

**EFFECT OF FOOD SUPPLY ON THE HOUSEHOLDS INCOME IN MOROTO
DISTRICT KARAMOJA SUB-REGION**

A CASE STUDY OF KATIKEKILE SUB-COUNTY

BY

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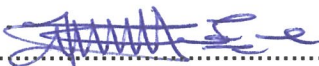
**A RESEARCH PROPOSAL SUBMITTED TO THE COLLEGE OF ECONOMICS
AND MANAGEMENT FOR THE PARTIAL FULFILLMENT OF THE
REQUIREMENTS OF THE AWARD OF BACHELORS OF SCIENCE
IN STATISTICS OF KAMPALA INTERNATIONAL
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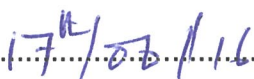
JUNE, 2016

DECLARATION

I, Ampaire Lodgers declare that this is my own original work and has never been submitted by any body else for the award of a degree, diploma or any academic award of any University or institution of higher learning

Ampaire Lodgers

Sign:.....

Date:.....

APPROVAL

This is to certify that the research proposal written by Ampaire Lodgers Under the topic "Effects of food supply on household incomes in Karamoja. A case study of Katikekile sub-county Moroto district" has been under my supervision and is now ready for submission to the College of Economics and Management, Kampala International University

NAKIBULLE SANDA



Name of supervisor

signature

17th/06/2016

Date

DEDICATION

I dedicate the above to my family members especially my parents, madam Katushabe Scovia University counselor, Madam NaKibuule Sauda for academic advice and my brother Mugisha Moses for the financial and academic support accorded to me, may God bless you all accordingly.

ACKNOWLEDGEMENT

I extend my special thanks to the almighty God for his wonderful blessing and guidance throughout my studies, and without God's intervention, I Would not have achieved this great success.

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Special thanks go to my respondents from Katikékile sub-county for their hospitality, spared time for data I required to accomplish this study.

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ABSTRACT

This study investigated the effect of food supply on household incomes.

A discipline correlation design was applied in examining the effect of food supply and household income.

A sample of 250 respondents selected, however, one of the limitations of alteration beyond the researcher's control, only 70 questionnaires are retrieved.

The findings indicated that the effect of food expenses on household incomes was so high due to the fact that people totally do not have food at all, so they spend a big proportion of their incomes on food.

Okumu (2007) also agrees that there is significant positive effect of food expenditure on Household incomes.

Hones Harska and Nadolynic (2007) also show that there is no direct effect of food expenditure on house hold incomes.

Furthermore, the finding indicated that food supply significantly correlated with the population. Okumu (2007) argues that food supply negatively influence the population.

The researcher suggested that, further research may be conducted on the same topic in different geographical areas to see if the findings are different from those of the current study.

CHAPTER ONE

INTRODUCTION

1.0 Introduction

This of background f the study, problem statement, research objectives, purpose the study and research questions, scope of the study, significance, operational of key terms and conceptual framework.

1.1 Background of the study

1.1.1 Historical background

Van der Meulen, & Poppe, 2006; Zawalińska, 2004). These studies recognize that competitiveness is a comparative or relative term (Dwyer et al., 2012), analyzing the competitiveness of the EU or specific Member States against leading competitor nations or border prices. Notwithstanding a few notable exceptions (Thelwell & Ritson, 2006), previous studies of agri-food competitiveness rarely adopt a specific supply chain approach.

Studies of the competitiveness of the European food industries, to date, largely ignore social and environmental costs and benefits. This may be limiting, particularly given the industry's innate linkages with the land and the potential for environmentally damaging practices to undermine long-term economic prospects. The European Commission advocates the notion of 'sustainable competitiveness' which incorporates social and environmental considerations, a position also adopted by the World Economic Forum (2012b) which adapted its Global Competitiveness Index (GCI) into a Sustainability-adjusted GCI. Competitiveness is thus taken to incorporate all three pillars of the Lisbon

Strategy so that it can be 'measured in terms of its ability to provide its citizens with growing living standards on a sustainable basis and broad access for jobs to those willing to work' (European Commission, 2010, p. 18). In relation to the agri-food sector, the European Commission (2011, p. 2) argues that objective of policy should be 'sustainable competitiveness to achieve an economically viable food production sector, in tandem with sustainable management of the EU's natural land-based resources'. While the term sustainable competitiveness is embedded firmly in policy debates, there is little work, however, on how it can be conceptualized or measured. This is addressed in this deliverable, which considers the sustainable competitiveness of agri-food supply chains.

Achieving food security in its totality continues to be a challenge not only for the developing nations, but also for the developed world. The difference lies in the magnitude of the problem in terms of its severity and proportion of the population affected. In developed nations the problem is alleviated by providing targeted food supply interventions, including food aid in the form of direct food relief, food stamps, or indirectly through subsidized food production. These efforts have significantly reduced food insecurity in these regions. Similar approaches are employed in developing countries but with less success. The discrepancy in the results may be due to insufficient resource base, shorter duration of intervention, or different systems most of which are inherently heterogeneous among other factors. Bahiigwa G. B. A., (1997)

Food supply; a situation in which all people, at all times, have physical and economic access to sufficient, safe and nutritious food to meet their dietary needs and food preferences for an active healthy life ¹; is affected by a complexity of factors. These include unstable social and political environments that preclude sustainable economic growth, war and civil strife, macroeconomic imbalances in trade, natural resource constraints, poor human resource base,

gender inequality, inadequate education, poor health, and natural disasters, such as floods and locust infestation, and the absence of good governance.

