

## CHAPTER 1

### INTRODUCTION

#### 1.1 AN ECONOMIC PROFILE OF UGANDA

##### 1.1.1 Background

Uganda is commonly hailed as a beacon of economic hope in Sub-Saharan Africa (SSA), a region where increasing poverty is a major concern. Political turmoil and economic decadence characterised the post-independence era. Since 1986, the return of peace and security in most of the country and economic reform measures, have been key factors in the remarkable turn around of the economy. However, the challenge of implementing reform highlights the need for continuous policy monitoring. The subject of this thesis is one such concern. In Uganda, many households, despite being engaged in food production, seem unable to meet their food needs. The so-called “marketed surpluses” traded both domestically and exported within the region therefore give an inexact appearance of abundance.

Uganda’s era of post-independence economic decline (as in many other SSA countries) was partly beyond her control. One reason was the declining international terms of trade for primary agricultural commodities (such as coffee, cotton, tea, tobacco and cocoa) on which the economy relied. Stagflation in the Organisation for Economic Co-operation and Development (OECD) countries and a depression in the world economy contributed to this. In addition, Uganda suffered political instability that started soon after independence and culminated in a military dictatorship (1971-1979) succeeded by several short-lived regimes (1979-1986). This instability fuelled the economic decline, undid most of the developmental gains already attained and led to general societal decay.

### 1.1.2 Economic recovery measures

An economic recovery programme (ERP) was launched in 1987. It was a second attempt at structural adjustment and stabilisation austerity measures supported by the World Bank and International Monetary Fund (IMF). The ERP sought to address the economic dis-equilibrium and improve the populations welfare through the rehabilitation of the economy and the promotion of an environment conducive to economic growth (Uganda-Ministry of Finance & Economic Planning, 1992b). The three principal objectives were to:

- i) Rehabilitate the productive sectors of the economy, in particular critical infrastructure on which those sectors depended, and by so doing promote growth.
- ii) Reduce inflation and stabilise the economy by tackling budgetary imbalances.
- iii) Address the balance of payments crisis.

The structural adjustment concept is anchored in the neo-classical economic model - free markets in an open economy should lead to the optimal and efficient use of available resources as guided by price structures. Price and market reforms have thus been central to these economic austerity measures. In Uganda, they were intended to move the economy away from its predominantly informal and subsistence nature towards a monetary economy.

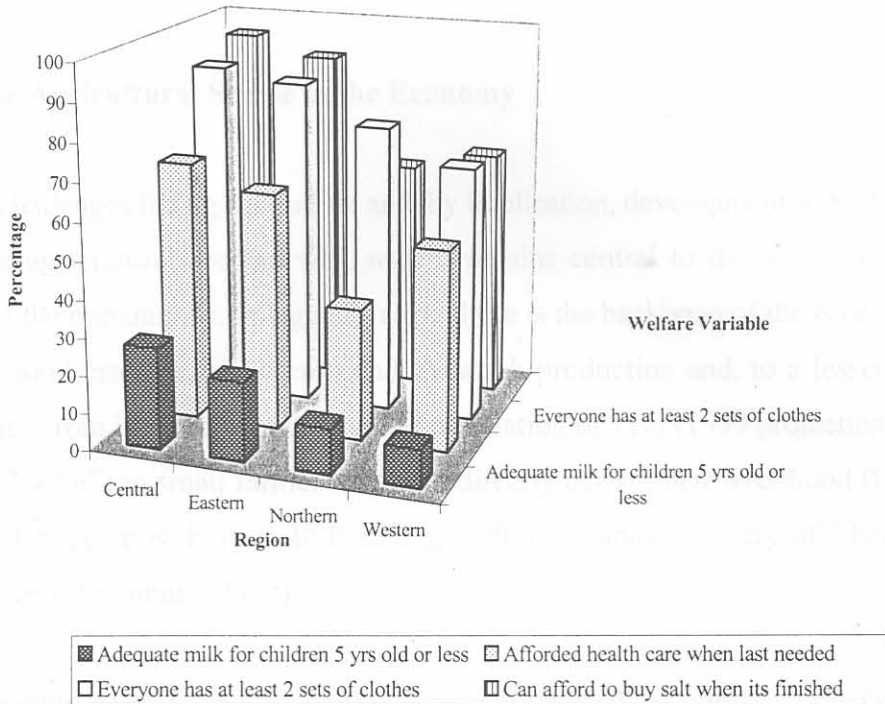
In many respects, the ERP attained its objectives and the country is hailed as one of the structural adjustment success stories. Notably, inflation came down from 207% in July 1987 (Uganda-Ministry of Finance & Economic Planning, 1992b) to single digits, 9.2%, by 1993 and 3.4% in April 1999 (Uganda-Ministry of Finance, Planning & Economic Development, 1999). In 1987 the parallel market had an exchange rate premium of up to 266% over the official fixed rate (World Bank, 1993b). By 1994, the liberalising of the foreign exchange market had cleared this premium. From 1987 to 1998, the Gross Domestic Product (GDP) had grown by 6.7% per calendar year on average. Per capita income estimated at 110,726 Uganda shillings (shs) in 1982 and 109,445 shs in 1987 had grown to 158,210 shs in 1998 (Uganda-Ministry of Finance, Planning & Economic Development, 1999).

In spite of the positive achievements, the debate on whether or not the common person is better-off because of the reform programme is inconclusive. The debate is compounded by the challenge of isolating the effects of reform from those caused by other factors. These factors include insecurity, adverse natural phenomena and the Human Immune Deficiency Virus/Acquired Immune Deficiency Syndrome (HIV/AIDS) pandemic, all of which are occurring simultaneously with the same impact point. Opio (1996) finds no obvious evidence to confirm that the Structural Adjustment Programme (SAP) has exacerbated poverty. He argues that apart from reduced inflation, other programs have marginally helped to reduce the incidence of poverty while most have not significantly exacerbated it either.

