created a fear in the general public, resulting in panic buying. In the end of July 2001 the Malawi government proclaimed that it was in the process of importing 150,000 MT of Maize from South Africa to meet the national maize shortfall.

Already at that time there were questions and scepticism about the ability of NFRA to import all this maize before next year harvest. History tells us that this scepticism was well founded. Figure 8 illustrates how maize imports did not start to arrive before October, and most of the imported maize did not arrive before January and February. As with Zambia we might ask why private traders did not start importing outside the government programme? As in Zambia, private traders may have been discouraged by the planned government imports and sales. The price of the government-imported maize when sold by ADMARC to consumers was set at 17 MK/Kg. As import prices increased, private traders would find it hard to sell at this price. However, ADMARC supplies were late in arriving and insufficient to satisfy demand at this price. ADMARC sales had to be rationed and for some months market prices exceeded 40 MK/kg in some markets.

There are several reasons for why it took so long to import the maize, but the major cause was problems with roads and rails due to the last year's flooding.

In November 2001, Fewsnets reported that livestock prices began to fall as people started to sell of their asset to buy food, however, it took into February 2002 before the vice-president Malewezi conceded publicity that Malawi was facing a food crisis, and appealed to donors, private companies and NGOs for urgent assistance. Later (February 22) President Muluzi declared a "State of disaster".

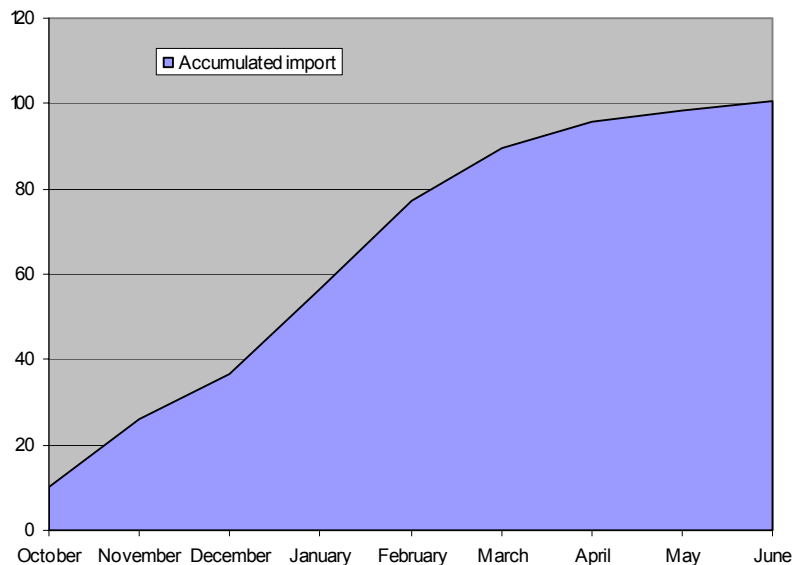


Figure 8: Accumulated import of maize by NFRA during the 2001-2002 season.

3.2.2 The 2002 – 2003 season

The Ministry of Agriculture and Irrigation released its final crop production figures on 20th June, following preliminary estimates in January and April. The final crop production figures for this season put maize production at 1,603,271 MT. This number was actually 6 percent less than the final figure of 1,713,064 MT for the previous season, which led to hunger and all time high maize prices. The Food Balance Sheet indicated a shortfall of about 600,000 MT maize equivalents. This time donors were less reluctant to cover a shortfall, and declared early they would import 200,000 MT for relief food distribution. Government announced it would import 300,000 MT of maize to cover (more or less) the rest for sale at the same price as the last year - the ADMARC price of MK 17 /kg. Both government and relief imports proceeded smoothly. The government imported 234,000 MT.

This time, however, the private sector was also ready. From early 2002 there were major imports coming in from Tanzania and Mozambique. How big the imports were is unknown. Prices were low in Mozambique, so that the private traders were able to sell their maize at lower prices than the ADMARC price. By March 2003 ADMARC and the NFRA held stocks of 260,000 MT for which there were no buyers at the price of 17 MK/kg. There are several possible explanations for the low price of maize during this season:

- Consumers were hungry, but did not have the purchasing power to buy sufficient maize to lift the market price to the ADMARC price, because their income and assets had been drawn down from the previous year's crisis – and also by effects of disease (HIV/AIDS) and land degradation.
- The production estimates underestimated the harvest of 2002. In the previous year they had erred to the other side, particularly by overestimating the production of roots and tubers, and the effects had been disastrous. It is likely that there was a strong desire not to do the same mistake again.
- Relief food distribution was sufficient to satisfying more or less households' needs when added to households' own production.
- Consumers and traders had adjusted their behaviour in light of previous year's experiences, by saving and storing more food from the harvest of 2002, thereby having more available for later in the season.
- Maize prices in neighbouring countries stayed sufficiently low for importers to be able to undercut the ADMARC price.

3.2.3 Recent developments

The Ministry of Agriculture, Irrigation and Food Security released its second round crop production forecasts on March 28, 2003. In this estimates maize production forecasts have been revised downwards from 2,032,271 (in the February estimates) to 1,900,975 MT. These estimates are based on actual area planted, crop production and factors that affects crop production. The third and final round of crop estimates will be released in June/July. However there are good reasons to believe that this season will be better than last year, and, at least at a national level, the country may not experience the same level of production-related food security problems as it did in the past two years.

Normally the best indicator of the next harvest is the prices just before and around harvest. In April prices ranged from MK8.44/kg at Chitipa market in the northern region to MK18.98/kg at Ntchisi market in the central region. These prices are generally lower than at the same time last year and they are expected to drop further in May and June as harvesting reaches its peak across the country. Hence price signals also indicate that this year would be a relatively good year.

The ADMARC price is MK17/kg, but a majority of the markets reported prices far below the ADMARC price. While these declining maize prices are good for those households still depending on the market for their food, they are not so good for ADMARC, whose sales will surely be affected in the short term. The ADMARC price is now considered to be very high and the only way ADMARC maize can sell in the short term is by lowering the price to be in line with the current market prices. However, this is not a simple matter, since ADMARC's price of MK17/kg is already subsidized, and further cutting the price will have fiscal consequences.

One uncertain factor when it comes to the development of this year's maize price is the large holdings of maize by NFRA. Since there is no clear policy about how much, and when this maize will be marketed, this maize creates uncertainty for private traders. Agreement has been reached with the EU for financing of a Strategic Grain Reserve of 100,000 MT for the next year, but the remainder of the stock is likely to exert a downward pressure on maize prices in the time to come.

4 Analysis of Price Instability and Market Stabilisation

Price instability in commodity markets, and the policy intervention it has justified, has long been a subject of economics and agricultural marketing research. Various forms of policy intervention have been attempted on the grounds of providing food security, improving microeconomic decision making by economic agents interested in reducing risk (stabilising farm income or stabilizing prices for consumers), improving macroeconomic conditions by reducing uncertainty in food markets, and enhancing the price-discovery process (Herrmann et al., 1993). However, a proper analysis of policy measures designed to stabilise prices must be based on theory that takes explicit account of dynamics, risk and uncertainty, price expectations, commodity storage, and international trade flows (Helmberger and Chavas, 1996). In the discussion that follows, instability is first discussed in the context of supply or demand in the context of an open economy (i.e., with international trade in the absence of government intervention). Afterwards, stabilisation programs are discussed in the context of domestic agricultural support (in a closed economic setting) or through trade policy. Obviously, a more realistic approach would be to allow for all of these possibilities simultaneously, but this would only distract from the general lessons that are the intention.

4.1 Sources of instability

Prior to intervening in commodity markets, policymakers will have to determine whether the source of the instability is external (i.e., that market shocks originate from the international market) or whether it is internal (resulting from country-specific circumstances). This determination will also require an analysis on how the source of instability results from unpredictable changes in the demand side or the supply side. Additionally, it is necessary to assess how policy intervention might discourage private actors from taking on marketing functions such as assembly, storage, processing and transport. In small countries, such as Malawi and Zambia, that switch from being a net food-grain exporter to a net importer depending on the prevailing market conditions, identifying the source of the disturbances and its effect on producers, consumers and marketers is of vital importance for policymakers and society.

In Figure 9, two independent situations are depicted whereby a market shock in the rest of the world (ROW) is imported into a small, open economy (e.g., Malawi or Zambia). The first situation, presented in panel a, represents a case when supply in the ROW increases (the shift from S to S^1) which causes the initial world price, $[P_W]^0$, to decrease to $[P_W]^1$. This change is then reflected onto the market of the small country. Panel b depicts the market situation of a price-taking small country that is assumed to be in equilibrium at $[P_W]^0$, such that q^* equates the domestic quantity supplied (q_s) and demanded (q_d). Hence, the reduction in price to $[P_W]^1$, from events external to the small country, results in the country becoming a net food-grain importer of the amount $(q_d^1 - q_s^1)$ units. The small country quantities, denoted by the lower case q , are considered so insignificant a volume on the world market that the ROW market is unaffected.

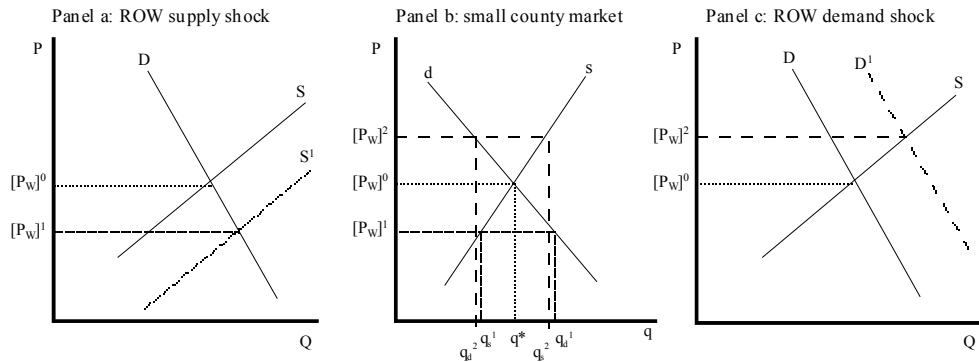


Figure 9: Price Instability Resulting from Changes Originating on the World Market

In panel c, a demand-side shock in the ROW (from D to D^1) causes the initial world price to increase to $[P_w]^2$. At the higher world price, the small country would become a net exporter, taking $(q_s^2 - q_d^2)$ units to the world market as shown in panel b. In both of these scenarios, where transportation and the costs of other marketing functions (e.g., storage) are assumed to be zero and where government intervention is ignored for simplicity sake, the prices of a commodity such as maize would be equalised across markets, resulting in the full effect of the international market shocks being reflected on the market of the small economy. [In subsequent scenarios, the implications of non-zero transportation costs, storage costs and government intervention will be discussed.]

