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Food prices in Africa

Food prices in Africa respond in familiar ways to changes in the global environment, but there are a number of unique characteristics that have to be accounted for in understanding how these prices play out in domestic markets. African countries are price takers in global agricultural commodity markets, and face high farm gate to consumer costs, which are a major driver of food price inflation. Furthermore, the uncertainty that accompanies poor policy formulation and implementation distorts markets and results in the skewing of investment to mitigate the negative impacts of policy uncertainty rather than to build future opportunities. Finally, the high levels of poverty as well as of inequality distort consumer markets, which are fragmented by these extremes, and which compete with informal markets and with own consumption. In this paper, we address the role that these factors play in understanding trends in food prices across a spectrum of commodities in Ghana, Kenya, South Africa and Zambia. These characteristics make it difficult to find relevant and timely data to help understand what is really going on in the real world.

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Introduction

This paper sets out to identify and discuss the main drivers of food inflation in Africa, with a view to analysing the impact of shocks, specifically the aftermath of the Covid-19 pandemic and the conflict in Ukraine. Since Africa is a large continent, the analysis has been confined to 4 countries: Ghana, Kenya, Zambia, and South Africa, which have been selected as representing some of the key underlying trends in food prices on the African continent, namely:

- Net importers of staples versus net exporters (e.g. Kenya as a net importer of maize versus Zambia as a net exporter). South Africa is an interesting case: the country is regarded as a net exporter of maize, but poor natural resources and climate change have meant that there have been three years of net imports since 2005 (2006, 2007 and 2015), whereas, for example, Zambia became a net importer only once, in 2006.
- Landlocked countries versus those with relatively easy access to and from global markets (Zambia versus Ghana and Kenya). In this regard, it should be noted that while South Africa has a long coastline and two major coastal cities, economic activity is concentrated around Johannesburg in the interior. Given the long distance from Cape Town and the steep escarpment from Durban, the interior (Gauteng province) resembles a landlocked market in many respects.
- Countries where there are significant protectionist policy interventions (most staple food items in Ghana, Kenya, and Zambia) versus unsupported markets, especially in South Africa.

Moreover, we have chosen to examine the period starting in 2005 so as to cover the major policy events that still affect food price inflation. These include the price spikes caused by biofuel policy shifts in the early part of the period (e.g. Guo and Tanaka, 2022); the 2008 financial sector meltdown and the accompanying Great Recession of 2009-2010 (e.g. Headey *et al*., 2010; Abbott and Borot de Battisti, 2011); and the aftermath of the COVID-19 pandemic (e.g. Amewu *et al.*, 2020; Agyei *et al.*, 2021; Laborde *et al.*, 2021) and the Russian invasion of Ukraine (e.g. Mamonov *et al.*, 2022).

In the rest of this paper, we first describe the real-world influences on producer prices in agriculture as well as consumer prices of food. This is followed in section 3 by a discussion of food price inflation trends (including an outlook on food price inflation for 2023/24) in the four focus countries, and the drivers of food prices. Section 4 provides case studies of public and private actions that have been taken to address the impacts of these price fluctuations. Section 5 then concludes.

Food prices in the real world

Okou *et al.* (2022) identify "net import dependence, consumption share of staples, global food prices, and real effective exchange rates" as the key influencers of changes in staple food prices across 15 African economies, with the consumption share the most influential in terms of the impact on prices. Hence, the actual prices paid by buyers of farm commodities and of processed food, and received by the sellers are influenced by more than the conventional determinants used to measure demand and supply. The policy implications are legion and multifaceted at the macro a well as the micro level. Iddrisu and Alagidede (2020) show, to cite only one example, how conventional monetary policy that targets inflation with a view to maintaining macroeconomic stability can exacerbate food price inflation, which disproportionately harms the poor.

In this section, the micro-level influences of producer and consumer food price inflation of relevance to this chapter are discussed in turn.

Producer prices

On the supply side, producer prices across Africa are susceptible to influences such as the fact that many countries are small (hence with limited market demand), face high transport costs (for numerous reasons discussed below), are caught in the middle of agricultural transformation where important commodities are switching from being largely imported to becoming exported goods (or in some cases the other way around), and are affected by global exchange rate regimes. In this regard, three main real-world influencers of the producer prices of specific commodities are discussed in turn below.

Import vs export parity prices. When a tradeable commodity is imported into a country, the upper bound to the price of a commodity that must be processed before it is ready for consumption by humans or animals is set by the fact the processor can also source the unprocessed commodity in foreign markets. Hence, if the seller (farmer) asks for a price that is too high, the buyer (processor) will import. That import parity price is, of course, dependent on the cost of getting the commodity to the factory gate so as to make it comparable to the domestic price. The opposite is true for a commodity that is usually exported. In this case, the buyer (processor) has a lower limit to the price that they can pay to the seller (farmer), as the latter has the option of selling in a foreign market. Again, the cost of getting the commodity to that export market will determine the exact export parity price, which becomes the lowest level to which the price can decline in the domestic market. The familiar supply and demand factors will then determine the exact price level on the domestic market. What makes Africa unique is first, the prevalence of switching between import and export parity during the transformation process (Jayne, *et al.*, 2019; Dorosh and Minten, 2020). Many basic commodities switch between deficit and surplus production and back during the process of the commercialisation of agriculture. This situation is exacerbated by a combination of factors that accompany and define the transformation process, such as the prevalence of rainfed agriculture, climate change, policy uncertainty and the time it takes to learn new ways of doing business. Furthermore, the costs of importing and exporting, as well as domestic margins between farm and consumer are very high (see Meyer *et al.,* 2019 and the discussion below).

The physical *costs of doing business* in Africa are high because, while transport distances are not always great because of the many small countries, transport costs are also determined by other factors. These include the mode of transport (maritime, roads, air) and the condition of the required infrastructure (ports, roads, railway lines, airports); the degree of competition between these transport modes as well as between buyers and sellers of transport services such as handling, storage, freight costs, insurance, etc.; and the condition of infrastructure as well as expectations around the maintenance of infrastructure into the future. These costs, termed indirect costs[1], constitute up to 30% of total manufacturing costs in African countries (Eifert *et al.*, 2008 in a study that includes Kenya and Zambia, and the food and beverage manufacturing sector), and are often not included in assessments of manufacturing performance in Africa, leading to understatement in their relative performance and are also an important factor in trade (Porteous, 2019). Despite these high costs, however, world prices of especially imported staples are transmitted smoothly into African economies (Okou *et al.*, 2022). In their view, "… *Economic policy can lower food price inflation, as the strength of monetary policy and fiscal frameworks, the overall economic environment, and transport constraints in geographically challenged areas account for substantial cross-country differences in staple food prices*" (page 1).

