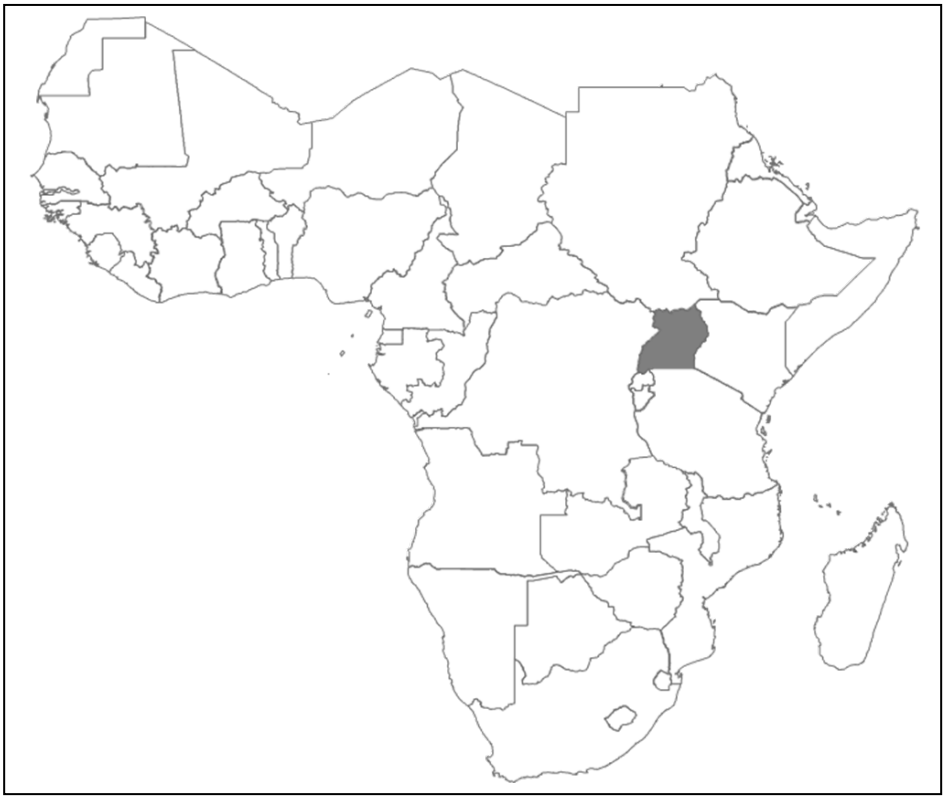
Staple food prices in Uganda



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1 Introduction

Uganda is a densely populated, landlocked country in the East African highlands with a population of about 32 million people and a population density of 133 people per square kilometer.

Although generally equatorial, Uganda's climate is not uniform. Temperature and rainfall varies with altitude and across regions. The southern part of Uganda is more rainy, and the rainfall is generally spread throughout the year. On the northern shore of Lake Victoria, the rain falls from March to June and from November to December. In the southwest, on the border with the Democratic Republic of the Congo, it rains heavily all year round. The northeastern region has the driest climate and is prone to droughts in some years. Annual rainfall ranges between 500 mm in the northeast and 1300 mm in the southwest.

Uganda's economy suffered from political turmoil and devastating economic policies during the Idi Amin regime of the 1970's. Political instability persisted through the mid-1980's, leaving Uganda as one of the world's poorest countries. Since then, peace has returned to the majority of the country, although sporadic rebellion continued in the north until 2009. The country instituted a comprehensive economic reform program during the 1990s, leading to a strong recovery. In 2008, Uganda recorded 9.5% growth despite the global downturn and regional instability.

While agriculture accounted for 56% of the economy in the mid 80s, with coffee as its main export, currently it only accounts about 23% of gross domestic product (World Bank, 2009). However, agriculture still plays an important role, directly or indirectly providing a livelihood to almost 90 percent of the population. Agricultural production based primarily on small-scale agriculture remains a mainstay of the economy. Uganda's main food crops have been plantains, cassava, maize, sweet potatoes, millet, sorghum, beans, and groundnuts. Major cash crops include coffee, cotton, tea, and tobacco.