Now, suppose instead that the instability arises not from the international market, but rather from internal market irregularities. Once again, government intervention has not occurred and transport and other transactions costs are not taken into account. In Figure 10, the small country is assumed to take the world price as given and is initially in equilibrium such that no trade occurs. Panels a and b represent market situations where domestic supply and demand decrease, respectively, resulting in a change in the country's net trade position. The decrease in domestic supply from s to s^1 , shown in panel a, would cause a deficit and the country would import $q^* - [q_s]^1$ units of maize from the world market. In the scenario in panel b, a decrease in demand from d to d^1 would cause a surplus such that the country would export $q^* - [q_d]^1$ units of maize. It is important to note that in these cases the world market actually stabilised internal prices despite the instability in quantity.

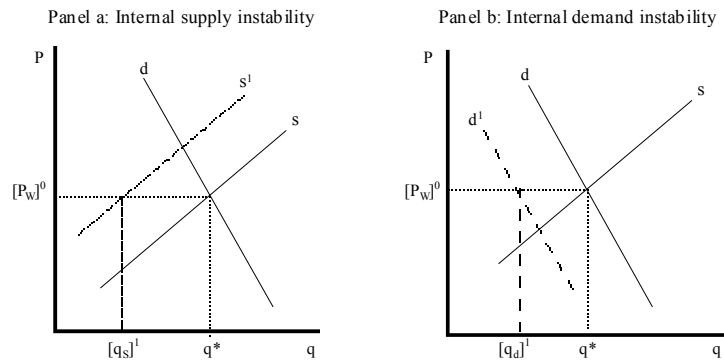


Figure 10: Market Changes Originating on the Domestic Market

4.2 Spatial differences

Incorporating transportation, a marketing cost, will highlight an important relationship between commodity prices and marketing margins. Exposing this relationship will provide insight into how transportation costs cause commodity prices to oscillate in small countries.

First, transportation costs are determined by several factors, including the mode and availability of transport and related infrastructure, location and distance, time, bulk, weight, value, volume, and perishability (Appleyard and Field, 2001). The standard approach for measuring transportation costs is to divide the CIF (cost, insurance and freight) import price by the FOB (free-on-board) export price quotation. This ratio reflects a measure of the cost of shipping relative to the price of a commodity. Estimated ratios reported in Appleyard and Field show that Africa has consistently had the highest relative transport costs in the world, also when compared with other developing countries.

Second, transportation costs are not shared equally between importer and exporter. The more inelastic is supply and demand in an importing country relative to the exporting country, the larger the relative share of the transport cost that is paid by the importer (Appleyard and Field, 2001). To put this in the context of small, landlocked countries such as Malawi and Zambia, where maize is by far the primary foodstuff, the likelihood is that they will tend to take a larger share of the transportation costs, implying that transportation costs are expected to contribute to price instability.

Keeping in mind that the transport margins are high, it is time to illustrate the commodity price-marketing margin relationship. There are two theories explaining the price-marketing margin relationship, the *cost-plus* approach and the *derived demand* approach (Kohls and Uhl, 1998). The cost-plus approach suggests that marketing costs are simply added on top of the price of the commodity, or that the transport costs plus the farm price (i.e., the domestic price) is the world price. The derived demand approach suggests that the farm price is the retail

price (i.e., the world price in this context) less the transport margin, or the domestic price is what is left over after the transportation cost is subtracted from the world price.

The relationship between transportation costs and commodity price fluctuations is presented in Figure 11. Panel a illustrates the case of the cost-plus approach. For a small food-grain importing country, the transportation costs, T , would simply be added onto the import price that is given as the world price, P_W . Consumers would purchase the commodity at the domestic price, $[P_D]^1$, which is T , a fixed per unit transportation cost, added to P_W (that is, $P_W + T = [P_D]^1$). So, in years when supply becomes scarcer in the small importing country, the transport margin exacerbates the internal price increase. In the case of the derived demand approach, the theory suggests that the price to the small exporter is $P_W - T$. In panel b, the small exporting country having to sell at P_W will have to discount the fixed unit costs of transportation, lowering the internal price to $[P_D]^2$. Taking the two cases together, reflecting the possibility of a country switching from net importer to net exporter across crop years, implies that transportation costs will cause prices to oscillate over a wider price band, e.g., between $[P_D]^1$ and $[P_D]^2$, rather than over $[P_W]^1$ and $[P_W]^2$ as illustrated in figure 1, panel b.

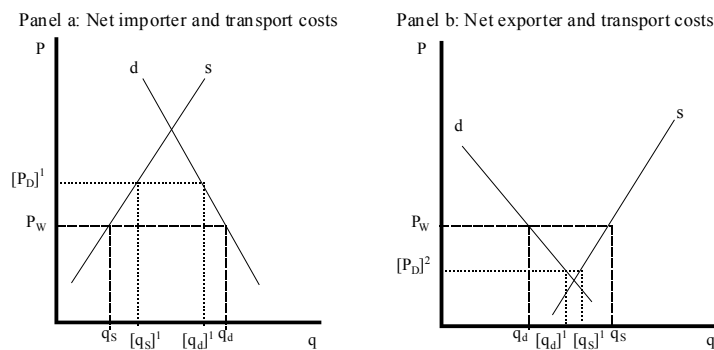


Figure 11: Implications of transportation costs on small, open country

Furthermore, maize prices across regions within these countries can be dramatic, reflecting production differences but also location differences (proximity to miller or end user markets), storage, transport availability (rail, trucks, condition of the roads), flooding or other market disturbances or constraints. These conditions will also contribute to local price volatility within a country because regional markets would be segregated. Segregated markets reduce the benefits of comparative advantage and trade within a country in exactly the same manner as restrictions and distortions in trade between countries. Improvements in the transportation infrastructure and dissemination of regional price information to integrate regional markets would provide an effective payoff from government expenditures.

Finally, price divergence can still occur between regions in the short run even when arbitrage opportunities are seemingly non-zero (Barrett and Li, 2002). This may be explained by the time it takes to arrange for transportation, or there may be bottlenecks in the physical handling of the good. However, in efficient and integrated markets, prices will not persistently remain outside the arbitrage limits.

4.3 Government intervention in agriculture

Agricultural production is inherently risky through its high fixed costs, biological constraints that prevent adaptations to short-term market changes, seasonality, dependence on the weather, possibility of pestilence or disease, and the geographical remoteness of production relative to consumer centres is generally a disadvantage. Food demand also presents marketing challenges as food consumption is affected by fads, habits, cultural practices, seasonality, and its vital importance to our livelihoods.

Throughout the world, policymakers' perception of the uncertainties faced by producers and consumers and their risk-averse nature is taken as an invitation to intervene in agricultural markets. Table 18 summarizes the different types of risks in agriculture. Risk management strategies are separated into three types: government intervention through domestic support programs and/or the creation of state marketing enterprises; government intervention through the use of trade policy measures and/or the creation of state trading enterprises; or allowing room for the private sector to assume marketing risks and/or the creation of specialized risk-management institutions (that are regulated but not state directed).

Domestic support programs to address risk considerations are quite diverse depending on the type of country (importer or exporter, rich or poor). These programs can be indirect such as those involving investment in public goods. More specifically, these are comprised of government financed, in whole or part, research and development, extension, pest and disease control, expenditures on off-farm infrastructural works, food aid, public stockholding for food security, disaster relief payments, safety net and crop insurance programs.

The more direct domestic support programs are comprised by price stabilization through government owned/managed buffer stocks or government-financed storage, market stabilisation via income or price supports, or direct subsidies to producers on inputs, credit or storage. A symmetrical means of achieving price or market stabilisation programs is through the use of trade policy or through state trading enterprises that are sufficiently large to affect prices and control trade volumes.

Finally, in the absence of government crowding out the private sector, specialised risk management firms or institutions would be expected to assume the very risks that governments try to manage. These would include crop insurance providers, agricultural credit providers, commodity handlers (assembly, storage and distribution), forward contractors, and institutions such as futures marketing.

Economic theory provides for the possibility of market failures and the agricultural economics literature addresses many such cases. Basically, risk and uncertainty is at the heart of most of these problems. Because agriculture is risky, it is argued that insurance and credit providers are reluctant to provide their services at rates that farmers can afford. Commodity handlers taking advantage of poor food consumers in bad years imply that food security is a function with which only the government can be entrusted. Price uncertainty adversely affects producers' decisions so strongly that the price mechanism cannot be left for the market to determine. However, the very role of the government discourages the private actors from assuming the risks associated with all aspect of agricultural marketing. Agribusiness marketers, be they storage handlers, speculators, insurance or credit providers all assume part of the risk inherent in the system with the intent to profit from their actions.

