

Does Consumer Price Index Affect Food Security in Sub-Saharan Africa?

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Received January 31, 2015; Revised March 05, 2015; Accepted April 02, 2015

Abstract Food security is a major global issue with over a billion people believed to lack sufficient dietary access while others suffer from micronutrient deficiencies. In Sub-Saharan Africa, food insecurity is further exacerbated by climate change scenarios, absence of appropriate storage facilities and increase in transportation costs. These deeply impact traditional farming methods and livelihoods there by restricting access to sufficient food hence leaving people in constant food crisis. This paper assesses the influence of consumer price index (CPI) on food security in Sub-Saharan Africa. It is based on the premise that, consumer spending of households is often influenced by price elasticity (changes in food prices) with a consequence on household incomes. The study found out that, food price inflation has increased in many Sub-Saharan African countries; pushing up CPIs with ripple effects on households and on the macro economy. This has a direct consequence on the already weakened household purchasing power thus exposing these households to food insecurity. Therefore, the potential impacts of price elasticity in relation to CPI is a fundamental food security issue.

Keywords: food security, CPI, cereal products, Sub-Saharan Africa, households and prices

Cite This Article: Coulibaly Abdoulaye, Wang LanHui, and Mukete Beckline, "Does Consumer Price Index Affect Food Security in Sub-Saharan Africa?" *Journal of Food Security*, vol. 3, no. 1 (2015): 25-28. doi: 10.12691/jfs-3-1-4.

1. Introduction

Within the past decades, food security has remained a major global issue especially in developing countries (Barret et al., 2010; Mukete and Monono, 2014). More than 1 billion people are estimated to lack sufficient dietary energy availability while at least twice that number suffer micronutrient deficiencies (Barret et al., 2010; Sunderland and Pottinger, 2011; Mukete and Monono, 2014). The attainment of global food security, is described as a situation in which, all people and at all times have access to adequate, affordable, safe and nutritious food to meet their dietary requirements and food preferences for a productive and healthy life (Pinstrip-Andersen, 2009; World Bank, 2011; Mukete and Monono, 2014).

As the world continues to experience an upsurge in food prices, food security issues remain a major objective of development policies in Sub-Saharan African countries (FAO, 2008). Soaring food prices have been accompanied by an unprecedented volatility, especially in the cereals and oilseeds, highlighting the prevalence of greater market uncertainty (FAO, 2008; 2012). Over 75% of the population of Sub-Saharan Africa, directly or indirectly depends on cereals and cereal products for daily food and calorific intake. Most of these countries depend on cereal imports despite their enormous human and natural potentials (Kelly et al., 2008; Dambisa, 2010; FAO,

2012). These shortcomings are often attributed to a reduction in agricultural production, climate change scenarios; absence of appropriate storage facilities and increase in transportation costs. These have affected traditional farming methods and livelihoods with a restrictive access to sufficient food; thus exposing households to constant food crisis (Kelly et al., 2008; Dambisa, 2010; FAO, 2012).

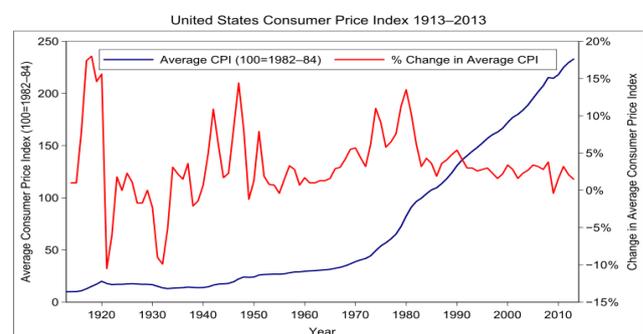


Figure 1. A graph of the US CPI from 1913 to 2013 (in blue) and its annual change (percentage) (in red). **Source:** U.S. Department of Labor, 2013.

Consumer Price Index (CPI), is a measure of the changes in the market price level of consumer goods and services purchased by households. In most cases, the CPI is a statistical estimate constructed using the prices of a sample of representative items whose prices are collected

periodically (Hobijn and Lagakos, 2003). In most Sub-Saharan African countries, cereal products do account for a large part of consumer spending while this consumer spending is often influenced by price elasticity (Dambisa, 2010; World Bank, 2011). This leads to a cause and effect relationship between the CPI and prices of cereal products because prices of cereal products are intrinsically related to price elasticity (FAO, 2014).

