

Temporal Price Trends for Selected *Non-Tradable* Staples in Northern Ghana: The Case of Major Cereal Foods

James Fearon^{1*}

Faculty of Agribusiness and Communication Sciences, University for Development Studies, P.O Box TL 1882, Tamale- Ghana

* E-mail of the corresponding author: jimmyfeegh@yahoo.com

Abstract

Rising food prices undermine the real income of poor and vulnerable consumers, thus threatening their food security status. This study examines the pattern of price change for maize, millet and rice in the Northern Region of Ghana between 2000 and 2012. Average monthly price series for the selected food items in the region constituted the primary data used for the analysis. The study revealed that price of the items generally increased at a faster rate in the past two years than the preceding decade. On the average, price of millet increased by 257% and 544% in 2011 and 2012 respectively compared to 81% for the preceding decade. Similarly, price of local rice grew at about 425% and 381% in 2011 and 2012 respectively compared to an overall increase of 108% from 2000 to 2010. Although positive, the rate of growth in price for maize was relatively slower. While the average rate of growth from 2000 to 2010 was 38% that for 2011 and 2012 was just about 1.9% and 2% respectively. The case of maize appeared to be a reflection of a 5.2% yield improvement as well as 6% expansion of area planted to the crop during the period.

Key words: Staple, non-tradable, cereals

Introduction

The global food crisis of 2007 and 2008 led to rapid increase in prices of agricultural commodities on the international market (Minot, 2011). In Ghana, the price of rice, maize and other cereals increased by 20-30% close to the end of 2007 and beginning of 2008 (Wodon et al, 2008). The food crisis severely affected Sub-Saharan Africa (SSA) because the region was a net importer of agricultural commodities. For instance, Ghana imported 442,073 Mt of rice valued at \$157.9 million in 2007. The country also spent about \$18.7 million on import of maize in 2008 (MOFA, 2011). At the micro level, since most households, especially in rural areas are net buyers of food they are equally affected by such price increases. The income levels of rural households are often low, making their food bills a large share of the household budget, in the range of 50 to 70% (World Bank, 2008). With over 70% of countries in the SSA region classified as “low income”, their capacity to respond to price related crisis is limited. In other words, high food prices on domestic markets erode the purchasing power of families, and compel them to cut non-food spending.

Available statistics indicate that price of staple foods have risen steadily over the years in the West African sub-region due to various reasons. Between July and December 2012, the price of millet increased by 24%, 40% and 17% in Burkina Faso, Guinea Bissau and Mali respectively (WFP, 2012). The WFP report suggests that conflicts and general insecurity in Mali forced refugees into neighbouring countries, creating additional demand for staple foods that pushed up prices. Ghana also experienced significant food price inflation, especially for cereals within the first quarter of 2012. These increases were however driven mainly by unexpectedly high prices of other commodities (WFP, 2012), creating food insecurity challenges. Meanwhile the highest incidence of food insecurity in Ghana was reported in the dry savannah areas, including Northern Region. For instance, while food insecurity rates of 1-7% were reported in the southern sector, 10-30% rate was reported in the north (Biederlack & Rivers, 2009). According to the authors, households producing food crops are often the most affected by food insecurity in Northern Ghana.

Maize and rice are two of Ghana’s most important staple crops with ever-growing domestic demand (FAO, 2011; MIDA, 2011). Some argue that maize is the most important cereal fodder and grain crop in the semi-arid and arid tropics (Hussan et al, 2003). In 2006, an estimated 943,000 Mt was consumed in Ghana (MOFA, 2007). This figure increased further to 1,060,967 Mt in 2010/2011 (MOFA, 2011). Indeed, households in Ghana made annual and per capita expenditures of GH¢1,059 on cereals, including bread, which translate to 20.1% of the total household budget for food consumption (GSS, 2008). Nevertheless, food production is dominated by small-scale farmers who rely on rain-fed conditions with limited use of technologies, often leading to sub-optimal output due

to low productivity. In recent years, production shortfalls of 12% and 69% were recorded for maize and rice respectively (MIDA, 2011). At the same time, demand for the two commodities was respectively projected to grow at an annual rate of 2.6% and 11.8% between 2010 and 2015. The shortfalls resulted in price increases, which varied across markets, depending on the production capacity for the specific commodities in the regions.

