Towards Sustaining Malawi's Farm Input Subsidy Program

Daniel Zerfu Gurara and Adeleke O. Salami*

Key messages

- The Malawi Farm Input Subsidy Program (FISP) has been successful in raising maize yields and improving food security. Maize production almost tripled in the first two years of the program. Maize yield increased from an average of 1.06 ton/ha in 2000-05 to 2.27 ton/ha in 2009/10.
- The sustainability of the program in terms of meeting the fiscal and foreign exchange resources requirements is uncertain as Malawi is faced with large budget and current account deficits. Thus, there is a need for a feasible plan to sustain the farm input subsidy program.
- This brief underlines the importance of focusing on exports to satisfy the foreign exchange requirement of the subsidy program. A simple counterfactual analysis of sustaining exports at the 2007/08 level, i.e., 12%, in 2009/10, shows that more than 87% of the foreign exchange requirement of the program could have been covered through maize export. A conservative estimate falls to around 65%.
- Commodity market instruments, coupled with careful stock management, present a viable alternative way of managing exports without compromising domestic food security. Commodity put options and repo agreement can be used to reduce the risks associated with exports and cope up with unexpected conditions such as drought and other climatic shocks.
- In terms of the institutional arrangement, the proposed stock management via the use of commodity market instruments can be coordinated by the Malawi Agricultural Commodity Exchange (MACE). Donors' financial and technical support is, however, critical to put the option market alternative into practice.

1 Background

As a land-locked country, Malawi is under pressure to grow its own food, since imports are both costly and unreliable. Maize is the main staple for 90 per cent of the population, and most smallholders operate on tiny plots of land\(^1\), making diversification difficult. Largely these constraints explain the long-standing and often contentious policy of subsidizing inputs in Malawi. Thus, from the mid-1970s to the early 1990s, the government financed a universal fertilizer subsidy program, provided cheap credit to the smallholder, and controlled maize prices. This system began to break down in the late 1980s/early 1990s and collapsed in the mid-1990s. However, with the widespread

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\(^1\) 1.2 hectares per household or 0.33 hectares per capita on average.
perception that the withdrawal of fertilizer support was the leading cause of declining maize production and a food-cum-political crisis, the government started providing small ‘starter packs’ to all households (in 1998/99 and 1999/2000) and then to smaller (but varying) numbers of targeted households (from 2000/02 to 2004/05).

Continuing severe food security issues despite the subsidies led to significant political momentum on larger subsidies and, building on the 2004 election manifesto commitments, the Malawi government decided to implement in 2005/06 a very large-scale input subsidy program - Farm Input Subsidy Program (FISP) - across the country (see Box 1 in the annex for the details). The program has been acclaimed for its success thus far in raising maize yields and bringing about food security. Maize production almost tripled in the first two years since the inception of FISP (see Figure 1).

Maize yield increased from an average of 1.06 ton/ha in 2000-05 to 2.27 ton/ha in 2009/10. Although some attributed the gain to favorable growing conditions experienced between 2005/06 and 2006/07, the rainfall effect explains only 32% of the observed gain (Denning, et al., 2009).

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Figure 1 Maize Production in Malawi

Source: National Statistical Office of Malawi.
However, the sustainability of the program in terms of meeting the fiscal and foreign exchange resources requirements is in question. Malawi is faced with twin deficits: the foreign exchange reserves cover only about 2 months’ import (as of August 2011); the fiscal balance is deteriorating with a forecasted overall deficit of 7.6% of GDP in 2012. International donors have withheld foreign loans and grants due to the country’s failure to implement critical reforms, including a 20% devaluation prescribed by the IMF. In August 2011, Malawi devalued the kwacha by 10% against the US dollar to alleviate the foreign exchange shortage and introduced new measures to raise foreign exchange reserves. However, with the high oil and fertilizer prices, the foreign exchange shortage is likely to get worse in the short term (see Figure 2).

Under the current economic conditions, two questions remain: for how long can the government afford to continue with the subsidy program? And, second, will donors resume their support to keep it running? Some donors regard subsidies as problematic, hindering long-term development by distorting markets and discouraging farmers from diversifying (see Box 2). However, some analysts argue that Malawi has no viable alternatives in achieving short-term food security.

In the absence of the fertilizer input subsidy program, fertilizer intake is expected to fall significantly. A study by Holden and Lunduka (2010) based on household survey data shows that only about 20% of households are willing to buy a full package at the market price (MK 9000) in June-July 2009 while close to 90% are willing to buy it at the subsidized price (MK 1000).

