

## CHAPTER 3

## THE SOCIO-ECONOMY, FOOD DEMAND AND THE SPECIFICATION OF THE ANALYTICAL MODEL

### 3.1 INTRODUCTION

A food system does not operate in isolation of the broader economy and the supply and the demand for food are therefore, subject to policy and socio-economic changes in the economy. In the previous chapter, that food security/insecurity is often a result of a complex interaction of many factors, was discussed. It is hypothesised that the increased sale of food following growth in domestic and regional demand is one of the factors negating food security in Uganda. However, Von Braun (1994:38) argues that implications of commercialisation must take into consideration the process, the economic, socio-cultural and structural characteristics of the area in which it is being evaluated. Further, that:

*...“the effects at the household level cannot be comprehensively assessed in a vacuum of time and space: the historical context matters”.*

The remarkable economic growth attained in Uganda following the commencement of the reform programme can be explained in part by the very low levels of deprivation to which much of the population had sunk. These low levels served as the springboard for the reform programme (Economic Policy Research Centre & Action Aid Uganda, 1997; IFAD, 1994). The commercialisation of the food sub-sector in part manifests the expansion in demand with economic growth and cannot be looked at in isolation of other socio-economic developments in the economy. To place the food security concerns in context, this chapter relates how developments in the economy at large affected the farming sector particularly the supply and demand for food. In so doing, the *a priori* conditions that have guided the model specification later in the chapter are implicitly discussed. It reviews the socio-economic developments before reform and the implications for domestic demand and supply. It then reviews socio-economic

developments as part of the reform process, specifically focusing on changes in the demand for food, an important factor in the commercialisation of the food sub-sector.

## **3.2 AN OVERVIEW OF UGANDA'S ECONOMY BEFORE REFORM**

### **3.2.1 Agricultural production**

During the colonial period, direct settler involvement in agricultural production was not pronounced. Nonetheless, policy decisions taken then have had far reaching consequences on the structure of agriculture today and implicitly, on food security. An attempt was made to encourage large-scale commercially oriented farming (plantations of rubber and coffee). However, the collapse in international prices in 1920, the high costs of production given labour scarcity and various vested interests that preferred the expansion of cotton growing in Africa, left British farmers bankrupt (Bibagambah 1996; Hinderink and Sterkenburg, 1987). This marked the end of plantation farming in Uganda and many of these farms reverted to bush. The few that remained were auctioned and later turned into sugar plantations.

Following the collapse of plantation agriculture, the Colonial Office in London took a policy decision, to bar non-Africans from participating in the production of non-plantation crops (cotton). Non-Africans were only to participate in the processing and marketing of cotton. This decision has had extensive consequences for the structure of agriculture in Uganda which to date, consists predominantly of small holders. Their role in the economy is underscored by the fact that agriculture makes the largest contribution to GDP, as noted in the first chapter. Because food production is the largest sub-sector and food needs are predominantly met from own-production, the structure of agriculture thus has a direct bearing on household and aggregate food self-sufficiency.

The role of the food sub-sector became more pronounced during the 1970's and 1980's when Uganda's fast economic growth was halted by the political crises and economic mismanagement during the dictatorial regime that took power in 1970. Through statutory marketing boards that enjoyed monopsony powers over export marketing and participated in setting producer prices, Lint Marketing Board (LMB) for cotton and Coffee Marketing Board (CMB) for coffee, the state exploited the farmer. Farmers faced

low producer prices and payments were often deferred, i.e. farmers were given “I owe you slips” for produce “bought”. With little incentive to produce cash crops (Bibagambah, 1996), farmers are for example known to have roasted cotton seed before planting to ensure the crop did not germinate. Coffee trees were cut down and replaced by bananas in some places. Overall, the economy largely reverted to a subsistence mode (O’Connor, 1988). In 1982, non-monetary contributions to GDP (at 1966 prices) were 33.7%, having grown from 26.1% in 1971 (Uganda-Ministry of Planning and Economic Development, 1983) in a contracting economy.

In 1981, volume in total exports was estimated at 150,000 tons, having declined from 500,000 tons in 1971. In the same period, production of the main cash crops declined as follows:

- Seed cotton from more than 270,000 to 16,000 tons.
- Coffee from more than 200,000 to 130,000 tons.
- Tea from 18,000 to 1,400 tons.
- Tobacco from 5,000 to 3,000 tons.
- Sugarcane from 1,700,000 to 165,000 tons.

Coffee increasingly became the most important export, accounting for more than 95% of agricultural exports and 90% of exports in the late 1980’s (Uganda-Ministry of Agriculture and Forestry, 1984a; World Bank, 1996). Given that more than 90% of the foreign exchange earnings were from cash crops, the ramifications were economy wide. At the macro-level, balance of payments difficulties increased. The supply of many consumer goods and basic production inputs like hoes steadily declined as their production gradually ground to a halt owing to, among others, the lack of spare parts for machinery. Basic commodities like sugar, salt, soap, etc. became rare commodities consumed by only the relatively better off in urban areas. Their consumption ceased altogether in the poorer rural areas because of lack of effective demand and the unavailability of the goods.

Price controls for producer and consumer goods were later introduced, as was a fixed exchange rate. The latter led to an overvalued shilling. Consumers suffered a decline in

real income due to high inflation and a restricted variety in consumer goods. The political instability ultimately led to war, not only disrupting production, but often displacing and impoverishing those directly affected.

Table 3.1 shows a comparison between the peak year performance of selected sectors with that in September 1981 (commencement of the first attempt at economic recovery). Between 1970 and 1980, overall performance declined and GDP showed a 25% fall. By 1979, per capita GDP had declined by 14.2 % (1966 prices) from what it was at independence in 1962 (Edmonds, 1988).

**Table 3. 1: Sectoral peak year performance compared with performance in 1981 (value in million shillings and at 1966 prices)**

Sector	Peak year	Value	Value in 1981	Percentage decline
Monetary Agriculture	1973	1,795	1,221	32
Agro-Industry	1970	114	31	73
Misc. Manufacturing	1971	482	206	57
Commerce	1971	940	491	48
Food Manufacturing	1972	63	10	84
Mining & Quarrying	1970	119	6	95
<b>Total Monetary</b>	<b>1971</b>	<b>5,252</b>	<b>3,822</b>	<b>27</b>

*Source: Uganda-Ministry of Planning and Economic Development, 1984.*

### 3.2.2 Food marketing

Because more emphasis was placed on the use rather than exchange value of food, its markets were generally free even with the establishment of the Produce Marketing Board (PMB) mandated to stabilise food prices and manage a food reserve (Bibagambah, 1996; Nsibambi, 1988). Though granted monopsony powers in the 1970's, the PMB never really took an active part in the market as a buyer or seller. It exported beans and maize only to a small extent (Uganda-Agricultural Policy Committee, 1990). The dietary diversity would have required it to act to satisfy different market segments, pushing up operational costs because of lower economies of scale.

