POLICY BRIEF

International Commodity Prices and Inflation Dynamics in Sierra Leone

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Abstract

This study examines the impact of international commodity price changes, measured in local currency, on consumer prices in Sierra Leone. Monthly data from January 2007 to August 2016 are used to examine the long-run relationship and the short-run dynamics. The study finds the dynamics of cocoa, oil, and rice prices as significant determinants of domestic consumer prices both in the long-run and the short-run. Domestic consumer prices are shown to respond negatively to rising cocoa prices, one of the country's major export commodities. The study suggests deliberate efforts on the part of authorities for the improvement and expansion of production base of the country's export

commodities such as cocoa and rice, which the country has comparative advantage, to reduce the pressure on the local currency and the prevalent upward trend of consumer prices. A diversified energy source and an active production sector can reduce the overdependence on oil and ultimately, the direct pass-through of commodity price fluctuations to consumer prices in the economy.

Key words: *commodity prices, inflation, cocoa, rice, oil*.

Introduction

Inflation in most developing countries is driven significantly by commodity prices, majorly food and energy prices in the international market. Fluctuations in international commodity prices have affected several developing and low-income countries, cumulating into effects such as general high price levels and unstable macroeconomic environments (Durevall et al, 2013). International Monetary Fund (IMF, 2008) pointed out that increasing domestic food prices, which are reflections of the twin sharp increases in world commodity prices and some local supply disruptions, have been widely viewed as key elements driving inflation. Habermeier et al (2009) posit that the main causes of increase in inflation were demand pressures and commodity prices, and that the initial impact of commodity price increases was followed by second-round effects. In many small open economies, commodity prices play significant roles in shaping their inflationary dynamics and persistence (Desormeaux et al, 2009). Over the years, there have been rising concerns in Sierra Leone with respect to the responses of consumer prices to fluctuations in international commodity prices as they affect macroeconomic predictability and the value of the Leone. The economy is heavily commodity import-dependent, as rice and fuel constitute more than 60% of total imports. It also depends on exports of primary commodities for foreign exchange and sustainability. Thus, what is the impact of international commodity prices on domestic consumer prices in Sierra Leone? The study makes effort to answer this question by estimating a model of inflation for Sierra Leone. This is done given the relative paucity of evidence with respect to an empirical study that attempts to examine the relationship between commodity prices and inflation dynamics for the country. Commodity prices have been identified as leading drivers and indicators of inflation as they translate to higher consumer prices through two basic channels: the demand and supply channels.

On the demand side, inflation responds more quickly to general economic shocks such as an increase in demand. On the supply side, changes in commodity prices reflect idiosyncratic shocks that invariably decimate the supply of certain agricultural products, which are subsequently passed through to overall prices. Of direct concern is the inevitable distortion and shift from the moderate or steady state inflation rate as this often leads to complications for monetary authorities. Despite the recent slump in the global oil price, domestic food prices remain unbearably high in Sierra Leone and consumer prices have been on the rise. These upswings and downswings in the consumer price level are traceable to persistent devaluation of the currency, domestic vulnerabilities, dependence on extractive resources, and non-realization of the benefits of intra-trading to boycott the intervention of the dollar (Mansaray et al, 2015). Fluctuations in global food prices are due to a number of cluttered factors such as droughts in key grain-producing regions, low stocks for cereals and oilseeds, increased feedstock use in the production of biofuels, rapidly rising oil prices and a continuing devaluation of the US dollar, the currency in which indicator prices for these commodities are typically quoted. This turmoil in commodity markets has occurred against the backdrop of an unsettled global economy, which in turn appears to have contributed to a substantial increase in speculative interest in agricultural futures markets (OECD, 2008).

The impact of high food prices on developing countries depends on the interplay of various factors. In general, commercial producers of these commodities will benefit directly from higher prices, as will in many cases the people they employ (assuming, of course, that governments do not prevent higher prices on world markets from being transmitted to domestic markets). For farm households producing mainly for their own consumption or for local markets insulated from price fluctuations on national and international markets, the impacts will be mitigated. However, for the urban poor and the major food importing developing countries, the impacts will be strongly negative as an even higher share of their limited income will be required for food. This is the case with the Sierra Leonean economy. Each 10% increase in the prices of all cereals (including rice) adds nearly US$ 4.5 billion to the aggregate cereals import bill of those developing countries that are net importers of cereals (OECD, 2008).