Food is still a major global concern as in the world (1 billion) people are suffering from starvation, malnutrition, and the Food and Agriculture Organization. FAO (2009). Indicate that Somalia is far from reaching Millennium Development Goal (MDG) number 1: that is to have extreme poverty and hunger by the year 2015. In sub-Saharan Africa, the number of people suffering from hunger is estimated at 239 Million, and this could increase in the future the prevalence is attributed to the fluctuating environmental aspects such as climate and low human responses in adopting food growth mechanisms such as irrigation attributed to poor environmental response. The report adds that 12 million people were suffering starvation in the Horn of Africa stricken by the worst drought in the past 60 years. (FAO, 2011) estimates indicate Somalia; 10 million people need food assistance. Devereux Stephen (1998).

The root cause of food insecurity in developing countries is the inability of people to gain access poverty. While the rest of the world has made significant progress towards poverty alleviation, Africa, in particular Sub-Saharan Africa continues to lag behind. Projections show there will be an increase in this tendency unless preventive measures are taken. Many factors has contributed to this tendency including the high prevalence of HIV/AIDS; civil war, strife and poor governance; frequent drought and famine; and agricultural dependency on the climate and environment. Deavers, K. L., and R. A. Hoppe. (1993)

Average household income can be used as an indicator for the monetary well-being of a country's citizens. Mean or median net household income, after taxes and mandatory contributions, are good indicators of standard of living, because they include only disposable income and acknowledge people sharing

accommodation benefit from pooling at least some of their living costs. Average household incomes need not map directly to measures of an individual's earnings such as per capita income as numbers of people sharing households and numbers of income earners per household can vary significantly between regions and over time

Food supply in Africa has substantially worsened over the last 30 year, with high population and food demand growth consistently exceeding modest agricultural production growth (Byerlee and Eicher, 1997). It is estimated that out of the world's 800 million people that are food insecure, about 180 million (or 23%) live in Sub-Saharan Africa (Pinstrup-Anderson et.al, 2001). The reasons behind Africa's poor agricultural performance are myriad. A triple curse of poor resource endowments-including poor land quality, many land locked countries, endemic livestock disease, and human diseases- a colonial legacy of extraction and exploitation, and a policy environment that consistently undermined agriculture and the institutions that serve it has afflicted the continent since independence (World Bank 2000a). The ongoing and relentless disfavoring of agricultural production by regional climate and geography shares significant blame for the underdevelopment of Sub-Saharan African agricultural sector, as the pernicious influence of years of exploitation and colonialism (Bloom and Sachs 1998; Ringius et al.1996)

According to the House hold Survey data 25% of the Ugandan population can not meet their daily food requirements (UBOS 2001). A survey earlier done by the Economic Policy Research Center (1998) in 14 districts indicated that at any one time about 40% of the population is food insecure while nationally poverty has decreased from 44% to 35%, between 1997 — 2000, in the Northern Uganda it actually increased from 60% to 66% during the same period (UBOS, 2001). A key characteristic of poverty is food poverty at a national level, and in

northern Uganda the situation is even worse. Although in absolute terms, poverty has decreased by 21% since 1992, c1 R; million Ugandans still live below the absolute poverty line. Poverty is mainly a rural phenomenon as 48% of the rural population is below the absolute poverty line compared with 16% urban dwellers (UBOS, 2001). Because food insecurity is the largest element in poverty, the rural population is therefore the most food insecure. There is generally high poverty level in the Moroto district with about 53% of the population living below the poverty line. The average household income is Uganda Shillings three hundred seventy thousand (Shs. 370,000) per annum. This makes Moroto to be the 34 out of 45 districts in the population below the poverty line in the country (Uganda Bureau of Statistics, 1996).

For some years now, it has been common to refer to the basic decision-making entity with respect to consumption as the "household" by those primarily concerned with data collection and analysis and those working mainly with macroeconomic models, and as the "individual" by those working in microeconomic theory and welfare economics. Although one-person households do exist, they are the exception rather than the rule, and the individual and the household cannot be taken to be identical.

In the total absence of trade between the micro-welfare and macro-empirical branches of the profession, it might not matter that the consumption units were different in the different contexts. But there is trade perhaps less than there ought to be and this is where the danger lies. It is not uncommon to take analysis that has been devised to provide a reasonable model of the single individual and then apply that analysis to the household, as if it were the same thing. The most surprising offender is Arrow and Hahn (1971) where, in a book designed to meet the highest standards of analytical rigor, the basic decision-

maker in consumption is called the "household" and then has ascribed to it a set of properties that are appropriate only for the single individual.

If it could be shown that households did, indeed, behave like the individuals of micro theory, then there would be no problem, but we know that this can be taken to be evidently true, if at all, only in a household run in a dictatorial fashion by a single decision-maker. If the household does behave like an individual in any other circumstances, we must be able to prove this and be able clearly to state those circumstances.

1.1.2 Theoretical background

Malthusian Theory of Population

Thomas Robert Malthus was the first economist to propose a systematic theory of population. He articulated his views regarding population in his famous book, *Essay on the Principle of Population* (1798), for which he collected empirical data to support his thesis. Malthus had the second edition of his book published in 1803, in which he modified some of his views from the first edition, but essentially his original thesis did not change.