Price variation may be spatial (across different locations) or temporal (over time). Studies have shown that both spatial and temporal price variation for agricultural commodities partly depend on whether they are tradable (traded on the international market) (Minot, 2009; Rashid & Minot, 2009). For such commodities, trade policies and exchange rate regimes are important factors that determine temporal variation. If the existing policies and exchange rate remain constant, domestic prices may follow international trend. Evidence supporting the relationships between food prices on domestic markets in Africa and world markets is however limited. For instance, Minot (2011) demonstrated that there is very little or no long-run relationship between the price of maize in the SSA region and that in South Africa, despite the fact that most of the imports came from South Africa. In the case of non-tradable commodities, temporal variation in prices is attributed to seasonal harvest schedules and weather-related differences in production. Generally, prices are lowest during the harvest season, rising steadily after harvest and remaining high throughout the post-harvest period. Traders respond to these differences by making large purchases during harvest times and keeping them in storage for future sale when prices are high.

It has been alleged that food price instability in Ghana in the recent past is because of fluctuation in world food prices, transmitted to the domestic market. Although this claim may be true for some countries, a study has shown that there is little or no connection between the two markets as far as Ghana was concerned. Comparing the domestic and international price trends over a 12-month period, Minot (2011) argue that world prices are transmitted when they change dramatically. The author suggests that domestic food price fluctuations were more the result of poor weather and below average harvests in the sub-region. The year-on-year inflation in Ghana ended 12.6% at the end of 1999 (ISSER, 2001-2005). The figure shot up by about 221% within 12 months, ending the year 2000 with an inflation of 40.5%. This, according to ISSER was due to factors like expansionary policies, depreciation of the local currency (Cedi) and general loss of confidence in the Ghanaian economy. There was also extensive borrowing from the country's central bank probably to finance elections. By the first quarter of 2001, inflation had risen to 41.9% due to excessive money supply in 2000, diminished food stocks as well as upward adjustment in petroleum prices.

This study examines the price movement of three of Ghana's important staple food items in the Northern Region. As consumer demand continue to increase through increase population, prices will also increase so long as resource challenges exist alongside increased frequency of weather shocks. This point was reinforced by Graziano Da Silva et al. (2012), that rising food prices is the result of expanding population as well as under funding to agriculture. Moreover, since prevailing prices reflect the relative scarcity of commodities in the market, understanding the trend over time would create opportunities for stakeholders to intervene with the most appropriate policy measures that would help to protect the most vulnerable from potential future high and volatile food price movements. An unregulated increase in the price of important staple foods would further reduce the purchasing power of consumers whose incomes are already low, and thereby worsen the already difficult food security situation.

Methodology

A descriptive analysis of price trends was carried out using monthly price series for three major cereals, which include maize, millet and rice (local). These food items were selected because they account for a large share of overall household food budgets in Ghana. At the national level, cereals constitute the highest share of the overall food budget in all localities. Additional data was extracted from reports of the Statistics, Research and Information Directorate (SRID) of MOFA for the analysis. Some of the price series data were hitherto converted to Ghana Cedis (¢) per specified weight of the respective commodities.

Results and discussion

Following the universal principle that the forces of demand and supply determine the price of commodities on any market, the first part of the study examined the production trend for the selected cereals over the period under study. Generally, small-scale agricultural production in Ghana depends more on area expansion as means of increasing output than productivity improvement. This situation is partly because yields are generally low among smallholder farmers. Average yield (Mt/ha) in Ghana was 1.7, 1.3 and 2.4 for maize, millet and rice respectively although farmers can achieve up to 6.0, 2.0 and 6.5 (MOFA, 2011) if given the appropriate support.