Based on a 1993/94 survey, the poverty line is estimated at 11,500 shs and 16,400 shs per capita per month for food and total expenses respectively (household average of 55,200 shs and 78,720 shs). In 1996 at this poverty line, 45.6% of the population were living below the poverty line (referred to as soft core poor). Those below the food line (the hard core poor) were 26.2% of the population (Uganda-Ministry of Planning & Economic Development, 1997d; Uganda-Ministry of Finance, Planning & Economic Development, 1998; Uganda Bureau of Statistics, 1999). These figures showed a decline from 55.6% for the soft-core poor and 35.2% for the hard core poor in 1992. By rural-urban distribution, 86% of the poor lives in the rural areas compared with 14% in the urban areas. Regional distribution of poverty by head count is as follows; 28% of the population in the Central region, 53.3% of the population in the Eastern region, 65.1% in the Northern Region, and 42.3% in the Western region (Uganda-Ministry of Finance, Planning & Economic Development, 1998).

Following a 1992-1996 trend analysis (Uganda-Ministry of Finance, Planning & Economic Development, 1999) it was found that the poorest 20% of the population had become poorer. Also of concern was the finding that sometimes poverty and its welfare effects were contradictory. For example, indicators of welfare in the western region, one of the less poor regions as indicated in the previous paragraph, performed worse than the poorer eastern region. They compared to the northern region that is largely insecure and considered to be the poorest. This is graphically illustrated in Figure 1.1 by four of the variables followed in the trend analysis:

- Ability to pay for health care when a member of the household last fell sick
- Ability of the household to buy milk for the young children
- Ability of the household to buy something as basic cooking salt
- Whether all household members have a change of clothing.



Source: Data in Uganda MFPED, 1999

Figure 1.1 Selected welfare indicators by region (1999)

However, without delving into the poverty debate, indications of increased participation in the cash economy were observed during the study. Some are noted here:

- Large volumes of public transport vehicles (bicycles, minibuses, buses and lorries) regularly ply different routes from the urban centres to the rural areas and short distances, moving people, goods and food.
- Hammer (grinding) mills are now found located within villages and trading centres and have largely replaced the drudgery of hand grinding previously done by women.

- A variety of consumer goods are available in the various markets, from house wares replacing traditional and locally made wares, to soft drinks and even bottled beer that may now be found served in village trading centres and “bars”.
- In Soroti district, which, among others, suffered cattle rustling in the late 1980’s, many households now own at least a goat or cow that they purchased through their own efforts.

### 1.1.3 The Agricultural Sector in the Economy

The main challenges facing agriculture and, by implication, development in SSA, is how to increase agricultural productivity, which remains central to the livelihood of the majority of the populations. In Uganda, agriculture is the backbone of the economy and comprises food crop, non-food crop and livestock production and, to a lesser extent, aquaculture. From it, more than 80% of the population of 21m (1999 projection), on an estimated 3.2 million small farmer holdings, directly derive their livelihood (Uganda-Ministry of Finance & Economic Planning, 1992f; Uganda-Ministry of Planning & Economic Development, 1997d).

As the economy expands and diversifies, especially with the progressive rehabilitation in the industrial and service sectors, agricultural GDP contributions have declined. They were estimated at 42.4% in the fiscal year 1997/98 (Uganda-Ministry of Finance, Planning & Economic Development, 1998) down from about 56% in 1985/86. The food sub-sector is the most dominant, contributing more than 90% of agricultural GDP but non-food crops especially coffee, dominate exports, 90% of which are agricultural commodities. Nonetheless, non-traditional agricultural exports, which include food and fish commodities, have increased in value. In 1991, they were estimated at US\$ 140,685,000 and in 1996 they were estimated at US\$ 434,116,000. In addition, agricultural commodities provide raw materials for the industrial sector.

Given the dominance of smallholder agriculture, for widespread and sustainable development to take place, resources need to be harnessed from within the smallholder sector itself as there is no other sector from which transfers can be made to make a marked impact on the agricultural sector (IFAD, 1994). Therefore, in conformity with the ERP, policy reorientation within the sector sought to increase smallholder production

of both food and cash crops. The twofold long-term objective was to increase marketed surpluses and recapture the lost shares in international commodity markets. This is expected to contribute directly to increased household incomes (the sector provides the most equitable means of distributing economic gains given that it engages the majority of the population) and foreign exchange earnings. An improvement in the lot of farmers should in turn bring about increased effective demand necessary to spur on growth.

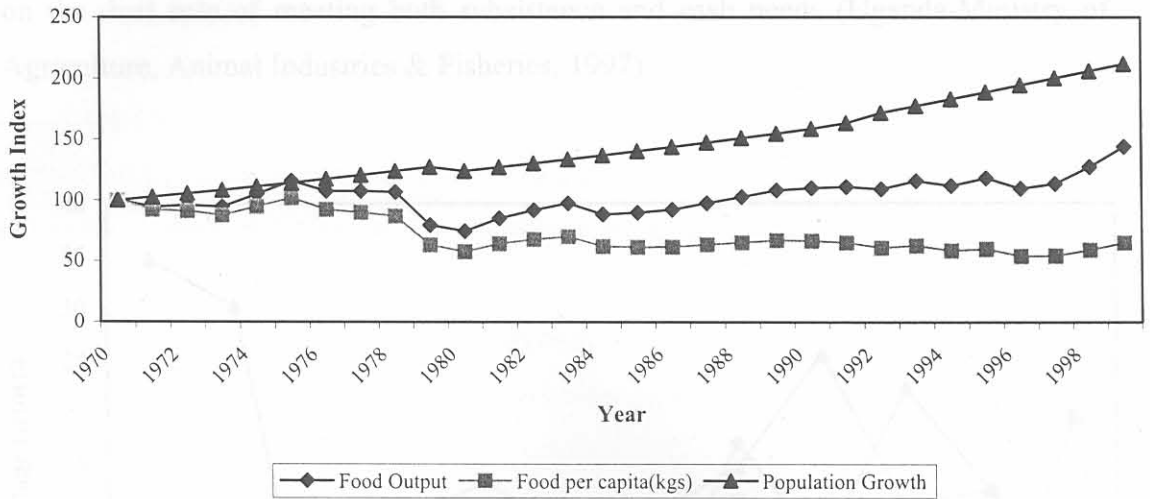
Specifically, sectoral objectives are to:

- i) Increase agricultural productivity to ensure food security, self-sufficiency in raw materials for agro-industries and cash crops for export.
- ii) Diversify the country's exports through the promotion of non-traditional agricultural exports (NTAE's).
- iii) Increase people's incomes and reduce poverty through increased agricultural exports.

#### ***1.1.3.1 The Food Sub-sector***

For many SSA countries, food self-sufficiency has been and remains, a priority policy objective. With a longstanding and attained policy of food self-sufficiency, Uganda produces enough food to meet its domestic needs and has the capacity to produce surpluses for export (FAO, 1998b; IFAD, 1994; Nygaard, Paarlberg, Sanyu-Mpagi, Matovu & Babu, 1997; World Bank, 1993a). Given the dominance of the food sub-sector in the livelihoods of most of the population and in the agricultural sector, a national food strategy remains pivotal to articulating the broader process of agricultural led growth.

Although the food sub-sector did decline, subsistence oriented production rendered it resilient to the economic decline suffered by the country through the 1970's and 1980's (Uganda-Ministry of Agriculture & Forestry, 1983a; World Bank, 1993a; World Bank, 1996). However, compared with 1970 levels, per capita production has been declining (see Figure 1.2 below). By 1996 it is estimated that the population had grown by more than 100% of 1970 estimates, food output by less than 50% and per capita food production declined by about 50%. From this illustration, increased per capita food



Source: Data from several issues of background to the Budget & World Bank, 1993a

**Figure 1.2: Growth in total food output, per capita food and population compared (1970 = 100)**

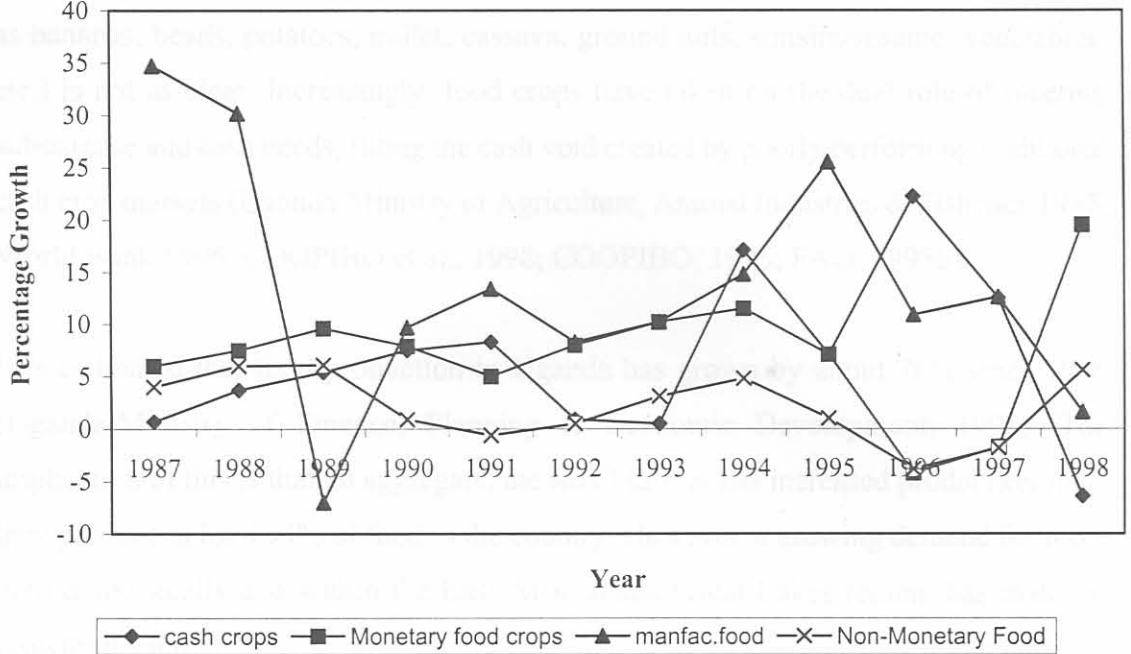
production to meet domestic consumption is central to the challenge of increasing agricultural productivity.

Production limits are currently set by the low input and unimproved technology, i.e. the use of rudimentary tools such as the hand hoe, panga and axe that characterise production, coupled with increasingly depleted soils. Currently, increases in output are due mainly to horizontal rather than vertical growth and only 12% - 50% of yields under research conditions are attained. Post harvest losses are also high, ranging from 6% for finger millet, to 30% for maize, root crops and pulses, (Uganda-Ministry of Agriculture, Animal Industries & Fisheries, 1996).

To increase and diversify foreign exchange earnings away from coffee, policy has moved to promote non-traditional exports. These range from high value commodities like vanilla, fruits and flowers and more notably, to the commonly grown and consumed food commodities like maize, beans and oil seeds (Uganda-Ministry of Finance & Economic Planning, 1992a). Given that their returns compare favourably with the traditional cash crops (except coffee) food crops are rendered an attractive source of cash income, taking

on the dual role of meeting both subsistence and cash needs (Uganda-Ministry of Agriculture, Animal Industries & Fisheries, 1997).