2 Importance of staple foods in the diet

Overall, plantains and cassava are the most important staple foods in Uganda[3]. Per capita consumption of plantain is 172 kg, and it contributes almost one fifth (18%) of the caloric intake of households in Uganda (see Table 1). Plantains are important in the central, western, and southern regions. Cassava is very important in eastern, northern, and northwestern Uganda. Per capita consumption of cassava is 132 kg, accounting about 11% of the caloric intake. Sweet

[3] In Uganda, plantains are known as *matoke* or *matooke.* This is variously translated as "plantain", "banana", or "cooking banana". Although there is no clear botanical distinction between plantains and bananas, the former term refers to starchy bananas that are cooked and consumed as a staple, while the latter can refer specifically to sweet bananas or more broadly to both sweet and cooking bananas. To avoid ambiguity, we use the term "plantain".

potatoes, also a root crop, accounts for 9% of caloric intake and serves as an important secondary staple.

Maize and beans, Uganda's third and fifth most important food crops, account for 11% and 6%, respectively, of caloric intake. They are grown together, traded together and consumed together, both within Uganda and throughout the region.

For most Ugandans, rice and wheat are not traditional staple foods. They account for only 2% of caloric intake each (Table 1). However, these two imported cereals are rapidly growing in prominence, particularly among urban and high-income households due to their ease and variety of preparation.

Table 1. Importance of staple foods in diet of Uganda

Commodity	Quantity consumed	Daily caloric intake	Share of caloric intake
	(kg/person/year)	(kcal/person/day)	(percent)
Plantains	172	419	18%
Cassava	101	300	13%
Maize	31	266	11%
Sweet potatoes	82	215	9%
Beans	16	148	6%
Wheat	7	42	2%
Rice	4	53	2%
Other		1133	48%
Total		2360	100%

Source: FAO, 2009a.

3 Production and trade of main staple foods

The behavior of food prices depends heavily on tradability of the commodity. If a commodity is internationally traded, then the domestic price will generally follow the international prices of the same commodity. If it is not international traded, then domestic prices will be largely determined by domestic supply and demand.

3.1 Plantains

As shown in Table 2, plantain production in Uganda averages more than 9 million metric tons annually, making Uganda one of the largest producers in the world (Table 2). Per capita consumption, at 172 kg, is also among the highest in the world.

About 40% of Ugandan farmers grow plantains for food (Table 3). That percentage is highest in the Western region (68%) and lowest in the semi-arid North (2%). About 15% of the farmers grow plantains for beer brewing.

Because of its low value-bulk ratio and perishability, there are no virtually recorded exports or imports of plantains. Therefore, the prices are determined largely by domestic supply and demand.

Table 2. Production and trade of food staples in Uganda

Commodity	Production	Imports	Formal Exports	Imports as a percentage of apparent consumption	Formal exports as a percentage of production
	(1000 tonnes)	(1000 tonnes)	(1000 tonnes)	(percent)	(percent)
Maize	1230	33	41	2.7%	3.3%
Cassava	4986	-	7	0.0%	0.1%
Plantains	9110	-	-	0.0%	0.0%
Beans	446	3	19	0.7%	4.2%
Rice	105	63	18	42.0%	16.7%
Wheat	17	365	1	95.8%	7.4%
Others	8867	523	513	5.9%	5.8%
Total	24761	986	598	3.9	2.4%

Source: FAO, 2009b and FAO, 2009c.

Note: Apparent consumption is production plus imports minus exports and non-food uses. Average over 2005-07.

Table 3. Share of farmers growing each crop by region in Uganda

		Region			
Crop	Total (%)	Central (%)	Eastern (%)	Northern (%)	Western (%)
Maize	57	46	78	48	58
Beans	53	45	45	43	78
Cassava	46	41	51	42	50
Sweet potato	44	41	57	29	50
Plantain (matooke)	40	42	42	2	68
Coffee	24	29	31	2	27
Groundnuts	23	13	29	25	29
Millet	18	2	27	19	30
Sorghum	17	3	23	31	20
Banana (beer)	15	14	10	1	30

Source: 2005 Uganda National Household Survey.

3.2 Cassava

Traditionally, cassava has served as a food security crop, grown as a form of insurance against drought and the failure of other staple crops. Most planting is done in the first rather than the second rains of the year, and it is usually intercropped – often with sweet potato, beans and maize (Otim-Nape et al 2000). Cassava can be harvested after 12 months, but it can also be stored in the ground for longer periods and harvested as needed.

Cassava production in Uganda averaged about 5 million metric tons annually frm 2005 to 2007. As with cooking bananas, cassava is traded within Uganda, but because of high water content it is not traded in large volumes across international borders. As a result, cassava exports have been negligible, just 0.1% of production (Table 2).

