



# Managing food price instability in East and Southern Africa

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## ABSTRACT

This article intends to provide pragmatic guidance for avoiding the more severe problems of food price instability in east and southern Africa. I first summarize the empirical record of food price stabilization efforts in the region, and highlight recurrent aspects of farm survey data with implications for price stabilization strategies. I highlight the understudied problem of strategic interactions between the public and private sector in food markets, associated problems of credible commitment, and how such problems are often at the heart of food crises frequently witnessed in the region. It is argued that by accepting a moderate level of price fluctuation within established bounds under a rules-based approach to intervention, African governments will reduce their chances of facing severe food crises.

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## 1. Introduction

Food price instability causes real political, economic, and social problems.<sup>1</sup> The premise of this article is that in countries with substantial numbers of poor people, governments cannot afford to take a *laissez faire* approach to food price instability. The question, therefore, is not *whether* to manage food price instability, but *how*.

This article grapples with why food price stabilization to date has had a mixed record of success in sub-Saharan Africa. Over the past two decades, several of the countries most actively attempting to stabilize prices through marketing board operations and trade policy have experienced the greatest price volatility in the region (Fig. 1).<sup>2</sup> The article starts by briefly reviewing governments' food price stabilization efforts. While the experience is varied, some consistent themes and outcomes can be identified

for the major grain producing countries. Importantly, strategic interactions between the public and private sectors in grain markets are often at the core of food price crises in the region. I also highlight recurrent findings from farm and consumer surveys that have important implications for price stabilization policy. Based on these findings I then assess the three major policy stances that African governments can consider for managing food price instability, their strengths and weaknesses, and possible ways forward.

## 2. A brief history of food price stabilization policies in east and southern Africa

Many governments in the region have pursued food price stabilization policies throughout their histories, even during their periods of ostensible market liberalization. White maize is the strategic political crop in most of eastern and southern Africa, and food price stabilization has centered mainly on this crop. Contemporary maize price stabilization in the region is driven by two main factors.

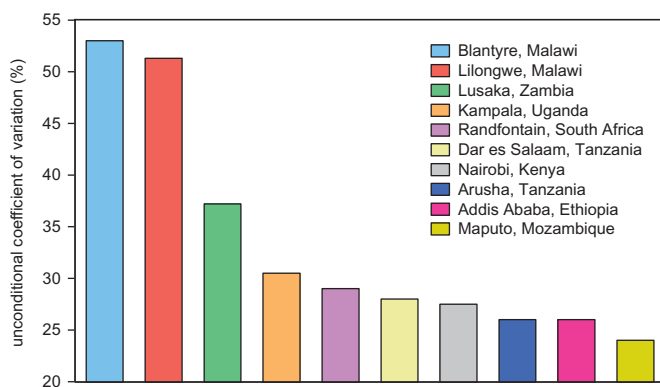
First, the countries relying most heavily on food marketing boards offering above-market floor prices to farmers tend to have colonial legacies with bi-modal farm structures and powerful farm lobbies. Historically, farm lobbies have been strongest in the countries with European settler agriculture, such as Zimbabwe, Zambia, and Kenya (Keyter, 1975; Mosley, 1983). Large commercialized farmers benefit greatly from price supports, and the farm lobbies in these countries primarily represented their interests in the political process. After independence, maize became the cornerstone of an implicit and sometimes explicit 'social contract' that the post-independence governments made

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<sup>1</sup> Not all price variability is bad; in fact some kinds of price variability is necessary for the smooth functioning of markets (e.g., seasonal price rises to provide returns to storage). It is typically the wide inter-annual swings in food prices and the unpredictable component of food price instability that cause the most harm. Among the seminal works that demonstrate these points are Schultz (1945), Newbery and Stiglitz (1981), Timmer (2000), Timmer (2010), and Naylor and Falcon (2010).