Today the long established characteristic dichotomy between the rural cash economy (dominated by coffee, cotton and tobacco) and the subsistence economy (based on



*Source: Data from several issues of background to the Budget*

**Figure 1. 3: Sub-sectoral annual growth Rates at 1991 prices**

As illustrated by Figure 1.3, growth in the traditional cash crop sector picked up from 1993 onwards. This was in reaction to favourable world coffee prices that subsequently

did not perform as well. On the contrary, monetary food contributions are rising and registered an average annual growth of 7.3% in the last decade. Even root crops, like cassava and sweet potatoes, that are commonly considered non-tradable, are now traded with border towns in neighbouring countries. However, in the same period, non-monetary food contribution to GDP, a reflection of subsistence consumption, has grown by, on average, 1.6% (Uganda-Ministry of Finance, Planning & Economic Development, 1999).

A recent analysis shows that the food security situation is deteriorating. It is estimated that about 29% of the population suffered under-nutrition between 1969-71, about 31% between 1990-92 and 34% between 1994-96 (FAO, 1998b).



## 1.2 PROBLEM STATEMENT

Today the long established characteristic dichotomy between the rural cash economy (dominated by coffee, cotton and tobacco) and the subsistence economy (food crops such as bananas, beans, potatoes, millet, cassava, ground nuts, simsim/sesame, vegetables, etc.) is not as clear. Increasingly, food crops have taken on the dual role of meeting subsistence and cash needs, filling the cash void created by poorly performing traditional cash crop markets (Uganda-Ministry of Agriculture, Animal Industries & Fisheries 1997; World Bank 1996; COOPIBO et al., 1998; COOPIBO, 1995; FAO, 1998b).

It is estimated that food production in Uganda has grown by about 70% since 1986 (Uganda-Ministry of Finance, Planning & Economic Development, 1998). The implication of this is that, in aggregate, the small farmer has increased production since they produce at least 94% of food in the country. However, a growing demand for food, both domestically and within the East African and Great Lakes region, has matched growth in supply.

Despite the apparent abundance of food in aggregate and that by the national food balance sheet Uganda has adequate food (FAOSTAT, 1999a), it is estimated that about half of the population lack sufficient food (Bahiigwa, 1999). At a poverty line of 2,200 calories, 61% of the population is chronically food insecure. By rural-urban distribution, 27% of the population in the rural areas are in the lowest quartile and 22% in the top quartile. In the urban areas, 11% and 49% are in the lowest and top quartiles respectively. As pointed out earlier, those who live below the food line are an estimated 26.2% (Uganda-Ministry of Finance, Planning & Economic Development, 1998). Of Uganda's estimated 4.2 million children below five years, 45% are stunted (a measure of long term inadequate consumption) and 25% underweight (Uganda-Ministry of Agriculture, Animal Industries & Fisheries, 1996). By district, the 1995 study by the Export Policy Analysis Unit (EPAU) categorised ten districts as experiencing transitory food insecurity and six districts as suffering chronic deficits. Thus 16 out of the then 39 districts were food insecure (Uganda-Ministry of Finance & Economic Planning, 1995b). A trend analysis shows that the food security situation is deteriorating. It is estimated that about 29% of the population suffered under-nourishment between 1969-71, about 31% between 1990-92 and 34% between 1994-96 (FAO, 1998b).

Adverse climatic conditions, given the dominance of rain-fed agriculture and the low input use, result in low food crop productivity often leading to transitory food insecurity. According to the agro-ecological settings therefore, zones characteristically at risk of food short falls are those in the marginal/ arid areas where nomadic cattle keeping is often the dominant activity. Other areas also suffer productivity shortfalls following poor seasons. Recently the Government labelled food insecurity as a problem of limited land-holdings, soil infertility, insufficient knowledge of modern farming techniques, and lack of access to productive inputs, ultimately a case of low productivity (Uganda-Ministry of Finance, Planning & Economic Development, 1999).

Poverty, though widespread and an important factor in the analysis of food insecurity, has not attracted much attention in the literature on food insecurity in Uganda. This is partly because of the structure of agriculture, that is small family holdings primarily producing food for subsistence purposes and the majority of the population have access to land for farming (World Bank, 1993a). Aggregate food self-sufficiency has also been considered a good proxy for food security.

The promotion of food crop exports as part of the NTAE's assumes households are net sellers of food. As one travels across the country, the trade in food creates the perception of substantial marketed surpluses. However, the concern that commercialisation of the food sub-sector is contributing to the high levels of food insecurity has been raised by the farmers and at various forums (COOPIBO, 1995; Uganda-Ministry of Agriculture, Animal Industries & Fisheries, 1996; Uganda-Ministry of Finance, Planning & Economic Development, 1999; Uganda-NFNC, 1996b). Therefore although seen as a long-term and sustainable intervention in efforts to alleviate poverty, its negative effects on food security require attention.

Commercialisation as a process is driven by various factors. Producers argue that the pressure to sell food is partly due to the costs of social services, mainly health and education. A 1993 survey, (CHDC 1993, 1994) cited in COOPIBO (1996), found that in order to finance health care, 34% of its respondents sold subsistence crops, 17% sold cash crops and 10% sold livestock. It was also estimated that students and their families meet 75.8% of the costs of primary education and 56.8% of secondary education. In general, commercialisation of the food sub-sector has been spurred on by several factors.

They are here categorised as domestic (within the country) and external factors (beyond the country's borders and/or control).