Although the activities of the PMB did not disrupt the food sub-sector much, non-tariff barriers did. Licensing requirements restricted inter district movement of food. While this restriction was removed in 1986 to allow free movement within the country, a valid

licence was still required to move more than one bag (100 kg) of produce (Uganda-Agricultural Policy Committee, 1990). Roadblocks (legal or illegal) provided opportunities for extortion (Nsibambi, 1988).

Few lorries and rail wagons for moving produce contributed to high transaction costs in especially food marketing (Uganda-Agricultural Policy Committee, 1990). Besides, being landlocked, the costs of fuel are higher than in neighbouring Kenya. Consequently, an implicit tax is imposed on the economy and the overvalued shilling encouraged illegal fuel re-exportation, aggravating fuel shortages. The overvalued shilling also contributed to the lack of vehicle spare parts. The deteriorating transport infrastructure did not help the dire situation (Nsibambi, 1988).

### 3.2.3 Social policies

Besides the declining performance in the agricultural sector, between 1970 and 1986, Uganda's social indicators deteriorated to become among the worst in the world (World Bank, 1993c). By 1990, infant mortality rates for example had shown a 2% decrease from the 1965 level. In comparison, there was an overall decrease of 32% for all of SSA countries in the same period and a 40% decrease in Kenya, Uganda's neighbour as shown in Table 3.2.

**Table 3. 2 Infant mortality rates (per 1000) for selected countries**

Country	1965	1990	Percentage decrease
Uganda	119	117	2
Kenya	112	67	40
Zimbabwe	103	49	52
Ghana	120	85	29
All SSA countries	157	107	32
All low income countries	124	69	44

*Source: World Development Report 1992, Adapted from World Bank, 1993c*

In 1985, Government expenditure on health and education was about 27% and 9% respectively, in real terms of the 1970 level (World Bank, 1993b). Poor remuneration in the public sector led to a decline in service delivery. Because the health and education sectors are labour intensive, the deterioration in service delivery was more apparent

there. The costs of education shifted to parents who for example contributed 65-90% of the total funding of primary schools. Secondary school enrolments were estimated at 13% only, with parental financing amounting to 25-90% of the costs. The education system thus had the inequitable effect of pricing out the children of poor families (World Bank, 1993c). In hospitals, pilferage of drugs and medical equipment and direct payment for services rendered became common.

### 3.3 TRANSFORMING THE AGRICULTURAL SECTOR

#### 3.3.1 The agricultural sector

Timmer (1997) proposed a development paradigm in which he discusses three different but closely related processes of agricultural change: transformation, commercialisation and diversification. Transformation in agriculture is part of structural transformation in an expanding economy. Diversification and transformation are manifest at three levels of an economy; individual farms, the agricultural sector and the economy as a whole, and can be measured and evaluated by among others, the diversity in food products consumed by representative households at each level. In the early stages of transformation, at the farm level, there is a wide diversity in production as each household is preoccupied with meeting its subsistence needs. As markets develop and farmers are better able to contain risks, they begin to specialise in production of a few crops. The market, as discussed in the previous chapter, enables the farmer to separate production decisions from consumption decisions. As specialisation takes place in production, consumption is not necessarily restricted as a wide diversity of food is made available through the market. Diversity in the agricultural sector as a whole is likewise maintained.

It can be argued that the overall objective of reforms in the agricultural sector in particular, is its transformation from the subsistence mode to which it had largely reverted, to commercialisation. While markets, infrastructure and overall economic growth are some of the forces that drive commercialisation and were targeted by the reform programme others are population change, new technologies and ultimately, the policy framework in which these forces operate (Von Braun et al., 1991; Von Braun,

Bouis & Kennedy, 1994). Each of these forces is, to varying degrees, manifest in Uganda's economy since the implementation of economic reform commenced.

Specifically, priority was given to reviving the traditional cash crops (mainly coffee, cotton, tea, tobacco) and promoting non-traditional crop exports. Markets, price structures and infrastructure were important factors in ensuring that these objectives were met and in promoting private sector activity. According to Uganda-Ministry of Finance and Economic Planning (1992b), specific sectoral reforms included:

- Price liberalisation, where Government moved out of price control leaving it to the forces of demand and supply.
- Market liberalisation entailing the removal of marketing restrictions/regulatory barriers that had promoted monopolies such as marketing boards at the expense of the private sector and the cessation of subsidies on inputs.
- Liberalisation of export trade with emphasis on the diversification of the export base and thus foreign exchange earnings, away from the traditional cash crops dominated by coffee. It was necessary to de-link the economy's performance from the unstable and declining terms of trade of especially coffee. Non-traditional agricultural exports, which include food crops, were promoted.
- Liberalisation of foreign exchange trade was necessary to support all the above measures. Exchange bureaux were licensed and restrictions on the movement of hard currency in and out of the country were relaxed.
- Liberalisation of interest rates.

The devaluation of the shilling (shs) by 77% in May 1987 and by 41.2% in 1989 (Opio, 1996) was a major boost for the agricultural sector, which, as earlier noted, provides the bulk of exported commodities. The recovery of the traditional cash crops in Uganda relied mainly on reforms in marketing (liberalisation), the development of supportive infrastructure (rehabilitation of processing and marketing infrastructure) and the improved delivery of research and extension services. All monopsony powers have to date been withdrawn and the private sector actively participates in domestic and export trade. Transactions are on a cash basis and advance payments may even be made when demand is at its peak in a season. The resultant competition pushes up prices in favour

of the producer. Farm gate prices in the coffee sub-sector, for example, are about 80% of the realised world price, compared with 20% before liberalisation (Uganda-Ministry of Finance, Planning and Economic Development, 1999). Unfortunately the down side of competition is also manifest; the deterioration in quality especially given a weak monitoring system (Economic Policy Research Centre & Action Aid Uganda, 1997).

Between 1987 and 1997, growth in the different sub-sectors has been realised (Uganda-Ministry of Finance, Planning and Economic Development, 1998).

- Coffee exports grew from 167,067 to 210,123 tons
- Tea from 3,511 to 18,260 tons
- Tobacco from 1,214 to 4,809 tons
- Cotton exports for 1997 was 18,975 tons.