<sup>2</sup> A recent study of inflation-adjusted maize prices in eight countries in Eastern and Southern Africa covering the period 1994–2009 found that two of the countries having taken the most aggressive steps to stabilize food prices in the region, Zambia and Malawi, have experienced the most volatile food prices (Chapoto and Jayne, 2009). These same two countries were also found to have the most unpredictable real price movements as well, modeling unpredictability as the squared errors of one-month ahead forecast models.



**Fig. 1.** Comparison of unconditional coefficients of variation of CPI-adjusted monthly maize prices, major markets in East and Southern Africa, 1994–2009. Source: Chapoto and Jayne (2009).

with the African majority to redress the neglect of smallholder agriculture during the colonial period (Jayne and Jones, 1997). This commitment has been maintained and strengthened in recent years with the rise of a privileged class of “emergent” African farmers, many of whom have acquired land with the help of political connections (Deininger and Byerlee, 2011; Sitko and Jayne, forthcoming). Because they tend to be relatively large surplus grain producers, their interests are united closely with the more traditional large-scale commercial farmers. The “indigenization” of the formerly white farm lobbies has provided new impetus for price stabilization – and protection – of staple food grains through strong marketing board operations, whereas countries with less powerful farm lobbies such as those in West Africa have largely abandoned them (Anderson and Masters, 2009; Masters and Garcia, 2010).

The second factor explaining government use of food price stabilization policies has to do with longstanding concern for the effects of price instability and in particular, high food prices, on poor rural and urban consumers. In this respect, there is much less regional difference; most governments throughout sub-Saharan Africa are strongly committed to keeping food prices from rising beyond tolerable levels as demonstrated by government responses to the 2007/2008 world food price crisis. However, despite their efforts, most governments in the region were unable to prevent domestic food prices from rising up to, or exceeding, import parity levels during the 2008/2009 crisis (Minot, 2011).

While the social contract approach achieved varying levels of success in promoting smallholder incomes and raising consumer welfare, a common result was an unsustainable drain on the treasury. The cost of supporting smallholder production – through input subsidies, credit programs with low repayment rates, commodity pricing policies that subsidized transport costs for farmers in remote areas, and the export of surplus production at a loss – contributed to fiscal deficits in the 1980s and early 1990s and, in some cases, macroeconomic instability. Under increasing budget pressure, international lenders gained leverage over domestic agricultural policy starting in the 1980s, which culminated in structural adjustment programs. While structural adjustment is commonly understood to be a decision that international lenders imposed on African governments, some form of adjustment was clearly unavoidable due to the mounting fiscal crises that the social contract policies were imposing on government treasuries (Jayne and Jones, 1997). Continuation of *status quo* policies was not an option in many countries, and in some of these, the controlled marketing systems had already broken down even prior to liberalization as parallel markets swiftly became the only viable channel for most farmers and consumers. Moreover, the erratic

performance of the state-led systems, reflected by frequent shortages of basic commodities and late or partial payments to farmers, created support for reform among some domestic constituencies (Jayne and Jones, 1997).

The rise of multi-party electoral processes in the early 1990s has, however, made it difficult for governments in these countries to withdraw from ‘social contract’ policies. Elections can be won or lost through policy tools to reward some farmers with higher prices and reward consumers with lower prices, and this is hardly unique to developing countries (Bates, 1981; Bratton and Mattes, 2003; Sahley et al., 2005; Masters and Garcia, 2010). Because they provide demonstrative support for millions of small farmers and consumers, a retreat from the social contract policies exposes leaders to attack from opposition candidates. For this reason, it remains difficult for leaders to publicly embrace market liberalization, even as they accepted structural adjustment loans under conditionality agreements from international donors to reform their internal and external markets.