In *Essay on the Principle of Population*, Malthus proposes the principle that human populations grow exponentially (i.e., doubling with each cycle) while food production grows at an arithmetic rate. Thus, while food Supply was likely to increase in a series of twenty-five year intervals in the arithmetic progression 1, 2, 3, 4, 5, 6, 7, 8, 9, and so on, population was capable of increasing in the geometric progression 1, 2, 4, 8, 16, 32, 64, 128, 256, and so forth. This scenario of arithmetic food supply with simultaneous geometric human population growth predicted a future when humans would have no resources to

survive on. To avoid such a catastrophe, Malthus urged controls on population growth.

On the basis of a hypothetical world population of one billion in the early nineteenth century and an adequate means of subsistence at that time, Malthus suggested that there was a potential for a population increase to 256 billion within 200 years but that the means of subsistence were only capable of being increased enough for nine billion to be fed at the level prevailing at the beginning of the period. He therefore considered that the population increase should be kept down to the level at which it could be supported by the operation of various checks on population growth, which he categorized as "preventive" and "positive" checks.

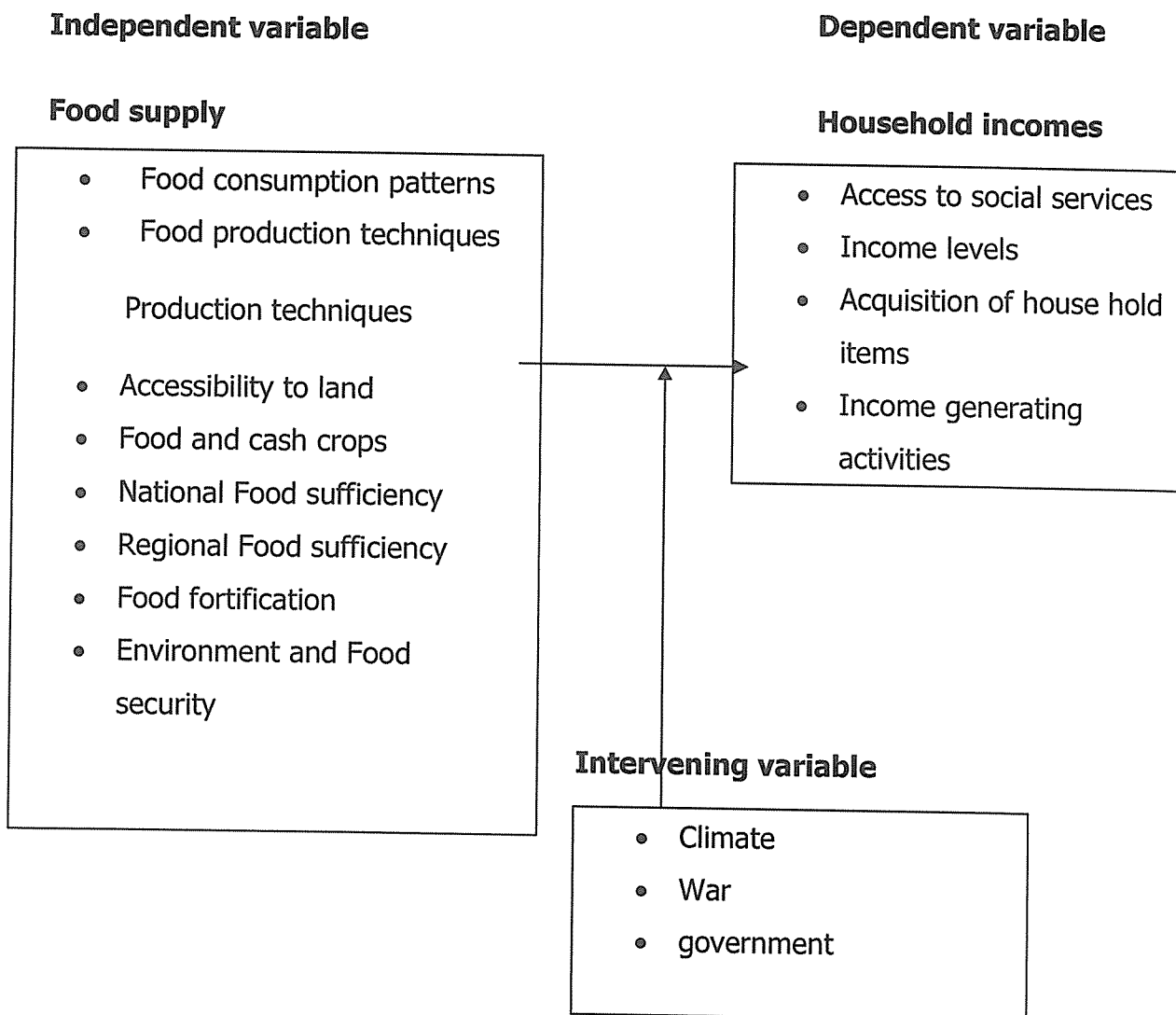
The chief preventive check envisaged by Malthus was that of "moral restraint", which was seen as a deliberate decision by men to refrain "from pursuing the dictate of nature in an early attachment to one woman", i.e. to marry later in life than had been usual and only at a stage when fully capable of supporting a family. This, it was anticipated, would give rise to smaller families and probably to fewer families, but Malthus was strongly opposed to birth control within marriage and did not suggest that parents should try to restrict the number of children born to them after their marriage. Malthus was clearly aware that problems might arise from the postponement of marriage to a later date, such as an increase in the number of illegitimate births, but considered that these problems were likely to be less serious than those caused by a continuation of rapid population increase.

