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INNOVATION LAB FOR FOOD SECURITY POLICY RESEARCH, CAPACITY, AND INFLUENCE

Role of Markets in Navigating Consumption Choices Amid Maize Price Shocks

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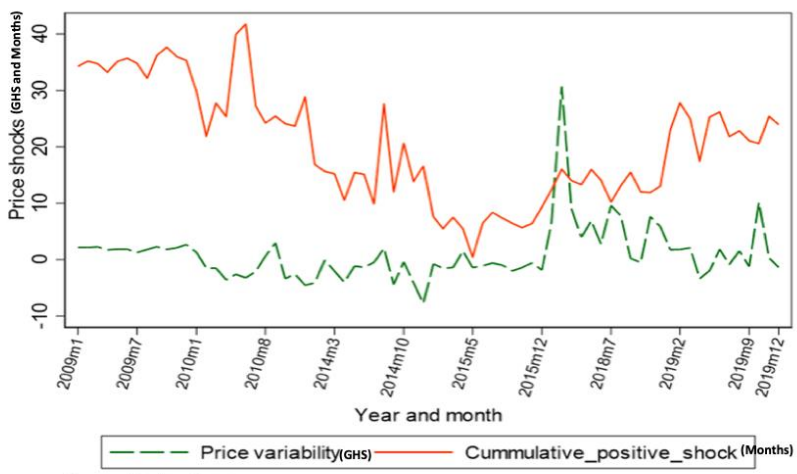
Introduction

Background

The world has witnessed food price increases over the past two decades, notably in 2007-2008, 2010-2011 and 2021-2022. These price increases can occur seasonally, caused by the production cycles observed in agricultural farming (Kaminski et al., 2014). These food price incidences are no different from Ghana as seen in Figure 1. They can also be due to unexpected situations such as climate change, war, drought, political instability, supply chain disruptions and pandemics. These expected and unexpected variations in food prices (also called shocks) disproportionately affect staple crops, such as maize, cereals, wheat, and rice (World Bank, 2019), which in turn causes significant impact on household welfare outcomes (Amolegbe et al., 2021).



Source: Esoko, Ghana

Figure 1: Maize price shock and maize price variability

The effect of food prices is not uniform across households as the effect may differ depending on whether a household is poor or rich (Amolegbe et al., 2021); lives in a rural or urban area (Swinnen and Squicciarini, 2012); is a net

Key Message

- Price increases and uncertainties reduce consumption of market sourced nutrient-dense food groups, threatening the quality pillar of food security among households. They however increase the consumption of home-produced nutrient-dense food groups, thereby reducing households' dependence on markets
- The wealth status of households needs to be accounted for in the design of national response strategies to external shocks.
- Access to market plays an important role in improving consumption of healthy diets when households are faced with price increases and uncertainties.
- Proximity to markets can help adjust seasonal fluctuations in household dietary requirement by enhancing market participation and income.

seller or net buyer (Stephens and Barrett, 2011)[1]; or has access to markets (World Bank, 2012). Market access improves farm incomes which enables agricultural households to not only purchase a sufficient amount of food but also purchase variety of foods (Usman and Haile, 2019; Abay and Hirvonen, 2017).

Given that domestic markets in Ghana are well integrated with international markets, any positive price shock in international markets is transmitted to domestic markets. Market access thus has the potential of playing a mediating role in food access and nutrition. Ghana has made significant progress in reducing the prevalence of undernourishment from 11.2% to 4.1% from the periods 2004-2006 to 2019-2021 (FAO et al., 2022), which is key to achieving SDG 2 (zero hunger). However, households with limited income to afford nutrient-dense diets still face food insecurity in terms of access, quantity and quality. This study explores how markets can play a mediating role in improving food and nutrition security in the presence of price increases and uncertainties (termed together as shocks). Given that maize is a major staple, we explore how price shocks translate into household consumption decisions of nutrient-dense and less nutrient-dense diets, considering both market purchases and home production of these food items.

Objectives

This policy brief provides evidence on:

1. The effects of price increases and uncertainties on household consumption of quality (nutrient-dense) diets.
2. The extent to which price shocks effects vary across different groups (household types, primary crop cultivation and wealth status).
3. The role of market access as a potential mechanism in mediating food price shocks and household expenditures on nutrient-dense and less nutrient-dense diets.

Data and Analytics

The study used the three rounds of the Ghana socio-economic panel survey data from 2010, 2014 and 2018. Monthly domestic price data of maize were obtained from Esoko Ghana to construct the price shocks. The measure of market access was constructed using farmer geocode data as presented in Figure 2.