Table 18: Types of Risk in Agriculture and Risk Management Strategies

Type of risk	Risk to whom or of risk of what	Risk management strategy		
		Domestic support programs or state enterprises	Private sector initiatives or institutional responses	Trade policy measures or state trading enterprises
Destruction or deterioration of physical product	Farmers experience production losses or yield reduction	Disaster relief; subsidized crop insurance; input subsidies	Private crop insurance; yield futures contract; commercial input suppliers	Trade policy is an inappropriate response to correct a yield or production loss or a commodity handling accident
	Handlers cannot move sufficient volume or experience loss from storage or transport accident	Subsidize on-farm storage; subsidize commodity handling insurance	Private insurance transit or storage insurance	
Farm income or agricultural prices are too low	Discourages farmers or exporters assuming risks	Price floor, income support with storage subsidy	Forward contracting or a futures market; marketing board	Export subsidy or dumping through a state exporting firm
Food prices increase in poor net food importing nation	Food becomes inaccessible to consumers or too expensive for handler/user	Price ceiling; consumption subsidy; buffer stocks; strategic reserves	Forward contracting or a futures market; private storage	Import subsidy to private or state importing firm; export tax, restriction or ban
Price or income instability upward or downward	Macroeconomic instability from unstable development	Stabilize prices or income through price or income support; buffer stocks; strategic reserves	Price discovery where merchandising strategies include forward and futures contracting, cooperatives, insurance, etc.	Tariff or import licensing control to support price; export subsidy; export credit or promotion programs; state sponsored commodity agreements or marketing board
	Agricultural sector diversifies rather than specialize			
	Problems for agricultural credit suppliers	state rural credit providers; farm credit subsidies	Private agriculture lending firms	
Quantity instability	Problems for handlers to assume risk	Storage subsidy or government takes on storage	Forward or futures contracting	Variable levy and/or export subsidy
	Food security issues	Buffer stocks or strategic reserve	Diversify imports	

Without price or quantity fluctuations there would be no need for the private sector to participate in risk management, implying the government must assume the risk forever or that the risk will somehow disappear. Hence, government efforts to stabilise prices or markets, whether successful or not, will tend to crowd out the private sector. Therefore, policymakers need to determine why price or market fluctuations are bad and then ascertain whether the benefits from intervening exceed the costs. In addition, policymakers must assure society that any intervention will send clear signals to producers, consumers and marketers as to their long-term roles within the marketing system. Otherwise, the intervention will only postpone price and/or market instability and perhaps making the problem worse for the longer run.

4.3.1 Price stabilisation

A case can be made that the markets of Malawi and Zambia are subjected to uncertainty both in terms of demand and supply. Uncertainty in demand or supply will result in price volatility from one crop year to the next. It can be shown that under strict assumptions social welfare can be improved through price stabilisation schemes. Such a scheme would entail buffer stocks such that some specified price is maintained or such that the market price falls within a defined price band. In Figure 12, the case of uncertainty in demand and supply are shown in panels a and b, respectively. It is assumed that the government takes on the storage function in order to stabilise price at specific price, P_s . In years of surplus, the government stores the excess supply and in years of surplus grain is released.

In the case of demand uncertainty (panel a), in one year demand can be high (as represented by D^2) or low (D^1). For the purposes of simplicity, a complete cycle occurs every two crop years within which there is one year in which demand is high and another year in which demand is low. That is, there is a 50% probability that demand is high and demand is low. Under these restrictive conditions, and subject to the assumptions provided below, it can be shown that consumers would benefit from stabilising the price at a price, P_s , rather than having them face the high price, P^2 , in high demand years and P^1 in low demand years.

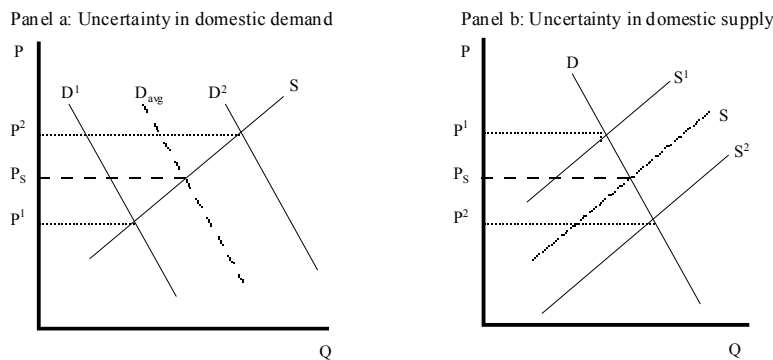


Figure 12: Price Stabilisation under Uncertainty in Demand and Supply

Price stabilisation of this sort, all else the same, would make producers worse off, but society could be better off over the two-year crop cycle. Hence, the program would represent income re-distribution from producers to consumers.

In the case of supply uncertainty, the situation is reversed. Supply varies from one crop year to the next, causing prices to oscillate between price, P^1 , when supply is low (S^1) and the price, P^2 , supply is high (S^2). Instead, if the government intervened to stabilise price at the price, P_s , it can be shown that producers and society can be made better off at the expense of consumers. Such a result would represent a sort of income re-distribution from consumers to producers, reflecting that society prefers to reduce the uncertainty in production experienced by producers.

However, to be able to conclude that the benefits from stabilization exceed the cost in this simple model, the following restrictive assumptions are made:

1. linear demand curves and additive disturbances;
2. free storage by the buffer stock and no private storage;
3. prices are known at the time of consumption or production;
4. the welfare measures are appropriate;
5. homogeneous groups of producers and consumers;
6. no other sources of instability;
7. no dynamics;
8. no general equilibrium effects; and
9. market equilibrium is known.

The reality is that price stabilisation programs are very complicated and expensive. Herrman, Burger and Smit (1993) provide a detailed review of the literature covering the problems associated with each of these assumptions. In developing countries, these schemes have been implemented when: there are multiple sources of instability operating simultaneously; there is too little timely information on prices and quantities (suspect crop assessments or poor data on domestic availability); market equilibrium has varied from year to year and the dynamics of the market are not known; storage and transport functions are not free services and government intervention displaces the private sector; there are transport bottlenecks and inadequate infrastructure; and non-transparent government intervention contributes to the instability. Many other sources of instability exist, making prices and volume difficult to know at any point in time in Malawi and Zambia. The experience of the past two crop years is good evidence that even at the highest level there exists of a lack of information and coordination, an inability to manage stocks, and lack of understanding of the private sector's ability to take on the storage and transport functions.

Commodity prices, in particular maize, are determined by equilibrium supply and demand conditions, and the expectations of future supply and demand conditions. This generates a market for storage and speculation. Carrying stocks represents capital cost, storage cost and potential losses. When future conditions are “foreseeable and foreseen”, speculative storage causes prices to fall at harvest and then rise according to the opportunity cost of storage until the next harvest (Williams and Wright, 1991).

Here it must be highlighted the differences between strategic reserves (stocks held to deal with immediate short-term threats of famine) and buffer stocks (held to maintain prices within some specified band). Given the difficulty of managing and financing the costs of stabilizing

prices, and the adverse effects on the development of the private sector in taking on this marketing function, a policy to hold strategic reserves might be more effective and more manageable, without the effect of retarding the development of private initiatives. Obviously, society will have to determine how famine is defined and the causes of it. These are neither straightforward nor trivial. The fact that many societies do not as yet possess the ability to anticipate, prevent or even adequately respond to famine can be taken as an indication that the views on what famine is, and what causes famine are often based on misconceptions (Ghose, 1987).

4.3.2 Market stabilisation

In the absence of random uncertainty, domestic support of production through income or prices could help stabilize the market. There are three reasons for justifying such stabilization programs: (1) unlike production, consumption tends to be more stable and so targeting producer income or prices will increase the likelihood that supply can be maintained at some production target; (2) stabilizing prices is argued to stabilize producer income (thereby reducing the marginal cost of risk), ensuring producers purchase inputs which will increase the likelihood to producers maintain output levels; and (3) stabilizing the market will reduce marketing costs as ample supplies are available for commodity handlers (Helmlinger and Chavas, 1996).

Figure 13 illustrates how income and price supports would stabilize a market. Trade is excluded from the analysis to focus on the stabilization effect on the domestic market. In this case, there would be no need for the government to hold buffer stocks because the price to producers would be fixed, presumably with the effect of reducing production uncertainty. If production variations, for example the weather, were not a major factor, then prices to the consumer would also be more stable. This also excludes other factors that may cause market instability.

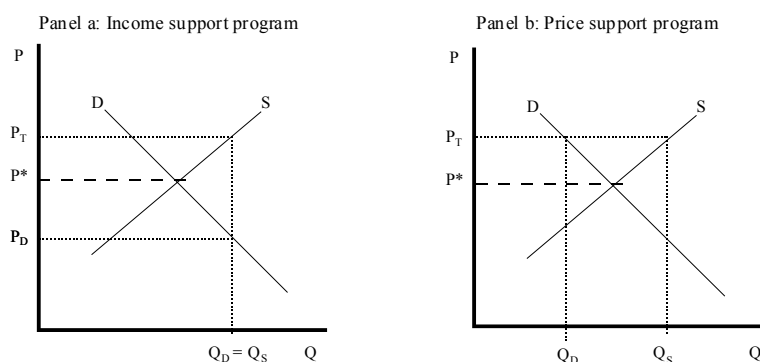


Figure 13: Comparison of Programs to Support Income and Prices

In panel a, an income support is presented whereby a targeted price, P_T , is guaranteed for producers. Part of the purpose of this targeted price is to target the level of production at Q_S . This price could be announced before planting so that producers would know the price and would not need to form price expectations. This reduces their risk and producers would purchase inputs according to their marginal costs.

While the price for the producer is guaranteed, the price to consumers would be that price (P_D) where the quantity demanded (Q_D) would be equal to the volume of production (Q_S). Hence, private storage handlers could take on the storage function as P_D could in principle include marketing costs. The downside of such a scheme is that the budgetary costs would be considerable. In this simple example, the cost to the government would be the value of $(P_T - P_D) \cdot (Q_D)$.

In panel b, a price support program is contrasted to an income support. The price is supported at the same price as in the income support, P_T , to keep the support to producers at an equivalent level. In this case, the price to the consumer is also at P_T . This would result in a surplus because the quantity supplied (Q_S) would be greater than the quantity demanded (Q_D) at a price supported above the equilibrium market price, P^* . Here the budgetary implications are in the cost of storing the surplus. Storage by government will discourage the private sector from taking on this function. A storage subsidy would be an alternative that would avoid crowding out the private sector. A larger issue is the higher price to consumers, especially in poor countries such as Malawi and Zambia. In an open market example, the international price would have to be taken into consideration. Thus, the targeted or supported price would have to be set with some idea about what world prices might be in the future. Setting a targeted price that deviates substantially from the world price would invite smuggling and other arbitrage opportunities, undermining the objectives of the policy and likely resulting in even larger budgetary outlays.