Starting in the late 1990s, the transition of the World Bank and other development partners from structural adjustment loans with *ex-ante* conditionality to direct budget support and debt forgiveness made it easier for African governments to reinstate some elements of the social contract policies. Price stabilization policies have consequently re-emerged in much of the region. Since the early 2000s, grain marketing boards have once again become the dominant players in the market in Kenya, Malawi, Zambia, and Zimbabwe.<sup>3</sup> Each of these countries has a highly unpredictable and discretionary approach to grain trade policy, commonly imposing sudden and unanticipated export and import bans, changes in import tariff rates, or issuing government tenders with opaque selection criteria for private firms to import grain at highly subsidized prices. Uncertainty about whether and when governments will alter import duties, import intentions, and/or the prices at which they will release buffer stocks onto domestic markets leads to problems of credible commitment and strategic interactions between the public and private sectors (Jayne et al., 2006; Tschirley and Jayne, 2010; Ellis and Manda, 2012). Traders otherwise willing to mobilize imports are likely to incur financial losses if the government later waives the duty and allows competing firms (or the government parastatal) to import more cheaply. When governments create uncertainty over import intentions or tariff rates during a poor crop season, the result is commonly a temporary under-provision of imports, which can produce a situation of acute food shortages and price spikes far above the cost of import (Tschirley and Jayne, 2010; Abbink et al., 2011). These illustrations highlight the important and understudied role of strategic interactions between the public and private sectors that can arise under discretionary and ad hoc approaches to price stabilization.

In conclusion, while price stability may contribute to economic growth, price stabilization efforts have often not contributed to price stability. The weight of the research evidence in Africa shows that price stabilization has only occasionally contributed to price stability and in many cases has exacerbated it, at massive costs and foregone investment in other areas where positive impacts might otherwise have been achieved (Kherallah et al., 2002; Dehn et al., 2005; Byerlee et al., 2006; Tschirley and Jayne,

<sup>3</sup> Marketing board operations have generally been more modest in recent years than during the control period. However, they continue to be major actors in their countries’ maize markets. Using data provided by the national marketing boards between 1995 and 2009, the boards’ annual purchases have fluctuated from an estimated 9–57% of the domestic marketed maize output in Kenya, 3–46% in Malawi, and 12–91% in Zambia. These figures understate the boards’ full impact on markets because they do not count their often sizeable importation of maize and subsequent release onto domestic markets (Jayne et al., 2010).

2010; Chapoto and Jayne, 2009; Sarris and Morrison, 2010). However, the underlying problem still remains; hence the need to search for more effective ways to address food price instability.

### 3. Insights from household survey data

Government responses to food price instability will be most effective when built on a solid empirical foundation of how farmers and consumers respond to price changes and volatility. This section highlights several empirical regularities that commonly emerge from nationally-representative farm and consumer surveys and which have implications for the design of appropriate price stabilization policies.

The first concerns the concentration of marketed food output: Owing to great disparities in productive assets within African farming systems, the marketed grain output is typically extremely concentrated (Jayne et al., 2006; Barrett, 2008). A recurrent pattern seen in survey data throughout the region is that roughly 2–5% of relatively commercialized farmers account for half or more of the total quantity of maize sold by the smallholder sector. Even the proportion of farm households selling more than 100 kg maize per adult equivalent member tends not to exceed 30% of the total rural population and can be as small as 2% in Malawi's case as shown in Table 1. This minority of relatively large grain sellers have considerably more land, assets, and incomes than households in all of the other categories of market participation. Another 5–17% of farm households sell small amounts of staple grain, which accounts for a relatively small share of their total household incomes.