The 2005 Ugandan National Household Survey (UNHS) indicates that cassava is the third most widely grown crop in Uganda, after maize and beans, closely followed by sweet potatoes and plantains (Table 3). As with many other crops grown in Uganda, the majority of cassava is

produced by smallholders. The average land-holding a cassava growing households has is 0.89 hectares, which is slightly larger than average (0.72 hectares). The proportion of households growing cassava is highest in the east and the west regions than in the north. Households produce cassava primarily for their own consumption, rather than for sale. Only about one third of the households who grow cassava sell their products to the market.

3.3 Maize

Maize is the third most important staple food in Uganda, in terms of caloric intake. However, according to the 2005 Ugandan National Household Survey (UNHS), maize is the most widely grown crop in the country. Nationally, about 57% of farm households grow maize. The highest percentage growing maize is found in the eastern region (78%). It offers farmers some measure of liquidity and flexibility, since it can be dried and stored, fed to livestock, consumed, or sold for cash. Maize production is carried out by both the predominant small-scale (subsistence) and the emerging medium- and large-scale (commercial) farmers. Although widely grown, maize production ranks in the third in volume after plantain and cassava. Maize production averaged 1.2 million tons annually between 2005 and 2007, up from about 0.6 million tons in the early 1990s (FAO, 2009). These figures imply that production has grown about 4.3 percent per year over this period, faster than the rate of population growth (about 3.3% per year).

Given chronic maize deficits in neighboring countries, particularly in Kenya, much of this production growth in maize aims to supply export markets in the region (Magnay 2004). Because of intermittent taxes and controls on the Kenyan side of the border, informal exports account for a large proportion of the maize export trade. Between 2005 and 2007, Uganda exported 167,000 tons of maize annually (Benson, Mugarura and Wanda 2008). As a result, regional shortages, which drive up maize prices in Kenya and elsewhere, trigger increases in Uganda's domestic maize price.

3.4 Sweet potatoes

Uganda is one of the largest producer of sweet potatoes in Africa. Sweet potatoes are fourth in importance as a source of calories. About 44% of Ugandan farmers grow sweet potatoes, according to the 2005 Uganda National Household Survey (see Table 3). The proportion is highest in the Eastern region (57%) and lowest in the semi-arid Northern region (29%). Sweet potatoes are grown in the same areas as cassava, though they are less tolerant of the semi-arid conditions in the north. Sweet potatoes are largely a subsistence crop with little commercialization. This is partly because they have a low value-bulk ratio and are perishable.

3.5 Beans

Beans are the fifth most important staple food, as measured by the contribution to caloric intake. In addition, beans are one of the most important sources of proteins for Ugandan households, particularly those living in rural areas. Over half (53%) of Ugandan farmers grow beans, the proportion being highest in the western region (78%). Bean production over 2005-07 averaged 446 thousand tons. About 4% of production is formally exported to neighboring countries. Adding to this the informal cross-border trade, total bean exports amounted to 88,000 tons annually between 2005 and 2007 (Benson, Mugarura and Wanda 2008).

3.6 Rice

Rice is not a traditional staple food in Uganda. Nor is it not among the ten most important crops grown in the country (Table 3). However, rice consumption is becoming increasingly popular, particularly in urban areas. The introduction of upland rice varieties means that rice can be grown almost anywhere in Uganda. As shown in Table 2, milled rice production averaged 105 thousand tons over 2005-07. Imports account for 42% of rice consumption, and there are some rice exports, including re-exports to Rwanda and Congo. Because rice is a heavily imported, tradable good its price is largely determined by the international price.