The lessons from price/market stabilization is that some degree of re-distribution will most likely occur without any guarantees of prices or quantity supplied being more stable. Moreover, these programs will have budgetary implications that would most likely have to be financed in part by donor countries. The extreme volatility in farm prices is often viewed as evidence that agricultural markets are themselves unstable (Helmberger and Chavas, 1996). So, whenever policymakers perceive the price volatility to be excessive (i.e., that prices oscillate outside some defined price band), then that is the call for the government to intervene. Economists point out that it must be understood why the price instability is objectionable and whether the benefits of stabilizing or targeting prices are worth the costs and whether it effectively achieves the social objective(s).

4.3.3 Trade policy measures

In situations where governments do not have the sort of funds required for income support or where consumers cannot afford a supported price, trade policy instruments have been used to achieve similar goals (or even to reinforce the market stabilising programs). Export taxes, restrictions or controls are a means of keeping prices low in the domestic economy, but this effectively serves as a tax on the agricultural sector. Such a policy stifles the development of the marketing system, as producers are discouraged from specialization, which, in turn, reduces throughput and marketing activity. Small-scale producers have no incentive to do much more than pursue self-sufficiency as additional output is taxed. Import tariffs on cereals from neighbouring countries would serve the opposite purpose, subsidizing producers and taxing consumers by raising the domestic price. Import tariffs without proper customs control will simply encourage smuggling, as border prices will be lower relative to the domestic price (with the import tariff).

Therefore, trade policy measures such as taxes, tariffs, quotas and licensing schemes can be employed such that the price stabilization effects are symmetrical, without the government

having to finance the support (except in the cases of an export or import subsidy). Instead, the taxes, tariffs, quotas and licensing schemes provide government with either tax revenue, quota rents, or licensing fees depending on which method the government chooses to administer the policy measure. The choice of the trade policy measure for price stabilizing purposes will depend also on the source of the uncertainty (supply or demand and the extent to which it is being imported from the rest of the world), but the income re-distribution effects will be symmetric to domestic agricultural programs (Vousden, 1990).

4.3.4 Commodity agreements and marketing boards

An alternative to dealing with instability of prices on the international market can be to form commodity agreements or to create a marketing board. However, these arrangements would be suited for countries that were net exporters. The functions of commodity agreements or marketing boards are very similar in that the objectives are to maintain price stability and improving farm income (or export earnings). There is a broad literature on the effectiveness of various agricultural commodity agreements in terms of their ability to stabilize prices or to improve earnings. It is also debatable as to whether the evidence supports the notion that commodity agreements have been formed because of periods of excessive price volatility, suggesting that the agreements are more motivated by rent extraction behaviour (Herrmann et al., 1993).

Marketing boards tend to fall within two broad categories, either as a parastatal agency with monopoly control of the commodity, or as a parastatal agency with monopsony power in the purchase of the commodity. The second sort of marketing board is that which has tended to surface in developing countries. The principal reason offered for why a parastatal agency was established with the authority of monopsony control was the need for stabilisation as a means of protecting producers from short-term price instability (Bauer, 1987). The establishment of marketing boards must be well thought out to avoid ambiguities in the concept of stabilisation. That is, it must be clear to the policymaker what is being stabilised, e.g., money prices, money incomes, real prices or real incomes. The creation of a board must also mean the creation of a maximum or minimum prices or income. Thus, this must be spelt out. Finally, according to Bauer (1987), it is necessary to be clear on the period over which this stabilisation policy is to balance surpluses and disbursements.

4.3.5 Private sector initiatives and the role of government

Whatever form policy intervention does take, it should be applied with a view toward minimising the effect on the private sector. In spite of the government's best intentions, prices, quantities supplied and markets will vary for a multitude of reasons. However, private, local actors will be able to respond quickest, most effectively and at the lowest cost. Storage handlers will only take on that function if seasonal prices increase over the crop year, rewarding them for their efforts. Having to compete with a government that will release supplies unexpectedly will crowd out private storage operators.

Warehousing is an activity involving much more than storage, encompassing a broad range of other activities, such as assembling larger volumes, breaking bulk shipments into smaller sizes to meet local needs, and preparing products for reshipment (Albaum et al., 1998). Two variables of importance will be the need to determine the number and type of warehousing facilities and their spatial arrangement. In a country with many small producers, each of which has difficulty physically and financially storing maize over the crop year, and has no

access to credit, a system that enables them to more fully participate in the price-discovery process is desirable. A warehouse receipt system, which serves as a form of inventory credit, is a technique for financing storage and trade in commodities. This effectively turns stock-in-trade into secure collateral, reducing the lending risk faced by creditors. Additionally, credit costs are reduced and become more available to farmers who need to borrow (O&M Associates Ltd., 1999).

Basically, this entails the farmer depositing the commodity in the borrower's warehouse under the control and supervision of the warehouse. The warehouse operator, the lender in this case, advances the farmer a percentage of the commodity's market value taking into account the risk associated with the borrower. The warehouse receipt then serves as having a claim on the commodity as collateral. The transaction is completed at the time the commodity is sold. In a marketing system where credit availability is lacking and/or expensive, seasonal storage by individual farmers is difficult, and prices into the future are uncertain, a warehouse receipt system can represent an improvement in agricultural marketing by:

- reducing finance costs to farmers, traders, and commodity handlers;
- lowering seasonal price fluctuations and improving price discovery;
- improving grading and standardization through specification trading;
- minimising storage risks and transactions costs; and
- reducing physical handling, procurement, and disposal functions (O&M Associates Ltd., 1999).

The system can make rural finance initiatives more sustainable and less subsidy-dependent, and it can promote barter-type input credit schemes by making them more liquid. A warehouse receipt system can also contribute to financial sector development, providing an alternative liquid asset for banks. Specification trading implies that grades and standards are promoted. The receipts can be traded throughout the region rather than the commodity physically having to be stored and moved to different locations, reducing inefficiencies associated with physical handling functions.

A typical warehouse receipt scheme can function along the lines of the simplified examples that follow. Suppose after harvest the farmer deposits grain at a licensed warehouse. The farmer's grain is weighed and graded and the specifications (quality, quantity, location of the delivery and name of the depositor) are recorded on the document, the warehouse receipt. A farmer, having deposited grain, can borrow from a bank against the receipt which is used as a claim on the value of the grain, e.g., collateral, or the farmer can store the grain as a means of finding a larger pool of buyers (traders, millers). However, the depositor can actually be any market actor besides a farmer, such as a farm cooperative, trader, miller, or banker). The receipt represents the store of value the grain has at the time the grain is withdrawn. The receipt is tradable or transferable to any entity willing to accept the receipt (and the value that the grain represents) to satisfy a private transaction. This represents an improvement in transaction efficiency as the grain need not be physically exchanged (which might be costly to transport). Instead, only the receipt can be exchanged (Giovannucci et al., 2001; Coulter and Onumah, 2002).

According to Giovannucci et al. (2001), a system of warehouse receipts can reduce uncertainty and increase efficiency of an agricultural marketing system under the following conditions:

- There must be a general tendency for the price of maize to increase after the harvest period to cover the costs of the storage function. Government intervention to stabilise the market will undermine the effectiveness. Therefore, intervention must be directed toward market-consistent instruments and toward establishing a transparent legal environment, the regulatory regime on grading and standards, and a system for licensing and monitoring the warehouse operators.
- Market information is essential because a warehouse receipt system involves speculative activity just as does farm production, storage, processing, credit, and price discovery. The timely publication of price information is critical for the system to function properly.
- Receipts must be tradable through physical delivery and/or by endorsement. Hence, the receipts must specify the quality of the grain and the quantity stored by each actor. The rights, liabilities and duties of each actor involved with the warehouse (producers, traders, millers, bankers and the warehouse operators) must be defined and enforceable. Holders of receipts must be assured that what they put in for storage is equivalent to what is withdrawn from the warehouse.
- There must be a system of oversight (i.e., licensing and inspection) of the facilities and the actions of the warehouse operators. This will ensure that receipts have the credibility to be traded into the future.
- There must be a system of grading and standards (and a legal mechanism to settle business disputes on matters related to the details of the receipt) to assure farmers, traders and bankers of the quality and value of the physical product. This will support the credibility and confidence that the marketing system (and the price-discovery process that stems from it) will reflect the value of the grain that is traded. The credibility is as important for a farmer storing grain, as it is for a trader merchandising grain, or as it is for a banker accepting grain as collateral.
- The background situation of the storage industry must be liberalised such that prices are not stabilised or that movement of grain is unrestricted; that the cost of financing does not prohibit taking on the storage function; that the storage infrastructure is adequate to maintain the quality of grain that is stored; and that warehouses are located in grain-producing regions so that the transport margin does not discourage the storage function.
- Finally, the warehouse must offer performance guarantees in the form of an insurance bond or a letter of credit. This serves as the formal mechanism for acceptance of a receipt because this provides compensation for loss in value of stored goods in cases where stored grain does not match the specifications of the grain recorded on the receipt. In the absence of such a measure, producers would be sceptical to store, traders to buy and sell, and bankers to accept grain as collateral for their loans.

In Zambia a system of warehouse receipts has been developed, but has so far failed to take off, due to difficulties in obtaining the necessary insurances required for banks to provide inventory credit based on the warehouse receipts as collateral.

Finally, futures markets have been proposed as a policy response to price volatility in developing countries. Morgan, Rayner and Valliant (1999) suggest that as more countries are liberalizing and reducing state intervention more market based measures and risk-management instruments are likely to become more popular tools of risk management. The inability of countries to employ agricultural programs that stabilize prices or maintain the necessary resources to achieve it through buffer stocks, export restraints or through marketing boards is an argument used for futures markets in developing countries. The ability to offset

the exposure to price risk through hedging strategies is much more neutral with respect to income re-distribution between producers and consumers who are simultaneously poor, or to a government that is not endowed with the financial resources to subsidize or with the technical capacity to manage buffer stocks or significant volume of reserves.