Domestic Factors (changes in both demand and supply):

- Growth in demand has been caused by population growth, improved income levels and increased urbanisation.
- An improved incentive structure caused by the deregulation/decontrol of markets and prices under the ERP (free market conditions).
- Localised food shortfalls in different areas of the country caused by climatic failures and internal insecurity (localised civil strife) necessitating food movements.
- The spread of highly destructive plant diseases, the most notable and recent being the African cassava mosaic disease.
- Pressure has been put on household resources because of competing wants and needs, due both to a policy shift to achieve cost recovery in the provision of social services, and to an increase in the variety of consumer goods.

External Factors:

- The political instability in the Great Lakes Region, particularly Rwanda and Congo, created refugees both in these and neighbouring countries. Some of the food supplied to refugees by relief organisations was procured in Uganda.
- Climatic shocks, especially drought, tend to affect Uganda's neighbours more seriously thus creating opportunities for trade in food.
- The policy of international agencies such as the World Food Programme (WFP) has changed, allowing them to obtain their supplies for refugees and internally displaced persons from within the region. This was a strong incentive to the increased production of maize and beans (Nobera, 1998). In Uganda, the devalued shilling created conditions that were conducive to the policy change (World Bank, 1996).
- The improved political relations between Uganda and some of her neighbours, coupled with policy changes (the liberalisation of trade to varying degrees) by her trading partners especially in Kenya - Uganda's principal trading partner (Ackello-Ogotu & Echessah, 1997; World Bank, 1996), creates an enabling environment for cross border trade.

The regional market is viewed as a growing one as increased deficits in neighbouring countries are forecast (Uganda-Ministry of Agriculture & Forestry, 1984a; World Bank, 1996;). The Business page of the New Vision newspaper (26<sup>th</sup> of February 1999), for example, reported that about 360 lorries loaded with millet, beans, cow peas and maize were at the border town of Busia. Produce dealers had ferried the produce from as far away as Kasese in the south of the country and Arua in the northwest, while buyers were coming from Kenya, Tanzania and Somalia. It went on to report that ironically, Busia and the neighbouring districts of Tororo and Pallisa were facing food shortages.

An understanding of the nature of food security/insecurity is fundamental to the Modernisation Plan for Agriculture that is in the making and in which food security remains a national priority. Uganda's aggregate food self-sufficiency status, the registered economic successes, and the increasing commercialisation of the food sub-sector, point to surplus production. These factors may also mask a gnawing food insecurity problem, eroding the productive ability of the affected populations.

### 1.3 THE OBJECTIVES

The principal objective of this thesis is to investigate the extent to which food sales directly or indirectly contribute to food insecurity.

Specifically, it seeks to:

- i) Establish who the food insecure households are and the factors rendering them vulnerable to food insecurity.
- ii) Determine whether the sale of food is contributing to household food insecurity.
- iii) Evaluate how income and expenditure patterns contribute to, or deduct from household food availability.
- iv) Compare the degree of food insecurity between the three districts in which the research has been done.
- v) Make policy recommendations based on the findings of the study.

## 1.4 JUSTIFICATION

From a country perspective, commercialisation of the food sub-sector has the potential of meeting many policy objectives. Given that most of the population is engaged in agriculture, the food sub-sector in particular provides the most equitable means of distributing gains from economic growth and enabling widespread growth in income. It also has the potential, not present in any other sector, of drawing many segments of the population into active participation in the cash economy. Income effects should in turn stimulate aggregate growth. Uganda seeks to take advantage of the potential markets for agricultural commodities especially food, within the region. As exports, food should contribute towards much needed foreign exchange earnings.

To move gainfully towards commercialisation, national food security (the prerequisite of which is household food security) is vital. Otherwise, the gains from trade will have to be ploughed back into feeding the food insecure. Because the nature of household food insecurity is not reliably established, remedying strategies tend to be short-term reactions. For sustainability, long term strategies that tackle food insecurity are needed. This calls for more knowledge and understanding of whom and where the food insecure are, the underlying causes and ultimately, the potential remedying strategies.

This study is also of interest given that much of the SSA region has seen a paradigm shift to open economies and free markets. The policy environment is thus different from the 1980's when the International Food Policy Research Institute (IFPRI) commissioned several studies (Von Braun & Kennedy, 1994) to investigate the relationship between commercialisation and food security. Commercialisation then was predominantly a case of cash crops (non-food) versus food crops and therefore a competition for resources. By contrast, the situation today is one in which, due to various factors, increasing numbers of households across much of the region are net food buyers. This has made food an important cash commodity, and particularly among the farming population, food needs have to compete with the need for cash income. Food security concerns emanating from the economic reforms in many countries in the region, is not unique to Uganda. This study contributes to the growing literature on the likely effects of free market oriented policies on food security in the region.

## 1.5 CONCEPTUAL FRAMEWORK

The conceptual framework below (Figure 1.4) is a simple description of potential pathways through which commercialisation relates to household food consumption and ultimately food security. Cognisance is taken of the observation, based on several studies, that the effects of commercialisation vary with the policy environment and socio-economic conditions and it is therefore difficult to make generalisations (Von Braun, 1994).