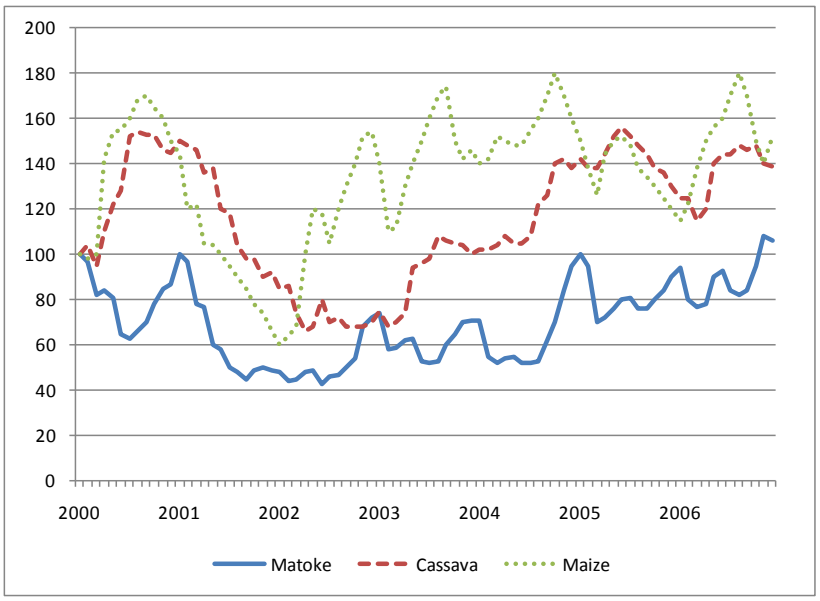
4 Staple food price patterns

4.1 Plantains and cassava

Prices of Uganda's two most important staples, plantains and cassava, fluctuate seasonally. But over the period between 2000 and 2006, real prices have remained largely flat, with no discernable up or downward trend (Figure 1).

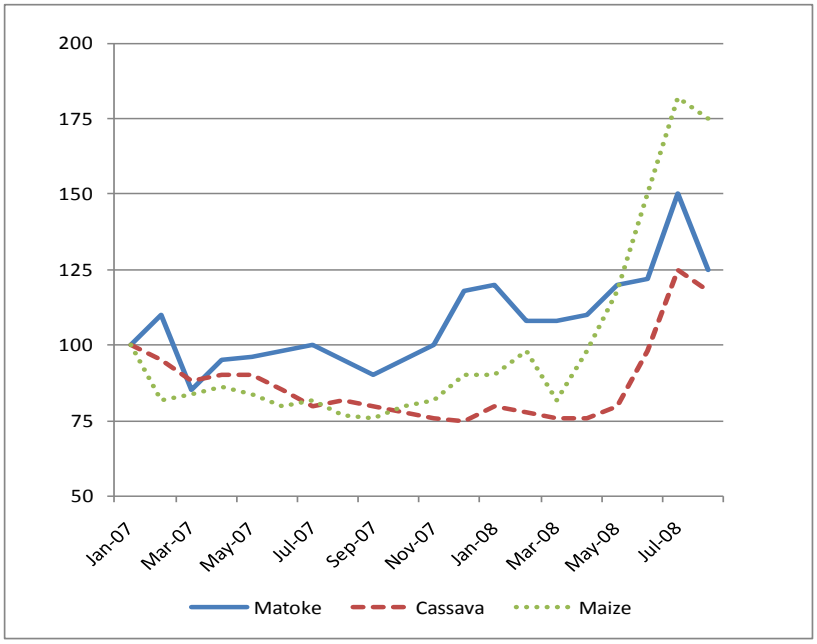
During the world commodity price increases of 2007 and 2008, Uganda's nontraded crops remained somewhat insulated from these world price trends. While the domestic maize price increased by 75% between January 2007 and July 2008, the plantain and cassava prices increased only one-third as much, by about 25% (Figure 2). As regional maize supplies tightened, with the political turmoil in Kenya, Ugandan maize prices surged in 2008, inducing consumers to substitute plantains and cassava for maize in their local diets (Benson, Mugarura and Wanda 2008). This resulted in a moderate price rise in plantains and cassava. Cassava, because of its capacity for harvest season and for inter-annual in-ground storage, offers an elastic supply response that serves to moderate its price volatility.

Figure 1. Real price indices for Uganda's three major food staples, January 2000 – December 2006



Source: Benson, Mugarura and Wanda (2008).