As the physical costs are denominated mostly in US dollars, *exchange rates* are an important influence on commodity prices, and particularly so in Africa, where these costs are high. In this regard, structural reforms of developing country economies, including those in Africa, were motivated by consideration of the benefits perceived to be gained from reforms to trade, exchange rate, monetary, fiscal, and agricultural sector policy (Jaeger and Humphries, 1988), and most of the earlier literature confirmed these benefits. For example, Sahn *et al.* (1996) showed that both the rural and the urban poor benefited from trade and exchange rate reforms, while other reforms have not harmed the poor. This is despite there being a persistent policy bias against agriculture in many countries (e.g. Bautista *et al.,* 2001; Thiele, 2002; Anderson *et al.*, 2010).

Exchange rates, in their turn, impact producer prices in several ways. Boubakri *et al.* (2019), for example, analyse the impact of poor financial market integration with global financial markets on the relationship between the volatility of commodity prices and the real effective exchange rate (REER) for a range of developing countries and four industries, including food and beverages. In their view poor financial market integration exacerbates the impact of price volatility on the REER in a non-linear manner.

More recently, the literature highlights the paucity of research on the direct and indirect relationships between exchange rates and transformation, e.g. Bahmani-Oskooee and Arize (2019) who find that volatility (uncertainty) in exchange rates affects trade negatively, but that the impact is larger in poor countries due to the relative lack of hedging instruments. The effects seem to be country-specific and asymmetric (i.e., the response to increased volatility is not the same as the response to decreased volatility). These findings are important to policy makers and traders in situations when floating exchange rates create volatility in both directions. Meanwhile, Kassouri and Altıntaş (2020) also investigate the effects of shocks in the terms of trade on the REER in Africa. They also find evidence of asymmetry, noting also that these asymmetrical effects differ for different commodities. Real appreciation should be countered with coordinated monetary and fiscal policies. Asymmetric pass-through of exchange rates has other effects as well, for example on the prices of imports (Brun-Aguerre, *et al.*, 2016).

[1] Indirect costs include energy, transport, telecoms, security, water, travel and insurance, etc.

Consumer prices

The real impact of food prices on households is hard to analyse because consumers react differently to changes in prices according to their circumstances (e.g. Houthakker, 1957; Ansah, *et al.*, 2020; Alioma *et al.*, 2022), and the circumstances across the African continent differ amongst countries (see Table 1), amongst households (e.g. Femenia, 2019) and compared to the rest of the world. Although South Africa has the largest economy and the highest per capita GDP by a significant margin, for example, the levels of food insecurity resemble those found in Ghana, Kenya, and Zambia. Ghana has experienced the most rapid improvement in food security indicators - the percentage of the population living below $1.90 a day has declined from 29% in 2002 to 9% in 2022, Kenya is the least urbanised, while South Africa has the highest rate of unemployment. Despite these disparities, the countries are relatively similar in terms of food security measures and the Human Development Index.

In these circumstances, when food commodity prices rise farmers (predominantly small-scale farmers in Africa) benefit, while when food prices decline consumers gain (Ivanic and Martin, 2008)[2]. Another factor that influences the impact of food price inflation is the fact that the food share of discretionary expenditure is high across the African continent (Tschirley *et al.*, 2015), and that value chains are evolving rapidly (Jing *et al.*, 2021; Barrett *et al.*, 2022). The result is rapidly changing food consumption patterns, with a rising proportion of foods that are purchased (Tschirley *et al.*, 2015) and processed (Reardon *et al.*, 2021). Unexpectedly, where consumption of unhealthy foods has increased (Dolislager *et al.*, 2022), a "double burden of malnutrition" has arisen, with overweight and obesity now found together with the more familiar stunting and wasting, etc. among children (Reardon *et al*., 2021). At the same time, contrary to expectations, the consumption patterns of the poor have also changed, and are no different from those of the new middle class (Sauer *et al.,* 2021)[3], with the result that urban and rural consumption patterns are also similar.

It is also evident that the prices of different food products increase asymmetrically under food price inflation for a range of reasons (e.g. Colen *et al.*, 2008; Hussein *et al.*, 2021; Vroegindewey *et al.*, 2021). Under circumstances prevalent across large parts of the continent, consumer decisions to substitute for cheaper foods can become distorted because the observed prices may convey insufficient information: substitution may be in the wrong direction given the observed cross-elasticities of demand.

Table 1: Socio-economic status of the target countries.

	Ghana	Kenya	South Africa	Zambia
Population size (2021)[a]	32.8m, increase: 2.6% p.a. from 2010	52.5m, increase: 2.5% p.a. from 2010	59.1m, increasing by 1.3% p.a. from 2010	19.2m, increase: 3.7% p.a. from 2010
Urban population share (2020)[b]	57% [2050: 73%]	28% [2050: 46%]	67% [2050: 80%]	45% [2050: 62%]
Unemployment rate (2022)	10.4%	9.3%	32.7%	13%
GDP per capita in U.S.D (2022)	$2353	$2277	$6694	$1423
% of population living below $1.90 a day (2022)[c]	9% (29% in 2002)	25% (44% 2004)	20% (33% in 2002)	59% (66% in 2010)
% of population living below $3.20 a day (2022)	23% (58% in 2002)	54.8% (70% in 2004)	40% (53% in 2002)	76% (81% in 2010)
Food security: Global Food Security Index 2022[d] Rank out of 113 countries	52.6 Affordability: 59.9 Availability: 52.4 Quality, safety: 50.5 (Ranked 83)	53.0 Affordability: 41.7 Availability: 52.5 Quality, safety: 68.8 (Ranked 82)	61.7 Affordability: 63.4 Availability: 60.1 Quality, safety: 66.1 (Ranked 59)	43.5 Affordability:26.8 Availability: 46.7 Quality, safety: 54.2 (Ranked 102)
Nutrition: Prevalence of undernourishment (2018)[e]	7% (15% 2001)	23% (35% in 2003)	6% (4% in 2010)	Data not available
Nutrition: Adult nutrition status – underweight (2019)[f]	Male 10% Female 7% [Trend: improving]	Male 13% Female 9% [Trend: improving]	Male 6% Female 3% [Trend: improving]	Male 13% Female 8% [Trend: improving]
Nutrition: Adult nutrition status – overweight (2019)[g]	Male 24% Female 43% [Trend: worsening]	Male 17% Female 37% [Trend: worsening]	Male 43% Female 67% [Trend: worsening]	Male 20% Female 39% [Trend: worsening]
Human Development Index (2021)[h]	0.63 Trend: improving	0.58 Trend: improving	0.7 Trend: improving	0.57 Trend: improving