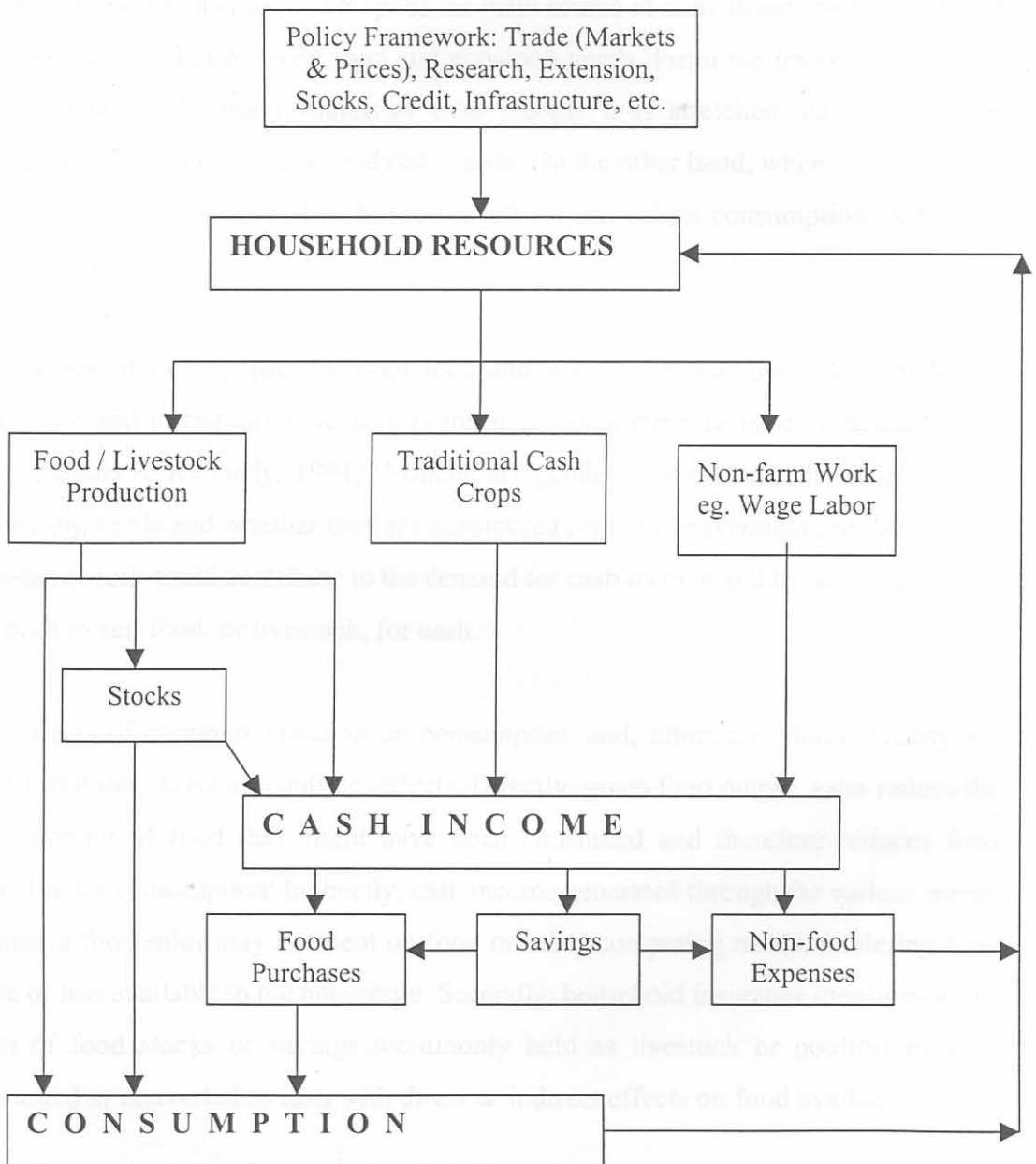


Figure 1. 4: The effects of commercialisation on food security in rural households

Households use their resources in productive activities categorised into livestock production, cultivating food and non-food (traditional cash crops mainly cotton, coffee or tobacco), and/or non-farm work (e.g. wage labour, local artisans, trade, fishing, alcohol sales, etc.). Although opportunities for non-farm work are on the increase (Opio, 2000), they are still limited and often linked to the agricultural sector. Farming is therefore the dominant activity.

Commercialisation mainly entails sale of food or non-food crops (traditional cash crops). The shift from the latter to food crops as the main source of cash income makes profound the potential conflict between food and non-food needs. From the framework (Figure 1.4), if food is the main source of cash income it is stretched, having to cover consumption, insurance stocks and cash needs. On the other hand, when non-food cash crops are the main source of cash, food is left for immediate consumption, or held as food stocks.

The degree of this conflict between food and non-food needs depends partially on household and intra-household factors through which the effects are mediated (Von Braun, Bouis & Kennedy, 1994). Notable are gender relations and the nature of the competing needs and whether they are considered primary or secondary to food needs. Non-farm work could contribute to the demand for cash income and by so doing, reduce the push to sell food, or livestock, for cash.

The effects of commercialisation on consumption and, ultimately, food security are subdivided into direct and indirect effects. Directly, given food output, sales reduce the total amount of food that might have been consumed and therefore reduces food available for consumption. Indirectly, cash income generated through the various means including food sales may be spent on food or other competing needs, rendering food more or less available to the household. Secondly, household insurance measures in the form of food stocks or savings (commonly held as livestock or poultry) may be consumed or converted to cash with direct or indirect effects on food availability.

Within the household, a number of decision levels where the commercialisation effects are determined can be pointed out. First, where food is an integral part of the commercialisation process and the main means of meeting subsistence needs, whether

to trade is a decision that affects food availability (Goetz, 1992). For non-food cash crops, this decision level is inseparable from the decision to engage in production because home consumption is insignificant. The next decision level is the quantity of food left for home consumption as opposed to that sold. Three decision levels then follow this level as suggested by Von Braun, Bouis and Kennedy (1994) - allocation of income between food and non-food expenditure, i.e. the size of the food budget, the nature of food purchases, and last the distribution of food among the household members. In the absence of market failures and where intra-household relations ensure equitable distribution, consumption benefits should be realised by all members of the household (Von Braun, 1994).