Figure 2. Index of nominal staple food prices, January 2007 to July 2008

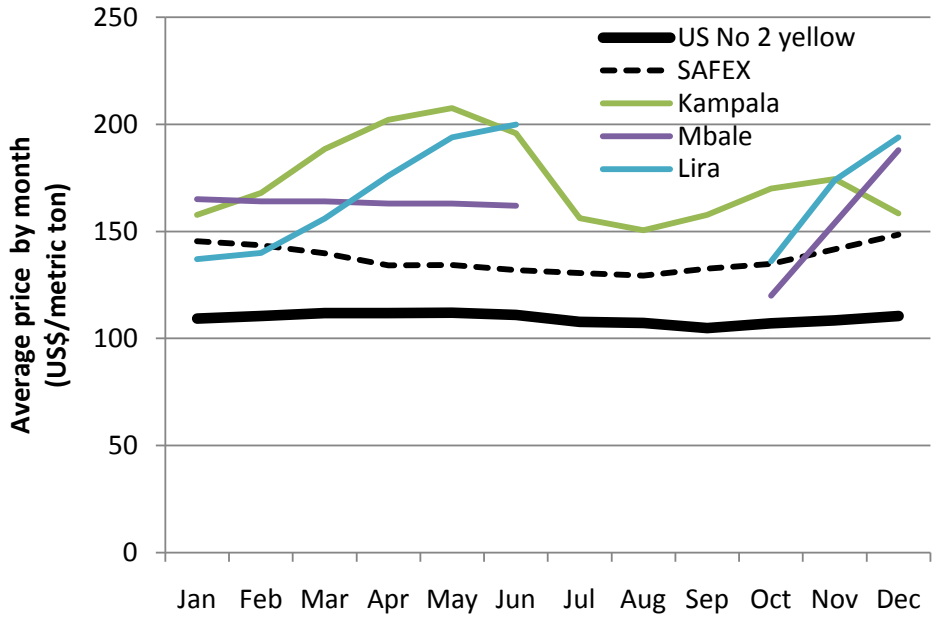


Source: Benson, Mugarura and Wanda (2008).

4.1 Maize

Maize prices likewise vary seasonally. During the months of May and June, the maize price falls sharply (Figure 3). Prices reach their lowest level in July and August, during the main harvest period of the first season. The maize price dips again in December (in Kampala) and January (in the other two markets), corresponding to the harvest period in the second season (see FEWS-NET, 2009).

Figure 3. Average monthly maize prices in different markets



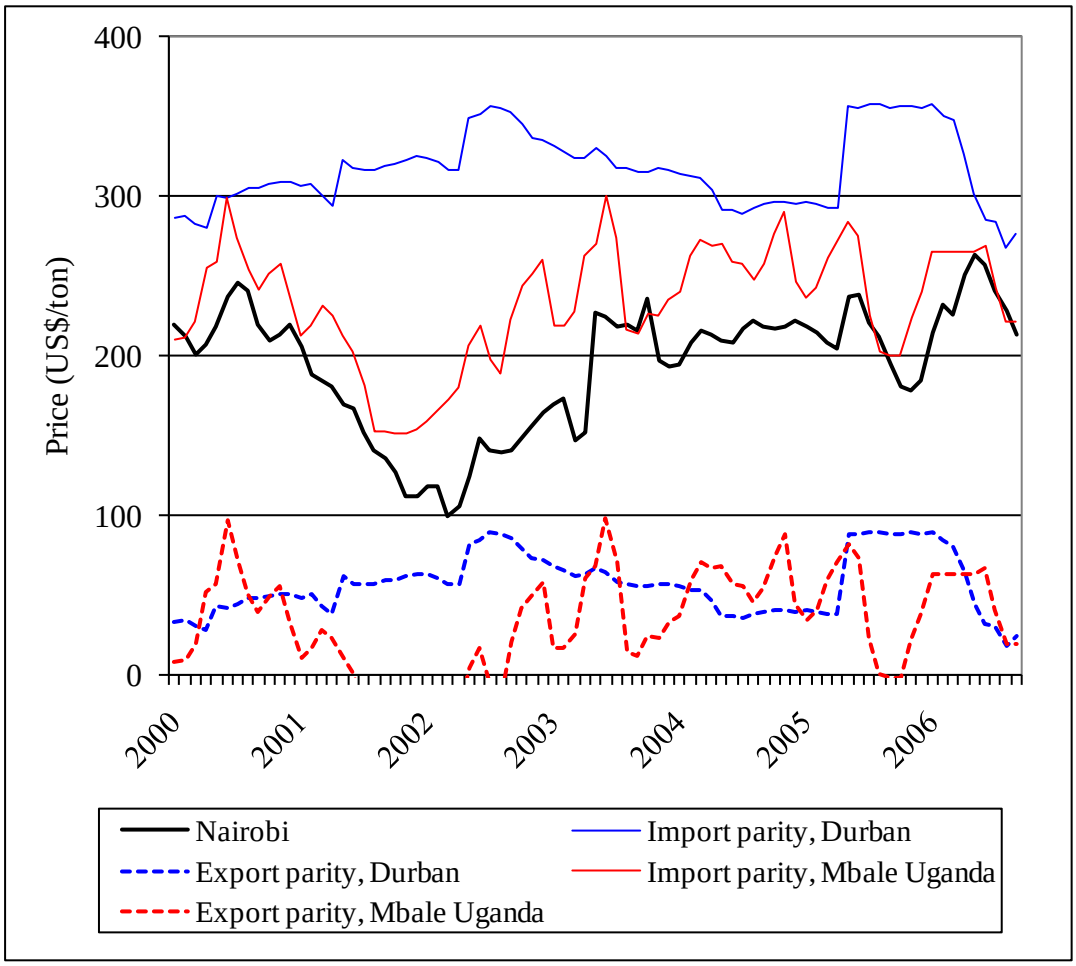
Source: FEWSNET (2009).