[a] United Nations, Department of Economic and Social Affairs, Population Division (2022). World Population Prospects 2022, Online Edition.
[b] United Nations, Department of Economic and Social Affairs, Population Division (2018). World Urbanization Prospects: The 2018 Revision, Online Edition.
[c] Global Nutrition Report 2022, based on World Bank global poverty monitoring data.
[d] The Economist. 2022. Global Food Security Index. https://impact.economist.com/sustainability/project/food-security-index/reports/Economist_Impact_GFSI_2022_Global_Report_Sep_2022.pdf
[e] Global Nutrition Report 2022, based on FAO Statistics Division. Food Security/Suite of Food Security Indicators.
[f] Global Nutrition Report 2022, based on NCD Risk Factor Collaboration.
[g] Our World in Data (based on UNDP data): Available at https://ourworldindata.org/human-development-index#country-by-country-perspective-over-the-last-three-decades
Source: own composition based on World Bank (2023) data.

[2] In the long run, however, the evidence shows that an increase in food prices results in a reduction in poverty as well as inequality (Heady, 2014; 2016; 2018). Note also that some analyses conflate commodity prices with food prices. Consumers mostly do not consume commodities.

[3] This conclusion has been challenged, at least for Nigeria, largely on methodological grounds (de Brauw and Herskowitz, 2021).

Furthermore, it has long been known that the proportion of expenditure on food declines as income increases (e.g. Chisanga and Zulu-Mbata, 2018) – but that this relationship, known as Engel's Law – is valid only between certain ranges of income (e.g. Zimmerman, 1932, who describes Engel's law as "…*but a description of a part of the total food expenditure behaviour*" (page 101.)) For poor households, food expenditure always increases with income, but at an arithmetic rate, while above a certain level income increases geometrically. Notwithstanding, the impact of food price increases is more severe where expenditure on food constitutes a high proportion of total discretionary income, as is the case amongst households across most of the African continent (Pope, 2012). However, we must recall that the relationship only holds *ceteris paribus*, especially where prices are concerned (Houthakker, 1957). This has been used to estimate the "proper" or unbiased CPI (Hamilton, 2001) because price changes result in changes to real income, and thus influence consumers' decisions.

Consumer prices are also affected by the exchange rate pass-through to domestic prices (e.g. Goldberg and Campa, 2010), who show that the main channel is via the impact on inputs into domestic production rather than directly on consumer goods. Exchange rate changes impact the consumption of non-tradables, domestic tradables and imported goods via their prices. However, pass-through is lower sub-Saharan Africa in the presence of flexible exchange rates, higher income, lower inflation, and prudent and sustainable monetary and fiscal policy (Razafimahefa, 2012; Jooste and Jhaveri, 2014).

The literature shows that there are a wide range of influences on producer and consumer prices that go beyond the conventional ways of measuring supply and demand at the farm gate or in retail. Care must be exercised, therefore, in assessing the impact of price changes, whether of individual commodities, or for inflation of all prices.

Following the discussion of general food inflation trends in the following section, we will provide a more detailed analysis of the key drivers of food inflation for maize, cassava, wheat, vegetable oil and poultry, food items that are widely consumed in the selected countries.

Food inflation trends in focus countries

In this section, we present the overall food price inflation trends, followed by detailed descriptive analytics of a selection of food items that were picked based on how widely they are consumed and the country's level of trade dependency.

Although the main food price inflation events in African markets mostly coincide with the major global food and energy price events (2008, 2011 & 2021/22), it is apparent from Figure 1 that there are also meaningful differences, not only with respect to the magnitude of change, but also on the overall direction that food prices are trending. For example, food price inflation in Zambia already peaked in 2021 and has since been declining, despite global markets continuing to rise. On the other hand, Ghana food price inflation has skyrocketed and only seemed to find a turning point in January 2023 at 61 percent from a trend that commenced in December 2021. Food price inflation in South Africa was lower than in most African countries over the period under review and remained resistant to increases in global market prices in 2021. However, since the end of 2022, food price inflation in South African has accelerated and for the first quarter of 2023 has been trending in line with Zambia and Kenya. Hence, it is apparent that there are a wide and diverse range of external and internal drivers at play in each of the focus countries.

Figure 1 presents the overall food inflation trends, but the real impact on household food security, especially in low-income households, is determined by the combination of food items that are most widely consumed, the ability to substitute them (the cross-elasticities of demand), the supply chains that deliver the food, the percentage share of the