Commercialisation effects may be indirect through non-farm income if job creation is part of the process. However, there is hardly any processing done at the village level except small hammer mills processing farmers' day to day cereal needs. It is therefore doubtful that there has been a significant increment in job creation with commercialisation of the subsistence food crops.

Exogenous factors, though not indicated in the illustration, include the climate and population dynamics that affect resource allocation decisions within the household, production levels and ultimately, the commercialisation process. This argument is a simple representation of the complex decision making process and relationships that exist within a household and between the household and the socio-economic environment within which it coexists.

## 1.6 HYPOTHESES

The main hypotheses of the study are:

- i) Increased production positively contributes to food availability.
- 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 expenditure are less food secure than those with relatively lower non-food expenditure.



## 1.7 MEASURING FOOD SECURITY

Some difficulties in measuring household food security start from the definition of a household. The household size is often a dynamic rather than a static variable. A household may for example include relatives as part of the “extended family” staying for long periods while in some cultures family clusters live together within a homestead. In this study, the household has been defined as a consumption unit, i.e. a social unit eating from a common pot (Ellis, 1989; Casely & Lury, 1987 cited in World Bank, 1991).

The wide variation in consumption habits is another of the difficulties of measuring household food security. Nonetheless, two commonly used methods as described by Maxwell (1996) are:

- i) An estimation of food production, purchases and the growth or depletion of food stocks over a stipulated period. It is assumed that whatever has disappeared in the recall period, has been consumed and it is evaluated against the minimum requirements of the household members by age and gender.
- ii) Measuring consumption by each household member over a 24-hour recall period and analysing each food consumed for nutritive content, the sum of which is compared against recommended quantities.

Each has its drawbacks; the former fails to assess intra-household differences and therefore individual vulnerability. The latter is subject to respondent fatigue and memory lapses among others, not to mention the costs of collecting the data. Maxwell (ibid) argues that both fail to assess the vulnerability or sustainability aspects of food security, focusing more on sufficiency. However, it is argued that sufficiency is a necessary condition to food security where self-provisioning is the predominant means of entitlement.

Guided by its principal objective and funding limitations, this study used a combination of both methods. Net calorie availability, an indirect measure of calories consumed, estimates household caloric intake. Production, sales, purchases and stock estimates, converted to caloric quantities, have been used to evaluate sufficiency of food quantities of households depending on their demographic structure standardised by conversion to

adult equivalents. For an indication of the nutritional implications of the different dietary habits, a five-day recall period of the foods consumed and the source was included in the survey instrument.

## 1.8 DATA SOURCES AND ANALYSIS

A qualitative and quantitative approach was adopted in the study.

- i) Micro-level secondary data is not available for the 1970's and 1980's and where available, is not specific to the subject of interest. Aggregated data, though often characterised by inconsistencies, is used to complement the primary data.
- ii) The problem calls for a clear understanding of what is happening at the household level, which is the most important production and consumption unit in the economy. Three rounds of household primary surveys, spread through the agricultural season, were carried out in 1998. Structured questionnaires were the instruments of data collection across the three districts selected as a case study. The survey instrument included sections on household structure, farm land area and use, cropping patterns, output, sales, livestock inventory, labour and input use, income and expenditure flows, consumption, household food inventory.
- iii) Discussions with district staff and local leaders at different levels gave insight to district specifics on the subject.
- iv) Community-based focus group discussions were held to complement the household survey findings. Some of these discussions were carried out with gender segregated groups and others were mixed groups, but all consisted of a wide range of ages. For a good response, prior notice was given to the area's local leaders who mobilised the people. These discussions were not necessarily held among the sampled households or villages. The choice of having gender segregated groups and including non-sampled areas, was in a bid to reduce some of the biases that are common in rural development studies. One is the person biases with particular reference to the male bias (Chambers, 1983). Second is that of the effects of the investigator on the observed situation (Casley & Kumar, 1988) i.e. most of the discussions in the non-sampled areas were carried out by the enumerators.

Various analytical tools were applied to elucidate the problem of food insecurity, which being a multi-factorial problem may differently affect different segments of a population. Descriptive statistics, data reduction techniques (cluster analysis) and regression analysis (Logit) are variously applied in the thesis.

## 1.9 HOUSEHOLD SELECTION

The sample size was in part determined by the survey budget. By way of purposive sampling, the case study area was drawn from the three districts of Mbale, Soroti and Apac. The district selection criteria were:

- i) The food security status as determined by the EPAU 1995 Food Security Study (Uganda-Ministry of Finance & Economic Planning, 1995b).
- ii) The agro-ecological zone in which the district falls. This is to ensure diversity in production systems. Mbale is in the Montane (coffee/banana) system, Soroti in the Teso (cotton/millet) system and Apac in the Northern (cassava, millet, cotton) system.
- iii) The districts then being looked at by other institutions doing concurrent surveys on varying aspects of food security.
- iv) The three districts were almost contiguous for ease of management of the study.

Discussions were held with district officials to inform them about the study and for them to convey their assessments of food security in their respective districts. In Mbale District, concern was raised over the wide diversity in agricultural practices. Three counties rather than two were therefore made part of the study in Mbale District, which is sub-divided into five counties and a municipality. It is worth noting that Mbale District has a highly commercial horticultural sub-sector that was not part of the sampled areas but would warrant a future study for comparative purposes. In Apac district, owing to security limitations, only the two counties in which security could be guaranteed throughout the year were included in the study. Apac District is sub-divided into four counties. Within the district of Soroti, the counties were subjected to random sampling. Soroti district comprises five counties and a municipality. The sub-counties, villages and households were randomly sampled in all the three districts. Each unit was randomly allocated a number. Random selection was applied to allow participation from the local

leadership who randomly picked ballots numbered to represent the different units. Otherwise the systematic selection method where the interval between selected units is determined on the basis of the fraction  $N/n$  ( $N$  is the total number of units in the sample frame and  $n$  is the desired number of units) was applied (Casley & Kumar, 1988).