A second recurrent finding from survey data is that more than 50% of small farmers sell little or no food grains. Half or more of rural farm households are only buyers of food (a minority of these are net buyers who sell and then buy in the same year), and these households tend to have smaller farms and are considerably poorer than the minority of households that sell at least 100 kg of grain per adult equivalent (Table 1). These findings lead to the perhaps counter-intuitive conclusion that the rural poor in the region tend to be adversely affected during periods of food price spikes (Barrett and Dorosh, 1996; Kherallah et al., 2002; Jayne et al., 2006; Ivanic and Martin, 2008; Mghenyi et al., 2011). There are of course general equilibrium effects of food price changes to be considered (e.g., through macroeconomic effects and through wage rates), for which very little evidence has been assembled. Most of the aforementioned studies analyzing the distributional effects of food price changes find that higher staple food prices tend to transfer income from poorer rural households who are net buyers and from urban consumers to a relatively small segment of wealthier capitalized farmers who account for the lion's share of marketed grain output.

Third, while survey data usually show that smallholder farmers are generally responsive to output price incentives (e.g., Alene et al., 2008; Winter-Nelson and Temu, 2005), the poorer and relatively resource-constrained farmers have greater difficulty in shifting their area and input use decisions in response to shifting output prices (Mather et al., 2011). Unfortunately, there is very little empirical evidence to show how smallholder farmers' area and input use decisions respond to output price *instability* as opposed to *levels*.

These findings hold several important policy implications. First, cereal producer price supports or stabilization policies that involve altering mean price levels over time (as they usually do), can have unanticipated income distributional effects that run counter to stated poverty alleviation goals. To the extent that the poor are net purchasers of staples such as maize, wheat, and rice, they are directly hurt by policies that raise prices of these

**Table 1**

Proportion and characteristics of rural farm households by maize market participation category.

Source: Jayne et al. (2010).

Country	Percent of sample	Net maize sales/adult equiv. (kg)	Farm size (hectares)	Value of household assets (USD)	Total household income/ adult equiv. (USD)
Kenya (2010)					
Large sellers	26.9	668	3.7	4032	984
Small net sellers	11.5	57	1.9	2491	488
Roughly autarkic	37.3	–5	1.8	2912	494
Buyers/net buyers	24.3	–64	1.4	1801	471
Malawi (2007)					
Large sellers	2.2	542	2.0	1915	258
Small net sellers	4.7	50	1.8	298	75
Roughly autarkic	48.2	–4	1.4	248	60
Buyers/net buyers	44.9	–93	1.1	195	50
Mozambique (2005)					
Large sellers	10.4	na	3.3	194	312
Small net sellers	16.7	na	2.7	120	151
Roughly autarkic	41.1	na	1.8	92	119
Buyers/net buyers	32.8	na	1.8	121	103
Zambia (2008)					
Large sellers	19.5	556	3.0	1756	488
Small net sellers	7.5	59	2.1	642	241
Roughly autarkic	42.4	–4	1.6	454	182
Buyers/net buyers	30.7	–88	1.4	642	252

Notes: "Large seller"=over 100 kg maize sales per adult equivalent; "small net seller"=25–100 kg maize sales per adult equivalent; "roughly autarkic"=–25 to 25 kg maize sales per adult equivalent; "net buyers"=net purchasers of more than 25 kg maize per adult equivalent. Most households in the latter category only purchased maize, although a minority both sold and purchased maize with purchases exceeding sales. The Zambia and Malawi samples are considered nationally representative; Kenya data is nationwide but not strictly nationally representative, and Mozambique is representative of three provinces in Northern and Central Mozambique.

commodities. Forms of price stabilization that do not raise the average price of food would most likely avoid these adverse distributional effects, and would also help to promote diversification toward higher-valued crops by maize purchasing households (Fafchamps, 1992; Jayne, 1994).