In this study, a literature survey was carried-out to assess how CPI may directly or indirectly affect food prices and how this may retroact to influence household purchasing power. The general assumption is that, CPI affects market prices and this in turn influences household purchasing power thus exposing the household to food insecurity.

The paper has been divided into two sections, with the first looking at CPI and food prices. This section of the study, discusses the probable effects of CPI on food prices and how this may influence household purchasing power. In the second section, the study explores the probable links between CPI, food prices, household purchasing power and food insecurity. It is concluded that, CPI based approaches can provide a baseline for understanding the links between food availability, accessibility and utilization hence food insecurity.

2. Consumer Price Index (CPI) and Food Prices

Studies on CPI in developing countries have mostly considered its impact on food prices with less emphasis on its consequences for food security. Studies such as FAO (2012) only assessed the impact of climate change on food security in Mali while Garc íet al., (2013) looked at the impacts of food price volatility on consumers in developing countries. Similarly, Apergis and Rezitis, (2011) studied food prices and inflation in developing countries. They found out that, higher food prices translated into higher inflation and price shocks which later passed on to consumer prices. Dewbre et al., (2008) and Ferrucci et al., (2010), separately studied market prices for agricultural commodities in developing countries. Both studies affirmed that, consumers do not purchase agricultural commodities at world prices but instead purchased processed consumer products at local market retail prices. Lloyd et al., (2012) and Gilbert and Morgan, (2010) studied food price volatility and its effect on consumers. Their studies affirmed that, this impact on consumers depended on the extent of price passed-on from agricultural commodity prices to retail prices. Both studies asserted that, this transmission was usually not completed thus it limited the impact of food price volatility.

Camara (2011) found that, changes in food prices are driven by variations in cereal prices with a consequence for household real incomes. This study concluded that, households allocated a greater portion of their budget to food especially rice instead on millet, sorghum or maize. These caused significant nutrient and micronutrient deficiencies such as that of vitamin A, vitamin C, iron and calcium. When exposed to such circumstances, households often seek self-sufficiency via capital, labour and food to reduce exposure to variability in prices and high transaction costs (Lutz et al., 1995). Variability in

prices and high transaction costs are a cause and a consequence of thinly traded but volatile markets (Barrett, 2008; Fafchamps, 2010). These thinly traded markets keep the difference between producer and consumer prices high, further reinforcing household incentives to minimize their reliance on markets (Kelly et al., 1996).

OECD (2008), carried-out a study on the impact of food prices on consumers in developing countries. OECD (2008) found out that, this depended on various factors especially where governments did not prevent higher prices on world markets from being transmitted to domestic markets. This unstable variability in prices was further exacerbated by the stochasticity of weather, pest events and the inelastic nature of demand and supply. Besides these traditional causes for price fluctuations, agricultural commodities are increasingly connected to energy and financial markets which destabilize market prices (von Braun and Tadesse, 2012). Meanwhile, Garc í et al., (2013) studied the impacts of food price volatility on consumers in developed and developing countries. Their study found that, research on consumer prices focused more on international food prices of commodities whereas these impacts could be best measured by changes in the food component of the CPI. A study by Yi, (2013) showed a direct relationship between the long-term stability of food prices and CPI as this gave a balanced relationship in food price changes using the Granger CPI change.