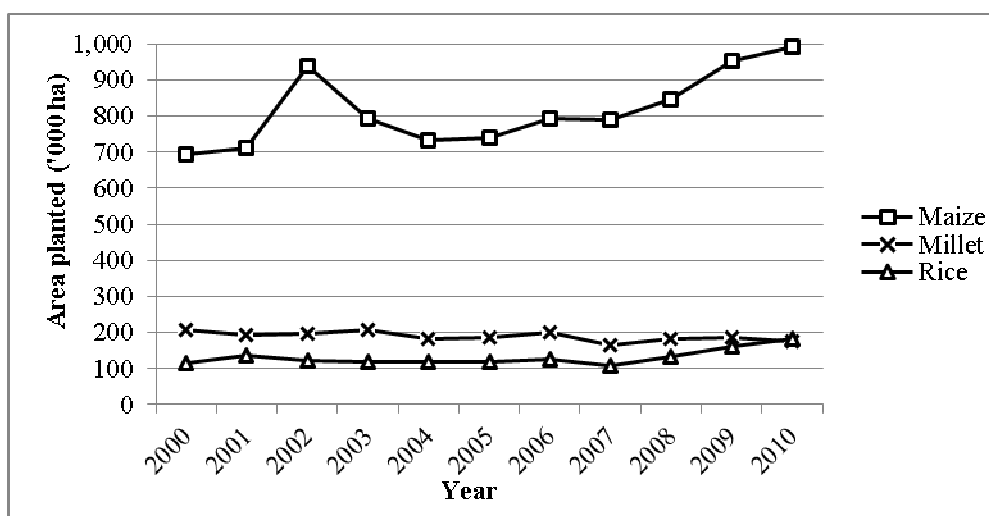


Figure 1: Trends in area cultivated for the selected cereals in Ghana (2000-2010)

Source: Statistics, Research and Information Directorate (SRID), MOFA

Figure 1 shows the trend in area expansion for maize, millet and rice in Ghana from 2000 to 2010. The area allocated to maize cultivation consistently remained above 700,000ha each year while that allocated to millet and rice barely reached 200'000 ha. The rate of growth also remained relatively stable for millet and rice between 2000 and 2007, and then declined marginally for millet (-0.13%) while increasing for rice (9.9%) between 2008 and 2012 (MOFA, 2011). Figure 2 shows the production trend for the cereals over the period. It can be seen from the figure that growth in production generally followed similar trend as area expansion for the respective staples. However, a 13.9% growth rate was recorded for millet notwithstanding the negative rate of area expansion between 2008 and 2012. This could be attributed to weather factors as well as use of better production techniques.

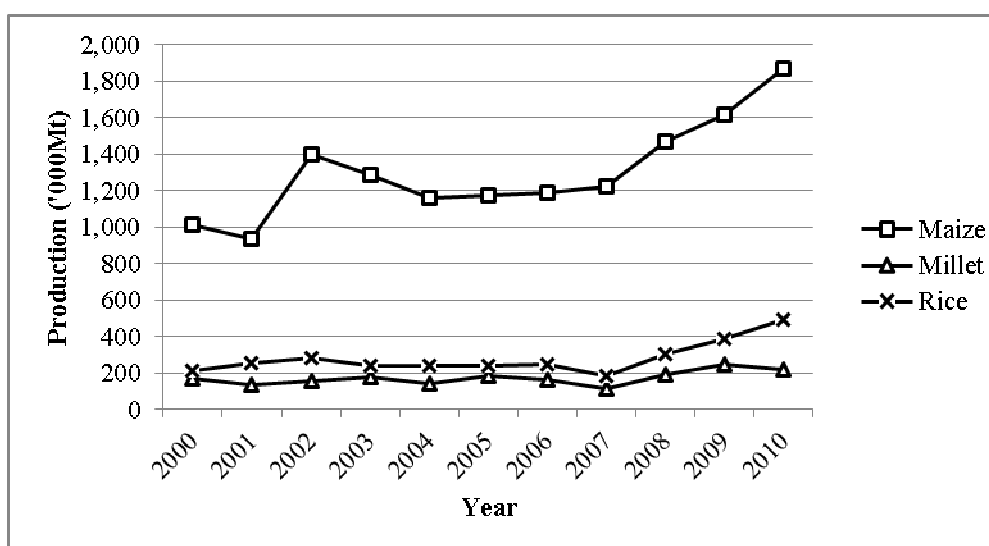


Figure 2: Production trends for the selected cereals in Ghana (2000-2010)

Source: Statistics, Research and Information Directorate (SRID), MOFA

The lowest production of maize was in 2001 (938,000Mt). On the other hand, rice and millet production recorded maximums of 493,000Mt and 246,000Mt in 2010 and 2009 respectively. The trends reflect the relative importance of the crops in the Ghanaian food system.