Ten households per village, i.e. 160 households were sampled from each district. The list of villages was got from the sub-county headquarters while the household sampling frame consisted of a household list from the respective area Local Council I Chairperson. This list was preferred to that of tax paying households as the latter would have excluded non-taxable homes like the female-headed and elderly. The same households were visited in each of the three surveys. By the end of the study period, some households were out of the study or were not available. For example, by the second survey, a household in Budadiri County had migrated to another county. In Alwa Sub-county, at the third survey, two households were in hiding as they were implicated in acts of thuggery. However, loss of sampled units is common particularly in such surveys in which the same units are retained for a number of surveys (Deaton, 1999). Data capture also resulted in some households being left out. It was desirable that households retained in the analysis had a complete set of three questionnaires for analysis. The number of households in the sample used in the analysis decreased from 480 to 453. Appendix 1 is a list of the villages included in the study.

The study was designed to run in tandem with the agricultural cycle, i.e. pre, mid and post-season, in effect getting production estimates for 1997 and first season of 1998. The first survey was run in April, the second in July and the third one October to November. At the village level, the political leadership was sensitised about the objectives of the study. Before sampling the households, the farmers in a village were collectively informed about the study; its objectives, duration and their role.

#### 1.10 ENUMERATION

Two agricultural assistants in Soroti District and one each in Mbale and Apac supervised and co-ordinated the survey and group discussions. The success of the survey relied on the relationship between the enumerators and the respondents. Preference was given to the local extension workers and then teachers residing in the sampled villages or the

neighbouring villages. This strategy had its own short-comings as there were times the survey was slightly held up because of their duty schedules. Enumerator training was carried out by district.

## 1.11 LIMITATIONS

### 1.11.1 Diversity within the Country

Uganda has a diversity of agro-ecological, socio-economic and cultural settings, which differentially interact to expose different populations to food security or insecurity. Micro-level time series data would have been necessary to estimate causal-effect relationships between food security and these other factors but does not exist. Nevertheless, a cross section study like this allows for a relative comparison between the sampled units. Country-wide generalisations cannot therefore be equivocally made from a limited study such as this, which looks at responses in a slice of time. The aim of the study is to confirm or reject the raised concerns for national policy considerations and to provide indicators that may be used by other districts/regions in monitoring food availability. Use of secondary data is limited because of irregularities and because they are aggregated, based on average household conditions that may omit variations that are important to food security.

### 1.11.2 Variation in units of measure

Units of measure vary across and within localities. The most common units of measure are glasses, mugs, baskets, tins, sacks, bundles, heaps, basins and granaries of varying sizes, to mention a few. The conversion tables that were developed by the Statistics Department of the Ministry of Finance & Economic Planning were used as a guide in making the conversions. Conversion of local measures may therefore introduce some degree of error into the quantities used in the analysis.

Estimates of the output of cassava,<sup>1</sup> sweet potatoes and bananas, all of which are harvested on a piece meal basis, are based on the average yields per acre (defined by the Department of Statistics). These subjective estimates were limited in the translation of areas less than an acre (one garden) and in distinguishing yields as they differ across areas and season. Relativity rather than absolute values were therefore awarded more importance in the analysis. For bananas, farmers also made weekly estimates of how much was harvested. This is because of the nature of the crop, it is highly perishable and if mature must be harvested for consumption or sale.

### 1.11.3 Lack of records

The majority of respondents did not keep records. The data that involves a recall period is therefore highly dependent on an individual's ability to remember. This is not made any easier considering that transactions (payments and receipts) are frequently made in small instalments. As such, although income and expenditure data were a vital component of this survey, their relative rather than absolute values are considered the more indicative.

### 1.11.4 The human factor

Respondent fatigue is common in surveys in which repeated visits to the same household are made and this study was no exception. By the second survey, some households were reluctant to continue participating and by the third survey, there was even the question of being paid to participate. This is also an indicator of the growing demand for cash in the rural economy. Enumerator fatigue was also a factor especially in sparsely populated villages that required the traversing of wide areas on foot or bicycle.

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<sup>1</sup> While cassava can be harvested *ad libitum* continuously if allowed to regenerate, it is here assumed that the area is constantly reduced by the quantity harvested in the course of the study, having observed this to be the more common practice. It is also assumed cassava planted in the survey year would only mature early in the next year (early maturing varieties take about 9 months).

## 1.12 OUTLINE OF THE THESIS

The thesis is organised into seven chapters. The first chapter has given the general socio-economic setting within which the study was conducted and the factors that motivated it. The second chapter briefly reviews the concepts of food security and commercialisation and defines the two concepts as applied in this thesis. An overview of the food insecurity problem in the Sub-Saharan African region underscores that it is a complex interaction of many factors. A more detailed review of the pre-and post reform environment in Uganda and the food security implications follow in chapter three. It gives the historical context of the food insecurity concerns today and the a priori conditions that guide the specification of the model applied. The model to estimate the relationship between commercialisation and food security is then specified.

Chapter four profiles the case study area by the agro-ecological environment, demographic structures, agricultural practices and the socio-economic setting. Chapter five applies a cluster analysis to the data set for grouping the households by those factors that enhance or negate food availability. Logistic analysis is applied to selected cluster groups to establish demographic and/or socio-economic factors that predispose certain segments of the population to belong to any particular group. Last, consumption habits across the groups are compared to establish the variation with the commercialisation process. Chapter six applies logistic analysis to estimate the statistical relationship between food security and commercialisation. The degree of the problem across the three districts is compared by means of a food insecurity index. Chapter seven draws up the conclusions and makes policy recommendations following the findings of the study.