A most important role for the government is to provide information, good and bad, in a timely fashion so that private actors (farmers, consumers, storage handlers, transporters, millers, importers, etc) can act on the information. These actors will almost always be able to operate more appropriately (in terms of dealing with a specific problem or opportunity), respond to a situation faster, and do so more cost effectively than government. The government is probably most suitable in cases where access is limited and to those individuals who are most vulnerable to even marginal changes in food prices. However, the difficult balancing act lies in the government's ability to help the weakest while discouraging long-term dependence.

5 Policy Issues for governments and donors

5.1 The need for government intervention in maize markets

The governments in Malawi and Zambia have adopted strikingly similar agricultural policies. Both have liberalised and withdrawn from direct intervention in most of their input and output markets, but with the important exception of maize and fertiliser and seed inputs. The governments undertake maize imports, they have established strategic grain reserves and programmes for subsidised or free input delivery. In Malawi the government is also involved in milling and rural marketing, through the parastatal Grain and Milling Company and ADMARC, whereas the government plays a smaller role in these activities in Zambia.

There seems to be a fundamental distrust of markets and the private sector in policy circles in the two countries. Private traders are not often seen as profiteering, hoarding and manipulating markets for maximising personal returns, rather than acting in the social interest. Policy makers are quick to point to market failure, lack of markets, rigged markets and profiteering as rationales for government intervention in markets for vital goods, such as maize. However, a fundamental insight in all basic economics textbooks, is that a competitive market with profit-seeking traders and producers will drive profits toward zero. This result does not require that all the conditions for a perfect market are satisfied. Reasonably free entry and exit to the market is, however, required. If large profit margins exist, new traders and producers will be attracted, and the higher competition will reduce the profit, to the benefit of the consumers.

The scepticism toward leaving maize to private market agents is in part based on the experiences from the period when markets were liberalised. The move from a system of parastatal marketing and pan-territorial prices was obviously very difficult, especially for farmers in the outlying areas, who had benefited from the transport subsidies implicit in that system. For instance in Northern Province of Zambia farmers had to adjust from maize to cassava production (Zulu et al., 2002).

The justification for government intervention in maize seems to be concerns that if trade is left to private market agents, prices will be higher, or more volatile, and there might be complete lack of maize in parts of the country for some periods. If staple foods become unavailable, or the price soars so it becomes unaffordable, this may have serious consequences for many households, no matter if this applies for a few months only. For governments this may also be risky, and they do not want to take this risk, even if interventions are costly (Jayne et al., 2002). The governments may also have other motives, such as the convenience of being able to provide subsidised or free food for maintaining support among politically important constituents (op.cit.).

Part of the problem with the liberalisation experience might have been that expectations were unrealistic (Harrigan, 2003). It takes time to develop well functioning markets. Investments in facilities, networks, institutions, and people are needed. It takes time for investors to gain confidence that reforms will not be reversed, to undertake investments and for the investments to yield returns in terms of better functioning markets. Uncertainty about government policy is not conducive to developing investor trust, and may deter long-term investment.

The possible problems of a market dominated by private actors must also be compared with the difficulties with government interventions. The governments of Zambia and Malawi have limited capacity for analysing and implementing complex policies. Moreover, price controls and import and other subsidies tend to create opportunities for mismanagement and corruption, for example, in the decision on who is to receive the subsidized maize or inputs. Such policies have therefore in the past created a fertile ground for 'rent-seeking' activities. Although both countries have taken significant steps towards addressing these problems, one still needs to factor in the possible 'mismanagement' costs of such policies.

There are also problems at the macroeconomic level. Public resources are limited. The governments in Zambia and Malawi are overstretched. Their annual expenditure exceeds revenue by roughly 5% of GDP (after accounting for foreign support). The deficit is funded by loans from the private sector, and because of this, real interest rates are in excess of 20%. Those who have money invest in buying Treasury Bills (i.e., lending to the government) rather than other productive investment. The budget deficit is undermining the long term growth prospects of the countries, a key to ensure food security in the future. On this background it is justified to ask whether the government should use its scarce resources for subsidising maize imports, operating strategic reserves, operating mills and rural shops, and subsidising inputs (or giving them out for free). On the other hand, protecting the population (especially children) against food shortages due to crop failure and entitlement failures may be crucial to obtain the long-term investment in human capital needed for growth.

Ending government intervention in maize markets will not immediately create efficient markets. Grain marketing is, however, an activity where there are relatively small start-up costs and low barriers to entry. When price differences in different markets (domestic and foreign) exceed transport costs between the markets, traders are able to make profits from trading between the markets. Indeed, this has been one of the complicating factors for governments during the last season. Private traders have imported large volumes of maize, and have undercut the government price. The imports from Mozambique are evidence of traders taking advantage of arbitrage opportunities, but we also see that price differentials frequently exceed transport costs for extended periods of time, which indicates that markets are still thin and poorly developed.

Markets can be made more efficient by improved market information dissemination systems, better infrastructure and more predictable government policies. Market agents can play an important role in improving market information systems, but government can also contribute. It would also be helpful if investment in food storage and marketing did not need to compete with investment in Treasury Bills yielding in excess of 20% per annum with relatively low risk.

5.2 Markets in remote areas

Private market agents are unlikely to be active in remote areas where transport costs are high, surpluses offered for sale small, and demand (or purchasing ability) for goods low. In these areas, the number of traders may be so low that they may be able to charge monopoly prices. Output prices are likely to be low and input prices high. In Malawi this has been an argument in favour of maintaining a high number of ADMARC depots in these areas. It is, however, highly unlikely that public agencies are able to operate with lower marketing margins than private traders. ADMARC trading in areas that private traders do not find profitable will

require subsidies. Unprofitable depots will need to be subsidised by other ADMARC activities or from other sources. We have not been able to evaluate whether the depots are indeed currently able to provide the stated services, but note that subsidies need to be financed from somewhere, and that ADMARC does not have the resources to finance them without government support.

5.3 Strategic grain reserves

Both Zambia and Malawi have established strategic grain reserves and organisations to manage these. The rationale for having a public strategic reserve is that this will secure food supply in a situation when supply through other channels becomes unavailable.

The reserves have been the subject of considerable controversy: are they actually needed, how big should they be, and how are they managed? "An investigation by Malawi's National Audit Office in May 2002 concluded that the National Food Reserve Agency lost money in every area of handling maize because of poor financial management. Another investigation, conducted by Malawi's Anti-Corruption Bureau in mid-2002, found that poor management of the grain reserve allowed companies and individuals to take advantage of the maize shortage to increase prices beyond the reach of a large sector of the community. The mismanagement cost the Malawian government more than MK 2.9 billion (about \$40 million)" (United States General Accounting Office, 2003, p.10). In both countries persons involved in the management of the strategic food reserve have been under criminal investigation. We will not discuss these investigations, but rather look at the rationale behind such public reserves.

As in 2001/02 a future production shortfall can cause a food crisis. This can be met by having a physical reserve of grain in store in case such a shortfall should occur. An alternative is to maintain financial reserves and a preparedness for food import. Under normal circumstances it is possible to import maize to Zambia and Malawi. There will, however, be a lag from the time the decision to import is made to when deliveries arrive. For instance, in Zambia commercial operators may need a couple of weeks or more from the time an order is placed in South Africa until the maize arrives Lusaka. Reaching more remote areas takes longer. Government agencies need more time for organising tenders and sorting out the logistics of imports. A normal lead time for public agencies is considered to be three months, and this is used as a basis for estimating required reserves. During the 2001/02 season prices increased exceptionally fast from May to August/September 2001. But it took several months before shortages became acute and prices peaked. We have earlier argued that with better and more predictable policies a more rapid response from private importers would have been possible. This could have softened the crisis.

Zambia and Malawi have experienced times when transport routes have been shut off by civil war and strife in neighbouring countries. How much insurance – in the form of holding reserves of strategic commodities– should Zambia and Malawi buy as preparedness for new instances of trade routes being disrupted? If holding a reserve were costless, there would be no need to discuss this question. The insurance would be free. Unfortunately, there are sizeable storage costs, spoilage and other losses, as well as opportunity cost of the capital bound in the stored goods. Furthermore, having a large public strategic reserve creates disincentives to private storage of the commodity. Unless some very predictable and credible management rules can be established for the reserve, private agents will be reluctant to hold stocks, out of a fear that the reserve will be sold out at unpredictable times at subsidised

prices, undercutting the value of their stored commodities. Recent events in both Zambia and Malawi indicate that such fears are not unfounded.

Leaving maize trade to private market agents will give incentives for traders, farmers and households to keep stocks. Improved market information systems will alert traders to the possibility of profits to be made from ordering imports in sufficient time to bring in supplies, and to transport commodities to cities and regions that are in deficit. Smallholders, farmers, millers and households would also have larger incentives to store. Private stores combined with a well functioning private sector would obviate the need for large publicly held strategic reserves.

5.4 Should the government attempt to stabilize prices?

The variability of harvests is bound to have some negative impacts and cause costs. Finding appropriate policies for minimising the cost is very demanding. It is also very information intensive (crop estimates, trade flows, stock information, and commodity flow throughout the marketing system). Appropriate policies would involve combinations of measures to improve both storage and trade.

In principle it is possible for the government to stabilise prices by buying the commodity when the price is low and selling when it is high, thus reducing the price band. This sounds like a recipe for profit-making, or at least covering costs. But, if price stabilisation is an activity that should be profit generating, why should the government be involved in it in the first place? Why not just leave it to profit-seeking private marketing agents?

The general conclusion on government attempts to carry out price stabilisation schemes in practice is that they are costly. There seems to be a tendency for such schemes to set the floor price too high and the ceiling price too low. In both cases defending the price band requires major outlays from the budget (Williams and Wright, 1991). In the case of a floor set too high the regulatory agency will be accumulating stocks, which is also costly. Moreover, the existence of the stock will exert a downward pressure on prices, defeating the purpose of government buying to raise prices. In the case of a ceiling the government may need to subsidise imports to be able to sell the demanded quantities at the ceiling price.