However, these traditional cash crops are cultivated by agro-ecological orientation depending on where they are best adapted. Because they have not experienced uniform recovery, rural benefits are relatively localised. New technologies promoted as part of non-traditional agricultural exports include floriculture, high value products like vanilla and other horticultural crops. However, by their very nature, they pose several barriers to entry, i.e. the products are highly perishable and proximity to the markets (mainly urban centres or for export) is necessary especially given the lack of the infrastructure (cold chains) needed to reduce post harvest losses. Conditions under which they are grown are also constraining because they require relatively complex technology and are capital intensive. Their benefits therefore also accrue to limited segments of the farming population.

Changes in the food sub-sector, the most dominant in the agricultural sector, therefore have the potential of affecting more of the farming population. Between 1987 and 1997, food output is estimated to have grown by 70% and area by 35%. Trade in food has grown and is partly due to changes in demand, which in turn can be attributed to population changes, economic growth and improved market conditions and the supporting infrastructure.



### 3.4 FACTORS CONTRIBUTING TO GROWTH IN FOOD TRADE

#### 3.4.1 Expansion in domestic demand

That domestic demand has grown is implicit in the growth of the population especially of urban areas. It is estimated that by 1991 the urban population had grown from 8% of the population in 1980 (12,636 million), to 11.4 % of the population in 1991 (16,583 million). Urban populations are an important segment of the domestic market and restricted growth had in turn restricted market opportunities for the producer. Between 1969 and 1979, Kampala city, projected to grow by 8% per annum, only grew by 3% per annum, half the rate of growth of Dar es Salaam in Tanzania or Nairobi in Kenya (O'Connor, 1988). In 1983, only five urban centres had a population estimate of more than 30,000 people. The relatively slow urbanisation was partly due to the deterioration in the industrial and commercial sectors, reducing employment opportunities. People may have been forced to return to the rural areas by the high cost-of-living. Jinja, the main industrial town, for example, registered a decline in its population (O'Connor, 1988; Uganda-Ministry of Planning and Economic Development, 1984; 1986).

Besides population growth, a surge in consumption was expected as effective demand that had been eroded by inflation, improved with economic growth. The general deprivation, due to the economic difficulties of the 1970's and 1980's, constrained the demand for food as it did for demand overall. Between 1977 and 1980, per capita income had declined by 25% to a level 68.9% of its 1963 value (Edmonds, 1988). For example, public servants' wages could hardly meet their food needs for two weeks (Nsibambi, 1988) and yet they are an important consumer segment in any urban setting and in the country. They accounted for about 80% of formal sector employment and about 43% of the urban labour force (World Bank, 1993b). Expansions in both informal and formal employment and improvement in the remuneration structure, served to increase demand. Between 1994 and 1998, for example, employees in manufacturing establishments, most of which are urban based, increased from about 13,600 to 16,800 persons. Growth in the informal sector has matched the growth in the urban population earlier pointed out.

With decentralisation, the public sector establishment in the districts also doubled between 1994 and 1997 (Uganda Bureau of Statistics, 1999). The implication is that

increased demand for food is not limited to Kampala and the dietary diversity in the country supports the commercialisation process because of the different demand segments for most foods produced. However, consumption habits are influenced by factors other than changes in income. Notable is culture. This may explain the less apparent diversification in consumption habits in the rural areas where traditional cultural practices remain strong.

Despite the increased demand, it is estimated that production levels are still able to meet the growing demand for food. Surpluses are realised in most of the food crops as shown in Table 3.3 that reflects food sufficiency at the district and national levels. Shortages do however occur in foods that meet the protein needs of the population, e.g. beans. The shortages in cassava in Apac and Soroti have been addressed with the spread of mosaic resistant cassava varieties.

**Table 3.3: Estimates of supply and demand of selected crops ('000 metric tonnes), in the three districts and at national level – 1994**

DISTRICT Crop	APAC			SOROTI			MBALE			NATIONAL		
	SS	DD	Bal	SS	DD	Bal	SS	DD	Bal	SS	DD	Bal
Beans	13	7	6	5	9	-4	14	17	-3	378	380	-2
Millet	51	6	45	36	10	26	32	16	16	610	301	309
Sorghum	12	8	4	19	4	15	5	7	-2	390	163	227
Cassava	54	53	1	33	63	-30	65	105	-40	3100	2322	778
S. Potatoes	56	20	36	41	45	-4	73	77	-4	2129	1479	650
G. Nuts	6	1	5	4	2	2	5	4	1	142	91	51
Simsim	8	1	7	2	2	0	0	1	-1	70	24	54
Bananas	77	4	73	3	63	-60	638	105	533	8836	3830	5006
Maize	44	6	38	20	11	9	49	18	31	900	416	484

*Source: Adapted from Uganda-Ministry of Finance & Economic Planning, 1995b*

*SS = Supply, DD = Demand, Bal = Balance*

Timmer (1997) argued that diversity in agro-ecological endowments enables farmers with different resources to specialise differently, creating greater diversity at the aggregate levels. Removal of trade barriers makes a wider diversity of commodities produced across different borders available to consumers. He therefore posits that as commercialisation progresses, there is specialisation in production but diversification in consumption.

The different agro-ecological endowments in Uganda should therefore encourage specialisation according to resource availability (including human capital, i.e. specialising in crops where they have the experience). Farmer discussions suggest a reduction in crop diversity compared with 10 to 20 years ago, inferring that households are cultivating fewer crops and therefore beginning to specialise (Group discussions, 1998). That it is common for a food to be identified with its source, e.g. Kumi potatoes, Ngora ground-nuts, Mbale posho, bogoya (sweet bananas) or matooke, etc. is further indication of a specialisation process taking place. It is only in a few areas that a new crop has been introduced to become a cash crop, e.g. rice in Pallisa District. However, it is noteworthy that although the market may have contributed to this process of specialisation, other factors have also played a role. For example, labour constraints limit the production of millet and cotton that are labour intensive crops (Uganda-Household Agricultural Support Programme, 1997; Group discussions, 1998). The prevalence of crop disease was another reason particularly for lack of cassava in certain areas, especially in Mbale District, where resistant varieties are not yet widely available. The non-improved pigeon pea has a long growing period and therefore occupies land for a long time, while the high costs of seed and the prevalence of pests in some areas are disincentives to the growing of groundnuts. These are crop specific examples for the reduced prominence of some crops.

#### **3.4.2 Reduced non-tariff barriers**

A study done in Bangladesh (Ahmed & Hossain, 1990) underscores the role of infrastructure in spurring on economic growth. It found that the impact of rural infrastructure development was an increase in household income by 33%. About 24% was from agriculture, 78% from livestock and fisheries, wage income doubled while business and industries rose by 17%. The functionally land-less and small farmers made larger gains in increases from crops, wages, livestock and fisheries. The large landowners captured the increase in business and industries.