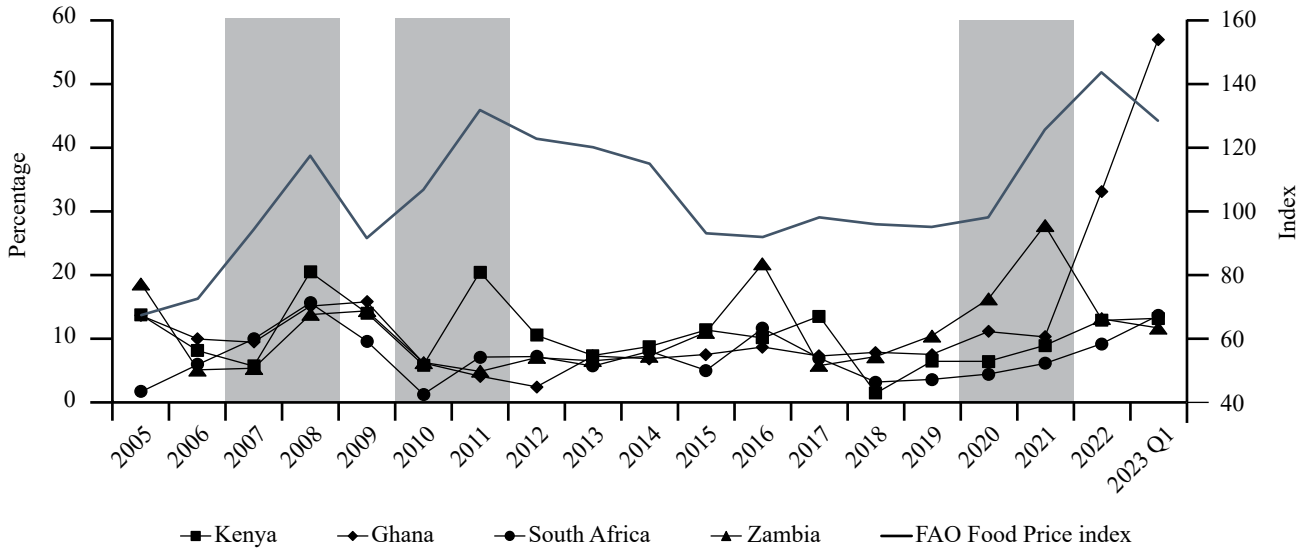

Figure 1: The distribution of the technical efficiency (TE) level by ADC.

Source: Own composition

households' income that is spent on food and the country's relative import dependence. Table 2 presents a list of the top ten most widely consumed food items in each of the focus countries, based on annual per capita consumption. Where data is available, the percentage share of total food expenditure is also provided.

Latest estimates of IFPRI show that Ghana's spending on food amounts to 54 percent of total spending for all households. The top four items are all staples, with cassava ranked first and maize only in seventh position. Kenyan households spend 46 percent on food, with milk the most widely consumed and with the highest share of consumer spending. Maize is the dominant staple from a volume perspective, but Kenyans spend almost as much on wheat as on maize. Zambian households spend 44 percent on food, with cassava and maize filling the top two positions.

South Africa is regarded as the most unequal society in the world with more than 30 percent of its households classified as poor and spending approximately 35 percent of household income on food, compared to the high-income households that spend only 6 percent of their monthly income on food (BFAP, 2022). However, over the years government grants (pensions, child support, school feeding, etc.) have made a significant contribution to the household income of poor families, and currently contribute more than 50 percent of their income. This has had a major impact on food consumption patterns, with overall spending increasing rapidly on affordable proteins like chicken meat in the early 2000's. South African households also spend more on wheat products than on maize; however, maize is more widely consumed than wheat.

Six products have been selected for deeper analysis, namely cassava, maize, wheat, rice, chicken, and palm oil. Apart from palm oil, all products feature under the top ten most widely consumed food items in all the focus countries, while palm oil features under the top three imported food items for all focus countries. Palm oil is widely consumed in the preparation of food and various other uses and can be classified as Africa's most import dependent food item from a value perspective.

Drivers of food price inflation

There is substantial cross-country heterogeneity in the domestic production and net import dependence of staple foods in the four focus countries. Global market dynamics that drive prices, like supply and demand imbalances and supply chain disruptions due to COVID-19, have a bigger impact on in-country food price dynamics for food items that are either imported or exported, compared to non-traded food items where local markets are not meaningfully integrated with world markets (Meyer *et al*., 2006). As discussed in section 2, there is a strand of literature where empirical models have been applied to estimate the level of market integration between local and global markets. Furthermore, unexpected changes in supply and/or demand due to production shocks, supply chain disruptions and trade policies, for example import and export tariffs and/or bans, imply that the level of integration between local and global markets can switch from one season to the next, which results in even greater food price volatility.

In an unregulated market, the relative supply and demand fundamentals of a specific product in a country determine to what extent local markets are integrated with international markets. Table 3 provides a summary of the level of import dependence and the extent to which any relative changes between production and consumption have occurred over the past five years. These relative changes are calculated as the difference between the average annual increase in production and domestic consumption. A negative percentage implies that, on average, consumption has increased faster than production and *vice versa*.

Zambia is the most self-sufficient of all the countries with respect to staple grain production. It is also the only country that produces a surplus of wheat, mostly commercially based under centre pivot irrigation. The other countries are major wheat importers, with 50 percent and more of local requirements imported. Ghana is the only country that produces some palm oil.

Table 2: Widely consumed food items in focus countries.

	Ghana			Kenya			Zambia			South Africa		
		CS	%		CS	%		CS	%		CS	%
1	**Cassava**	239	n.a	Milk	81	14.5%	**Cassava**	182	n.a.	**Maize**	88	6.0%
2	Yams	157	n.a	**Maize**	70	5.7%	**Maize**	121	n.a.	**Wheat**	56	11.3%
3	Plantains	141	n.a	Fruit	61	12.2%	Vegetables	22	n.a.	Potatoes	35	1.8%
4	**Rice**	66	n.a	Vegetables	61	9.6%	Fish	14	n.a.	**Chicken**	36	11.5%
5	Vegetables	28	n.a	**Wheat**	39	5.4%	Beef	10	n.a.	Milk	35	5.9%
6	Fruit	49	n.a	Potatoes	31	1.4%	Beans	10	n.a.	**Rice**	16	3.0%
7	**Maize**	26	n.a	**Rice**	21	3.9%	**Wheat**	9	n.a.	Beef	12	7.1%
8	Fish	25	n.a	**Cassava**	18	2.5%	Fruits	7	n.a.	Onions	12	0.7%
9	**Wheat**	19	n.a	Sweet pot.	14	1.3%	Milk	6	n.a.	Tomatoes	10	1.0%
10	Chicken	9	n.a	Beans	13	0.7%	Groundnuts	6	n.a.	Eggs	8	2.1%

Note: CS: domestic consumption in kg/capita/annum; %: percentage share of total food expenditure
Source: FAOSTAT, Household surveys where available for countries

Apart from Kenya, all countries are self-sufficient in maize, with South Africa producing the biggest crop and exportable surpluses. However, Ghana's production relative to consumption has increased the fastest, a measure of the extent to which the country is improving its local self-sufficiency rate, and of where local prices are trading relative to the import-export parity price band.