However, as the FISP is draining a significant proportion of Malawi’s fiscal and foreign exchange resources, the sustainability of the program is uncertain. Thus, there is a need for a feasible plan to sustain the farm input subsidy program.
2 Can the Farm Input Subsidy Program be Sustainable?

The current challenge for the Government of Malawi is how to sustain the subsidy program in terms of meeting the foreign exchange and fiscal requirements over the short to medium term in order to maintain the input intake and increase productivity. As it stands, the farm input subsidy program does not have a mechanism either to recoup the program cost or replenish the foreign exchange that it consumes. As such, the program has a similar effect to a consumption subsidy where there is a clear welfare gain in terms of food security but without a means to pay for it. Fiscal sustainability, however, requires embedding a perpetual financing mechanism. One feasible option is to reorient the program to promote maize exports as an additional pillar of the program, besides food security. Maize exports can generate both foreign exchange and tax revenue without leading to domestic price escalation if managed carefully (as discussed in Section 3).

In 2007, Malawi exported more than 12% of its maize output profitability and earned more than 100 million USD due to high international prices and low production levels in southern Africa – and particularly in South Africa (see Figure 3). But this is an unusual year and exports have gone down since then due to the food crisis in 2008. Malawi banned maize exports, except for residual contract amounts for Zimbabwe, following the food crisis in 2008. The government also announced a ban on the private trading of maize, making the Agriculture Development and Marketing Corporation (ADMARC) the sole trader in the country. Given the good harvest in the recent years, there are reports that the maize export restrictions have been lifted and that private trading would resume, although closely monitored by the National Food Reserve Agency (NFRA).

Malawi has however recorded surplus maize production in the last three years, reaching 1.1 million tons in 2010/11. In 2011, the Malawi government exported 13,000 metric ton to Zimbabwe and there is a plan to sell 30,000 metric tons of maize from the reserve. Following the recent drought in East Africa, the Ke-

Figure 3 Maize Export

Source: FAOSTAT.

http://www.kbc.co.ke/news.asp?nid=70902
nyan government is reported to be interested in buying maize from Malawi. Now the issue should be how to refocus the program so that food security can be achieved while exports can be sustained at least at the 2007 level, i.e., 12% of total output.

A simple counterfactual analysis of sustaining exports at 12% in 2009/10 (the actual is 0.1% of total output) shows that more than 87% of the foreign exchange requirement of the program can be covered through export. A conservative estimate, using the 2007 actual export earnings, falls to around 65% (see Table 1). If the rising maize price trend continues, maize export will remain to be an attractive venture (see figure 4).

The importance of export in raising foreign exchange is neither new nor contested. The main concern is rather how to manage agricultural crop exports amidst rainfall variability and the resultant recurrent food insecurity and price escalation. As discussed in the following section, with careful stock management and the use of commodity market instruments, it is possible to coordinate exports without compromising domestic food security.

### Table 1 Counterfactuals

<table>
<thead>
<tr>
<th>Scenarios for 2009/10</th>
<th>Comment</th>
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<tbody>
<tr>
<td>Program Cost USD</td>
<td>154,931,063 Excluding government operational costs and voucher printing</td>
</tr>
<tr>
<td>Export Earning USD</td>
<td>135,109,711 Assuming the current price of USD 311/ton and 12% export: output ratio</td>
</tr>
<tr>
<td>Export: Program Cost Ratio</td>
<td>87.2%</td>
</tr>
<tr>
<td>Export: Program Cost Ratio using 2007 actual export earnings</td>
<td>64.7%</td>
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### Figure 4 Maize Price

2007-2008 World food price crisis

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Sources: AfDB Statistical Portal and World Bank Commodity Price Data, September 2011.
Managing Exports: The Option Markets Alternative

Maize supply and price risks are the most important constraints for entry into export markets, which can be relaxed through a risk management strategy based on hedging. For instance, in 2005, Malawi successfully purchased a call option on the South African Futures Exchange (SAFEX) in order to lock in maize price and supply commitment to resolve the domestic supply shortfall caused by drought. As a result, Malawi was able to import during the lean season at prices lower than existing market prices by 50-90 USD /metric ton. A similar instrument can be designed for export purposes.

The most important concern in terms of export based hedging strategy is the management of maize surpluses and the balancing problem that exists between ensuring a market for surplus production and concern about the risk of a shortfall during the following season, which can be handled through forward markets. In Malawi, high transport costs and the corresponding large difference between import and export parity prices justify saving a certain portion of surplus maize stocks in the country in order to avoid the costs of export and later re-import. However, the maintenance of these stocks is expensive.

One difficulty with the strategy of maintaining large stock is lack of good quality warehouse space, which can result in increased storage costs and significant post-harvest losses. In addition, the maintenance of large maize stocks may signal uncertainty about prices and maize supply conditions.

