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## The Paradox of High Mealie Meal Prices amidst Abundance: Maize Grain to Mealie Meal Price Transmission in Zambia

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### Key Points

- Mealie meal prices for both breakfast and roller adjust to maize grain price changes in the long-run;
- In the short run, millers adjust breakfast mealie meal prices almost immediately when maize grain prices increase compared to roller meal prices.
- Whenever maize grain prices decline, millers tend to reduce roller meal prices faster than breakfast meal thus maintaining higher breakfast meal margins.
- The rapid adjustment of breakfast meal prices by millers to the increasing maize grain prices seems to suggest a desire by millers to maintain their margins.
- More erratic maize grain price movements and mealie meal price spikes corresponds to the period when the Food Reserve Agency (FRA) ramped up its maize purchasing and sales activities.
- In order to stabilize maize grain and mealie meal prices FRA should consider having a price band and trigger system of price monitoring rather than intervene in an ad hoc manner based on lobbying pressure from interest groups.
- The policy of supplying subsidized maize to only large millers has been found to be ineffective in reducing maize meal prices. Instead FRA should supply maize to all market participants both the formal and informal to provide consumers with maize meal choice.

**INTRODUCTION:** There has been a continued outcry that mealie meal prices in Zambia have continued to rise despite the country having consecutive maize bumper harvests. However, if the general inflation is taken into account, prices of mealie meal have actually been dropping in real terms (Kuteya and Jayne 2011). Also, using the JCTR food basket price data, maize meal purchases as a proportion of the total food basket have been declining, thus, prices of other goods have risen faster than that of maize meal. Nevertheless, the nominal maize meal prices have been increasing leading to the outcry of ‘high prices amidst abundance’.

Zambia experienced two major mealie meal price spikes—in 2012 and 2013—igniting widespread speculation on the causes. However, a number of empirical studies by IAPRI indicated that the main causes were the increased FRA participation in the maize market and the ad-hoc maize marketing and

trade policies by the government, which had distortionary effects on the maize grain and mealie meal prices, hence, the inability of the market prices to transmit effectively across the maize value chain (see Sitko and Kuteya 2013; Kuteya, Chisanga, and Sitko 2014; Chapoto and Jayne 2009). Notably, the mealie meal price spike in 2012 took place at the time when the government was providing subsidized maize grain to large commercial millers and while the FRA held the majority of maize stocks in the country (Sitko and Kuteya 2013). The same has been observed in the 2014/15 marketing season with FRA buying and holding more than 50% of the surplus maize from smallholder farmers. Unfortunately, mealie meal prices have not declined in nominal terms despite the country having one of the highest maize harvests after 50 years of independence—a situation that puzzles many people, especially consumers who continue to complain about the rising maize meal prices.

It is behind this backdrop that we further analyze the maize market in order to gain a much deeper understanding of why mealie meal prices are deemed very high despite increased maize production. For effective maize policies, an understanding of the extent and timing of mealie meal price adjustments in response to maize grain price changes is of great importance. Examining the extent to which maize grain price changes are transmitted to maize meal prices is of particular interest.

**DATA AND METHODS:** In order to understand how maize grain prices are transmitted to commercially milled mealie meal prices, we utilize wholesale maize grain and retail breakfast and roller mealie meal prices from the Lusaka market. We use data from the Agricultural Market Information Centre (AMIC) of the Ministry of Agriculture and Livestock (MAL) for the period January 2000 to January 2015. Ideally, we needed an average of into-mill maize grain prices but could not find a reliable source to provide monthly data for the period 1991 to 2015. The retail breakfast and roller meal prices were obtained from the Central Statistical Office (CSO) consumer price index database.