He saw positive checks to population growth as being any causes that contributed to the shortening of human life spans. He included in this category poor living and working conditions which might give rise to low resistance to disease, as well as more obvious factors such as disease itself, war, and famine. Some of the conclusions that can be drawn from Malthus's ideas thus have obvious political connotations and this partly accounts for the interest in his writings and possibly also the misrepresentation of some of his ideas by authors such as Cobbett, the famous early English radical. Some later writers modified his ideas, suggesting, for example, strong government action to ensure later marriages. Others did not accept the view that birth control should be forbidden after marriage, and one group in particular, called the Malthusian League, strongly argued the case for birth control, though this was contrary to the principles of conduct which Malthus himself advocated.

1.1.3 Conceptual frame work

This was a diagrammatic representation of variable. The frame work shows the linkage of variable under their measurable units

Figure 1: Conceptual frame work showing relationship between food insecurity and house hold development



Source: Researcher devised, 2016

The conceptual frame work denotes the researcher's conceptualization of variables that was to say independent and dependent variable. The presentation under independent variable denotes measures of food supply: it presents issues such as food and cash crops, food production techniques, Poor Nutrition, Poor agriculture, National Food sufficiency, Regional Food sufficiency, Food fortification, Food consumptions patterns, Environment and Food security and accessibility to land the measures presented above make it impossible for the food to be grown hence food supply. On the other hand the house hold incomes are affected in the measures such as Access to social services, income, levels, acquisition of household items and income generating activities, Income generating activities arising from the food supply. These therefore mean that food insecurity was responsible for low house hold incomes given the agricultural economy of Uganda.

The intervening variables such as climate, war and government play an intervening variable in contributing to food supply. The prevalence of positive form intervening factors such as climate, war and government leads to food availability hence security and the reverse was true

1.4 Contextual background

Located in the northeast corner of Uganda and flanked by Kenya to the east and Southern Sudan to the north, Uganda's Karamoja Region is situated at the apex of East Africa's Karamajong Cluster. The region's semi-arid climate, the volatile civil security status heavily influences its food security. While the region's inhabitants are often characterized as highly resilient, the direct and indirect effects of consecutive years of poorly distributed rainfall, crop and livestock pests and diseases, and continual changes in the civil security environment have contributed to an overall decline in their food security status and coping capacity.

In addition, while external assistance to Karamoja Region has fluctuated for decades, this assistance is often incongruent with the livelihoods context of the region's population and/or addresses only a portion of needs, thereby limiting its overall impact. While increases in the frequency and intensity of local coping strategies and the provision of external, largely emergency aid offset some of the current acute food security challenges the region, continuation of the current coping-assistance combination will not improve food security in the medium-and long-term. Rather, meaningful and durable improvements in food security in Karamoja Region require programming that goes beyond the short-term provision of inputs and assists the region's population in protecting and building from their remaining assets.

Karamoja Region is composed of six livelihood zones, each falling broadly within one of three livelihood systems: a predominately 'agriculture'-based livelihood system in the western part of the region, a largely 'agro-pastoral' system in the region's midsection, and a mainly 'pastoral' system in much of the east of the region. Despite these variations, the assessment team found many similarities in and connections among the underlying causes of food insecurity across Karamoja. In particular, drivers of food insecurity in the region include the direct and indirect effects of:

Climatic variability – specifically, consecutive seasons of poor spatial and temporal rainfall distribution;

Endemic hazards to productivity – especially crop and livestock diseases; and

Civil insecurity – including significant fluctuations in the incidence and prevalence of cattle raiding and other forms of theft and banditry, exacerbated by the presence of and access to small arms and an unevenly implemented and enforced government-sponsored disarmament program.

The Karamajong Cluster is composed of approximately 1.4 million predominately pastoral and agro-pastoral ethnic groups on the borders of Uganda, Sudan, Kenya, and Ethiopia. (*Akabwai, Ateyo December 2007*).

ACF was first operational in Karamoja during the severe drought and emergency response of 1980- 1983. Following a needs assessment conducted in late 2007, ACF committed itself to continue feeding programmes formerly established by MSF Spain during their emergency response. Food security and livelihood (FSL) programming is also envisaged for 2009 to complement the core nutrition work in order to address underlying factors of malnutrition in Karamoja. Hence, a food security and livelihoods (FSL) assessment was initiated to define FSL priorities and provide guidance for subsequent responses.

A total of thirteen sub-counties were assessed by ACF in Kaabong and Moroto districts within a two week period in August 2008. The assessment primarily focused on the status of household food security and livelihoods, with supplementary but limited data collection on nutrition, water, sanitation, and hygiene in Kaabong and Moroto districts of Karamoja. This resulting report attempts to elaborate shifts in household food and income sources, coping strategies, performance of crop and livestock production.

ACF Karamoja Assessment - 4 - August-September 2008

Primary and secondary data were collected at district, community, and household (wealth group) levels. Focus group discussions with community elders were conducted in two stages, first to establish specific wealth group criteria for households. Secondly, in-depth discussions were conducted regarding the various community based aspects, for example land tenure system, adaptive

strategies, challenges and opportunities of different wealth groups, and priority areas of interventions.

A total 190 household representative interviews were conducted using structured questionnaires.

The interviews achieved fair representations of gender and age. Key informant interviews were conducted with officials from district and sub-county administrations, district agriculture, livestock, and fishery departments, staff of different NGOs and agro-pastoral civil society groups of Karamoja.