The study also examined price evolution in the Northern Region of Ghana between 2000 and 2012. The results show a general upward price movement for all the crops over the 12 years period (figure 3), with the price of rice

consistently remaining higher than that of millet and maize. The trend seems to indicate the level of production for the crops (figure 2) which perhaps activated the price effect of shortfall in supply. Since maize production at the national level was consistently higher than the other crops, it maintained a relatively lower price per unit in the Northern Region.

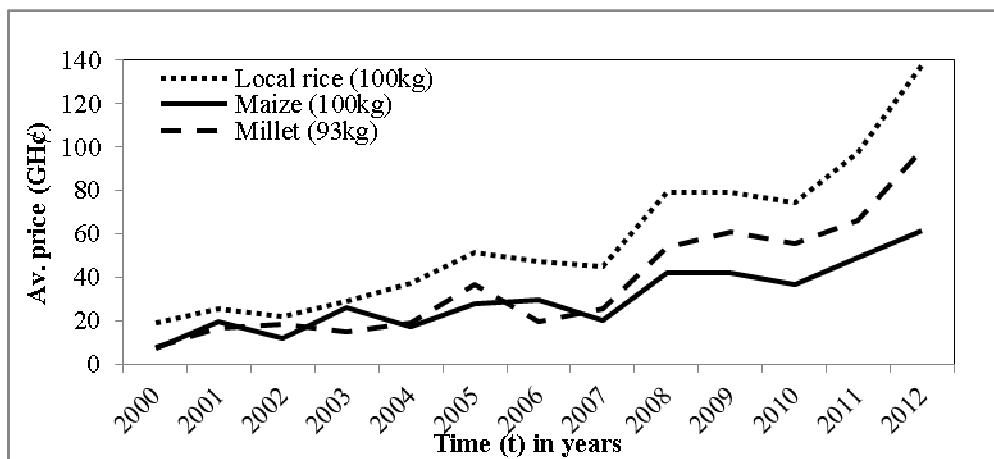


Figure 3: General annual price trends for the cereals in the Northern Region (200-2012)

Source: Statistics, Research and Information Directorate (SRID), MOFA

Close analysis of figure 3 revealed an identical pattern of price evolution for the commodities in the 2000/2001, 2004/2005, 2007/2008 and 2011/2012 production seasons. These years coincided with four of the general elections in Ghana. Drawing on the findings of ISSER and experiences with the general economic conditions that characterise election years in Ghana, this study suggests that price increase for the cereals around those periods are the result of similar factors reported by ISSER. Generally, the early months after general elections in Ghana are characterised by rising inflation and exchange rate instability mainly due to accumulated fiscal deficit, which affect many sectors of the economy including agriculture. The latest trend, beginning 2011/2012 sparked some fierce public debate due to an apparent disagreement between official government figures and the “reality” on the ground. Although the Monetary Policy Report of Ghana’s central bank indicates that food inflation in the country declined in the third quarter of 2012 (from 5.4% to 4.4%) mainly due to favourable seasonal impact (BOG, 2012), public opinion seems to differ. An analysis of disaggregated data for the individual commodities, for 2000 to 2010 and 2011/2012 showed that prices generally increased faster in the recent past (2011 and 2012) than it did in the previous 11 years. Millet and local rice in particular recorded sharp positive rates of price increase (Figure 4 & 5).