Ugandan farmers grow maize as a staple food crop as well as a key cash crop for export. Because Uganda is fully self-sufficient in maize, with about 15% of total production exported, regional prices influence the Ugandan maize price (Magnay 2004). Indeed, Ugandan exports help to cap Nairobi maize prices more frequently than Kenyan imports via Durban (Figure 4). Because of these tight commercial links, and given the political turmoil in Kenya during 2007 and 2008, Ugandan maize prices increased sharply, despite their domestic self sufficiency, because of pressure for increased exports, at high prices, from Uganda to Kenya.

The consequent spillover effect in Uganda led to a 75% nominal price increase on the Kampala market between January 2007 and July 2008 (Figure 2). Though consumers were able to moderate this shock partially by consuming alternate, less price-sensitive rootcrops and perennials, some consumption compression did occur, particularly in urban areas. As a result of the general increase in food prices, headcount poverty in Uganda increased by about 2.6% between 2006 and 2008, 2.6% in urban areas and 2.4% in rural areas. Given the sharp increase

in maize price, “In both rural and urban areas it is maize price increases that account for most of the poverty increases…” (Simler 2009, p.17).

Figure 4. Nairobi wholesale maize price compared to import and export parity prices from Uganda and South Africa

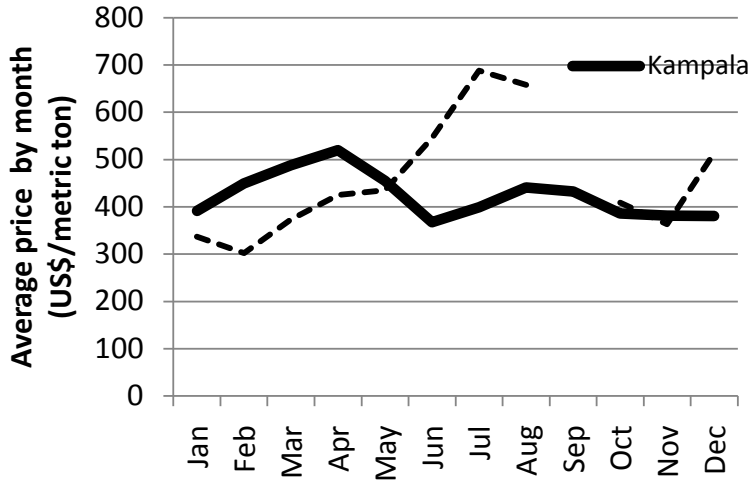


Source: Haggblade et al. (2007).

4.2 Beans Prices

Bean prices exhibit a similar seasonal price pattern as maize (Figure 5), although the seasonality of bean prices is higher in Lira than Kampala market. The seasonality prices are lowest in the October-January period because those months are the harvest season. For example, the bean harvest in central areas and Mbale district, eastern Uganda, started in October; the main bean harvest in Kasase district, western Uganda, and other major growing areas are expected to begin before the end of November; and harvest for farmers in the northern Uganda started in September in Lira and Apac districts.

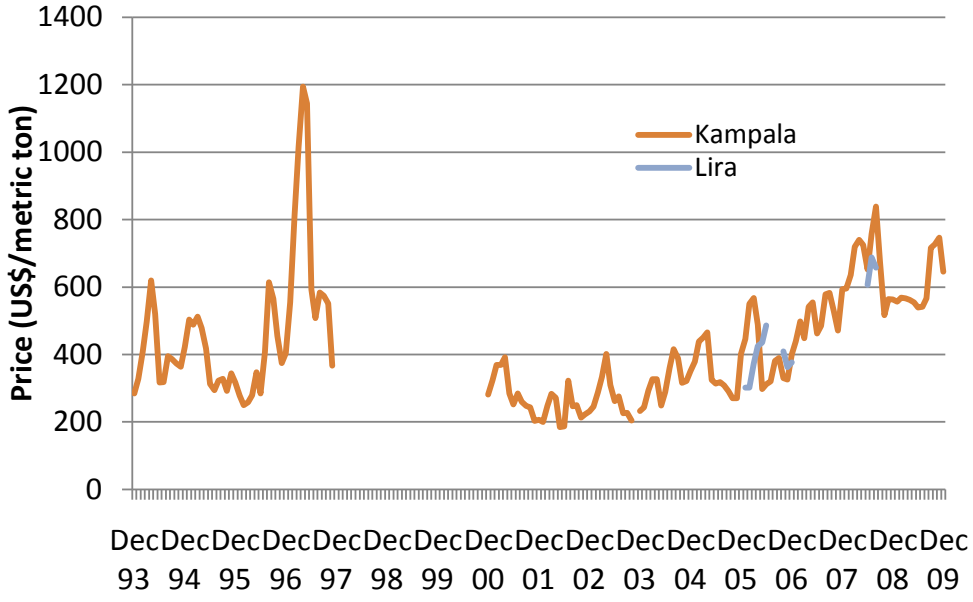
Figure 5. Average monthly beans prices in different markets