According to Li (2011), a relationship exists between grain prices and the CPI during the long term and short-term scenarios. In the former, every 1% increase in grain prices resulted to an increase in the CPI 0.336% while in the latter, the price of grain had an influence delayed by one step on the CPI. This may have been due to international effects; offer effects; the effect of market expectations and policy effect. Zhu and Lu (2011) studied the relationship between grain prices and CPI inflation in China by analyzing the nonlinear relationships between grain price and CPI. Their study showed that, there existed bidirectional causality relations but the time effect and the causal intensity were different. Furthermore, they asserted that, CPI had obvious causality effect on the grain price and that this effect lasted from lag= 3 months until lag= 7 months with the lag= 3 months having the strongest effect. On the other hand, the grain price also had causal effect on CPI but only lasted for one month (lag= 1 month). Their results correlated with the study of Feng and Dong-sheng, (2014) who affirmed that both agricultural prices and the CPI concerned the vital interests of farmers and consumers. They used the co-integration test, Granger causality, impulse response analysis and variance decomposition method for an empirical study of the relationship between agricultural prices and CPI after seasonal adjustment. Their study concluded that, the response of cereal prices to CPI was weaker while the variance contribution degree of CPI to cereal prices was lower. They also affirmed that, the response of CPI to cereal prices was faster, stronger while the variance contribution degree from agriculture was highest.

In 2002, Feng and Peng used error correction model to analyze the relationship of co-integration between grain prices and inflation. They found strong evidence that, there are long-term relationships between grain prices and inflation. They further concluded that, the direction of

causality for the relationship is from inflation to grain prices rather than from grain prices to inflation. Also, Mame (2007) used co-integration techniques and general inflation models to analyze inflation in Mali. The analysis showed that, average national rainfall and to a lesser extent deviations from monetary and external sector equilibrium to be the long-run determinants of inflation within that country.

Therefore, food price inflation has increased in many countries pushing up CPIs with ripple effects on households and the macro economy. Therefore, evaluating the potential impacts of the rise in world food prices in relation to CPI, became a fundamental issue in food security.

3. Consumer Price Index and Food Insecurity

CPI is computed using two basic types of data; the price data and weighting data obtained from expenditure surveys for a sample of households. The price data are collected for a sample of goods, sales outlets, locations and at a sample of times. Meanwhile, the weighting data are estimates of the shares of the different types of expenditure in the total expenditure covered by the index. These surveys often translate into a poor reflection of the real situation within households with respect to their purchasing power. This consequently causes a variance and re-pricing of food products hence impacting the household's food availability, accessibility and utilization. This is as a result of the fact that, CPI surveys do not usually take into account household income but rather household expenditures.

In Sub-Saharan Africa, food security is commonly conceptualized as resting on three pillars; food availability, accessibility and utilization (Mukete and Monono, 2014). While food availability refers to the physical presence of food where it is needed, food accessibility is the means by which people acquire the food they need and food utilization refers to the way in which people make use of food (Mukete and Monono, 2014). These three pillars function in a nested hierarchical way and are greatly intertwined. For instance, adequate food availability is necessary but it does not ensure a household's access to sufficient, safe and nutritious food since it is mostly related to social science concepts of the range of individual food choices, income, prevailing prices and access (FAO, 2006). The relationship between food security, poverty, socioeconomic and political disenfranchisement is seen through access. Meanwhile, utilization explores how households make use of the food to which they have access while paying attention to dietary quality, essential minerals and vitamins intake (Devereaux, 2009; Barret et al., 2010).

Therefore, in instances where food or cereal prices have witnessed an increase due to CPI surveys, food availability, accessibility and utilization in many households drops. In Sub-Saharan Africa since 2005, prices of cereal products such as wheat, rice and oilseeds are steadily on the rise. This has caused a backdrop in cereals availability, accessibility and utilization within over 80% of households (World Bank, 2011; FAO, 2014; Mukete, 2014). This is attributed to importation

regulations, increase in transport fares; increase in price of storage facilities and in some cases, increase in local taxes. When a household's food availability, accessibility and utilization drops, the household is exposed to food insecurity. Therefore, this continuous increase in food prices as a result of CPI surveys, constitutes a major driver of food insecurity within Sub-Saharan Africa.

4. Conclusion

Food security remains a major challenge in Sub-Saharan Africa in particular and the world in general with the proportion of undernourished people increasing every day. Consumer Price Index (CPI) as other socioeconomic, environmental or political factors is a major driver of food insecurity in Sub-Saharan Africa. Apart from household expenditures, CPI surveys do not take into account household purchasing power it being a necessity when assessing food-insecure communities. Hence, to better fight food insecurity, CPI surveys in Sub-Saharan Africa, should involve household income levels and purchasing power.

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