The size of the Sierra Leonean economy by Gross Domestic Product (GDP) is US$ 3.76 billion as at 2017. The economy is relatively small in comparison to its other West African counterparts. It is the fourth smallest economy in terms of GDP among the 15 West African countries. Only Liberia (US$ 2.27 billion), Cape Verde (US$ 1.64 billion) and Guinea Bissau (US$ 1.17 billion) are smaller. The Sierra Leonean economy is an open economy with 38.77% degree of openness using the ratio of the sum of export and import to GDP measure of openness (World Bank, 2017). The country's economy is mainly driven by primary commodities mainly agriculture and mineral production. These primary commodities are subject to the effects of significant fluctuations in commodity prices. In Sierra Leone, as in most economies, of direct concern to the monetary authorities is the upward shift of consumer prices from the moderate or steady state prices. Global prices are expected to be key determinants of domestic inflation and working primarily through the trade channel as the economy is highly integrated with the global value chains. It is also noteworthy to express that persistent high oil prices adversely affect net importers of oil such as Sierra Leone. Notwithstanding the recent slump in the global oil price starting from June

2014, food prices remain high in Sierra Leone and consumer prices have been on the rise. These swings in consumer prices are traceable to domestic vulnerabilities, dependence on extractive resources, and non-realization of the benefits of intra-trading. For a net food importing country, food prices continue to increase with the degree of price increases varying across the regions of the country. Sierra Leone is also a food importing economy as it imports food to augment food deficit from low agricultural and industrial activities and experiences unfavourable political and ecological environment. Food prices are the highest in rural areas compared to other areas of the country. This implies that external developments relating to the global food crisis will hit hardest the poor in the country, who mainly reside in rural areas. Rising food price threatens the affordability of food to vulnerable segments of the population, particularly those who benefit from social safety net programmes that offer cash transfers.

It has been argued that increased speculation in commodity markets is provoking increased activity in these markets. It is also useful to note that both the demand for and the supply of oil react sluggishly to changes in prices in the short-run, therefore, very large changes in prices can be required to restore equilibrium if demand should move even modestly out of line with supply. To this end, this study examines the relationship between commodity prices and inflation dynamics for the country. This is done using monthly data for the period January 2007 to August 2016. The study uses the general-to-specific modeling technique and estimates a single-equation error correction model (ECM). The domestic Consumer Price Index (CPI) model was estimated using rice and cocoa prices as the major food components and crude oil prices as the major non-food component. All prices are denominated in the local currency.

Methodology

The Phillips curve and the quantity theory of money have been identified as traditional approaches by which inflation is commonly modeled. Given that the Phillips curve largely postulates a supposedly inverse relationship between the level of unemployment and the rate of inflation, it may be inadequate in explaining inflationary trends in low income underdeveloped economies. This is due mainly to the large share of underemployment and informal markets, and the strong propensity for agricultural supply shocks to increase the growth of GDP and hence lower inflation in these economies. The quantity theory of money, which is widely applied by most studies on Sub-Saharan Africa, assumes that money demand and supply is the reason for inflation (Durevall et al 2013).

The quantity theory of money would have been ideal in the analysis of the dynamics of inflation in Sierra Leone. However, the economy is highly dollarized and, as such, the

Bank of Sierra Leone has limited control and influence over the country's monetary policy variables such as money supply and interest rates. In Sierra Leone, following the adoption of the floating exchange rate in the early 1990s, an atmosphere was created in the economy in which most transactions are quoted in foreign currencies, particularly the US dollar, and foreign currency deposits at commercial banks have increased significantly. Since 2006, the currency substitution index has been above the 30% benchmark. This suggests the existence of currency substitution problem in the country, the effect of which is instability of money demand function and a weakening of the effectiveness of monetary policy (Bathalomew and Kargbo, 2010).

In recent times, however, inflation is modeled as due partly to the impact of foreign prices and internationally traded goods (Durevall et al 2013; Blavy, 2004; Moriyama, 2008; Olubusoye and Oyaromade, 2008). This argument is valid for a small open economy such as Sierra Leone that depends on imports and exports of primary commodities for foreign exchange earnings and import demand of primary commodities for domestic use. Inflation responds more quickly to general economic shocks such as an increase in demand. Commodity prices are quick to respond more rapidly to economy-wide shocks to demand. Generally, they are set in highly competitive auction markets and consequently tend to be more flexible than prices overall. Commodity price movements are expected to be positively related to changes in aggregate price inflation. The link between commodity prices and inflation increases to the extent that demand shocks are not sector specific.

As noted earlier, changes in commodity prices reflect idiosyncratic shocks that invariably decimate the supply of certain agricultural products, which are subsequently passed through to overall prices. In the case of a direct shock to the supply of a commodity, movements in the price of the commodity could be positively related to overall prices. The extent of the effect will largely be dependent on the relative importance of the commodity being shocked and the flexibility of other prices. Cocoa, rice, and petroleum products constitute a larger share of the country's export and import commodities. Commodities constitute a larger share of the country's food basket in general. Thus, commodity prices are leading drivers and indicators of consumer prices.