Source: FEWS-NET (2009).

Bean prices are highly volatile from one year to the next, with major spikes occurring in December 1994, June 1996, June 1997, December 2006 and June 2008 (Figure 6). The first three spikes can be explained by production trends, which show intermittent large shortfalls in bean production (annex Table A.2. The largest spike, in 1996, was apparently due to the 40% fall in production. The shortage of production which was not compensated with beans imports, causing the price to jump sharply. Overall, the coefficient variation (42%) is quite high for bean prices in Kampala.

Figure 6. Beans prices in Kampala

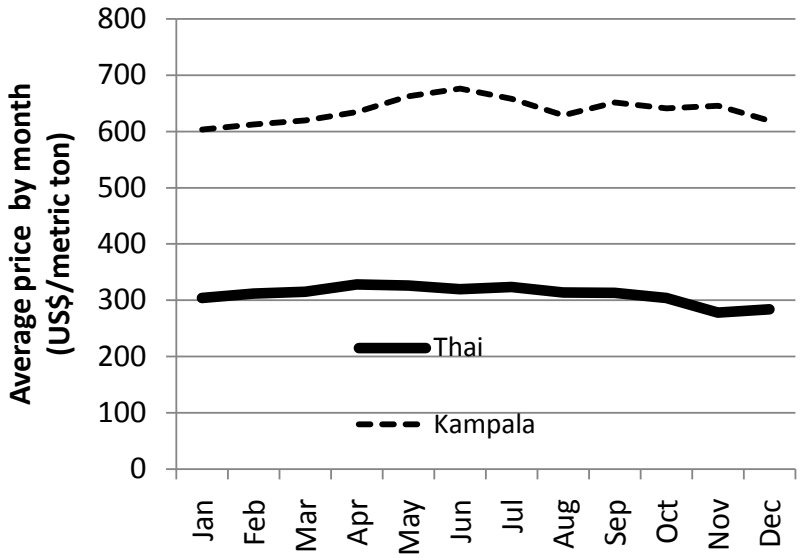


Source: FEWSNET (2009).

4.3 Rice Prices

Rice prices in Uganda are set by import parity. Given mild variation in Thai prices, Kampala rice prices likewise exhibit only a very mild seasonal pattern (Figure 7).

Figure 7. Average monthly rice prices in different markets



Source: FEWSNET (2009).

5 Food price policy

Ugandans consume a broad diversity of food staples. Nontraded perennial foods and root crops – plantains, cassava and sweet potatoes – account for 40% of caloric intake. Unlike other countries, cereals play a minor supporting role in Ugandan diets. Locally produced maize serves as a secondary staple and as a cash crop for export and for sale to donors for distribution in refugee camps, particularly in the north. Because of this unusual diversity in staple foods, no single food crop commands exceptional political sensitivity.

5.1 Trade policy

Three of Uganda's most important food staples – plantains, cassava and sweet potatoes – are largely nontraded across international borders. The remaining two of Uganda's top five calorie sources, maize and beans, are widely traded. Because Uganda typically produces a surplus of these two commodities, the country typically exports maize and beans within the region. Given chronic maize deficits in Kenya, Uganda has become a regular exporter of these two staples (Magnay 2004). Between 2005 and 2007, Uganda exported an average of 167,000 tons of maize and 88,000 tons of beans annually, primarily to Kenya, with smaller quantities going to Tanzania, Sudan and Rwanda (Benson, Mugarura and Wanda 2008). Indeed, Ugandan policy makers explicitly aim to promote the competitiveness of these food exports within the East

Africa region. They impose no bans, export quotas or export duties. However, current regulations do require fumigation of maize as well as a certificate of origin (Alimuga 2008).