Figure 2 provides a prime example with the local maize futures market prices in South Africa (SAFEX) fluctuating between import and export parity prices, depending on the local supply and demand dynamics. Since South Africa mainly produces exportable surpluses of maize, local prices trade closer or at export parity levels. However, in a year of shortfalls, such as 2016, where South Africa and most of the Southern African countries experienced the worst drought in 100 years, SAFEX prices traded at import parity levels. In the next season, these high price levels plus favourable weather conditions triggered an expansion in production, leading to a record harvest in 2017 and a drop in prices to export parity again. If South Africa had not produced large surpluses over the past 3 years when global prices spiked, local prices and consequent staple food inflation would have been much higher, with local prices trading closer to R7000/ton (import parity) compared to the actual levels of R4500/ton (export parity).

Nevertheless, South African maize consumers experienced a sharp rise in maize meal prices as export parity prices for maize increased from R2200/ton in 2020 to R4500/ton in 2022, purely on the back of global price trends, shipping rates and the local exchange rate. Local supply and demand fundamentals did not play any part in this shift of parity prices.

Most grain and oilseed prices in South Africa are trading on the futures exchange with transparent information on supply and demand dynamics, including projected ending stock levels, which are published on a monthly (and sometimes even weekly) basis. However, despite all this information, maize markets can occasionally trade outside of the parity band. In the current 2023 production season, the maize harvest is estimated to be the third largest in history and significant volumes will have to be exported. However, ports are congested due to a combination of adverse exogenous impacts, like electricity blackouts, lack of maintenance and rail infrastructure that has deteriorated to the extent that most of the grain is now transported to the ports by truck. Furthermore, slots in the export terminals are at a premium due

Table 3: Relative import dependence and supply/demand dynamics**.**

	Ghana		Kenya		South Africa		Zambia	
	% Imported	S/D change	% Imported	S/D change	% Imported	S/D change	% Imported	S/D change
Maize	0.0%	5.9%	12.0%	–0.2%	0.0%	1.7%	0.0%	1.7%
Wheat	100.0%	n.a	91.0%	8.5%	51.0%	7.5%	0.0%	5.0%
Rice	20.0%	–0.4%	60.0%	18.0%	100.0%	n.a.	0.0%	11.6%
Cassava	0.0%	2.2%	0.4%	–4.1%	82.0%	n.a.	0.0%	–0.8%
Palm Oil	76.0%	1.1%	100.0%	n.a.	100.0%	n.a.	100.0%	n.a.
Chicken	72.0%	–1.6%	0.0%	4.6%	20.0%	4.3%	18.0%	7.6%

Note: % Imported: Percentage of domestic demand that is imported; S/D: % increase in production relative to % increase in consumption over past five season.
Source: FAOSTAT, Commodity Insight Africa, 2023

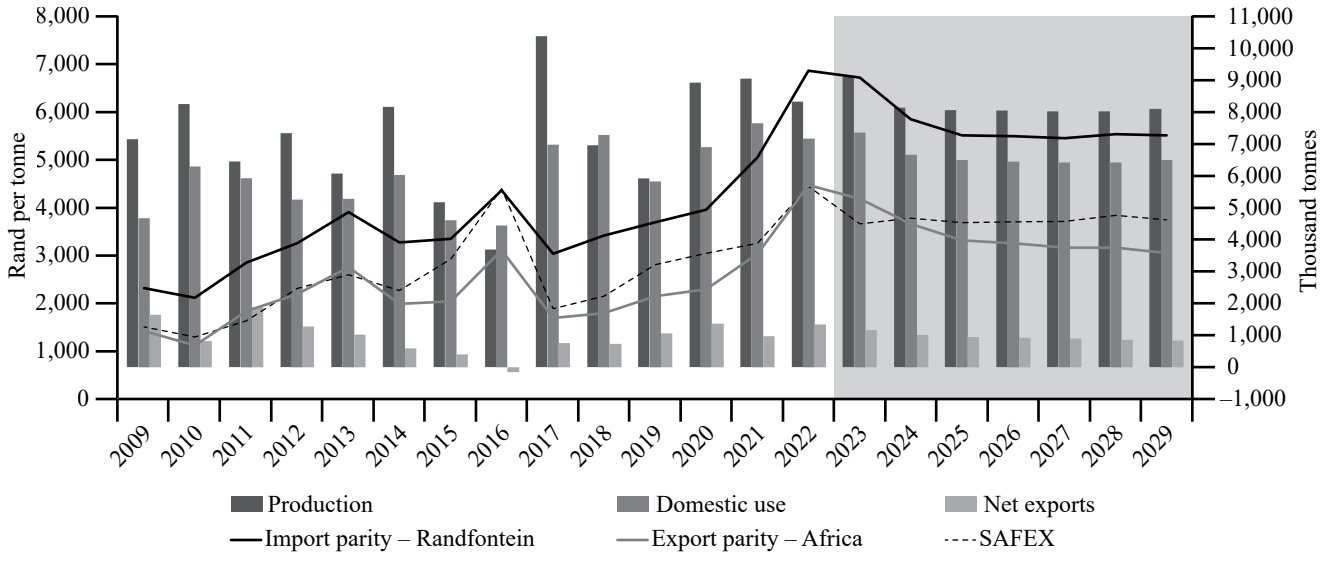

Figure 2: South African white maize prices and market fundamentals.
Source: BFAP, 2023