When prices are expected to increase from the harvest time through the dry season and into the beginning of the rainy season, as they generally do, private traders may speculate in this price increase by buying when prices are low and storing the grain with the objective of selling when prices are high. In so doing they are stabilizing prices, lifting the price at harvest time, and reducing the peak price from what it would otherwise have been. A competitive market will thus lead to a price path where price will be lowest at harvest time, and then increase at the same rate as storage costs. Prices will, however, also adjust to changes in supply and demand, as well as to changes in expectations of future supply and demand (Williams and Wright, 1991). As the opportunity cost of capital is an important component of the cost of storing, bringing down the interest rate would be an important contribution to reducing intra-seasonal price variation.

5.5 Food aid and low maize prices

The governments and donors are faced with a dilemma. In the short run government subsidised maize imports and donor-funded food relief hand-outs are good for the poor, even

life-saving in many cases. Yet, these interventions lower maize prices and thus reduce incentives to produce and to store maize. By lowering the consumer price of maize relative to other crops, they also reduce the incentives for consumers to diversify their consumption toward other crops, thereby reducing the incentive for growing these other crops too. Relief providers undertaking their own transport operations and distribution programmes are also competing with the development of a well functioning market.

During the past two seasons donor agencies have been running big emergency relief operations handing out food in Zambia and Malawi. They have imported food and distributed it using their own fleets of vehicles and their own organisations for distribution. This may have been necessary in an acute crisis situation. The operations have, however contributed to depressing domestic producer prices and crowding out local traders. The trade off between relieving short-term suffering and giving incentive to longer term production growth is a difficult one. It is hard to strike a good balance. Agencies handing out food should as far as possible buy food on the domestic market. This would support the development of local production, a well functioning market and market agents' capacity to import.

Smallholder farmers in Malawi do not produce enough maize for own consumption. Even in a good harvest year, as in 2000, only about 5 % of the farmers produced enough maize to last from one harvest to the next (see Table 19); the other 95 % had a maize deficit. More than 20 % of the farmers had 6 to 12 months of food deficit. The average household maize deficit was 4.5 months. This picture gets even more serious in a poor harvest year. After the poor harvest in 2001 40% of the farmers ran out of maize from their own farm within six months of the harvest, another 37 % ran out of maize during the following three months. The average household maize deficit was 5.7 months.

Table 19: Maize deficit months in Malawi, 2000-01 and 2001-02 seasons.

Number of months of maize deficit	% households	
	2000-01	2001-02
0	4.8	3.4
1-3	38.5	19.7
4-6	33.3	36.9
7-9	17.8	31.7
10-12	5.6	8.3
Total	100.0	100.0
No. of respondents	1986	2676

Sources: (Sibale et al., 2001; Nyirongo et al., 2002)

Smallholder farmers produce more than 90 % of Malawi's maize. Still only about 15 % of the smallholder farmers sell any of their maize. On the other hand, households buying maize or maize flour comprised 87 % of smallholder farmers in the lean period after the 2001 harvest, compared with 60 % in the 2000-01 lean period (Nyirongo et al., 2002).

As can be seen above, most of the maize that smallholders produce is for consumption rather than for sale. In the smallholder sector, maize has the lowest market ratio (sales as percentage of output) of any of the main crops (Nyirongo et al., 2002). On the basis of the Starter Pack evaluations, Levy and Barahona (2002b) show that despite the price incentive in the 2001-02

season there was only a slight increase in the market ratio compared with the lean 2000-01 season. They argue that smallholder maize production decisions are not based on output prices. According to Levy and Barahona (2002b) the aim of the smallholder farmer is to produce as much food as possible, given the constraints that he or she faces. This attempt to maximise food production is explained by smallholders' risk and their view that it is too risky to depend on the market for food, as food might become scarce and/or too expensive; and their cultural values implying that in order to be respected you have to grow your own food.

The research team evaluating the Starter Pack programs in Malawi over the last three years argues that if smallholder production decisions are not based on output prices, we need not fear that lower maize prices will act as a disincentive to smallholder production. Furthermore, low maize prices should be encouraged to increase food security, because smallholders are net purchasers of food (Levy and Barahona, 2002a). Levy and Barahona argue that with lower maize prices smallholders may increase income by buying more maize, producing less of it and more of other, more profitable crops.

There are, however, two ways of obtaining low maize prices to consumers in the long term. One way is detrimental to economic growth, the other conducive. The detrimental way is to keep prices low through price controls or subsidised food imports. Subsidised maize imports depress producer prices, and reduce the profitability and incentives to invest in inputs and to produce maize. They also reduce the incentives to switch consumption toward alternative crops such as roots and tubers, thus depressing the producer prices of these too. Smallholder production decisions are, - at least partially, based on output prices. Low maize prices will influence long-run production negatively. Demand for maize will certainly increase due to lower prices. Reduced domestic production, increased demand and high import costs will eventually force maize prices to rise (unless the government or donors are willing to pay the escalating costs of keeping prices low through ever growing imports).

The alternative way of obtaining low maize prices is by letting the market determine the price, and investing in increased yields and labour productivity and efficiency in maize production and marketing. This involves the classic means of public investment in infrastructure, research and extension; and facilitating markets for input supply and credit provision. Continuing the campaign for crop diversification will also help to reduce price shocks from variation in maize harvests, as there will be less variability in the total food harvest.

5.6 Poverty reduction through productivity growth

The best way to improve food security is to reduce poverty through broad-based growth. Broad-based economic growth in Zambia and Malawi requires growth in agriculture, since most of the poor are found in the rural areas, and agriculture accounts for a major share of employment and GDP. Growth in agriculture will also contribute to lower food prices through productivity increase that is passed along to consumers.

Increase in production and productivity are feasible. While there is more underutilised arable land in Zambia, both countries have a potential for substantial growth in agriculture, through increasing yields and by bringing currently unutilised land into production. A precondition for this is improved profitability in agriculture. This again depends on the ratio between input and output prices, the availability of inputs, and on production skills. All of these depend on policies. There are many policy actions that can be taken to improve the profitability of agriculture. Input subsidies may play a role, but there is a much longer list of policies that will

be conducive, many of which will have longer lasting effects than input subsidies have, for example:

- Macroeconomic policies: Reduced budget deficit will reduce interest rates and reduce inflation, which again may reduce exchange rate volatility.
- Ending (or reducing) subsidised imports of maize will increase producer prices.
- Improved main roads, railway, rural access roads improve market access for smallholders. Improved infrastructure lowers transport costs, making farm gate input prices lower and output prices higher, thus improving the output- input price ratio.
-
- Investment in research for developing more productive crop varieties, livestock breeds, and production methods may result in innovations that lower production cost, and in some cases also reduce yield risk. Public extension efforts may be needed to disseminate these innovations to farmers.
- Extension of proven technologies, such as conservation farming.
- Promotion of farmers' organisations.

5.7 Household food security

Whereas broad-based growth may proceed rapidly, some years will be required for the full results of multipliers to materialise. There will also be individuals and households that will not have the resources to benefit for expanded employment opportunities. Thus, there will be need for measures to ensure household food security. There, may, of course, also be climate-induced production shortfalls that necessitate relief operations. The challenge is to ensure that short-term measures are not detrimental to long-term poverty reduction.

A large share of the rural population in Zambia and Malawi are unable to achieve food security even in normal years. Some organisations have indicated that major food distribution programs may be needed every year to ensure food security. In the short run this may be true, in the long run it should hopefully not be.

There is a big literature reviewing mechanisms for providing food security to people who are unable to access sufficient food through markets and own production (e.g. Barrett et al., 2001; Coady and Skoufias, 2001; IFPRI and WFP, 2003). Some studies also indicate that targeted food transfers are not only equity-enhancing, but also efficiency enhancing (Ravallion, 2003).

There is a wide array of measures to select from. They can roughly be divided into three types: public food subsidies and hand-outs (universal and targeted), public works, and human-capital subsidies in education and health sectors (IFPRI and WFP, 2003). The different schemes differ in terms of their ability to reach the intended beneficiaries, the cost per dollar (or similar) of benefit transfer to intended beneficiaries, their administrative complexity, and what other benefits they provide.

Universal food subsidies have a high cost of reaching the poor, primarily because a high proportion of the subsidies go to the non-poor. Targeting food subsidies (or hand-outs) to only the poor can incur high administrative cost and corruption, as well as leakage to the non-poor. Traditionally the most popular programmes have been public works, which employ the poor on projects that maintain or create a physical asset: a road, an irrigation canal or public building (IFPRI and WFP, 2003).

The advantage of such food for work or cash-for work programmes is that they can be made self-targeting. If the salary paid is sufficiently low it is only the poor who will be interested in participating. They also have the advantage of creating useful assets. It can, however, be challenging to plan projects in such a way that the assets created are actually useful, and that participants are not taken away from other productive work. Labour time, even of the poorest, has opportunity value. Lastly, people who do not have labour capacity, e.g. due to age or disease, may not be reached through interventions that require work effort.

More recently, human capital subsidies in the form of transfers based on participation in schooling or health programmes have been gaining popularity. School feeding programmes or “food-for-schooling” have the advantage of reaching children, who might not benefit from transfers to the households (although they will not reach the most vulnerable, i.e. pre-school children). They may also stimulate school participation, and thus help alleviate current poverty as well as future poverty by increasing household and community assets (op.cit.).

5.8 Starter Packs and Targeted Input programmes

The “Starter Pack” programme and its successor, the “Targeted Inputs Programme” (TIP) have been implemented by the Government of Malawi, with funding assistance from a number of international donors, for the past 5 years, starting in the 1998/99 agricultural season. A similar programme, although with smaller coverage, has more recently been introduced also in Zambia.

The initial Starter Pack programmes in the 1998/99 and 1999/2000 provided to (in principle) every rural smallholder household a pack of 15kg of fertiliser, 2 kg of hybrid maize seed, and 1 kg of legume seed. The inputs were sufficient for cultivation of 0.1 hectare according to extension recommendations. Maize and legume varieties depended upon location. From the 2000/01 the programme was scaled down and targeted to the poorest households. The 2000/01 provided 1.5 million packs, the following season 1 million packs were distributed. The packs were also modified, by replacing some of the hybrid maize seed with open pollinated varieties (Levy, 2003). The programme was expanded again to 2 million packs in 2002/03. The GOM tried to obtain funding for a further 1 million packs, but progress was slow and distribution of the additional packs took place too late for planting in many parts of the country (op.cit.).