Maize imports from within the COMESA region attract a total of 10% in tariff and import license fees, while non-COMESA sources pay 13% in total (Alimuga 2008). Under the East Africa Community customs union agreement, Uganda has committed to progressive reduction of tariffs to zero over a six-year period.

5.2 Public food stocks

In the early 1990's, the government of Uganda disbanded its parastatal Produce Marketing Board (PMB), abolished their marketing monopoly and liberalized the marketing of foodcrops. As a result, the government no longer holds large public food stocks.

5.3 Price controls

Price controls, formerly enforced by the PMB, likewise lapsed as prices became subject to the forces of supply and demand. Since the early 1990's, Uganda has operated a liberal, market-oriented trading regime. The government requires that all private traders register with the Ministry of Justice and obtain a tax identification number (Aliguma 2008). But they do not intervene in free market pricing decisions. As a result, since the liberalization of Ugandan maize markets, market integration has improved substantially (Rashid, 2004).

5.4 Food aid

Uganda receives between 50,000 and 100,000 of food aid cereals each year, mainly for refugees camps serving its large population of internally displaced persons in the north (FAO, 2009b). They purchase about one-third of these supplies internally through local procurement schemes (Tschirley and del Castillo 2007).

5.5 Response to the food crisis

The diversity of Ugandan diets, and the minor contribution of cereals to total dietary intake, largely insulated Uganda from the world price shocks of 2007 and 2008. Therefore, the Ugandan did not institute major special measures in response to these price hikes (Benson, Mugarura and Wanda 2008).

6 Summary and conclusions

Unlike many countries in the COMESA region, Uganda consumes a broad array of food staples. Cereals, the source of large price and food consumption instability elsewhere, play a secondary role for most Ugandan consumers. Although maize, rice and wheat prices indeed spiked in Uganda in 2008, plantains, cassava and sweet potato prices rose only about one-third as much and declined quickly thereafter. Substitution possibilities among these various staples enabled Ugandan consumers to moderate the impact of cereal price increases by shifting to lower priced perennial and root crops. As a general principle, the Ugandan case illustrates the potential importance of food crop diversification as a means of moderating the impact of production and price volatility in individual staple foods.

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Annex Table A.1. Maize production and trade in Uganda

Year	Production (1000 tons)	Percent change	Imports (1000 tons)	Exports (1000 tons)
1990	602	-3%	7	27
1991	567	-6%	0	33
1992	657	16%	9	30
1993	804	22%	46	160
1994	850	6%	14	101
1995	913	7%	33	69
1996	759	-17%	78	81
1997	740	-3%	118	29
1998	924	25%	41	33
1999	1053	14%	27	23
2000	1096	4%	17	4
2001	1174	7%	3	24
2002	1217	4%	29	42
2003	1300	7%	53	31
2004	1080	-17%	97	63
2005	1170	8%	48	60
2006	1258	8%	40	81
2007	1262	0%	9	56
2008	1266	0%	0	0

Source: FAO, 2009b and FAO, 2009c.

Annex Table A.2. Beans production and trade in Uganda

Year	Production (1000 tons)	Percent change	Imports (1000 tons)	Exports (1000 tons)
1990	396	0	0	9
1991	383	-3	0	14
1992	402	5	3	9
1993	428	6	10	48
1994	378	-12	9	32
1995	390	3	15	29
1996	234	-40	1	13
1997	221	-6	5	17
1998	387	75	12	6
1999	401	4	8	2
2000	420	5	0	20
2001	511	22	0	2
2002	535	5	1	7
2003	525	-2	1	5
2004	455	-13	25	13
2005	478	5	8	23
2006	424	-11	1	25
2007	435	3	0	8
2008	440	1	-	-

Source: FAO, 2009b and FAO, 2009c

Annex Table A.3. Rice production and trade in Uganda

Year	Production (1000 tons)	Percent change	Imports (1000 tons)	Exports (1000 tons)
1990	54	20%	0	0
1991	61	13%	0	0
1992	68	11%	1	0
1993	74	9%	2	0
1994	77	4%	7	0
1995	77	0%	6	0
1996	82	6%	9	0
1997	80	-2%	16	0
1998	90	13%	34	0
1999	95	6%	19	0
2000	109	15%	31	1
2001	114	5%	16	0
2002	120	5%	21	1
2003	132	10%	10	0
2004	121	-8%	16	2
2005	153	26%	19	6
2006	154	1%	10	1
2007	162	5%	25	1

Source: FAO, 2009b and FAO, 2009c.