Two market-based options are available for coping with these problems. The first is a contingent export agreement, which is appropriate for stocks owned by the public sector. The second is, a “repo”, or repurchase agreement, which is a trade finance agreement combined with a call option agreement. The repo agreement can be based on stocks held by the private sector, but with first rights of re-purchase offered to the government. Both of these strategies establish a minimum price for maize exports and assure the availability of maize if drought occurs during the next cropping season.

A contingent export agreement is a contractually specified agreement to sell maize surplus held by the government, if needed, at a pre-agreed minimum (floor) price at a pre-agreed time in the future. This agreement is based on a put option, which gives the buyer of the put option, i.e., the Government of Malawi, the right, but not the obligation, to sell maize for delivery later in the season. The put option provides protection against market prices falling, and provides flexibility, which is critical when the country is uncertain about maize supply in the market. If the maize stocks are needed in country, the put option is not exercised, export sales do not take place and the maize stays in the country. If stocks are not needed in country, the put option would be exercised and export shipments would take place at the pre-agreed floor price or at the market price if it is trading at prices higher than the floor price.

A contingent export agreement protects the value of government held stock until it is either exported or allocated to domestic markets. The contingent export sale is based on a minimum price that, at the least, allows for price or cost-recovery of the initial investment in procurement of maize stocks. This approach is designed to reduce the risk of financial losses associated with a decline in prices, as would be likely to occur if the next harvest was positive. Such a loss in the value of maize stocks can quickly undermine budgets and may jeopardize access to future commercial finance.

The other alternative is Repo (or “Repurchase” arrangement). Under this arrangement, a private sector bank or local trader would purchase the government’s surplus maize stocks with an agreement to maintain them in the country and sell back to government at a pre-agreed price, if needed. This is advantageous for the cash flow of the government’s budget.

The choice of which instrument to use depends on ownership of the stocks. In cases where stocks are held publicly and government funds are being used to finance procurement and storage operations, as it is the case in Malawi,

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3 The discussion in this section draws from the unpublished work of J. Dana et al (2007) on Risk Management Tools.
3 A call option is a financial contract between two parties, where the buyer of the call option has the right, but not the obligation, to buy an agreed quantity of a particular commodity from the seller of the option at a certain time for a certain price. The seller is obligated to sell the commodity should the buyer so decide. The buyer pays a fee for this right.
5 The most common cause of post-harvest losses in Malawi is the larger grain borer, a storage pest that was introduced with food aid shipments. Without chemical treatment, household level losses of 40 to 100% have been reported (Denning, et. al., 2009:9).
a contingent export agreement is most appropriate because it protects the financial investment in those operations by providing a contingent sale that covers costs. In future cases where stocks could be held by the private sector, a trade-finance call option agreement is most appropriate because it protects the government’s right to repurchase those stocks, and prevents them from leaving the country if needed the following year.

The market-based approaches discussed above can significantly reduce the administrative hurdles of managing exports. Recently (December 29, 2011), the Malawi Ministry of Industry and Trade banned all exports of maize and maize products, and nullified all licenses enabling grain traders to export maize following an estimate that 10 out of 28 districts in the country are at risk of maize shortage between December 2011 and February 2012. The ban is not well received by the Farmers Union of Malawi as it disrupts the marketing channels of the large-scale commercial farmers that grow maize for export. A combination of contingent export and repo agreements could protect the interest of traders as well as the food security objective of the government without any serious market distortion. Such arrangement also signals a predictable policy regime which is an important element for long-term investment in large-scale farming.

4 Conclusion

The Government of Malawi introduced Farm Input Subsidy Program (FISP) in 2005 to achieve food security and raise smallholder’s income through increased maize and legume production. FISP is a large-scale subsidy program aimed at lowering the cost of fertilizer and modern maize seed varieties to resource-poor farmers. The program has been successful in terms of increasing maize output and yield. Malawi started registering surplus maize output to the tune of more than 1 million ton per annum since the implementation of the program. Maize yield has doubled from 1.06 ton/ha in 2000-05 to 2.27 in 2009/10. While the demonstrated productivity gains of the program are significant, the rising cost of fertilizer import and the resultant foreign exchange constraints have cast shadow on the sustainability of the program.

Most importantly, because of the depleted foreign exchange reserves following the rising oil and fertilizer prices, and uncertain donor financial flows, the continuity of the program hinges on the country’s ability to raise foreign exchange. This brief underscores the importance of focusing on maize export as a major pillar of the fertilizer input subsidy program in order to sustain the program in the short to medium term by providing the required foreign exchange. At the current international market price of USD 311/ton, maintaining maize exports at the 2007 level (12% of total output) could cover 65 to 87 percent of the program’s foreign exchange requirement.