As part of an incentive framework for the growth of the private sector the Government gave the rehabilitation and development of economic infrastructure, most especially the road network, priority listing. Restrictions on the transport sector were also relaxed. The overall objective being increased accessibility to the productive rural areas. Since 1989,

GDP contributions emanating from the road network have increased almost ten-fold from 28,563 million shs to 260,000 million in 1998 (Uganda-Ministry of Finance, Planning and Economic Development, 1999) growing by an average 8.6 percent per year. In 1998/99 alone, 740km of feeder roads were rehabilitated. As indicators of the changes that have taken place, between 1989 and 1998, the number of heavy commercial vehicles on the road increased by 313%, pick-ups/vans by 519%, minibuses by 657% and buses by 124% (Uganda Bureau of Statistics, 1999).

However, transport costs remain relatively high in Uganda because it relies on road transportation for even bulky products because of the non-functional rail network. Even with efforts put into rehabilitating the infrastructure, many roads are seasonal. The use of low tonnage vehicles contributes to the high costs of transport, as advantage is not taken of economies of scale (Uganda-Ministry of Agriculture, Animal Industries and Fisheries, 1997). Transport costs were estimated to range from about 4% to 17% of the final consumer price, depending on the crop (Uganda Co-operative Alliance, 1993 cited in Uganda-Ministry of Finance and Economic Planning, 1995b). This contributes to relatively low prices in the food sub-sector with farmers, for example, receiving about 17% of the retail price of maize (Uganda-Ministry of Finance, Planning and Economic Development, 1998).

Nonetheless, improvements in the transport infrastructure supported by the lifting of restrictions on inter-district trade, has eased trade across the country. Domestic urban markets are integrated with most of the rural areas and across the country, trade in food is vibrant and highly competitive. There are no restrictions on the quantities handled or who can participate. Food is traded at the farm gate, roadsides, village and occasional markets and in the urban markets. Lorries, trucks and pick-up vehicles loading food are a common sight in villages and along roadsides. Appendix 4 shows the main pathways of the food trade; from the producer to the final consumer who may be within the villages, in the urban areas or even further afield, if the food is exported.

Farmers trade in their own food and may serve as agents of traders and therefore act as collection points within the villages. During a farmer discussion group in a sampled village in Bugobero Sub-county, children were observed exchanging mugs of beans for *chapati*, a snack food made from a dough of baking flour and flattened to a few

millimetre thickness, with a middleman. Although the beans had been picked from the harvest residue, the discussion group mentioned that instances where children stole food to exchange for cash were on the increase given the readily available market. Institutions like schools send their agents out to the villages to avoid marked-up prices from middlemen. Overall, food trade has attracted a wide range of participants from petty traders whose handling capacity is limited by capital and storage infrastructure to established companies with sizeable storage capacity or the ability to rent storage space (World Bank, 1996).

Price changes in Kampala where the largest concentration of demand occurs, are reflected in most of the country with varying time lags and price differentials (Nobera, 1998). Figures 3.1a and 3.1b are graphical illustrations of monthly average price trends from January 1998 to January 1999 for dry maize and beans from rural collection markets (Kagaa and Otuboi) to district and regional markets (Soroti and Mbale) and Kampala city. This information was generated from a combination of primary and secondary data. Prices for the rural collection markets, Kagaa and Otuboi, were data collected as part of the study. The two are markets within the sampled areas in Soroti district. To reflect the flow of food towards urban markets, secondary price data was collected from the district and national Market News Service for the urban markets (Uganda-Ministry of Trade and Industry, 1999).

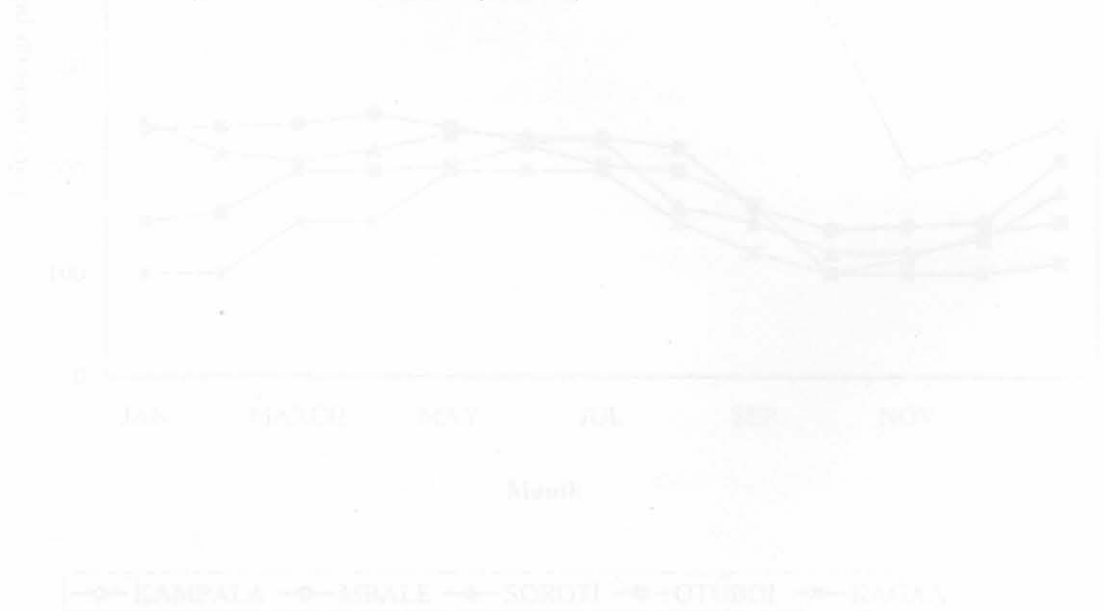


Figure 3.1b: Beans price trends in selected rural and urban markets Jan '98-Jan '99