Several implications for food price stability also emerge from recent consumer surveys. Urban consumption patterns are in many areas becoming more diversified. Recent surveys in urban Kenya, Zambia, Mozambique, and South Africa attest to the rising importance of wheat and rice products in food consumption patterns. In most cases, wheat and/or rice was the main staple expenditure item of urban consumers; by contrast, surveys from the 1980s indicate that white maize, a crop very thinly traded on world markets, accounted for 75% or more of urban consumers' staple grain expenditures (Mason et al., 2011). The rising importance of other

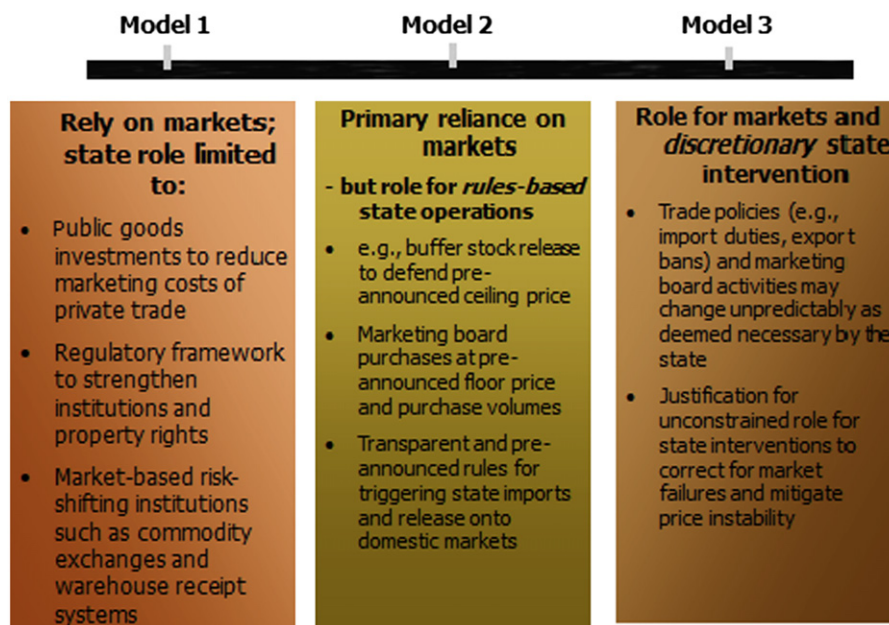


Fig. 2. Competing models of the role of the state and private sector in food markets.

staples that are widely traded on world markets and consistently available at import parity levels will increasingly contribute to more stable food expenditure patterns over time. Moreover, increased diversification in food consumption patterns has likely diluted the “wage-good” effects of maize price fluctuations on the overall economy.

In rural areas, maize is still the dominant food crop, but cassava production has risen dramatically in the post-liberalization period in many parts of the region (Haggblade et al., forthcoming). These shifts in production have nurtured a more flexible consumption response to droughts and other conditions leading to high grain prices. Because farmers can harvest perennial foodcrops such as banana and cassava any time of year and over multiple seasons, they are able to respond more flexibly to crises. In drought years, when most maize-dominated zones face shortfalls, farmers from neighboring cassava/maize zones are able to harvest more of their perennial reserve crops and sell more of their maize to satisfy demand in deficit zones. These built-in shock absorbers serve a valuable role in moderating regional food shortages and grain price spikes (Dorosh et al., 2009).

#### 4. Strategies for managing food price instability

Three competing approaches have dominated policy discussions in Africa over the past decade regarding the appropriate role of the state in managing food price instability (Fig. 2):

##### Option 1: State role confined to provision of public goods to strengthen markets

This approach relies on the private sector to carry out the main direct marketing functions – purchase/assembly from farmers, wholesaling, storage, transport, milling, retailing, and the development of a transparent commodity exchange. The role of the state is confined to provision of public goods to reduce the costs and risks of engaging in trade: market rules and regulations, physical infrastructure, regulatory oversight of finance, market information, investment in new technology, extension systems, etc. Price instability is to be partially addressed through the

development of market risk-shifting institutions such as commodity exchanges, forward contracting, and futures markets. This position is in the spirit of the “Washington Consensus”, most of which is now generally out of favor.