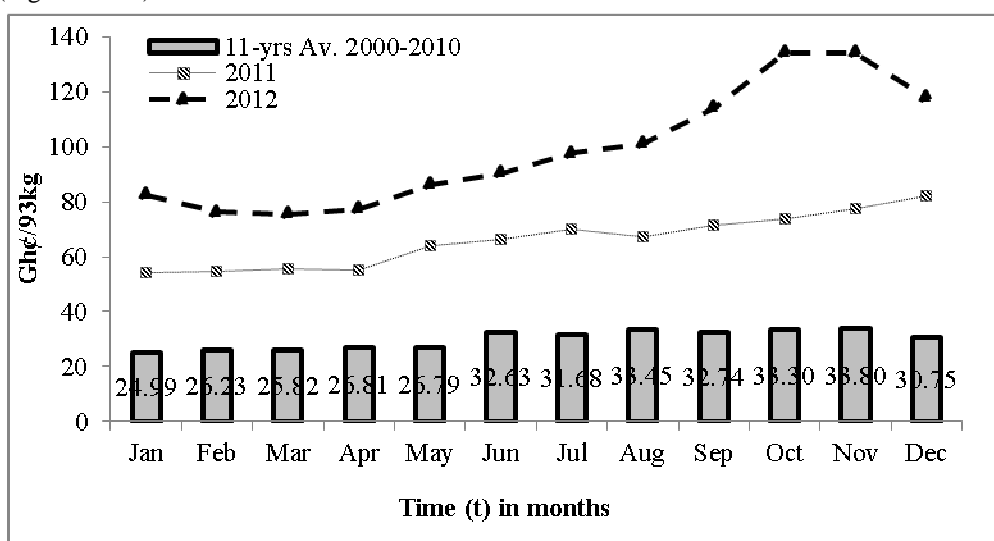


Figure 4: Millet - Nominal retail price trends in Northern Region

The analysis revealed that while rate of price rise was 0.81 over 11 years (2000-2010), that in 2011 and 2012 were 2.57 and 5.44 respectively. This suggests that price of millet in the Northern Region increased faster in

recent times than previously (81%). In other words, the rate of price increase was 257% in 2011 and 544% in 2012. Similarly, the price of local rice grew at about 425% and 381% in 2011 and 2012 respectively compared to an overall increase of 108% from 2000 to 2010 (figure 5). The difference in food price inflation at the regional level compared to official government figures perhaps explain why sections of the public disagreed with the official reports. Since the food items constitute a large share of diets in the region, such astronomical increases in prices have serious effects on household finances and may affect the food security status of families in the region.

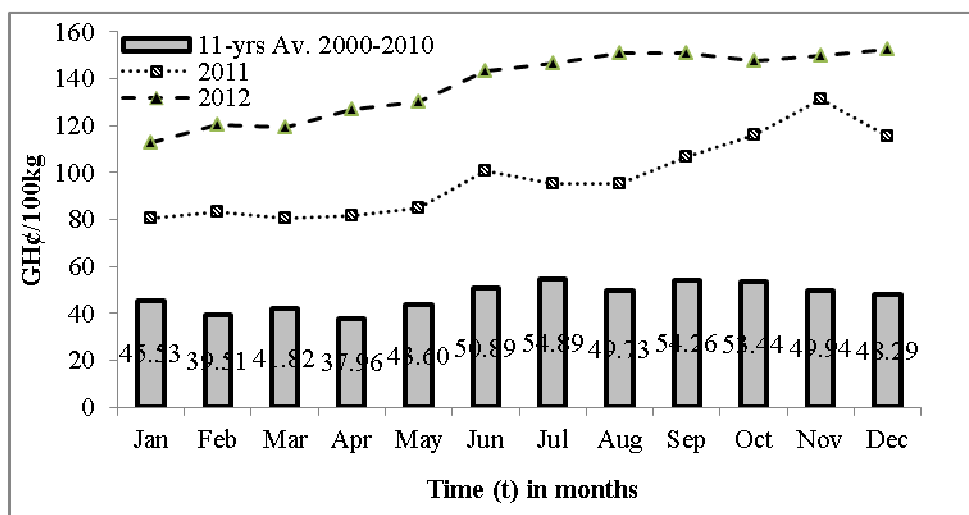


Figure 5: Local rice – Nominal retail price trends in Northern Region

Figure 6 also shows that in 2011 and 2012 the price of maize recorded a positive but relatively slow rate of increase. Whereas the rate of increase in price between 2000 and 2010 was 38%, that for 2011 and 2012 were just about 1.9% and 2% respectively. Thus, unlike the case of rice and millet, the rate of price increase was slower in the past two years compared to the preceding decade.