Summarily, nominal prices in the small open economy are affected in the long run by the balance of aggregate demand factors, on the one hand, and supply-side and pass-through effects of world prices on the other. Inflation is modeled as the deviation from these long-run anchors (Furlong and Ingenito, 1996; Adams and Simpasa, 2015). From the foregoing discussion and with respect to the commodities with greater influence on consumer prices in the Sierra Leonean economy, a representative estimation equation is specified in the equation that follows. The study considers two variants of consumer prices prevalent and collected differently in Sierra Leone as appears in official statistics from the Bank of Sierra Leone and the Ministry of Finance.

These are the consumer price index national and the consumer price index Freetown. According to the Sierra Leone statistics authorities, the national CPI measures the change in prices, on average, from month to month, of the goods and services bought by most households in the major provinces and towns across the country as a whole including all expenditure groups and both families and single persons. The Freetown CPI measures the change in prices, on average, from month to month, of the goods and services bought by most households in the country's capital city, which is often considered as a significant representation of consumer prices in the country.

Conclusion and policy recommendations

This study analyses the impact of commodity prices on domestic consumer prices in Sierra Leone. The study finds the commodity prices (cocoa, oil, and rice) as significant determinants of inflation in Sierra Leone. In the short-run, rising price of cocoa, one of the country's major export commodities, significantly reduces the persistence of inflation in the economy. This often comes in form of sufficient foreign exchange in the hands of authorities as stabilization tools. However, in the long run, the effect is found to be reversed as rising price of cocoa is observed to be significantly inflationary. The study finds robust evidence that rising oil prices have direct and significant effects on consumer prices both in the short-run and the long-run. This is largely because the country is a primary consumer of imported fuel, with fewer alternative sources of energy. Similarly, the study finds evidence of a rising international price of rice, translating into higher domestic price in the Sierra Leonean economy both in the short-run and long-run. Sierra Leone is essentially a supply-constrained mono-cultural economy depending on a few commodities for output and export. More foreign exchange can be earned through processing of these primary commodities to meet both the teeming domestic demand and for export. This way, more foreign exchange can be earned, the value of the local currency can be defended, and inflationary pressures mitigated. Since the study finds that rising price of cocoa is inflationary significantly in the long run, the study recommends that monetary authorities should endeavor to build sufficient reserves from the foreign exchange earned on these commodities when the prices are high. This is because since international commodity prices are unstable, reserves should be built in the time of boom to serve as buffer stock in times of bust because boom and bust are characteristic business cycles of world economies.

Additionally, the government must ensure prudent and productive utilization of resources, as extravagance can be inflationary in the long run. Deliberate efforts must be made to improve the productive sectors of the country to enhance self-sufficiency and to reduce importation of some of the commodities such as rice that tends to add more pressure on the value of the local currency. This can be more effective with the introduction of trade restrictions. Furthermore, considerable attention should be given by the authorities to alternative sources of energy rather than the current overdependence on oil to reduce the direct pass-through effect of rising oil prices on consumer prices in the economy. In this regard, consideration should be given to other alternative sources of energy such as solar and wind energy. Solar and wind energy are apparently the future trends of energy. It is common to see many households converting their homes to be powered solely by solar power. Solar energy is a good alternative to replace fuel as the major energy source as it is renewable at absolutely no cost to guarantee a constant supply of energy.

Furthermore, it is environment friendly. The advantages of solar energy are equally observed for wind as a source of energy. These can help reduce the current over-dependence on oil as the major source of energy as reliance on oil as a net importer has inflationary tendencies in the face of global price rise. Additionally, building durable storehouses can be explored to take advantage of the occasional slump in global oil price. For long-run prosperity, there is need for a viable productive and manufacturing sector, which is largely the missing link in Sierra Leone's structural transformation. A vibrant production sector can largely reduce the direct pass through external sector shocks and commodity price fluctuations to consumer prices in the economy. Sierra Leone, being a small open economy, does not have much influence on the movement and fluctuations of international commodity prices, which can distort the equilibrium of macroeconomic fundamentals in the economy. Additionally, in this regard, domestic supply shocks can trigger domestic price rise. However, monetary policy is still a potent tool in the hands of monetary authorities. At present, the primary focus of the Bank of Sierra Leone is to achieve the price stability objective by determining the monetary policy stance, which is done by the Monetary Policy Committee (MPC). Improved monetary policy through the Bank can be instrumental in managing and preventing second-round feedback effects of commodity prices and rising inflation in the economy.

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