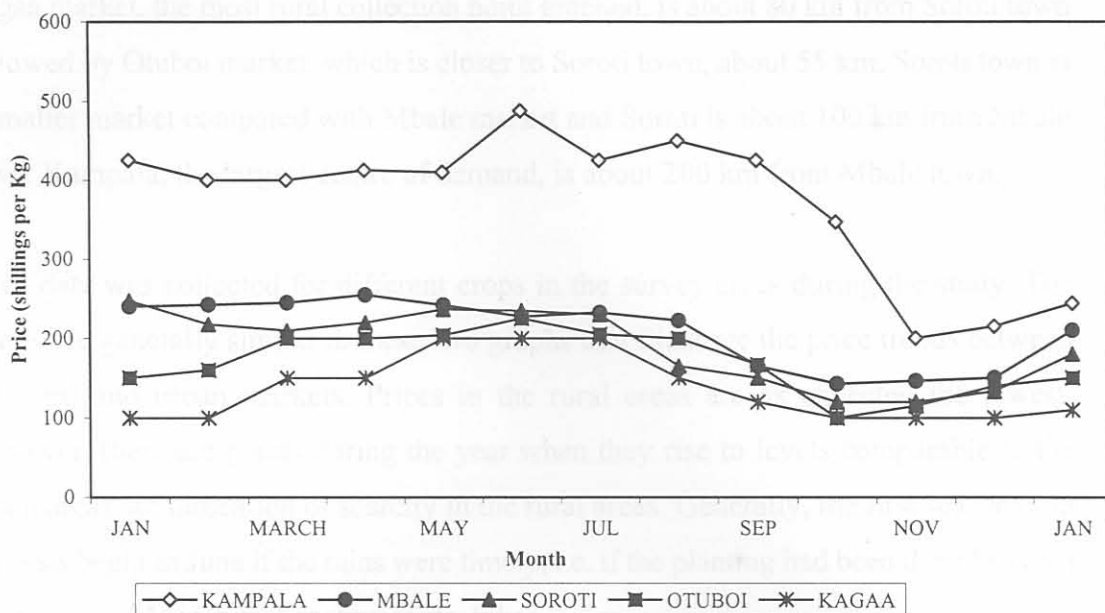


Figure 3. 1a: Maize price trends in selected rural and urban markets Jan'98-Jan'99

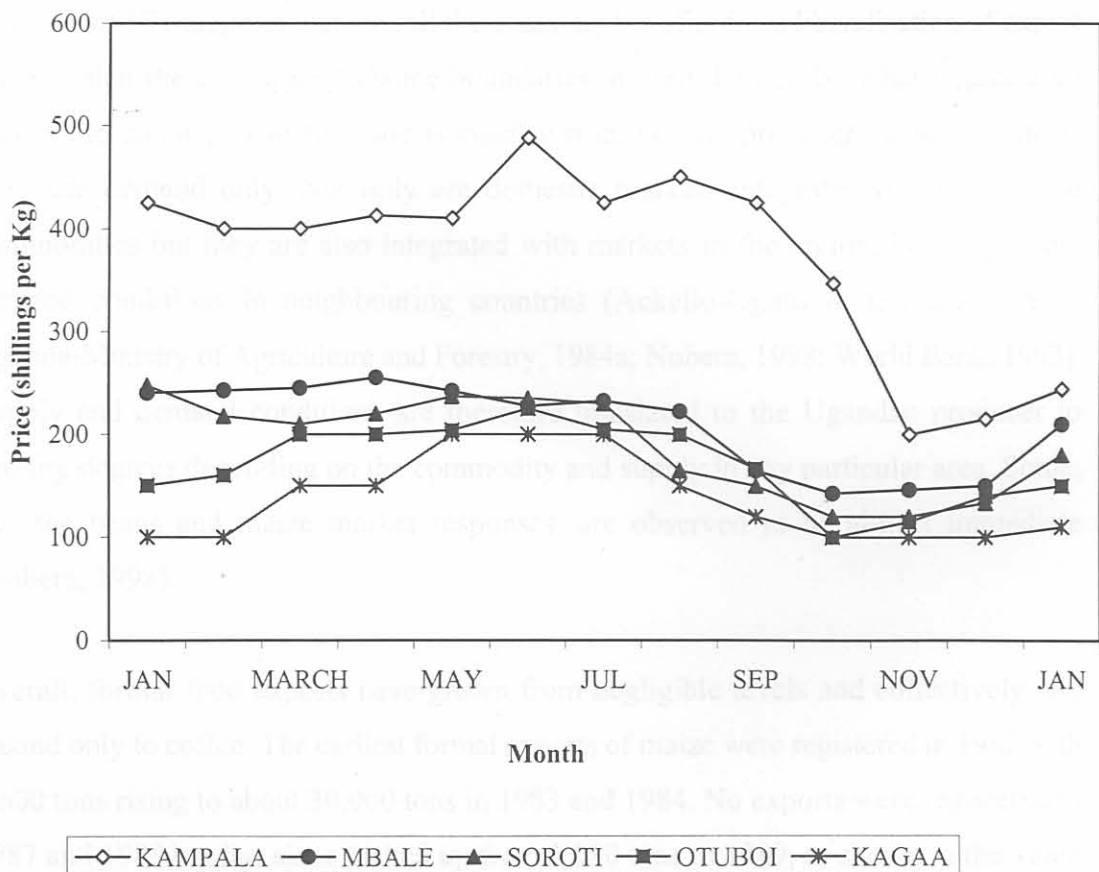


Figure 3.1b: Beans price trends in selected rural and urban markets Jan'98-Jan'99

Kagaa market, the most rural collection point graphed, is about 80 km from Soroti town followed by Otuboi market, which is closer to Soroti town, about 55 km. Soroti town is a smaller market compared with Mbale market and Soroti is about 100 km from Mbale town. Kampala, the largest centre of demand, is about 200 km from Mbale town.

Price data was collected for different crops in the survey areas during the study. The trends are generally similar to these two graphs that illustrate the price trends between the rural and urban markets. Prices in the rural areas are as expected the lowest. However, there are points during the year when they rise to levels comparable to the urban areas, an indication of scarcity in the rural areas. Generally, the first season crop harvests begin in June if the rains were timely, i.e. if the planting had been done between February and March and continue into July.

### 3.4.3 Regional demand-formal/informal food trade

Timmer (1997) suggests that overall the economy benefits from liberalisation of export trade in that the consumers' choice boundaries are not defined by what is produced within the country. The flip side is equally true, i.e. the producer no longer meets domestic demand only. Not only are domestic markets integrated for most of the commodities but they are also integrated with markets in the region, i.e. supply and demand conditions in neighbouring countries (Ackello-Ogutuu & Echessah, 1997; Uganda-Ministry of Agriculture and Forestry, 1984a; Nobera, 1998; World Bank, 1993). Supply and demand conditions are therefore translated to the Ugandan producer to varying degrees depending on the commodity and supply in any particular area. Some, like the beans and maize market responses, are observed to be almost immediate (Nobera, 1998).

Overall, formal food exports have grown from negligible levels and collectively, are second only to coffee. The earliest formal exports of maize were registered in 1982 with 1,600 tons rising to about 30,000 tons in 1983 and 1984. No exports were registered in 1987 and 1988 but has since picked up from 1,080 tons in 1989, as shown in the Table 3.4 below. Prior to 1990, no other food crop was recorded as formally exported (Uganda-Ministry of Planning and Economic Development, 1987).