The role of export to raise foreign exchange is straightforward. Rather, what is most important is how to coordinate smallholders’ surplus maize output for export market amidst recurrent drought, food insecurity and the risk of price escalation. This brief put forward a commodity market alternative as a way of managing exports without compromising domestic food security. Commodity put options and repo agreement can be carefully used to reduce the risks associated with exports and cope up with unexpected conditions such as drought and other climatic shocks.

In terms of the institutional arrangement, the proposed stock management via the use of commodity market instruments can be coordinated by the Malawi Agricultural Commodity Exchange (MACE). Donors’ financial and technical support is, however, critical to put the option market alternative into practice.

References


**Box 1 FISP in Perspective**

The 2004/2005 maize season was the worst in a decade. Many parts of the country went without rain for up to one month during January and February with a devastating effect on yields: the national average was only 0.76 t/ha, 40% below the long-term average. Total maize production for 2004–2005 was 24% less than the previous year, amounting to 57% of the estimated national maize food requirement.

In May 2005, the Malawi Vulnerability Assessment Committee concluded that over 4.2 million people required food aid. The food situation was deteriorating rapidly, and a major humanitarian relief operation began. By November 2005, as the maize prices in local markets continued to rise, the estimate went up to 5 million Malawians—38% of the population—in need of food aid.

In response to recurring food deficits, the Government decided to invest in subsidizing agricultural inputs. This policy attracted objections from some major donors who were concerned about the potential cost and the absence of a clear exit strategy (see Box 2). Those same donors had earlier supported a Starter Pack program in 1998–1999 and 1999–2000 whereby small packages of fertilizer, maize seed, and legume seed, sufficient for 0.1 ha, were distributed free to almost all maize smallholders in Malawi. This program led to extra 280,000 to 420,000 tons maize produced. However, the main donors scaled down their support to Starter Pack, citing operational weaknesses, lack of targeting to the poorest households, and the negative impact on diversification efforts. The sharp reduction in the coverage of the program was reflected in national production statistics. Malawi once again fell below self-sufficiency and resumed its dependency on food aid.

In the face of adverse donor reactions, and after heated parliamentary debate, the Government used discretionary budget funds and support from the UN to import fertilizer and procure improved maize seed for distribution to farmers. Through the national input subsidy program, the Government allocated coupons to buy sufficient fertilizer to grow maize on one acre (0.4 ha), a 4-fold increase in the amount provided under Starter Pack, as well as 3 kg of maize seed—an insufficient amount (10 kg of seed are needed for 0.4 ha) necessitated by funding constraints. The total market value of the inputs was MK5500 (US$44.00), of which the farmers paid MK2050 (US$16.40), representing an overall 63% subsidy. Coupons were allocated across regions and then distributed to districts and traditional authorities (sub-district government entities), who allocated them to Village Development Committees, which identified the recipients. All of the subsidized fertilizer and seed was distributed through government agencies.


**Box 2 Donor views of the subsidy program**

1. Total opposition: Chief advocates of this view were the International Monetary Fund (IMF) and the US Agency for International Development (USAID). This group argued that subsidies would create market distortions that would make private-sector development virtually impossible and risk wiping out the private fertilizer sector altogether. They also argued that the benefits of fertilizer subsidies are generally captured by relatively well-off farmers, and administrative costs, leakages and targeting problems made subsidies a grossly inefficient way to target the poor. They called for market-based mechanisms instead.

2. Skeptical, but willing to contemplate subsidy: This group included DFID, the World Bank and the European Union, among others. These donors were concerned about the government’s capacity to implement the subsidy program and emphasized the challenges involved in targeting. However, they conceded that some type of ‘smart subsidy’, building on the lessons of the Targeted Input Program (TIP), might be feasible.

   Whereas this group also favored market-based mechanisms, they were willing to accept subsidies as a short-term measure so long as they would not crowd-out private sector development.

3. Supportive of subsidies: Donors in this category included most of the UN agencies and the Norwegian government, with the support of many local and international NGOs including major players Oxfam, ActionAid and Plan International. These agencies supported the subsidy program because fertilizer is critical to boosting production and assuring food security, and that subsidies could be phased out over time once farmers had built up their capacity.

   This group argued that agriculture in Malawi would not survive without subsidies, which would not distort the market because the private sector is almost non-existent. They argued that subsidies could lead to net welfare gains by encouraging an expansion in fertilizer use toward the socially optimal level. Although some NGOs recognized a leading role for the private sector in agricultural development, they emphasized the key role of the government in fostering properly functioning markets.