Total household food expenditure, disaggregated into nutrient-dense and less nutrient-dense diet consumption were measured and price shocks constructed as the number of months households experience increase in maize prices.[2]

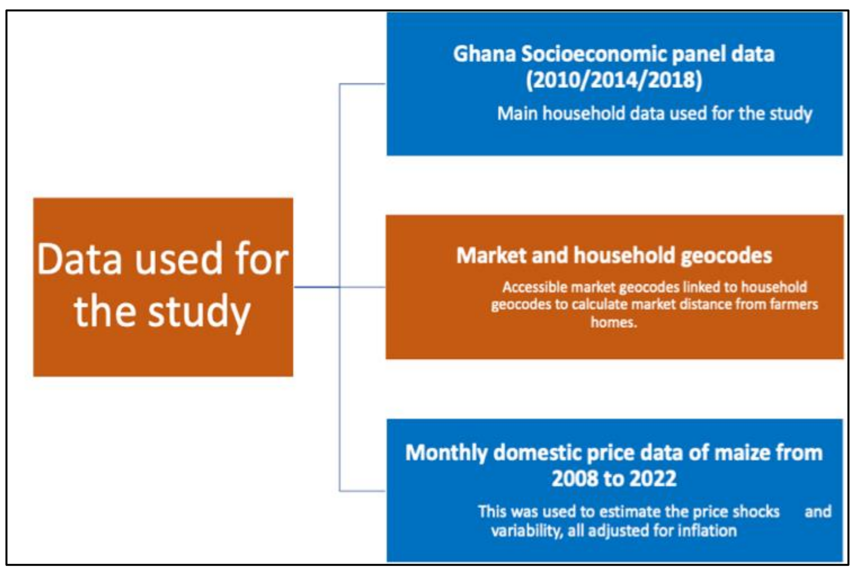


Figure 2: Types of data used for the study

[1] A household is a net buyer if the value of food sales is less than the value of food purchased and a net seller if the value of sales is greater than the value of food purchased.

[2] Please refer to Working Paper No... for the detailed description of the study methodology.

Findings

Our results show that households in Ghana depend much on markets for their food consumption needs (Figure 3a), especially for nutrient dense food items (cereals, starches, vegetables, fruits, egg, dairy, meat, and pulses), supplement this with home produced food consumption (especially poorer households) (Figure 3b). Without markets, it is difficult for households to meet their dietary requirements, threatening their food security status.

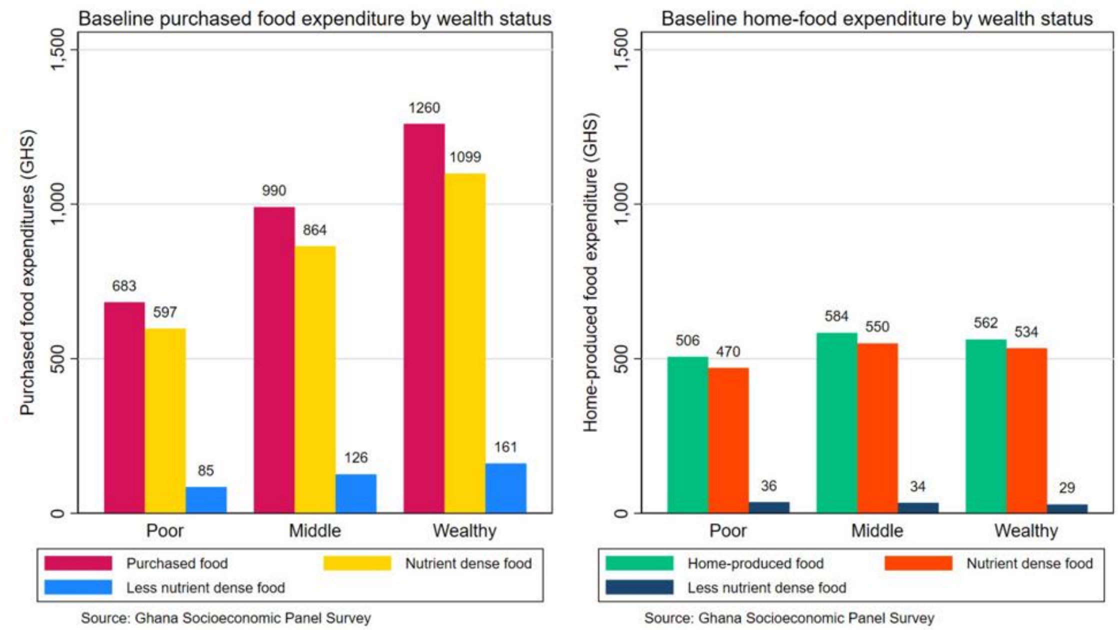


Figure 3: Description of household food consumption by purchased food (left) and home produced (right) broken down by wealth and nutrient status.