##### Option 2: Rules-based state interventions to stabilize market activity

This approach also relies on markets to carry out most of the direct food marketing functions, but the role of the state is expanded to include direct marketing operations, especially in the arrangement of imports, the management of food buffer stocks, and release of stocks onto markets when prices exceed a publicized ceiling price. The rationale for state operations is based on the premise that markets are not able to contain price instability within tolerable bounds and therefore direct rules-based state operations are necessary to do so. The defining feature of Option 2 is that there is pre-commitment: the rules governing state operations are determined in advance, publicized, and followed in a non-discretionary manner. This approach appears to be favored by many technical analysts.

##### Option 3: Discretionary state intervention to provide the state with maximum flexibility to achieve state policy objectives

The defining feature of this model, in contrast to Option #2, is that state operations are not confined to pre-committed rules that would constrain the state’s ability to intervene only when intervention criteria are met. Most governments in eastern and southern Africa are essentially following Option 3 and have done so throughout the liberalization process. In practice, Option 3 has provided a highly unpredictable and discretionary approach to grain trade policy, commonly imposing suddenly announced export and import bans, variable import tariffs, issuing government tenders for the importation of subsidized grain, and selling public grain stocks on domestic markets at prices that are unannounced in advance, often far below the costs of procuring it, and often accessible only to certain preferred buyers.

There are very few examples of Option 1 for staple foods that could form the basis for assessment in Africa or perhaps



anywhere for that matter. The rationale for Option 2 is that well executed parastatal price stabilization operations can in theory put an upper bound on food prices and also protect against downside price risk by defending floor and ceiling prices through stock accumulation and release onto markets. The weaknesses of Option 2 are that (1) successful implementation requires a great deal of technical and management skill that most marketing boards in the region may not possess; and (2) given the long history of ad hoc state intervention in food markets, it is not clear whether Option 2 could be regarded as a credible policy.

Despite being the most common approach for the role of government in food markets, Option 3 is clearly vulnerable to lack of trust, cooperation and coordination between the private and public sectors. In much of Eastern and Southern Africa, food markets continue to be plagued by a high degree of uncertainty and ad hoc government entry into and retreat from markets, despite official policy pronouncements which are largely inconsistent with actual state behavior. These inconsistencies give rise to problems of credible commitment regarding governments' policy statements (North, 1994), and hence create risks and costs for private traders. The high degree of policy uncertainty and control over trade impedes private investment to develop access to markets and services for smallholder farmers.

Attempts in sub-Saharan Africa to develop grain commodity exchanges and risk-shifting hedge markets in an environment resembling Option 3 have almost always failed, primarily because (i) state marketing board activities typically impede sufficient market size, in terms of volume of trade and number of participants, for commodity exchanges to operate effectively; and (2) discretionary state actions can move market prices, and this provides the perception that certain actors may benefit from information asymmetries at the expense of those without such information (Sitko and Jayne, forthcoming; Rashid et al., 2010).

Because many countries in the region have continued highly discretionary market and trade interventions of various types, an empirical assessment of these countries' food market performance since the 1990s reflects not the impacts of unfettered market forces but rather the mixed policy environment of legalized private trade within the context of continued strong government operations in food markets. There is widespread agreement that this food marketing environment has not effectively supported agricultural productivity growth for the millions of small farmers in the region.

Although price stabilization along the lines of Option 2 could in theory have important benefits for producers and poor consumers, this option has proven to be difficult for governments everywhere to accept because it requires surrendering some discretionary policy tools. Most governments have tended to pursue price stabilization efforts more along the lines of Option 3, i.e., unpredictable and untimely changes in import tariff rates, ad hoc restrictions on private importation, etc. In fact, price instability appears to be greatest in the countries where governments continue to rely heavily on marketing boards and discretionary trade policies to stabilize prices and supplies (Chapoto and Jayne, 2009). While it is difficult to estimate the counterfactual – i.e., the level and instability of food prices that would have prevailed over the past 15 years in the absence of these government operations – it is clear that at least some aspects of government interventions in food markets have exacerbated rather than reduced price instability for both producers and consumers. Consequently, price stabilization activities pursued along the lines of Option 3 in Africa have generally failed to achieve one of the most important benefits of food price stabilization efforts in Asia as observed by Timmer (2000): macroeconomic stability

and its associated encouragement of private investment in the overall economy.