**Table 3. 4: Exports by quantity 1990-1997('000 metric tonnes)**

Crop	1982	1983	1984	1989	1990	1991	1992	1993	1994	1995	1996	1997
Maize	1.6	30	30	1	26.7	33.1	29.6	160.4	99.5	86.1	86.1	52.8
Beans	-	-	-	-	9.3	14.4	9.3	47.5	37.5	38.8	38.8	27.8
Simsim	-	-	-	-	9.2	17.8	12.9	8.4	4.1	9.3	9.3	1.5
G-nut	-	-	-	-	-	0.2	0.1	0.6	0.4	0.4	0.4	0.1
Bananas	-	-	-	-	1	1.8	2	0.3	2.5	1.2	1.2	0.1
Soybean	-	-	-	-	-	2.4	-	7.1	1.7	4.0	4.0	0.4
Fish	-	-	-	-	1.7	4.7	4.9	6.1	6.6	16.1	16.1	11.8

*Source: Compiled from Uganda-Ministry of Planning & Economic Development, 1997; Uganda Bureau of Statistics, 1999. NB. Between 1985 and 1987, Uganda experienced political instability hence the lack of data for especially maize which is the only crop recorded as formally exported before 1990. A "-" indicates no figures are available.*

Varying and erratic circumstances have presented opportunities to the Ugandan farmers and traders to market NTAE's. As seen in Table 3.4, maize increased from about 30,000 metric tonnes in 1992, to 160,000 metric tonnes in 1993, and decreased to about 100,000 metric tonnes the following year. Beans and simsim too, showed wide inter-year variations. A notable cause of these increases has been the war in the Great Lakes Region. World Food Programme (WFP) procured substantial quantities of maize and beans to supply the displaced people and refugees. WFP also purchased food for internally displaced persons in Uganda (mainly in the North of the country). A surge in demand for simsim due to drought in Sudan, a major producer, resulted in it receiving the status of "white gold", in the regions where it is grown. A slump followed the normalisation of conditions in Sudan.

Statistics of formal/recorded trade however, understates the extent of food trade across Uganda's borders by the quantities traded informally. Cross-border trade has long existed with commodity flows depending on the supply and demand conditions and relative terms of trade (World Bank, 1996). A study of unrecorded cross border trade between Kenya and Uganda (Ackello-Ogutu & Echessah, 1997) made the following estimates for the period August 1994 to July 1995 (see Table 3.5).



**Table 3. 5: Estimates of unrecorded food exports from Uganda to Kenya**

Commodity	Quantity (tonnes)	Value (US \$ million)
Maize	84, 250	12.44
Beans	9, 270	5.37
Other grains <sup>a</sup>	12, 670	4 930
Bananas & other fruits		540
Roots & Tubers		1,850
Other agricultural Commodities <sup>b</sup>		490
Fish	89,780	30.18

*Source: Ackello-Ogutu & Echessah, 1997*

*Other grains<sup>a</sup> = (sorghum, simsim, green-grammes, millet, g-nuts and rice)*

*Other agricultural commodities<sup>b</sup> = (tomatoes, eggs, onions, tea, cabbage, poultry and banana trees).*

On the other border fronts, a study commissioned by USAID-FEWS (Nobera, 1999), listed sorghum, beans and cassava as the main exports to Southern Sudan. Fish, eggs, milk, goats and simsim oil were the main exports to the Democratic Republic of Congo (DRC). Matooke, beans, maize, vegetables, milk and eggs were exported to Rwanda, and eggs, broilers and milk to Tanzania. However, the study carried out before the ongoing war, suggested that Uganda on the other hand imported more agricultural produce than it exported to DRC and Tanzania. This was in part due to the better market conditions and infrastructure in Uganda. In comparison, infrastructure linking the eastern region (which is potentially that country's breadbasket) of DRC to the rest of that country and likewise the northerly points of Tanzania to the rest of the country, are in poor states. The transaction costs involved in trade with Uganda are therefore lower. Foods imported into Uganda included cassava, maize, beans, groundnuts, rice, fruits and vegetables and were transported to Kampala and beyond (some transits through to Kenya). The trade direction may have changed now because of the war.

As regional markets are integrated, policies in trading partner countries also affect food supply and demand in Uganda. For example, stagnation in production and high population growth renders Kenya a net maize importer in most years (Kherallah et al., 2000). However, production has been dampened by the low producer prices that are a result of price controls and market restrictions (Nownwu, 1994).

### 3.4.4 Social policies and their implications

The focus of Timmer's proposed development paradigm is the agricultural sector. However, transformation in the agricultural sector does not take place in isolation of other sectoral policies and programmes. As part of the ERP, anti-inflationary demand management meant a cut back on budgetary expenditure, often with negative effects on social services. Although Government has remained committed to improving their provision, a number of changes have been instituted to ensure the cost-effective use of the limited funding.

Expenditure on primary health care and prevention have been prioritised over that on curative care which had drawn the larger share of budgetary health expenditures and was concentrated in urban areas. Government moved to concentrate its resources on the provision of essential public goods like immunisation, family planning and health education (Uganda-Ministry of Finance and Economic Planning, 1992b). According to the White Paper on Health (cited in World Bank, 1996) providing essential drugs remain a priority. However, cost recovery/sharing in the provision of curative services, categorised as private consumption, was encouraged (Uganda-Ministry of Finance and Economic Planning, 1992f; World Bank, 1993c). However, for an individual, curative services bring immediate benefits that may outweigh the long run benefits of investment in such public goods. Furthermore, it was often the poorer segments of the population who were the main beneficiaries of public services.

The costs of purchasing health services are a barrier to most of the population (Uganda-Ministry of Finance, Planning and Economic Development, 1999). Findings are that 51% of the national population do not seek medical attention when ill. As indicators of the price limitations, a 3,000 to 3,500 shs fee levied for maternity services was largely unaffordable, while a 500 shs fee for child immunisation was a barrier to participation.

A similar situation exists in the education sub-sector. A lopsided subsidisation of, especially, tertiary education though benefiting a few, continued until recently. For example, in 1989/90 it was estimated that within the education budget, on a per pupil basis, expenditure on secondary and tertiary education was 15 and 225 times as much as that on primary education, respectively (Uganda-Ministry of Finance and Economic

Planning, 1992b). To redress the situation, a policy shift redirecting emphasis to primary education through the programme of Universal Primary Education (UPE) has been effected. Government meets the tuition fees (public schools) of four children per family. Started in 1998, an immediate doubling to 5.3 million primary school going children was realised (Uganda-Ministry of Finance, Planning and Economic Development, 1999). This is an indication of the limitation the costs of education pose for most of the population although during this study, farmers maintained that the non-tuition costs were still considerable. Nonetheless, education is highly valued and parents are willing to denude themselves of their savings, such as livestock and sell food to ensure that their children go to school.

