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**CREATING SCARCITY FROM ABUNDANCE: BUMPER HARVESTS, HIGH PRICES,
AND THE ROLE OF STATE INTERVENTIONS IN ZAMBIAN MAIZE MARKETS**

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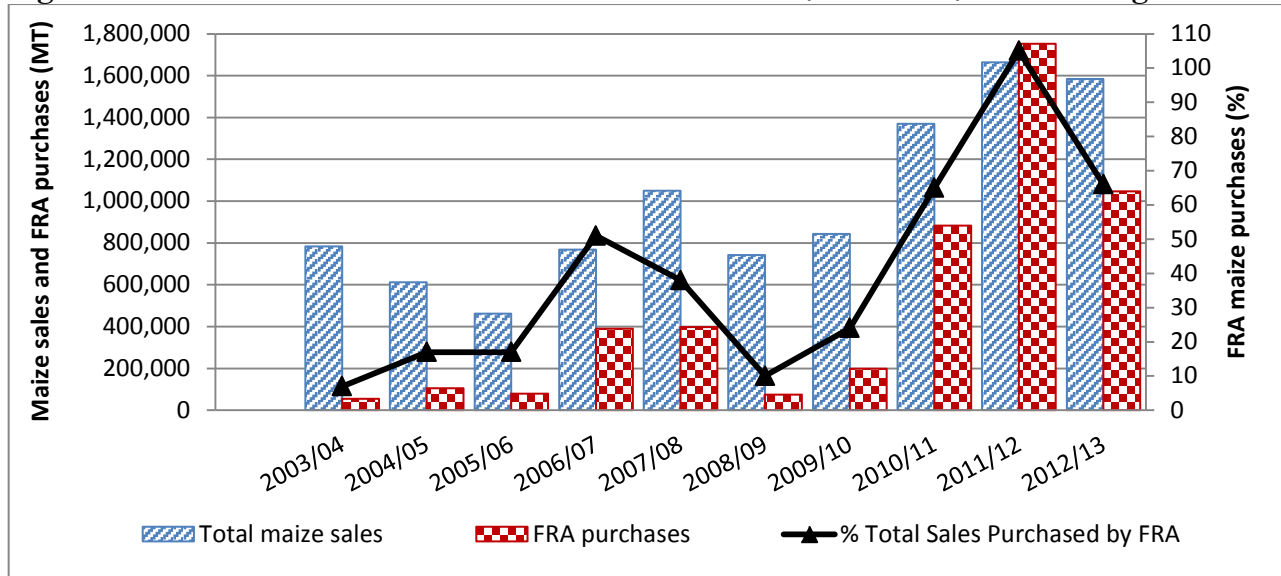
Key Points

1. From 2010 through 2012, Zambian farmers produced three years of consecutive years of maize surpluses. During this period, the country recorded a total maize production of 8.6 million metric tonnes, which exceeded the nation's consumption requirements by 4 million tonnes.
2. The government's Food reserve Agency (FRA) purchased nearly 3.7 million metric tonnes, or 80% of the surplus.
3. Despite large maize surpluses held by the FRA, the country experienced widespread maize meal shortages and skyrocketing maize meal prices in 2012/13.
4. Four fundamental changes to Zambia's maize market, caused by the response of the FRA to these bumper harvests, underlie the high maize meal prices despite consecutive record harvests:
 - i. A shift in maize procurement strategies by commercial mills;
 - ii. Rationing of FRA maize sold at subsidized prices to commercial mills;
 - iii. Exit of the commercial farming sector from maize production; and
 - iv. Squeezing the informal processing sector out of the market.
5. These structural changes in the organization of Zambia's maize market led to a decline in available maize supplies and reduced levels of private-sector competition than would have been the case if FRA had not played such a large role in the market, weakening the market's ability to respond to changes in demand conditions.

INTRODUCTION: From 2010 through 2012 harvest seasons, Zambian farmers produced three consecutive maize bumper harvests. The total maize production during this period was 8.6 million metric tonnes, of which 4.6 million metric tonnes was a marketable surplus (CSO/MAL various years). This far exceeded the national maize consumption requirement. In an effort to prevent producer price collapse in the wake of these historic harvests, the Government's Food Reserve Agency (FRA) was mandated to purchase approximately 80% or 3.7 million metric tonnes of the available surplus.