## 5. The way forward

Price instability causes serious economic, social, and political problems. A feasible and effective strategy for African governments to stabilize food prices would include the following components:

1. Move as much as possible toward a transparent, consultative, and rules-based process for defining the conditions (e.g., market price levels) that will trigger government intervention in food markets and the specific responses that government will take, along the lines of Option 2. Specifying the implementation details of Option 2 are technically challenging. Several possible ways of moving from Option 3 to Option 2 would include: (i) announcing in advance that import tariffs will be reviewed and removed on a certain date of the year if national early warning estimates predict a need for large import quantities; (ii) ensuring that the granting of traders' application for import and export permits are contingent on transparent criteria that can be verified, e.g., a certain price being reached in local markets above/below which specified policy actions will be taken. Feasible rules-based decisions of this type would reduce the likelihood of credible commitment problems that have precipitated a number of food crises recently experienced in the region (Jayne and Tschirley, 2009; Ellis and Manda, 2012). While the political feasibility of Option 2 is a major challenge and requires sustained building of management capacity, the poor track record of Option 3 may provide increasing political impetus to move toward a more rules-based approach to managing food markets over time.
2. Increase public investment in road, rail, and port infrastructure. A considerable part of the food price instability problem in the region is due to the high cost of transportation, which widens the price wedge between import and export parity prices throughout the region. During the 2008/2009 food crisis in Zambia, the cost of importing grain from Johannesburg to Lusaka was \$180 per ton, which accounted for 40% of the landed cost of grain in Lusaka.<sup>4</sup> Bringing port and rail systems up to international standards has eluded most African governments, yet there is no good explanation why this state of affairs should persist.
3. Adopt a more open-border trade policy among neighboring states. Regional trade tends to stabilize markets by linking together areas with covariate production (Koester, 1986). Because of cross-border trade controls, a common practice at border crossings is that trucks carrying grain are unloaded on one side of the border, carried across in bicycles one bag at a time, and re-loaded onto trucks on the other side of the border—all to evade import duties. Such practices raise transaction costs for long-distance traders, which are ultimately borne by farmers and/or consumers. Relatedly, a recent study

<sup>4</sup> In 2012, Zambia had a 1.5 million ton maize surplus which would seemingly provide excellent potential for export revenue. However, the country has the capacity to export only 70,000 ton per month maximum (given the breakdown of the country's rail system and relying on available road transport in the region). Consequently a 1.5 million ton surplus will take close to 20 months to export fully. It is therefore likely that much of this surplus will become unsuitable for human consumption before it could be exported. Zambia's transport capacity constraints constitute a major barrier that will impede the country's ability to become a reliable food exporter unless the requisite investments are made in physical infrastructure and transport.