The following figures, estimates for Mbale town, are indicative of school tuition fees of primary and secondary school education per term (Uganda Bureau of Statistics, 1998).

	<u>1<sup>st</sup> term, May 1998</u>	<u>2<sup>nd</sup> term, June 1998</u>
Primary school (day)	26,669 shs	27,040 shs
Primary school (boarding)	80,443 shs	89,843 shs
Secondary school (day)	34,109 shs	35,769 shs
Secondary school (boarding)	155,386 shs	155,386 shs

The respondents frequently referred to the costs of accessing health and education services as prohibitive, with particular reference to cost-sharing. Production and consumption decisions remain closely intertwined with decisions regarding economic and social welfare and therefore have a direct bearing on food security. This is pronounced because food is an important source of income for many and respondents indicated that they often had to sell food to meet some of these costs.

#### **3.4.5 Internal insecurity**

Besides policy, another factor that has been important in determining supply and demand of food in Uganda is insecurity. While security is an enabling factor for both production and trade, the converse is equally true; insecurity has often hindered production and trade. Insecurity has severely affected different parts of the country at different times over the last three decades, impoverishing, displacing and curtailing production. Parts

of the Northern region, which has been politically unstable for most of the last decade and a half, is a case in point. Despite the agricultural potential, production in Gulu and Kitgum districts in particular has been constrained and they have become net food importers (COOPIBO et al.,1998)

During the study, a sampled county in Mbale District was part of an area that suffered an incidence of cattle raiding by the Karamojong, a nomadic tribe from a neighbouring district. While none of the sampled households may have been directly affected, they are indirectly affected by the disruptions and fear induced in the community. Rushed movement and/or sales of livestock result in farmers incurring losses. Food and assets were also lost to the raiders, or to those taking advantage of the situation, and farming activities were disrupted.

Recovery is often slow given limited Government support and opportunities for employment outside agriculture. Parts of the Eastern and Northern regions, and “Luwero triangle”, are examples of the slow recovery that follow war. The Eastern and Northern regions in particular suffered insecurity in the late 1980's. The livestock sector was largely destroyed, and with it, long term savings and means to production since ox-ploughing was well rooted in Kumi and Soroti districts. Because of the importance of livestock to their very livelihood, households now prioritise investment particularly in cattle and oxen for ploughing. It is common for farmers to accumulate the smaller stock, mainly goats, which are later sold or exchanged for an ox. There has been limited support in restocking and given that cotton, the main cash crop in this region is just being revived, food crops have implicitly provided the main source of finance.

### 3.5 MODEL SPECIFICATION

Against this background, food availability is a function of agricultural production and other factors beyond agricultural production and these must therefore be taken into consideration in analysing the food security situation in the country. The specification of the model therefore seeks to place the issue of food availability and commercialisation within the context of the socio-economic environment in addition to factors that directly affect agricultural production. The following section specifies the model that is likely to

describe the existing situation. The main hypothesis underlying the model specification is that:

- i) Increased production positively contributes to food availability. Cultivated land area as an important limiting factor to production, is used as a proxy to production levels.
- ii) Food sales negatively contribute to food availability and therefore negate household food security. The higher the proportion of food sold relative to production, the less food secure households are.
- iii) Households faced with relatively high non-food costs, reflected by whether they have children who are six years or less or children attending post primary education, have less food available than households without children in these brackets.

The dependent variable is the average daily calories available per adult equivalent<sup>2</sup> evaluated against the minimum requirements per adult equivalent. The household mainly obtains food through production and food purchases. Production is adjusted for sales, post harvest losses, quantities used in beer making (for mainly cereals and cassava) and seed<sup>3</sup>. This gives the net amount of calories potentially available as further losses may be incurred through the mode of preparation. FAO conversion tables for use in Africa (FAO and US Department of Health, Education and Welfare, 1968; Uganda-Ministry of Finance & Economic Planning, 1995c) were used to determine calorie equivalents for the different foods.

Whether the household can meet its food requirements for the period of analysis, is determined by how the net available calories translate into average daily calories available per adult equivalent (to control for differential food requirements by age and gender of each member of the household). This is compared against the minimum daily

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<sup>2</sup> *The Adult Equivalent standardises the family size by gender and age and is used to estimate the calories available per household, on average. It is based on FAO consumption requirements for "normal" activity levels and is defined as: males 10 years or older = 1AE, females 20 years or older = 0.72 AE, females 10-19 years old = 0.84, children less than 10 years old = 0.60 (cited in Marrule et al., 1992).*

<sup>3</sup> *It is estimated that 25% of the food is used as seed, feed and goes to waste. In addition 10% correction is applied to compensate for loss of calories in foods used in brewing alcohol, which are mainly the cereals and cassava (Ministry of Agriculture & Forestry, 1984a).*

requirements per adult equivalent, about 2,419 calories, a Sub-Saharan Africa standard also applied by the EPAU study (Uganda-Ministry of Finance & Economic Planning, 1995b). The relatively more food insecure households would have less than the minimum requirements and the food secure households would have more than the minimum requirements.

The food available to the household<sup>4</sup>, FSSTAT =  $(\sum C_i X_{p_i} + \sum C_i X_{b_i}) - (\sum C_i X_{s_i} + \text{post harvest losses} + \sum C_i X_{g_i})$ .

Where:

- FSSTAT = The food available for consumption per household.
- $\sum C_i X_{p_i}$  = Sum of quantity of food (calories) produced (CALPROD)
- $\sum C_i X_{s_i}$  = Sum of quantity of food (calories) sold (CALSOLD)
- $\sum C_i X_{b_i}$  = Sum of quantity of food (calories) bought (CALBUY)
- $\sum C_i X_{g_i}$  = Sum of quantity of food (calories) in store (CALSTO)
- C = Calorie equivalent of food i
- X = Quantity in kilograms
- i = different foods
- p = produced
- s = sold
- b = bought
- g = incremental stocks

$$\text{CALORIAE} = \frac{\text{FSSTAT}}{\text{TOTAE HH}}$$

Where:

- CALORIAE = Average daily calories available per adult equivalent
- TOTAE HH = Total number of adult equivalents in a household.

<sup>4</sup> Food available refers to estimates of food actually consumed.

Cognisance however, is taken of the fact that calorie availability abstracts from the implications of health or intra-household distribution, as earlier discussed. It also does not take into consideration poor utilisation of food that may occur due to inadequate micro-nutrients in the diet.