Whilst markets are very important for diverse diets and nutrition, we find a strong association between price increase/uncertainties and consumption of nutrient-dense and less nutrient-dense foods. The result suggests that both continuous maize price increases and price uncertainties reduce household consumption of purchased nutrient-dense food groups but increase the consumption of home-

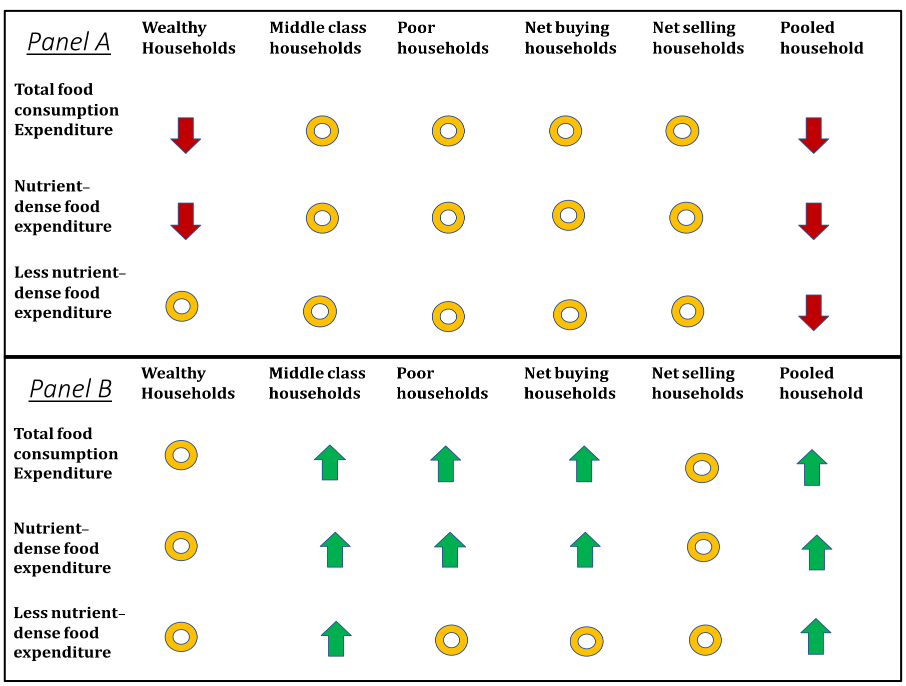


Figure 4: Effect of price shocks on food expenditure of purchased foods (Panel A) and home-produced foods (Panel B).

Non-significant effect

Significant reducing effect

Significant increasing effect

Furthermore, we find that the effects of price variability on household consumption of nutrient-dense and less nutrient-dense diets vary across heterogeneous groups. Net buyers experience a higher effect on their om consumption of additional purchased food groups than net sellers.

Wealthier households are more likely to reduce the consumption of healthy diets from market purchases than middle and poor households. However, poor and middle wealth households are more likely to consume home-produced healthy diets than the wealthiest households.

produced nutrient-dense food groups. The results suggest that price shocks make households worse off by reducing their consumption of diversified diets as they reduce their dependence on markets.

Wealthy households are more likely (and able) to stabilize their food consumption when faced with food price shocks relative to poor households. Wealthy households in Ghana are found to consume more diversified diets than poor households. A decrease in income due to a maize price increases (shock) would have a larger effect on the share of food for the poorest than on wealthiest households.

Households situated farther from food markets encounter larger reductions in the consumption of total purchased food, nutrient-dense purchased food, and less nutrient-dense purchased foods. There is also experience in the reduction of home-produced food expenditure, whereas those closer to the market increase their expenditure on home-produced nutrient-dense food. The result suggests that households residing farther from food markets are inclined to decrease their dependence on market-purchased food and enhance their reliance on home-produced nutrient-dense food.

Conclusion and Policy Recommendations

Access to markets plays an important mediating role of improving the consumption of healthy diets when households are faced with positive price shocks and price uncertainties. As households reduce their reliance on markets, food price shocks influence the consumption of diversified diets and increase home-produced food consumption. Based on these conclusions, the following policy recommendations are proposed.

- Government-led food policy responses, including fiscal measures such as off-farm employment programs, must be directed toward regions characterized by high poverty levels, those within the middle wealth distribution, and net buyers of food.
- Improving and widening the existing government's social safety net programs, especially among poor households, is key to improving food security.
- Policies that aim at strengthening market access through improved market infrastructure and roads must be vigorously pursued. Such policies can contribute significantly to food consumption smoothing, consumption of diversified diets, and overall food security in Ghana.

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