- by the FAO (2006) determined that of the \$3.7 billion of cereals imported annually by African countries, only 5% of it is produced by African farmers. Between 1990–1992 and 2002/2004, cereal imports into sub-Saharan Africa have been rising at 3.6% per year. Almost all of the growing demand in the region is due to rising urban populations, which are growing at over 4% per year. This highlights the importance of developing more effective systems for enabling African consumers to rely on and support their own rural farmers for food rather than international sources, so that expenditure growth multipliers can be captured within the region. This brings us back to the importance of public goods investments to reduce the costs of domestic production and marketing between rural and urban areas. At the same time, it must be acknowledged that promoting regional trade without farm productivity growth is not likely to seriously reduce the region's growing dependence on imported food.
4. The distributional effects of shifting food price, and the political challenges that they create, motivate for a public investment focus on reducing the costs of production and marketing as part of a comprehensive strategy to address the problems of food price instability. Reducing costs, for example through productive national systems of crop science and extension, investment in physical infrastructure, and irrigation relieves the political trade-offs between farmers and consumers because lower food prices can remain profitable to farmers once a system is in place that effectively and sustainably lowers production and marketing costs over time. Progress in this direction over time will also progressively depoliticize the issue of food prices as it has in most high-income countries, thereby freeing up public resources for investment in long-term productivity growth.
  5. Support the development of professional agencies for generating and disseminating accurate crop production forecasts and price information. Unfortunately, some countries' crop forecasts are notoriously unreliable and potentially subject to political interference (Dorward and Chirwa, 2011; Jayne and Rashid, 2010; Jerven, 2012). Inaccurate national food balance sheets can lead donors, governments, and traders to incorrectly estimate import requirements and/or export potential, which in turn increases the probability of undershooting or overshooting and the price unpredictability associated with it.
  6. While the development of agricultural commodity exchanges and associated risk-shifting mechanisms are often advocated in the literature, their sustainable operation is largely incompatible within an Option 3 policy environment, and may not be feasible unless governments make a long-term commitment toward Option 2.
  7. Recognize the trade-offs between price stabilization policies and the achievement of other important objectives. As is the case most everywhere, the next election provides African policy makers with incentives to allocate the agricultural budget based on highly demonstrable signs of support for constituents that are visible in the short run. Unfortunately, the payoffs from many public goods investments accumulate over the long run. The high food marketing costs and risks currently observed in most of eastern and southern Africa reflect low investment in market-facilitating public goods in prior decades. The Government of Zambia spent government funds amounting to 2% and 3% of its GDP stabilizing food prices in 2010 and 2011. The foregone investment in health facilities, education, infrastructure, crop research and development, and other investments with proven sustained impacts on agricultural growth and poverty reduction is staggering. The challenge is how to provide incentives to influence the

public budget allocation process in favor of greater expenditures on public goods that can generate a stream of large social benefits over time but which might not begin to manifest until after the next election.

8. Given that most of the problems associated with unpredictable food price volatility tend to emanate from local as opposed to international conditions (Sarris, 2010), consideration should be given to whether current proposals for international stockholding and financial reserves could be a sufficient response, or even a required or cost-effective one, for overcoming the major causes of food price volatility in much of sub-Saharan Africa. For instance, international physical or financial reserves would not be able to relieve localized food production shortfalls unless local transport capacity is adequate to supply sufficient imports within a short time frame.

Perhaps the single most important challenge for stabilizing African food markets is to make governments' role in the markets more predictable. Government responses to price instability create an unavoidable dynamic between the private and public sector as each anticipates how the other will respond to each other's actions in the market. If this interaction is positive and based on credibility and predictability, then governments could potentially achieve their food policy objectives in a less costly way by being able to depend on the private sector to undertake certain functions (e.g., intra-year grain storage of a sufficient quantity to moderate seasonal price rises); traders would have strong incentives to perform lest the public sector be compelled to enter the market if pre-established trigger conditions were met. By contrast, if the government's actions in the market were unpredictable, then the private sector would be less likely to perform functions like seasonal storage, thereby raising the magnitude of seasonal price rises, causing the government to undertake more storage itself and a greater associated burden on the treasury. Issues of "credible commitment" thus arise, whereby the willingness of government to adhere to "rules based" targets for entering the market would determine the extent to which the government could rely on the private sector to perform socially useful functions at no cost to the treasury. To the extent that governments can induce the private sector to perform these roles within clearly-specified price bounds, then this would free up the budget to invest in productivity-enhancing public goods that have been identified as having the greatest impacts on agricultural development and poverty reduction in most other parts of the world (e.g., Fan et al. 2007; Economist Intelligence Unit, 2008), and which remain so critically under-provided in most of sub-Saharan Africa.

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