In total 15 key informant interviews were conducted using checklists and semi-structured questionnaires. An additional 40 interviews were conducted with traders (both retailers and wholesalers), and livestock markets in Kaabong and Moroto districts were visited.

Secondary information collected and reviewed includes district agriculture and fishery department reports, NGO and UN agency reports, and an array of published studies (footnoted herein). Both qualitative and quantitative data were collected. The household economy approach (HEA) and Sustainable livelihood framework⁵ were considered to assess the livelihoods context and identify Linkages among different variables. To analyze shifts in food sources, income, expenditure, and Coping strategies comparison was made between the present and the same time during a 'normal' Year. In terms of crop production, 2005 was considered a normal year due to average rain and Production levels. Therefore the anticipated 2008 crop harvest was compared with the 2005 Harvest. However, livelihood effects of the 2005 harvest on households do not begin to manifest Until the end of 2005 and into the rest 2006. For this reason 2006 was taken as the index year to compare household food, income, expenditure, and coping strategies. These drivers are inter-related. Consecutive years of

below-normal crop production due to climatic and endemic hazards has left more people with limited food availability and access and fewer coping options, led to deterioration of traditional social safety nets, increased competition over and the degradation of available natural resources, and increased theft.

Civil insecurity in districts neighboring Karamoja Region during and attributed to seasonal (dry period) migrations of Karamojong pastoralists has also led the Government of Uganda (GoU) to restrict the movement of livestock out of the region. Unfortunately, while designed to reinforce civil security for Ugandans sharing a border with Karamoja, such policies increase the civil and livelihoods insecurity of populations within the region, as they hamper normal migration patterns, exacerbate competition over limited available resources, and confine populations and their assets (livestock) within a known space where they are more vulnerable to risk factors such as diseases and raids.

Similarities also exist among the coping mechanisms people in Karamoja Region employ to respond to food security challenges. Given consecutive years of below-normal crop and livestock production in the region, more people have turned to and/or intensified reliance on natural resources, including cutting trees for construction, firewood, and/or charcoal. This coping strategy is particularly evident in the region's pastoral and agro-pastoral areas, where timber is used to construct houses as well as the fencing that protects homesteads. In addition to increased frequency and magnitude of natural resource exploitation, the assessment found that more households are turning to casual labor for either cash or in-kind payment as a main means of sourcing food and non-food essentials. This casual labor often takes the form of migration to nearby urban areas or to those farther afield such as Iganga, Jinja, and Kampala. While most commonly considered a driver of food insecurity, raiding serves as another means of acquiring assets that assist in coping for many households in the

region, though the purpose and results of and the means by which raiding is carried out has changed over time.

Several external assistance programs are ongoing in the region, and interest appears to be increasing among new organizations to lend their expertise to these aid efforts. However, much of the assistance currently provided in Karamoja Region is short-term in nature and, while it works to provide some needed inputs, it focuses on proximate problems and near-term gains and rarely address underlying causes of the region's food insecurity or builds from the dominate livelihoods context of the region. Without increased appreciation of and attention to these underlying causes and the broader physical and social context within which they occur, aid efforts in Karamoja Region will remain unsuccessful in assisting the region's population toward recovery.

While the drivers of food insecurity and coping mechanisms share many similarities across the region, important distinctions exist in their prevalence and magnitude between livelihood systems and among the wealth groups residing within them. This assessment report underscores some of these key distinctions, and, to the extent possible, evaluates the role of external interventions in supporting and/or improving food security for the people of Karamoja Region.

The Famine Early Warning Systems Network (FEWS NET) conducted a rapid food security assessment in Uganda's Karamoja Region from 30 October through 6 November 2009. The assessment focused specifically on the evolution and current status of food insecurity in Karamoja, in particular through the collection and analysis of information on coping strategies, local capacity to withstand shocks, and the use and importance of external assistance, especially food aid. Among the questions the assessment team sought to answer were: 1) how are people sustaining themselves in the face of consecutive shocks? and how significant is relief assistance, particularly food aid, in supporting people's livelihoods?

Using a combination of primary and secondary data, this report aims to delineate the causal factors contributing to food insecurity in the region and the resultant shifts in household food and income sources and coping strategies. The report also anticipates likely future food security trends given current conditions. One of the major limitations of rapid assessments such as this is that analyses are based on a small sample of 'snapshots' of current conditions and livelihoods at the time fieldwork is undertaken. As a result, conclusions tend to be broad and extrapolated from a limited amount of temporally-specific information. The authors acknowledge such limitations with this report, though it is hoped that the snapshots collected and presented here, in conjunction with the growing body of information – much of which is referenced in this report – on how people in Karamoja cope with shocks, will contribute to a more nuanced understanding of food security and coping in the region. It is further hoped that the information presented here underscores the importance of undertaking more detailed analyses of the causes of and responses to food insecurity in Karamoja Region, as understanding and appreciation of these nuances is essential to ensuring effective assistance for the region's population. The authors also wish to emphasize that while this report highlights many of the 'meta' factors that are illustrative of larger food security trends in Karamoja, the information included in this document is neither exhaustive, nor should it be construed as representative of food security conditions among all wealth groups in all livelihood zones across the region. Primary data was collected in each of the five districts of Karamoja Region through key informant and focus groups interviews with district, sub-county, community, and household representatives. The assessment team also interviewed local and international non-governmental organizations throughout the region. Whenever possible, community focus group interviews included at least as many women as men. Secondary information was collected from a series of local, national, and international reports and studies which are

footnoted herein. Methods of primary data collection relied heavily on community and other stakeholder participation, and included informal semi-structured interviews, wealth group breakdowns, livestock profiles, and herd dynamics matrices. When conducting wealth group breakdowns, the assessment team focused on delineating differences between 'poor' and 'better-off' wealth groups and less on the distinguishing characteristics of 'middle' wealth groups. This focus was due in part to time constraints associated with the assessment. In addition, given the extremely small size and lack of representativeness of the wealth group sample collected during this assessment, the authors describe wealth groups in this assessment report in terms of activities undertaken rather than assets owned.