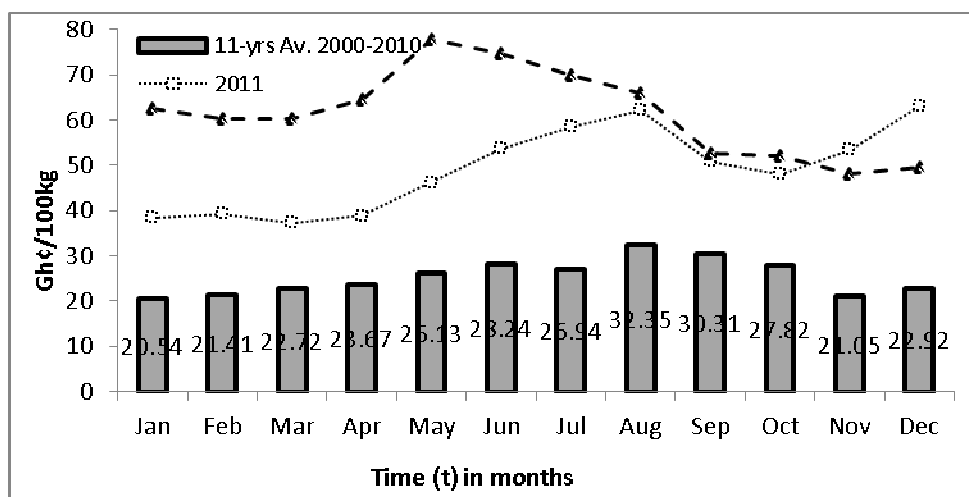


Figure 6: Maize – Nominal retail price trends in Northern Region

This could partly be attributed to general yield improvement (5.2%) recorded in the region as well as the 6.13% annual growth of area planted to the crop (MOFA, 2013). The combined effect of the two factors among others may have contributed to the 27.2% growth in maize output between 2008 and 2010 (figure 2) which may have eased demand and therefore slowed down price increase over the period.

Table 1 shows the average quarterly price movement for the cereals in Northern Region. The results show that

the third and fourth quarters (Q3 & Q4) of 2012 recorded the highest prices (above the annual average) for rice and millet in the Region. Similarly, highest quarterly price of GH¢72 for maize was recorded in Q2. This was about 17% higher than the yearly average. Since harvest of cereals often takes place after August, one would expect that prices would be lowest around the last half of the year. High prices recorded around the period (especially for rice) could therefore be attributed to regular increase in demand as Christmas festivities approached as well as a 15-30% fuel price increase announced by the National Petroleum Authority (NPA). High fuel prices affect both cost of production and transportations of food items, which are passed on to consumers. Beyond the fuel price effect, price movements are indicative of the production and supply cycles to the markets (high price for maize coincided with the lean season).

Table 1: Average price (quarterly) for selected cereals in Northern Region- 2012

Commodity	End 1 st Qtr* price (GH¢)	End 2 nd Qtr. price (GH¢)	End 3 rd Qtr. price (GH¢)	End 4 th Qtr. price (GH¢)	Year Av.
Local rice (100kg)	117.4	133.5	149.5	150.1	137.6
Maize (100kg)	61.0	72.3	62.8	49.9	61.5
Millet (93kg)	78.0	84.7	104.2	128.6	98.9

Source: Estimated using MOFA data, 2013. *Qtr. – abbreviation for quarter

Table 2 shows the percentage change in the quarterly prices over the period. It can be seen that price of maize reduced substantially after the second quarter, probably reflecting the harvesting pattern. Studies have shown that large proportions of maize growing households harvest their crop during the third quarter of the year (GSS, 2008).

Table 2: Quarterly price change for 2012

	% Change (1 st & 2 nd Qtrs)	% Change (2 nd & 3 rd Qtrs)	% Change (3 rd & 4 th Qtrs)
Local rice (100kg)	13.7	12.0	0.3
Maize (100kg)	18.5	-13.1	-20.6
Millet (93kg)	8.6	23.0	23.5

Source: Authors calculations based on price data from MOFA, Tamale

Conclusions

The pattern of food price evolution had been the same for maize, rice and millet in the Northern Region since 2000. On average, prices of the cereals increased faster between 2011 and 2012 than the preceding decade. The rate of price rise was overall most severe around 2000/2001, 2004/2005, 2007/2008 and 2011/2012 production seasons which coincided with four of the general elections the country. Astronomical increase in price of the cereals could be controlled in the Northern Region by expanding output using productivity enhancing technologies as well as a shift towards continuous (irrigated) farming to ensure yearlong production, and thereby ending the fluctuating supply cycles. Secondly, prudent economic management, especially during election years as well as tactical imposition of petroleum taxes would go a long way to save resource poor farmers and households the trouble of having to pay high prices for staple food items around specific times of the production and electoral seasons.

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