It is postulated that:

*Average daily calorie per adult equivalent = f(household characteristics, production, commercialisation, non-food expenditure, wealth).*

The choice of independent variables is guided by the above discussions and by the literature (Kennedy & Cogill, 1987; Makhura, 1994; Maxwell, 1996; Strasberg et al., 1999; Von Braun, Bouis & Kennedy 1994). The hypothesised relationships are shown in Table 3.6. Ordinary least squares and logit regression analyses have been widely used in similar studies (Bahiigwa, 1999; Chisvo & Jayne, 1992; Kennedy & Cogill, 1987; Teklu et al., 1991; Von Braun et al., 1991; Von Braun, Johm & Puetz, 1994). They are likewise applied in this study as the main analytical tool.

Hypothesised relationships in the study largely depend on how they potentially affect either supply or demand according to the above discussions and as supported by the literature.

**Table 3. 6: Variable description and hypothesised relation to food security**

Variable	Definition	Expected sign
AGE HHH	Age of household head	+
OCC FARM	Main Occupation of household head is farming	?
EDU NONE	Household head has no formal education	+
GEN HHH	Gender of household head is male	-
CHI SIX	No. of children 6 years old or less	-
CHI PS	No. of children in Primary School	-
CHISES D	Has at least a child in post-primary school-	
LND USED	Cultivated land area (acres)	+
CATTNO D	Own cattle?	
GOAT NO	Number of goats	?
AVHCI	Index of proportion of food produced that is sold	-
SUMINCOM	Sum of non-food and cash crop income (*000 shs)	?
AV NFEXP	Non food Expense (*000 shs)	-
MKT DIST	Average market distances (km)	+

*NB. The expected sign hypothesises the relation of the variable in question with food security, (+ = positive and - = negative contribution to food availability security, ? = could be either negative or positive to food availability).*

For segments of the population that produce most of their food, food availability is largely a function of the availability of production factors and technology in use. Land, a basic factor of production, is one of the factors. In a study to examine the extent to which household grain availability explains stunting among under-fives in Zimbabwe relative to other factors in communal areas, net grain availability (production, purchases and food receipts, less sales and changes in storage inventory) was calculated as an indirect measure of actual grain consumption. Findings were that land positively contributed towards the amount of grain available for consumption by the child, as did those factors that contribute positively to production. A positive association between grain availability and nutritional status at the 10% and 15% level of significance was observed (Chisvo & Jayne, 1992).

A study done in three districts in northern Mozambique (Tschirley & Weber, 1994), found that land area under cultivation was the main determinant of calorie production, in turn the primary determinant of overall calorie availability. Cash income (off-farm or from cash crops) had minimal effects on consumption. Reasons were that scarcity of off-farm employment opportunities and widespread failure of food markets for purchases encouraged a reliance on own production to meet subsistence needs.

Household characteristics are important determinants of household behaviour or decision making and have been known to have an impact on food security. Besides wealth, the capacity to cope in a food crisis has also depended on human capital accumulation. In Sudan, following the famine of the mid-1980's, children in rural households where the parents especially the mother had attained some formal education, were nutritionally better off than other children (Teklu et al., 1991). Likewise in Kenya, households with at least one member having completed primary school, enjoyed a 10% jump in food crop productivity over those where no member had achieved this level of schooling (Strasberg et al., 1999). They attributed this to better management skills imparted with higher education. A similar relationship would therefore be expected with food security given the generally hypothesised positive relationship between food productivity and food security.

While a high dependency ratio should constrain the ability of a household in meeting its welfare needs, the household size itself seems to pose similar problems. In Rwanda, Von



Braun et al. (1991) found that in the larger households, an additional person reduces average calorie consumption by about 3.3% (85 calories). In Senegal, Goetz (1992) found that larger households raised the likelihood that a household participated in the market as a coarse grain buyer.

Female-headed households had a higher propensity to spend income on food and where women in the household earned a higher share of cash income, there was an incremental effect on food-energy consumption. Similarly, a shift in the control of rice, which was traditionally a woman's crop, to the compound head reduced calorie consumption, holding income constant (Von Braun, John & Puetz, 1994).

Findings in Kenya were that much of the incremental income earned by sugar farmers is spent on non-food expenditures. Merchants and sugar-producing households, assumed to be in the upper income brackets, spent more on housing and education than other households in the sample (Kennedy & Cogill, 1987). In the short run, the effects of such expenditure did not appear to produce a nutritional benefit on the pre-schoolers. Nonetheless, income positively affected household calorie consumption and that from sugar in particular had an additional positive effect above the pure income effects. A percentage increase in sugar cane income was related with an increment of 24 calories in household energy intake.

The variable, number of children six years or less, is a proxy for the costs of health care (general respondent complaint in the study). As earlier discussed, this age group is considered to be highly vulnerable to both nutritional deficiencies and ill health. It is hypothesised that given widespread poverty, households with children in this age group would face high costs for health care. Because food is a common source of cash income, health care should indirectly have a negative effect on food availability.

Like health, because of the widely expressed complaints over the costs of education it is expected that they too reflect in reduced food availability. Because the costs of post-primary education are on average more prohibitive than that of primary education, children attending post-primary education, is the preferred indicator.

### 3.6 CHAPTER SUMMARY

The chapter gives an overview of socio-economic developments in Uganda that have had a bearing on food production and domestic demand. The structure of agriculture has remained predominantly smallholder partly because the failure of plantation farming. The structure of agriculture is an important factor to household and aggregate food self-sufficiency given that the majority of the population produces their own food. During a period of political instability and economic decline, the role of the food sub-sector became more pronounced as the cash crop sector declined. However, like the rest of the economy it too suffered the effects of negative growth during the two decades of overall decline.

The chapter argues that the low level of deprivation imposed on the population by the economic decline affected demand for all goods and services, including food. Inflation and the over-valued shilling had eroded effective demand, thus constraining market demand. The distribution system was also highly subject to the negative effects of non-tariff barriers and poor infrastructure.

Economic growth and the relaxation and/or removal of non-tariff barriers have contributed to the transformation of agriculture, manifest in the commercialisation of the food sub-sector. Coupled with the domestic factors are political developments within the East African and Great Lakes Region which, because of increased market integration and the procurement of food aid from Uganda, have contributed to growth in demand for food. Against this background and with findings from other studies, the model to be used in examining whether commercialisation of the food sub sector is contributing to food insecurity, is specified. It is postulated that:

*Average daily calorie per adult equivalent = f(household characteristics, production, commercialisation, non-food expenditure, wealth).*