This report is divided into three main sections. The first section provides readers with an overview of some of the key physical and social factors that impact food security in Karamoja Region and linkages among them. The second section examines and analyzes primary data collected during the rapid assessment, distinguishing the drivers of food insecurity, coping, and the role of external assistance among wealth groups in each of the region's livelihood systems and zones. The third section synthesizes the main findings of this rapid assessment into a series of conclusions, including suggested areas of future study and how this information can inform decisions on future assistance to the region.

Among the main factors impacting food security in Karamoja Region are climatic variability, widespread civil insecurity (and government measures to control it), and poor access to technical extension services and high disease prevalence, especially among livestock. This section examines each of these factors in more detail and outlines relationships among and responses to them.

Compared with much of the rest of Uganda, Karamoja Region is semi-arid and unimodal, with variations in spatial and temporal rainfall distribution across the region significantly influencing the livelihoods strategies undertaken. The majority of the region's population practices some combination of crop production and livestock rearing as climate and resources allow. Livestock are moved seasonally between the wet (agricultural livelihood zones), and the dry season (agro-pastoral and pastoral livelihood zones) grazing areas, and intercropped agricultural production includes sorghum, millet, maize, and various other crops for household consumption and cash income. Despite its generally semi-arid nature, there are significant distinctions in levels of precipitation within the region. The western part of the region typically receives more rain, allowing for conditions more conducive to crop production. Three largely agriculture-focused livelihood zones exist within this wetter western area: the NE Sorghum, Simsim, Maize and Livestock Zone; the Eastern Lowland Maize, Beans and Rice Zone; and the South Kitgum -Pader -West Karamoja Simsim, Groundnut, Sorghum and Livestock Zone. Moving east, the climate becomes drier and agricultural activities give way to more livestock-centered livelihoods. As such, the central and eastern parts of the country house three additional livelihood zones: the Karamoja Livestock Sorghum Bulrush Millet Zone; the NE Karamoja Pastoral Zone, Central; and the Southern Karamoja Pastoral Zone. Given the presence of both crops and livestock in every corner of the region, this report assigns the following definitions when discussing agricultural, agro-pastoral, and pastoral households. Agricultural households are defined as those who normally receive the majority of their annual food and income from crop production.

These households may also possess some livestock holdings, the importance of which may increase in 'bad' years, but the main source of household food and income is normally derived from crop production (e.g., 80 percent crop production; 20 percent livestock). Agro-pastoral households refer to those households who normally source their annual food and income needs from roughly equal parts livestock and crop production. In bad years this balance may be somewhat skewed, but in general agro-pastoral households engage in significant and similar amounts of crop production and animal husbandry. Pastoral households are defined as those households who normally derive the majority of their annual food and income requirements from livestock and livestock products. These households are also likely to engage in some level of crop production when climatic conditions and resources allow, but the main source of household food and income is normally derived from animals (e.g., 80 percent livestock and livestock products, 20 percent crop production).

Significant fluctuations in the spatial and temporal distributions of rains across the region, especially in the last three years which included prolonged dry spells and flooding, have had a significant impact on agricultural production in Karamoja Region. These erratic rains led to below-normal agricultural harvests, constraints on availability of browse and water points, decreased local food availability, increased food prices, and decreased availability of seed for future planting seasons. Exacerbating these production issues is the fact that Karamoja Region is largely geographically and socially isolated from much of the rest of Uganda. Until recently, civil insecurity inhibited many commercial (i.e., traders from outside the region), governmental (i.e., extension services), and social (i.e., local and international non-governmental organizations, NGO) institutions from engaging regularly with the area. Poor road networks and persistent volatility in security conditions further impede these exchanges.

Despite the fact that the region is becoming progressively more accessible as northern Uganda continues to normalize, as disarmament in Karamoja continues, and as NGO interest increases, the relative isolation means that prices for goods are high and selection is limited in this region compared with much of the rest of the country. Several key informants encountered during the rapid assessment also noted that the region's food access is inhibited by the inflationary impact of traders from Southern Sudan who reportedly tend to buy goods in large quantities at or above market value, thereby further limiting supply and pushing prices even higher. The region's relative isolation also means that extension services and other technical and social support mechanisms that are admittedly weak throughout the country are even weaker in Karamoja, if they exist at all.

The combination of inconsistent climatic conditions, a relatively high cost of living, and a comparative lack of technical and social support structures makes responding to endemic and exceptional crop and livestock pests and diseases particularly difficult. In 2007, Foot and mouth disease, Rinderpest and Peste des Petits Ruminants [PPR] infiltrated the region from Western Kenya and spread throughout Moroto and Nakapiripirit districts. The fluid movement of livestock both within the region and across the border with Kenya makes it difficult to localize and contain

As noted above, livestock are an essential part of wealth and traditional coping for nearly all households in Karamoja Region. In general, people in the region use their animals and animal produces for sale (to buy food or other basic needs) and/or consumption (milk, blood, meat, etc.). Decreases in livestock numbers due to factors including: disease, decreased water and pasture availability, theft, restrictions on movement, and/or general poverty therefore significantly impact the overall food security and wealth of households and communities in the region the threat of disease.