At the time of the inception of the programme there was a heated debate among the government and donors on the justification for such a programme. How can free distribution of inputs be justified? There were several arguments in support of the programme:

- Increased yields are necessary for obtaining food security in Malawi, and inputs such as fertilisers and improved seed are required for obtaining increased yields. Fertiliser is needed for countering nutrient loss. Following the removal of fertiliser subsidies, fertiliser use was declining, yields were declining and soil degradation increasing. Small packs of free inputs could be seen as a “bridging” measure.
- The packs could also be seen as a means of extending new, improved varieties and cropping methods: Government and International researchers had “developed improved varieties of maize that roughly doubled the gearing, the ratio, of output to critical input - the ratio of kgs of maize per unit of nitrogen. Traditional varieties yield roughly ten units of maize to one of N. The improved semi-flint hybrids developed in

a concerted collaborative research effort yield roughly twenty units of maize per unit of N. Companion research showed how effectively some of that N (and better soil conditioning) could be derived from rotation/intercropping - soy, groundnuts, agroforestry, etc. (...) Something like 1700 farmer trials over 5 years both permitted regional "best bet" recommendations, and demonstrated widely that the improved seed and cropping combinations worked. (...) At Malawi's desperate poverty levels and with a dysfunctional credit system, few smallholders had cash even to experiment with these improved systems and tested high yielding varieties and cropping methods suited to the various agro-climatic and smallholder conditions of Malawi" (Mann, 2003). With free distribution farmers could experiment with and gain confidence in the new varieties and cropping methods.

- The packs were also seen as a means of providing household food security. The packs were capable of increasing household maize harvests by on average 100 – 150 kg. In 2000 the additional maize produced (around 350,000 MT) was enough to create a surplus at the national level (Levy, 2003).
- A targeted input subsidy is superior to handing out food aid – assuming that donors are equally willing to provide funding for both purposes. For making available a certain amount of food, it is cheaper to distribute inputs than to import the food.
- For the government, handing out free packs of inputs is also a good way to signal that it is “doing something” about hunger. “Starter Pack was highly popular in rural areas, and probably contributed to the re-election of President Bakili Muluzi in 1999” (Levy, 2003).

Several arguments were levelled against the programme. Most important of these, of course, was concern about the cost of such a programme, considering the severe financial constraints faced by the public sector (even with donor support), and the needs for improved education, health and infrastructure development (to name only a few of the competing uses of funds). Thus, difficulties with funding universal starter packs were the primary cause of scaling back and targeting.

For input providers the Starter Pack and TIP have probably been a blessing. For input market development, however, the blessing might have been somewhat mixed. Fertiliser suppliers were eager champions of the Starter Pack (Mann, 2003). While there are many reports of Starter Pack or TIP recipients selling their packs, there is no doubt that the public purchases have expanded fertilizer consumption, by making fertilizer available to households who would otherwise not be able to utilise these.

Handing out 3 million packs is a major logistical challenge. In the 1998/99 season there were reports of inappropriate seed being distributed. For example, some maize varieties recommended for the high altitude areas ended up in low altitude areas and vice versa. The same happened with the imported seed, which was distributed without taking into account the suitability of the varieties to the locations. The distribution of recommended varieties was disturbed by sending them to wrong destinations (Kambewa and Kachule, 1999). The overall size of the Starter Pack purchase reduced availability, and increased prices of inputs for the bigger farmers, who are the usual consumers of these inputs. For both fertilizer and maize seed, the demand created by the SPS was higher than the available domestic supply. The suppliers did not have adequate time to import the inputs for timely distribution to the farmers. Therefore, there was late distribution of the Starter Pack inputs as well as inputs through other schemes for promoting the same inputs (Kambewa and Kachule, 1999).

For small-scale fertilizer traders the programme presented a different problem. The traders had difficulties acquiring the fertilizer from their suppliers since the traditional suppliers preferred to supply Starter Pack rather than the private traders. Thus, the less well-established retailers, especially those without a national distribution network, lost out. However, developing distribution networks to which the smallholders can have access, is a costly activity which requires that adequate incentives be available to the private trader. A stable policy environment is needed, one which enables an entrepreneur to make assumptions about market conditions with a degree of certainty, and permits him to plan ahead. The past experience shows that the distribution of free or subsidized inputs is dependent on donor goodwill, and this can sometimes be unpredictable, and thus create uncertainty to input suppliers. The annual challenge of obtaining funding for the programme causes delays, unpredictability and lack of timeliness.

In order to contain costs, the programme was scaled back and targeting to the poorest from 2000/01. This caused several problems, first of all the problem of effective targeting. Village leaders were asked to target the poorest households (52 % of all households in 2000, and 35% in 2001) according to certain predetermined criteria. This did not result in poverty targeting due to several reasons. Some of the main poverty criteria were not correlated with poverty, village leaders selected relatives and friends, and communities were reluctant to identify the poorest – arguing that “we are all poor here”.

The targeting has also exposed an inherent conflict among some of the initial motives for the programme, that is between using the programme as a means of extension of new technologies versus the motive of improving short term food security of the poorest. If extension of new technologies were the prime motive, and targeting required for containing the costs of the programme, then the packs should be targeted toward those households most likely to be able to successfully utilise the inputs according to recommendations, to make their own adaptations, and in the future to share their experiences with neighbours, and be able to purchase the inputs on commercial terms. These households would generally not be the poorest – although by international standards they would still be very poor.

“Alas, this smallholder productivity program was hijacked by the donor determination to transform it into a safety net program, targeted to the poorest. This shift in emphasis had several disastrous consequences for the productivity objectives. First, the resulting haggling delayed distribution past the date for the packs to be effective. Second, it split villages into haves and have-nots. Instead of everyone being on the same page in terms of transforming towards a common proven target set of improved practices, the poorest had inputs with which to experiment, the not quite so poor had no improved inputs nor rotation crop seed. The natural leaders who could help the poorest use the inputs effectively instead were bitter that they had none. The targeting proved extremely divisive” (Mann, 2003).

Targeting the somewhat better off households would obviously have been a political impossibility. In the end it was the household food security motive that prevailed, in that the gifts were targeted to the poorest. An alternative for containing costs could perhaps have been to halve the size of each pack, to inputs sufficient for only 0.05 hectares. This would have contributed less to short term food security, but might still have been sufficient for maintaining the learning effects from the programme. It might also have reduced some of the tension and conflict resulting from the targeting.

The evolution of the programme has also revealed conflicts over the extension message and the technology content of the packs:

“The shift to safety net also muted the focus on productivity. Composite maize with lower gearing (maize/N) was substituted for the hybrids. Thus the poorest were provided with one set of inputs whilst the package recommended to those purchasing inputs remained focused (correctly in my view) on hybrids, with their higher gearing. (.....) The African solution was distorted substantially as filtered through donor lenses - targeting replaced universal coverage smallholder coverage; an untested system was substituted for the proven one. The smallholders could be the engine of productivity growth in Malawi. In the process of achieving that, safety net objectives are achieved. However, donor pressures to make the safety net the key focus has seriously compromised the promise of the original long-term productivity program” (Mann, 2003).

On the other hand Sarah Levy on the TIP evaluation team is arguing against the hybrid maize technologies being promoted by the Ministry of Agriculture, Irrigation and Food Security in the programme:

“Such technologies to the maize agronomists at the MoAI, most of whom were trained in the era of Green Revolution technologies and an interventionist government that was happy to continue subsidising expensive inputs. Despite the transition to democracy in Malawi, they have had little contact with more recently developed concepts of sustainable smallholder agriculture in liberalised environments. Thus, intensive, high-yield maize farming is seen as the basic strategy both for food security (maize as the main staple food crop) and income generation (maize as a viable cash crop). The findings of the research are unwelcome where they show that the reality of smallholder farming – which produces around 90% of the country’s maize – challenges the feasibility of this strategy” (Levy, 2003).

On the basis of this discussion it appears that it would be useful to have more research on the relative merits of the various extension messages being promoted by government and donors, and how well suited these are to Malawian realities.

Regardless of design, a programme of free input handouts should not be seen as permanent. An exit strategy is required. Such a policy must stress the potential for making more efficient use of inputs. This would involve continued research and collaboration with farmers for the development of even more productive crops and farming systems. It should include measures to make inputs cheaper, through improved transport infrastructure and by facilitating the development of competitive input markets. Investment in infrastructure and research for increased productivity will reduce the cost of inputs in a more permanent way than subsidies are able to do.

5.9 HIV/AIDS and food security

Recent estimates indicate that 28.5 million adults and children live with HIV/AIDS in Africa (UNAIDS, 2002). The disease was responsible for 2.2 million Africans dying in 2001, more than any other single cause. The southern African sub-region bears a disproportionate burden of HIV/AIDS cases. It is here the world’s highest rates of HIV infections can be found. In some countries the rate has exceeded 30 % of the adult population (UNAIDS, 2002).

Evidence suggests that the HIV epidemic affects agriculture disproportionately relative to other sectors (de Waal and Tumushabe, 2003). This is not because rates of HIV are higher among workers in the agricultural sector (usually they are lower), but because of the structure of the agricultural sector. This sector, and especially the smallholder sub sector, is much less able to absorb the impacts of the human resource losses associated with the epidemic. It is therefore likely that the impact on agriculture will be far reaching.