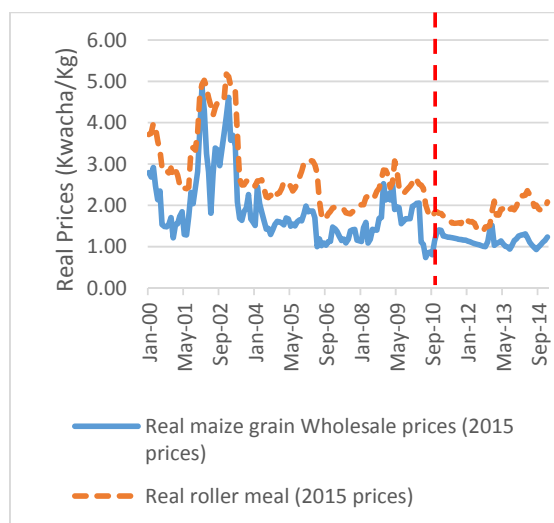
First, we analyzed whether milling margins have been increasing or declining for breakfast and roller meal at both market and subsidized maize grain. This allows us to quickly assess the competitiveness of the milling sector. Second, we analyzed the transmission of price changes from wholesale maize grain to retail breakfast and roller meal prices. Weak transmission from maize grain prices to retail mealie meal prices would suggest distortions in the maize value chain. The presence of asymmetric transmission that passes price increases to consumers or price decreases for a particular meal type could suggest profiteering from one meal type compared to the other. In addition, using appropriate econometric tools (Threshold Error Correction Model) we report the threshold price that should be exceeded before price transmission is triggered. For these models to be valid, we first had to establish if maize grain and mealie meal prices actually moved together (cointegrated).

**FINDINGS:**

**Maize Grain to Retail Roller Meal Price Margins Have Increased since FRA Increased Its Participation in the Market:**

Figure 1 shows the trends in maize grain and retail roller meal prices. In 2010, when the FRA expanded its role in maize market, both roller meal and maize grain prices initially declined until late 2012 when the prices increased. During that period, roller meal prices declined faster causing margins to decline. From 2012 onwards, however, both maize grain and mealie meal prices rose, with roller meal prices rising more rapidly causing margins to increase. This suggests rising market power among millers or inefficient functioning of the market. This is because it indicates that factors other than maize grain are driving the mealie meal prices upwards.

**Figure 1. Real 2015 Lusaka Monthly Wholesale Maize and Roller Meal Prices from 2000 to 2015**



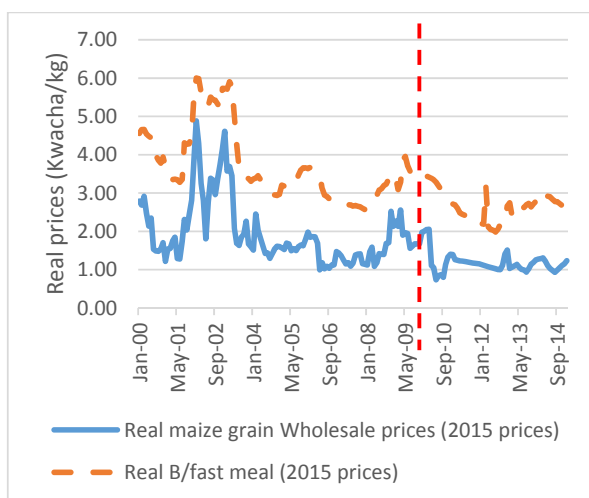
Source: CSO/MAL various years.

**Maize Grain to Retail Breakfast Meal Prices Margins Have Increased since FRA Increased Its Participation in the Market:**

Figure 2 shows the trends in maize grain and retail breakfast meal prices. Similar to the case of roller meal prices, maize grain and retail breakfast mealie meal prices declined over the period when FRA increased its activities in 2010 but increased from August 2012 onwards. Thus, margins, which had been on a decline in 2010, rose from 2012 onwards.

In comparison with roller meal prices, millers generally maintain a wider margin on breakfast mealie meal. Whenever these margins are threatened by rising grain prices, there is a tendency to maintain the margins by larger increases in breakfast meal prices. When maize grain prices rise, roller meal prices rise marginally, hence the margins have been extremely low in years when grain prices spiked including 2012, 2009, 2004, and 2002.