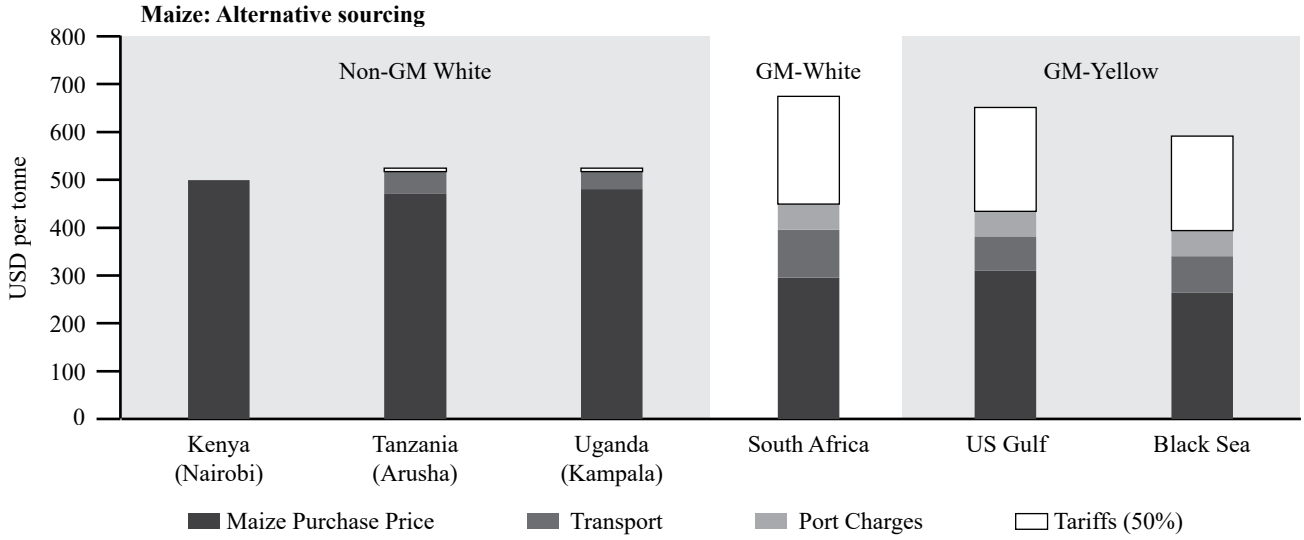

Figure 3: Kenya maize import parity versus domestic market prices, 2022.
Source: Commodity Insight Africa & Own calculations

to significant exportable surpluses of soybeans. The result is that at the time of writing, South African white maize was one of the cheapest sources of maize in the world, trading at $190/ton on the futures market in May 2023, compared to the US No.2 Yellow maize, free on board (FOB) Gulf price, trading at $272/ton.

Switching from one of the cheapest to one of the most expensive sources, Kenya's maize price was trading well above $500/ton in May 2023. Kenya imports around 12 percent (500 000 tons) of its local requirements, which implies that local prices are trading at import parity. Traders typically refer to the gap between FOB and CIF prices as the cost build-up of traded goods that ultimately determines if trade is economically viable. Figure 3 illustrates the cost build-up for imported maize into Kenya in 2022. The fact that genetically modified (GM) maize cannot be produced nor traded in Kenya implies that the potential sources of imported maize are limited. Non-GM white maize is typically imported from Uganda and Tanzania where GM crops are also banned. However, these markets also typically trade much higher than world markets. Apart from restrictive GM regulations, there is a 50 percent import duty on maize. Due to sharp price increases, the Kenyan government has introduced a temporary waiver of the import duty, yet it has not had a meaningful impact on local prices because non-GM maize trades at significant premiums in the world market, while excessive transport costs, inefficiencies at the ports, and taxes are keeping import parity prices at elevated levels (Figure 3).

From the discussion above, exchange rates and global prices are clearly the most prominent external drivers of food price inflation for goods that are either imported or exported. Consequently, declining trends in global commodity prices have ensured that import parity prices for African countries have already declined in dollar terms and are expected to trade even lower in the near-term future. Furthermore, shipping costs have also declined significantly on the back of lower energy prices, making it cheaper to bring agricultural imports to African coastlines. However, this does not imply that food prices are expected to fall significantly in the near future, because exchange rates, transaction costs, and macro and trade policies also all play a significant role.

In this regard, Figure 4 compares the food inflation trends in the focus countries to the exchange rate fluctuations relative to the US dollar. Although further econometric modelling can be undertaken, the trend in Kenya visually presents the closest fit. Kenya can be regarded as the most import dependant country with respect to food staples and vegetable oils. However, if all agricultural imports and exports are considered, it is important to note that Kenya is a net exporter, with significant foreign revenue generated, mainly from tea and flower exports.

The most drastic impact of exchange rate volatility on food prices can be witnessed in Ghana, and more specifically in the staple rice market (Figure 5). When Ghana's current economic crisis began in 2022, rice prices started to rise. In November 2022, the Bank of Ghana announced a policy restricting the supply of foreign exchange for the importation of some selected products e.g., rice, poultry, pasta, and vegetable oil. Although Ghana has more than doubled rice production over the past decade, it must still import approximately 20 percent of local demand. Hence, when the supply of foreign exchange was restricted in December 2022, the supply of imported rice was shut down, which sent local prices spiralling. Currently, on average, the price of a 50kg bag of locally produced rice is almost twice the price it sold for in the last quarter of 2022. According to Table 2, rice is the fourth most widely consumed food item and currently the single largest driver of the food inflation rate of more than 50 per cent.

Apart from Ghana, rice prices in Zambia and South Africa have been trending downwards over the past year, in line with global trends. In fact, rice prices in Zambia have decreased further due to a significant jump in local production in the past two years: local surpluses have pushed prices down to export parity levels.