In terms of theft, key informants repeatedly referred to livestock raiding as a main cause of the deterioration of household food security and livelihood status in the region. While livestock raiding in Karamoja has traditionally been a means of asset creation (including dowry constitution) or as an expression of prestige, changes in the practice in the last 20-30 years that have significantly altered the region's social and economic landscape.

Traditionally, raiding was sanctioned by clan elders, followed specific protocols that helped to limit fatalities, and was relatively limited in scale. In recent years, however, changes in the environment internal to and outside of Karamoja have led to a significant shift in the purpose, results of, and means by which raiding is undertaken. Most experts mark the 1970s as the beginning of the shift in livestock raiding practices. Consecutive years of drought and resultant poor harvests in the first part of the 1970s weakened traditional alliances among the Karamajong. As these alliances began to dissolve, inter-clan raids became more prominent, and, with them, revenge attacks. Such raiding was further fueled by external factors, mainly, civil conflict across parts of the rest of the Horn of Africa, including Southern Sudan, Kenya, Ethiopia, and Somalia.

As these conflicts intensified, the availability of small arms increased, replacing the more traditional spear and stick⁶ as the weapons of choice. Civil conflict within Uganda also fed this proliferation of small arms in Karamoja Region, a proliferation which has fed directly into the larger civil security challenges that are now an inextricable facet of the region's food security. Though raiding occurs through the region, it is most predominant in the agro-pastoral and pastoral areas where livestock numbers are higher. Within these areas, the northern parts and some areas to the south are most active due to the higher warring nature of the Karamojong sub tribes, mostly the Karamojong and Turkana and the Pokot and Karamojong.

Consecutive years of shocks and the continued proliferation of arms in the region, despite attempts at disarmament which will be discussed in the proceeding section, have led to what many key informants referred to as the 'commercialization of raiding'. Given general increases in poverty and increased attempts to control the security environment in the region, raiding patterns are shifting away from acquiring large numbers livestock to build herd sizes and wealth and more toward smaller-scale but more frequent and more violent raids, after which the raided animals are taken directly to markets for immediate sale. This evolution in raiding has led to increases in loss of life, aggregate loss of assets (particularly when raided animals are sold to traders from other areas, such as Southern Sudan and as efforts to protect animals from raids, including placing them in protected kraals with many other livestock, increase the prevalence of livestock disease and death), and loss of access to many dry season grazing areas critical to the economy of much of the region due to perceptions of insecurity.

1.2 Problem statement

About 40% of Ugandans are food insecure at any one time (EPRC, 1998). In northern Uganda and Moroto District with poverty levels at 66% and 53% respectively, the food situation is worse as food insecurity is a key element of poverty in Uganda. External factors that have contributed to food insecurity include, cattle rustling and continuous drought. The latter has actually exacerbated the food situation by displacing a large population from their productive land and forcing them to depend on food aid. The extent to which external factors contributed to food insecurity needed investigation. Factors internal to the household including status of food — planning and decision that make the households vulnerable to famine appeared to significantly contribute to food insecurity in addition the spread of dry spell in most of the community of

Karamoja affect agriculture hence food insecurity, what is not known is the magnitude at which food insecurity affects house hold incomes amongst the people. Thus there is a need for a comprehensive investigation around the influence of food insecurity on households' income.

1.3 purpose of the study

To examine the effect of food on household income in Karamoja in katikekile sub county, Moroto district.

1.4 Specific objectives of the study

1. To establish level and trend of food supply relative to population
2. To establish how much money households spend on food monthly
3. To establish the effect of food expenses on house hold income
4. To establish of strategies to increase food supply in Karamoja

1.5 Research questions

1. What is the food supply trend in Karamoja region, Uganda?
2. What are house hold expenditure patterns on food supply monthly?
3. What is the effect of food expenditure on house hold income in karamoja region?
4. What strategies can be employed to increase Food supply for households in Karamoja?

1.6 Research Hypothesis

1.6.1 Null hypothesis (H_0) states that there is no significant effect between Food Supply and Household incomes

1.6.2 Alternative hypothesis (H_1) states that there is a significant effect between Food Supply and Household incomes.

1.7 scope of the study

1.7.1 Content scope

The study concentrates on food supply and its impact on household incomes. The researcher majorly concentrated on factors responsible for food supply the influences of food supply on house hold incomes and strategies for increase food supply and house hold incomes.

1.7.2 Theoretical scope

This study is based on Malthusian theory of Population, and states that whereas population grows geometrically(1,2,4,8,16,- - -),Food Supply tends to grow at an arithmetic rate (1,2,3,4,5,6,- - -) and that a certain time t population growth would be equal to food supply at population trap

1.7.3 Geographical scope

The study was conducted in the sampled parishes of Lia, Musas and Musupo located in Katikekile sub-county, Moroto district; the choice of the sub-county was due to the fact that food insecurity prevails there. Therefore the researcher was set for a study there due to information accessibility

1. 7. 4 Time Scope

The research was taken for a period of 3 months, to ensure that this research was conducted correctly, effectively and efficiently, as stipulated by the university. For this regard the study was conducted from the month of April to June 2016.

1.8 Significance of the study

The study will benefit the academicians or students, the supervisor, local communities and those who might have intended to research in the same field in future.