The government's response to the record harvests beginning in 2010 marked a significant change in the scale of FRA's activities in the maize market. As shown in Figure 1, prior to the 2010/11 marketing season, FRA's purchases only once exceed 50% of the available surplus. Yet, beginning in 2010/11 its presence in the market expanded significantly, exceeding 100% of the available surplus in 2011/12, which was likely due to FRA purchases of maize brought in from neighboring countries. Between 2009 and 2011, the FRA bought at above market pan-territorial prices and sold to commercial mills

Figure 1. Maize Sales and FRA Purchases in Zambia - 2003/04 to 2012/13 Marketing Years



Source: CSO/MAL CFS, PHS; Supplemental Surveys to the CSO/MACO/FSRP Post-Harvest Survey (2004 and 2008).

at subsidized prices that were below the cost of procurement. By November 2012, Zambia started experiencing widespread maize meal shortages and skyrocketing maize meal prices. These were particularly acute in the urban industrial regions in the Copperbelt province. At that time, the FRA acknowledged it still held 700,000 metric tonnes of maize in its storage silos and sheds. In trying to mitigate these food shortages and price spikes, the government increased the price subsidies it provided on maize sold by the FRA to large millers.

Rapid food price spikes are not new to Zambia (Jayne, Zulu, and Nijhoff 2006). As a landlocked country, with poor infrastructure and dependence on rain-fed agriculture to produce a single staple cereal, Zambia is particularly susceptible to price spikes for its staple food (Byerlee, Jayne, and Myers 2006). Yet, historically these price spikes have been the result of weather induced supply shortfalls, compounded by delays in importing maize to fill the deficit. Before 2012/13, Zambia had never experienced severe price spikes and shortages after record surplus production years.

This policy brief summarizes the analysis of Sitko and Kuteya (2013), which explores the causes of the widespread maize meal shortages and high maize meal prices in Zambia despite

record levels of surplus maize production, subsidies on maize sold to commercial mills, and large grain stocks held by the FRA.

In Zambia, the popular explanation for the 2012/13 food price spikes focused on the structural limitations of the private sector, including insufficient commercial maize processing capacity in low density regions, and rent seeking behaviors by large-scale milling firms, retailers, and those involved in the informal trade across Zambia's long and porous borders (Zambia Post Newspaper, November 22nd, 2012). Yet, given three years of record maize production, coupled with large state held maize stocks, the emergence of grain shortages and high maize meal prices likely has more fundamental causes.

In this study, we seek to identify and analyze the causes and consequences of the paradoxical food price spike of 2012/13. We find that the maize procurement and marketing behaviors of the FRA from 2010 to 2012 contributed to a structural reorganization of Zambia's maize marketing and processing sectors. Our analysis shows that the effects of FRA's activities have undermined the competitiveness of the maize market and made it more vulnerable to supply and demand shocks than would otherwise have been the case without large FRA presence.

DATA AND METHODS: The data used in our analysis came from various sources. To understand how maize markets in Zambia have responded to FRA's buying and selling activities we carried out semi-structured interviews with various actors in both the formal and informal maize markets. The interviews were conducted from April through June 2013 with 10 large-scale milling firms in Lusaka, Kitwe, and Mufulira; six large-scale grain trading firms, located in Lusaka;¹ five small-scale grain traders operating in Soweto market in Lusaka; 18 hammer mills in various Lusaka markets; and 28 small-scale grain retailers in various Lusaka markets. These interviews were complemented by wholesale maize grain price data collected by the Agricultural Marketing Information Centre (AMIC) under the Ministry of Agriculture and Livestock (MAL). The retail breakfast and roller meal prices and the consumer price index (CPI) were collected from the Central Statistical Office (CSO) of the Republic of Zambia. Production data came from MAL's Crop Forecast Survey (CFS). Formal trade data in Zambia came from the CSO's external trade data section. We also used data from South African Grain Information Service (SAGIS) to examine South African maize grain export trends in Africa and overseas.

FINDINGS: The study highlights four key findings:

Finding 1. Exit of Maize Wholesalers from the Market: As a result FRA's buy high and sell low strategy, many large- and medium-scale traders were unable to compete and therefore exited the maize market. This reduced competition and increased the risk of supply bottlenecks to the milling sector. The milling sector was the traditional market for wholesalers, but with FRA controlling the bulk of the surplus most of the mills supplies had to be met by the FRA. Therefore, the speed at which maize reached the milling sector was dictated by the speed at which maize could be off-loaded by the FRA. The exit of wholesalers

also increased the nation's storage losses for maize. According to the Minister of Agriculture and Livestock in his May 9, 2013 ministerial statement, maize grain deterioration and losses in FRA sheds was estimated at 32% (MAL 2013). In contrast, formal wholesalers interviewed for this study estimate their storage losses to be in the range of 3 to 5%.