**Figure 2. Lusaka Monthly Maize Grain and Breakfast Mealie Meal Prices from 2000 to 2015**



Source: CSO/MAL various years.

**Breakfast Meal Prices Adjust More Rapidly to Changes in Maize Grain Prices than Roller Meal Prices:** The results show that maize grain and mealie meal prices tend to move together in the long run, also referred to as cointegration. Roller meal retail prices and wholesale maize grain prices establish a long-term equilibrium such that the two prices move uniformly. Similarly, breakfast meal prices and wholesale maize grain prices also establish a long-term equilibrium.

Price transmission results show that breakfast meal prices respond rapidly and significantly to changes in maize grain prices. When there is a change in the price of maize grain, breakfast meal prices will react almost immediately. About 72% of the price adjustment for breakfast meal is done within the same month when grain prices change. In comparison, only 43% of the adjustment to grain price changes is done within the same month for roller meal.

The rapid adjustment of millers to changes in maize grain prices does not automatically indicate the exercise of market power but may indicate that maize grain constitutes a high proportion of their costs and hence, their margins (Chisanga and Kabwe 2014). However, the quicker adjustment of breakfast meal than roller meal is indicative of the fact that millers' profitability depends largely on the type of meal.

**Retail Breakfast and Roller Meal Prices Adjust Only When Grain Price Changes Exceed a Threshold:** There is a minimum price change that must be exceeded by grain prices before mealie meal prices begin to respond. Our analysis shows that the minimum price change (also referred to as the threshold for breakfast mealie meal is +K0.19 per kg or +K9.61 per 50 kg bag of maize. Roller meal prices, on the other hand adjust when grain price changes exceed a price change of -K0.17 per kg or -K8.5 per 50 kg bag. The plus sign indicates that millers are more inclined towards increasing breakfast meal prices in response to grain price increases, while the negative threshold indicates that roller meal prices tend to respond to grain price reductions.

The negative threshold indicates that roller meal prices tend to respond to grain price reduction.

**CONCLUSION:** Grain and milling sectors have performed relatively well since 2000 as evidenced by declining retail margins for both roller and breakfast mealie meal. However, the period after FRA increased its participation in the market (2010 onwards) had witnessed an initial decline in the margins and more recently a rise in retail margins. This suggests that FRA participation in the market has introduced uncompetitive behavior in the milling sector. In addition, this trend reinforces the earlier finding by IAPRI that the maize grain price subsidies by government were not being passed to consumers. However, roller meal margins have been much lower than breakfast margins and have increased marginally until recently. When grain prices rise, breakfast meal is likely to increase immediately while roller meal price increases are lagged. On the other hand, millers are more inclined to reduce roller meal prices more rapidly when grain prices reduce.

**POLICY RECOMMENDATIONS:** The policy of supplying subsidized maize to only large millers has been found to be ineffective in reducing maize meal prices due to rising concentration at grain and milling sub-sectors (Sitko and Kuteya 2013). Instead, FRA should supply maize to all market participants both the formal and informal to provide consumers with maize meal choice. Also, in order to provide consumers with optional sources for a viable, cheaper maize meal, there is a need for government to have a deliberate policy that promotes the development of small mills and hammer mills.

In the event that government were to implement consumer subsidies to millers in the hope of stabilizing mealie meal prices, this should be targeted to roller meal production because it is a cheaper meal. Our analysis shows that millers are more inclined to reduce roller meal prices more rapidly when grain prices fall rather than breakfast meal.

Finally yet importantly, the government should limit its intervention in maize market through the FRA. Market based options would enhance competition in the maize sector resulting in lower maize grain and mealie meal prices. Clarity and predictability of government policies is essential. This includes trade policies and regulation of prices. In addition, for Zambia to become a reliable maize supplier, the government should maintain an open border policy and should limit the regulation of grain and mealie meal prices.

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