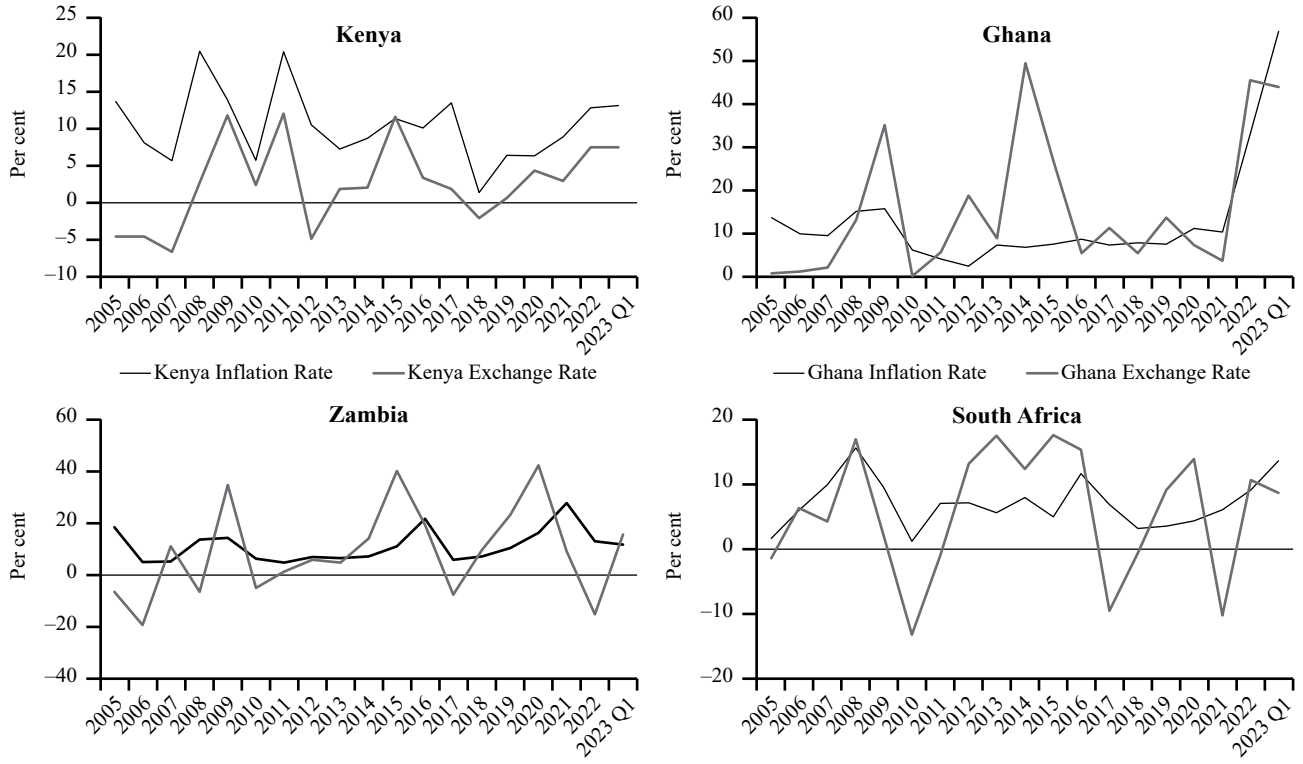

Figure 4: Food inflation versus exchange rate.
Source: FAO & IMF, 2023

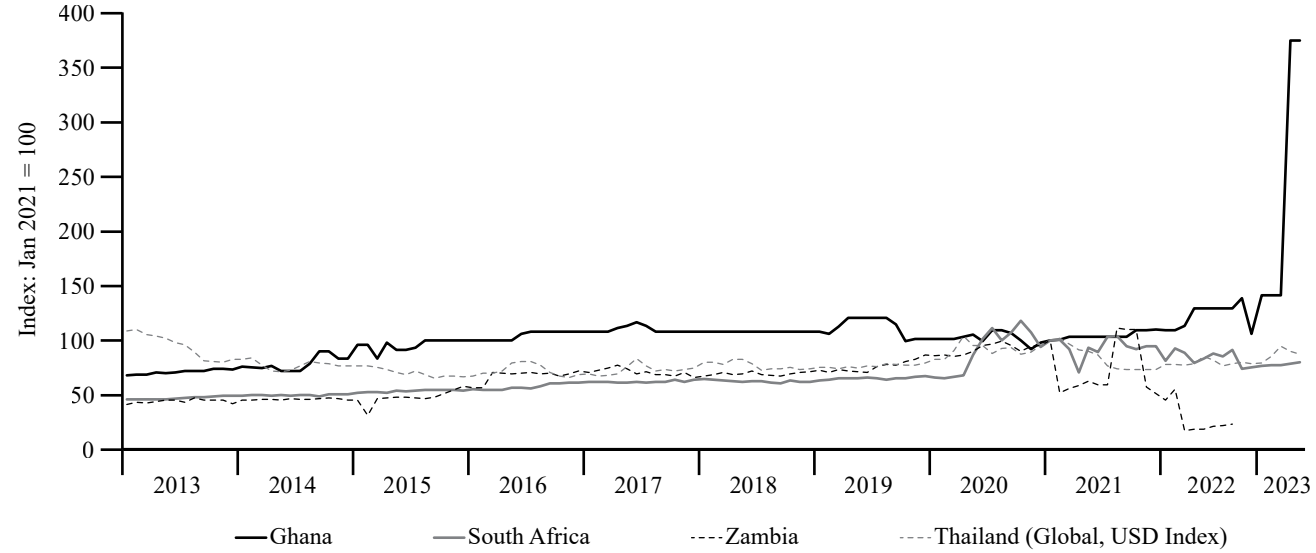

Figure 5: Rice wholesale price index.
Source: FAO GIEWS, 2023

The last set of analytics focuses on farm-to-retail price margins, because ultimately food inflation is not measured at the farm gate, but rather at retail level. There are significant gaps in monthly time series data to analyse and compare margins across various commodities and over a long period of time. Fortunately, there has been a much more concerted effort to collect these time series in recent years. This will provide critical insights to assist in the prioritisation of policy reforms and investments beyond the farm gate, where often significant drivers of food inflation influence the prices that consumers pay. The analysis obviously becomes far more complex due to the heterogenous nature of retail products, where the level of value addition and many other factors play a role in the final price. However, there is one common driver in the processing of all agricultural produce and that is energy. Energy costs influence the processing and transportation of food items.

Figures 6 and 7 present the maize-to-maize meal price spreads for Zambia and South Africa. In both instances, there is a long-term inflationary trend in the margin between producer and retail prices as costs within the supply chain are increasing. Although short-run volatility in margins seems

to be similar in both the South African and Zambia market, the drivers of price discovery in these two markets are fundamentally different. Whereas local market forces are driving competition and consequently relative price levels in South Africa, markets in Zambia are highly regulated with the Food Reserve Agency actively setting reference prices for maize and maize meal. Furthermore, the government also announces export bans from time-to-time, which raises the level of uncertainty in the market for all private sector stakeholders.

Zambia is not unique in deploying government intervention and regulations which have an adverse impact on the functioning and overall efficiency of markets. South African food value chains have been riddled by the electricity crises that the country is facing due to mismanagement and state capture of the state-owned electricity company over many years. Whereas large-scale processors have the financial means to invest in alternative sources of electricity generation, small scale operations are simply closing during the period where no electricity is supplied. Alternative sources of energy are far more expensive at approximately four times the price per unit of electricity supplied, compared to the standard rates of the national grid. These costs eventually all filter through to consumers and overall food inflation.