A recent report by the SADC FANR Vulnerability Assessment Committee (2003) concludes that the impacts of HIV/AIDS on food security in the context of the 2002 food crisis in Malawi, Zambia and Zimbabwe were strong and negative. The results presented in the report indicate that households affected by adult morbidity, mortality and with a high demographic load were more vulnerable to food security shocks during the 2002 food crisis than other households. As long as these indicators (morbidity, mortality and high demographic load) suggest the presence of HIV and/or AIDS, the analysis strongly implies that HIV/AIDS increased the vulnerability of households to acute food insecurity in 2002. The analysis also shows that the same households suffered from reductions in agricultural production and income generation, leading to earlier engagement in distress coping strategies, and, ultimately, a decline in food security. The cumulative impacts of HIV/AIDS on food availability, food access, and coping capacity are compounded, resulting in amplified negative impacts on overall household food security. Different morbidity, mortality and demographic profiles had different effects on food security. Furthermore, the study found that the presence of proxy indicators had a greater negative impact on poorer households than on better-off households, although this correlation was not very clear. Thus, it seems like the presence of HIV/AIDS leads to increased vulnerability for already vulnerable households.

de Waal and Tumushabe (2003) present similar findings. They refer to a growing literature on the impact of HIV/AIDS on rural livelihoods documenting a range of impacts, all of which contribute to impoverishment:

1. Loss of household labour quality and quantity:
 - Illness of productive members leads to a double loss. The individual works less, and there is an increased demand for caring for him or her. Households with sick individuals spend far less time on agricultural activities than others;
 - Death of an adult leads to sharp declines in production and income. The impact depends on age, role and gender of the individual;
 - Diversion of labour from productive activities to funerals;
 - High labour costs associated with care and treatment of AIDS sick family members;
 - Psychological impacts of illness and death of an individual leads to depression and lack of motivation for others;
 - Declining health of other family members, due to malnutrition and increased morbidity due to other diseases;
 - Loss of skills and experience from a deceased adult family member can severely impact upon household viability. Key skills in farming, marketing, access to credit, or responding to adversity may be lost and not replaced;
2. Reduction in the available disposable cash income and asset base:
 - Reduction in food consumption and quality of food;
 - Erosion of natural assets and financial assets to finance health and immediate food needs;

- Shift from cash-based to subsistence agriculture;
 - Sale of productive assets including livestock;
 - Consumption of seed;
 - Sale of land;
 - Loss of land through disinheritance and dispossession (especially for widows);
 - Limited access to credit.
3. Declining capacity of social environment to offer support:
Traditionally relatives, neighbours and other non-formal networks provided a safety net for individual households. This is now changing due to HIV/AIDS:
- Social support networks have declining capacity as key potential contributors die;
 - Demand for support is increasing due to increasing number of HIV/AIDS deaths;
 - Vulnerable widows and orphans are exposed to property grabbing relatives;
 - Exploitation of orphans' labour;
 - Reversal of urban-rural support networks. Rather than rural households relying on urban relatives for assistance, the reverse is becoming more common.
4. Women hit harder than men:
- Increasingly, women are infected more, and at younger age than men. Furthermore, most of the additional burdens due to HIV/AIDS fall upon women. They are usually the main producers of food and the main caretakers of the sick and children;
 - Widows with dependent children often become entrenched in poverty, as they often lose access to land, labour, inputs, credit, and support services.
5. Impact on agricultural extension services:
- Extension services have been seriously affected through eroded human resources and institutional capacity and service.
 - HIV/AIDS disrupts organised activities owing to frequent ill health and funerals of contact farmers and intended beneficiaries.

De Waal and Tumushabe somewhat pessimistically claim, although they admit it is not proven, that we now face a “New Variant Famine” (NVF), in which there is no expectation of a return to either sustainable livelihoods or a demographic equilibrium. Affected societies are caught in a pincer of escalating requirements and diminishing capacity. The impacts of HIV/AIDS on agrarian households mean that they are a) more susceptible to external shocks and b) less resilient in the face of these shocks. NVF also creates a vicious cycle of increasing mortality from multiple causes. The NVF hypothesis does not discount other causes of the 2002 food crisis such as drought, flood, mismanagement of food reserves etc. Rather, it is argued, the adverse impacts of these factors are compounded by HIV/AIDS.

We find it hard to be equally pessimistic as de Waal and Tumushabe. More important, however, in our context is what the epidemic implies for policies relating to agriculture. Preventing more people from becoming infected is paramount, but measures to achieve this most likely lie mainly outside the domain of agricultural policies. When it comes to measures to cope with HIV/AIDS, most studies point to the need for finding labour saving techniques and means, and diversification in food production and income generation. They also point to the need for strengthening knowledge dissemination on production methods and technologies to new generations of farmers. We concur. These measures would, however, be crucial even if there were no HIV/AIDS epidemic. Saving labour in production (given a fixed output) implies increasing labour productivity per unit of output. Increasing labour productivity

requires knowledge dissemination. We have already argued for the importance of increasing labour productivity and yields in agriculture as a means for generating a broad based growth process. The HIV/AIDS epidemic does not change this argument. It only makes it even more urgent.

6 Recommendations

Although there are numerous differences between Zambia and Malawi, we find the similarities in economic policies, including agricultural policies, to be striking. The approaches and experiences are so similar that we feel justified in presenting joint recommendations.

- Governments should commit to a consistent, predictable, and transparent policy towards agriculture and rural growth, in order to establish conditions for growth in the agricultural sector in general, and among smallholders in particular.
- Governments should provide for better monitoring and information systems of trade flows and prices, improve infrastructure, remove export and import bans, and reduce interest rates. A vicious cycle seems to have developed, in which the government, uncertain of the private sector's ability to import maize, arranges for imports itself, stores grain and releases supplies onto local markets. But by intervening in this way, the government discourages private agents from investing in maize trading and storage, thus making the concerns about a weak private sector self-fulfilling. Recent experiences indicate that the private sector is able to import maize. However, its abilities need to be further improved.
- Proposed policies must be evaluated against the alternative of reduced spending, improved balance, lower interest rates and lower inflation, as well as against other policies that might address the same objectives. Large government budget deficits cause high inflation and high interest rates in both Zambia and Malawi. Proposals for public subsidies and activities need to take into account the budgetary consequences.
- Public strategic grain reserves should be small. Holding public grain reserves is costly, both in terms of storage cost, risk and discouraging private storage activity.
- Public strategic grain reserves need very clear rules as to when and how reserves should be released and how and when reserves should be restocked.
- Policies should stimulate storage by households and firms. The system of warehouse receipts and inventory credit is a promising initiative that should be supported in both Zambia and Malawi.
- Invest in improved communication and transportation infrastructure to facilitate a rapid import response when an impending emergency is identified.
- Efforts to improve market information systems should be further strengthened. Markets function better when information is available in the public domain of the stocks, flows and prices of commodities in various localities.
- Continued efforts to diversify food production and consumption (away from maize) will contribute to reducing the sensitivity of the economy and households to variations in maize yield, and reduce price volatility.
- Increase productivity through research and extension and better infrastructure, as an alternative to seed and fertiliser subsidies. These measures have the advantage of providing longer-lasting effects in terms of reducing the cost of food production.
- Food for distribution by government and donors should as far as possible be purchased domestically. Subsidised food imports, by government or donors, tend to depress producer prices and reduce the ability and incentives for planting the crop and applying inputs in the next season.

- Well-targeted programmes to assist the poorest will be needed to ensure food security, even during “normal years”. Such programmes could include public works programmes with payment in cash or in kind (food or inputs), subsidies for investment in human capital (education and health), but also transfers in cash or in kind, e.g. to those without the physical capacity to participate in work-based programmes.
- In both Malawi and Zambia there is a need to improve administrative capacity to deal with land property rights formalisation and transactions. For financial reasons, and because large-scale proactive programmes may cause as many problems and conflicts as they solve, emphasis should be placed on making current procedures simpler and less expensive, facilitating a demand-driven process of formalisation.
- Most studies of the effects of HIV/AIDS point to the need for finding labour saving techniques and means, and diversification in food production and income generation, as well as the need for strengthening knowledge dissemination on production methods and technologies to new generations of farmers. Measures to increase the output per unit of labour input would, however, be crucial for poverty reduction even if there were no HIV/AIDS epidemic. Increasing labour productivity in agriculture, through increasing yields, is fundamental as a means for generating a broad based growth process. The HIV/AIDS epidemic does not change this argument. It only makes it even more urgent.

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Mr Frank Kamthunzi	Press Trust
	Press Agriculture
Mr Wisckes J Nyemba	Grain & milling Company Ltd.
Mr Peter Mulemba	ADMARC
Ms Nellie Nyang'wa	Oxfam
Mr Sam Chimwaza	FEWSNET Malawi
Mr Per Mogstad	NORAD

Annex 2 Zambia: Policy Reforms and External Events 1989-2002

Year	Stabilisation Policy and Key Events	Agricultural Price and Marketing Reforms	Trade Reforms	Parastatal Reforms
1989	Decontrol of all consumer prices (except maize)	Abolition of NAMBOARD		
1990	Policy Framework Paper agreed with IMF	De-monopolisation of agricultural marketing Maize meal subsidy withdrawn and restored after to food riots		
1991	Normal relations resumed with the IMF Rights Accumulation Programme started IMF suspends disbursements in June – inflation soars Election of MMD Government on a platform of major reforms		Removal of most export controls Removal of the ban on maize exports	
1992	Introduction of Treasury Bills financing Decontrol of borrowing and lending rates Introduction of ‘Bureaux de change’ for exchange rate determination	Severe drought Removal of maize meal subsidy Removal of fertilizer subsidy	Simplification and compression of tariff rates Increase in tariff preference for goods from COMESA	
1993	Introduction of Cash Budgeting	Failed attempt to reform agricultural marketing		Privatisation Act passed. Zambia Privatisation Agency born
1994	Liberalisation of capital account	GRZ fails to pay cash for maize. Issues promissory notes Launch of the Agricultural Credit Management Program		Dissolution of ZIMCO
1995		Privatisation of Milling industry Launch of the Agricultural Sector Investment Programme (ASIP)	Removal of 20 percent uplift factor applied on import values	Acceleration of privatisation
1996	MMD win elections: UNIP boycotts elections	Beginning of ASIP Implementation		
1997	Donors withdraw balance of payments support			Negotiation on ZCCM Sold to Anglo American Corporation later
1998	Donors withdraw balance of payments support Copper price adversely affected by East Asian Crisis	Drought in South and Excessive rain in the north caused by El Nino		
2000	PRSP designed	ASIP Extended for two years		
2001	New Deal Government sworn in with renewed commitment to agriculture PRSP launched	ASIP ends in December Agricultural Commercialisation Programme Poor weather conditions lead to poor harvest		Withdrawal of Anglo-America Corporation from KCM
2002		Crop Marketing Authority designed Food Reserve Agency to be abolished		

Source: Updated from McCulloch, 2001