Finding 2. Exit of Commercial Farmers from Maize Production: Once FRA indicated that it intended to purchase the bulk of the surplus and sell it at subsidized rates, mills began to back away from the standard practice of managing maize supplies through forward contracts with commercial farms. Without production contracts in place, commercial farmers began to shift away from maize into soya beans production. Crop Forecast survey data show that between 2010 and 2013 commercial farm maize production dropped from over 300,000 metric tonnes to less than 150,00 metric tonnes.

Finding 3. Disruption of the Informal Maize Market: The informal maize market is comprised of small-scale traders, wholesalers, retailers, and processors (hammer mills), which supply low cost maize grain to consumers in urban markets. Small-scale grain retailers and traders in Lusaka indicated that the normal functioning of their market was negatively affected by the shift in FRA's footprint in the maize market. According to interviews with market retailers in Lusaka, maize purchased by the FRA was not made available for small-scale informal actors. As such, supplies of maize available to purchase were significantly less during the 2010 to 2012 seasons than in normal production years and the price of the remaining grain was considerably higher. This anecdotal information is supported by previous econometric analysis, which found that FRA activities place significant upward pressure on wholesale maize prices in both rural and urban areas (Mason and Myers 2013). Due to the disruption of the informal sector, urban consumers lost an important source of competitively priced maize and maize meal. As a result, an increased number of urban consumers had to turn to the commercial

¹Several of these trading firms are multinational and also provided information on trends in regional maize trading.

milling sector to buy maize meal. This demand growth, coupled with the increased incidences of supply bottlenecks discussed in Finding 1, further undermined the ability of the commercial milling sector and the FRA to meet Zambia's demand for maize meal.

Finding 4. Redirection of South African Maize Exports: The limitations that emerged out of the consolidation of the market by the FRA were exposed in 2012 by a significant shift in regional trading relationships for maize. Beginning in 2010 and continuing through 2012, South Africa, the region's only consistent surplus producer of white maize, redirected the focus of its exports from the Sub-Saharan Africa region toward overseas markets. Prior to this reorientation, South Africa would typically export over 90% of its available surplus to countries in Sub-Saharan Africa. However, by 2011 only about 20% of South Africa's available white maize surplus was exported to Sub-Saharan Africa. This placed an increased and unanticipated demand burden on Zambia's maize market.

Much of this demand comes from the major deficit countries of Zimbabwe and the Democratic Republic of Congo (DRC), which lie on the southern and northern borders of Zambia, respectively. While Zambia did issue permits for formal exports to these countries, the small quantities allowed for export coupled with bottlenecks associated with accessing FRA maize for export, made it impossible for formal exports to satisfy demand. Moreover, the majority of the formal imports to these countries declined in the lead-up to Zambia's price spike in 2012. The lack of formal imports from Zambia and South Africa contributed to rising maize prices in those countries.

CONCLUSION AND POLICY RECOMMENDATIONS: Political pressure to support food producers in the event of major supply gluts is certainly understandable. Yet, this can quickly spiral out of control, leading to lasting and severe damage to the functioning of the entire maize market. Our analysis suggests the need for a critical rethinking in Zambia with regards to the management of food prices. In particular, refocusing efforts on managing

price instability through investments in long-run market developments rather than short-term efforts to stabilize prices may be in the best interest of domestic and regional consumers and producers (Gabre-Madhin 2005; Byerlee, Jayne, and Myers 2006).

Our analysis has shown that of particular importance is the promotion of competition within both the formal and informal maize markets. Promoting competition in the maize market requires the development of a predictable set of rules and regulations regarding government's behavior. Enhancing this predictability will require weakening the capacity of political actors to direct the behaviors of entities such as the FRA. By insulating the FRA from political interference—possibly by locating it within the Central Bank or through the creation of a council drawn from the private and public sector to guide its actions as laid out in Zambia's Market Marketing Bill—the state's capacity to monopolize maize markets will be weakened.

Through this enhanced predictability, incentives will be created for private sector actors to invest in grain procurement and in grain storage. Moreover, given medium-term projections of high global maize prices, coupled with demand growth in the region, these investments should provide increased incentives for producers to intensify maize output (Moyo and Binswanger 2012). The budgetary space created by operating a smaller strategic reserve can then be redirected, in part, to supporting the poor through social safety nets such as cash transfers or food for work arrangements (Byerlee, Jayne, and Myers 2006). Well-targeted social safety nets could help to mitigate some of the detrimental effects of higher food prices that may arise from expanded regional trade and higher global food prices.

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