Conclusions

Food prices in Africa respond in familiar ways to changes in the global environment as in any other part of the world, but several unique characteristics of African countries must

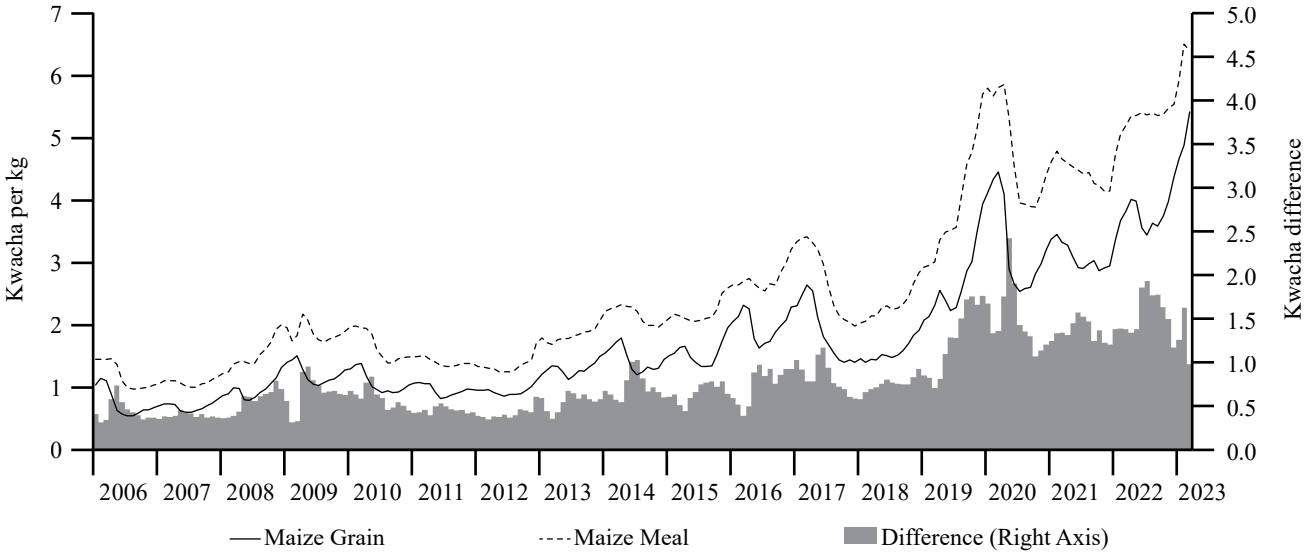

Figure 6: Zambia maize to maize meal price spread.
Source: FAO GIEWS, 2023

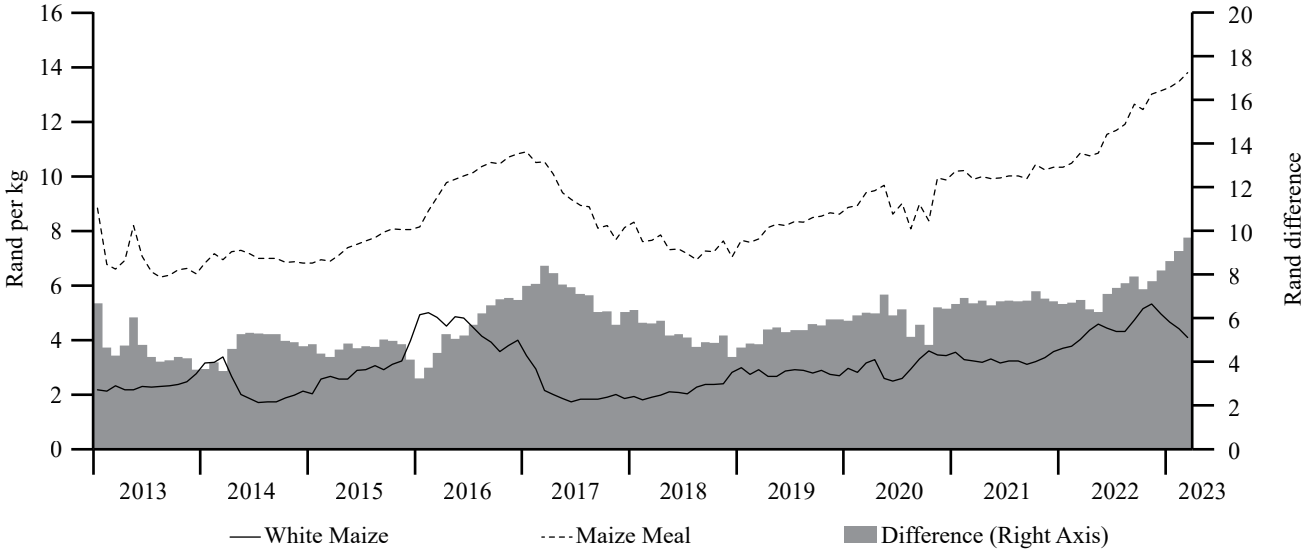

Figure 7: South Africa maize to maize meal price spread.
Source: FAO GIEWS, 2023

also be accounted for if we wish to understand how these prices play out in domestic markets.

First, African countries are largely price takers in the global market, with very few exceptions. Second, exceptionally high farm gate-to-consumer costs for both imported and domestically produced commodities distort domestic prices in relative terms (import vs. exportable commodities, along the value chain, etc.) and are a major driver of food price inflation. Over the past two decades, much emphasis has been placed on farm-level productivity by policymakers, often guided by academic research. However, evidence clearly shows that off-farm investments in the value chain can make a significant contribution to overall value chain competitiveness and consequently lower food price inflation. Third, the uncertainty that accompanies poor policy formulation and implementation, and that is engendered by state failure as has been the case in South Africa, distorts markets and results in the skewing of investment to mitigate the negative impacts of policy uncertainty rather than to build future opportunities. Furthermore, macro-economic policy formulation and geo-political orientations have significant impacts on exchange rate volatility and consequent parity pricing. In the case studies, we have shown that recent food price spikes such as in Ghana have been caused by extreme exchange rate volatility. Fourth, the high levels of poverty as well as of inequality (with South Africa at the extreme in this regard) distort consumer markets, which are fragmented by these extremes, and which compete with informal markets and with own consumption. Finally, these characteristics make it difficult to find relevant and timely data capable of helping researchers more fully understand what is really going on in the real world.

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