The study will be used to fill the gaps especially in providing literature for the increment of food supply in Karamoja.

The study will provide recommendations for improved food supply not only in Karamoja region but Uganda as a region.

The study will provide a basis for decision making concerning food supply, at local levels.

1.9 Operational definitions of key terms

Food supply

The state in which all people, at all times, have physical and economic access to sufficient, safe and nutritious food to meet their dietary needs and food preferences for an active healthy life, (FAO/WHO, 1992, International conference Food nutrition held in Roma 1992). More than 800 million people live every day with hunger or food insecurity as their constant companion.

Household income

Household income was a measure of the combined incomes of all people sharing a particular household or place of residence. It includes every form of income, e.g., salaries and wages, retirement income, near cash government transfers like food stamps, and investment gains.

1.10 Research limitations

Limitation of study concerns the instruments employed in undertaking research. The study was limited to an interview and questionnaire administrative methods without hope of clarifying issues cropped up during administration questionnaires.

Sample size will also make it extremely difficult to generalize results of study of effects of food supply on household income.

Due to more load and long hours of household, researcher could not have all respondents responding to the questions asked.

CHAPTER TWO

LITERATURE REVIEW

2.0 Introduction

This chapter presents conceptual review, theoretical review, review of related literature and related studies.

2.1 Concepts, ideas and opinions of experts

Food is any substance consumed to provide nutritional support for the body. It is usually of plant or animal origin, and contains essential nutrients, such as fats, proteins, vitamins, or minerals. The substance is ingested by an organism and assimilated by the organism's cells to provide energy, maintain life, or stimulate growth,(Morris,P.M.L.Neuhauser,andC.C.Campbell.1992)

Historically, people secured food through two methods: hunting and gathering and agriculture. Today, the majority of the food energy required by the ever increasing population of the world is supplied by the food industry.

Food safety and food security are monitored by agencies like the International Association for Food Protection, World Resources Institute, World Food Programme, Food and Agriculture Organization, and International Food Information Council. They address issues such as sustainability, biological diversity, climate change, nutritional economics, population growth, water supply, and access to food,(Maxwell,S.,andT.R.Frankenberger.1993).

The right to food is a human right derived from the International Covenant on Economic, Social and Cultural Rights (ICESCR), recognizing the "right to an

adequate standard of living, including adequate food", as well as the "fundamental right to be free from hunger".

Food sources

Most food has its origin in plants. Some food is obtained directly from plants; but even animals that are used as food sources are raised by feeding them food derived from plants. Cereal grain is a staple food that provides more food energy worldwide than any other type of crop. Corn (maize), wheat, and rice – in all of their varieties – account for 87% of all grain production worldwide. Most of the grain that is produced worldwide is fed to livestock,(Sutton,J.1991).

Some foods not from animal or plant sources include various edible fungi, especially mushrooms. Fungi and ambient bacteria are used in the preparation of fermented and pickled foods like leavened bread, alcoholic drinks, cheese, pickles, kombucha, and yogurt. Another example is blue-green algae such as Spirulina. Inorganic substances such as salt, baking soda and cream of tartar are used to preserve or chemically alter an ingredient.

Plants

Many plants and plant parts are eaten as food and around 2,000 plant species are cultivated for food. Many of these plant species have several distinct cultivars.

Seeds of plants are a good source of food for animals, including humans, because they contain the nutrients necessary for the plant's initial growth, including many healthful fats, such as Omega fats. In fact, the majority of foods consumed by human beings are seed-based foods. Edible seeds include cereals (corn, wheat, rice, et cetera), legumes (beans, peas, lentils, et cetera), and nuts.

Oilseeds are often pressed to produce rich oils - sunflower, flaxseed, rapeseed (including canola oil), sesame, et cetera.

Seeds are typically high in unsaturated fats and, in moderation, are considered a health food, although not all seeds are edible. Large seeds, such as those from a lemon, pose a choking hazard, while seeds from cherries and apples contain cyanide which could be poisonous only if consumed in large volumes.

Fruits are the ripened ovaries of plants, including the seeds within. Many plants and animals have coevolved such that the fruits of the former are an attractive food source to the latter, because animals that eat the fruits may excrete the seeds some distance away. Fruits, therefore, make up a significant part of the diets of most cultures. Some botanical fruits, such as tomatoes, pumpkins, and eggplants, are eaten as vegetables. (For more information, see list of fruits.)

Vegetables are a second type of plant matter that is commonly eaten as food. These include root vegetables (potatoes and carrots), bulbs (onion family), leaf vegetables (spinach and lettuce), stem vegetables (bamboo shoots and asparagus), and inflorescence vegetables (globe artichokes and broccoli and other vegetables such as cabbage or cauliflower).

Animals

Animals are used as food either directly or indirectly by the products they produce. Meat is an example of a direct product taken from an animal, which comes from muscle systems or from organs.

Food products produced by animals include milk produced by mammary glands, which in many cultures is drunk or processed into dairy products (cheese, butter, etc.). In addition, birds and other animals lay eggs, which are often eaten, and

bees produce honey, a reduced nectar from flowers, which is a popular sweetener in many cultures. Some cultures consume blood, sometimes in the form of blood sausage, as a thickener for sauces, or in a cured, salted form for times of food scarcity, and others use blood in stews such as jugged hare.

Some cultures and people do not consume meat or animal food products for cultural, dietary, health, ethical, or ideological reasons. Vegetarians choose to forgo food from animal sources to varying degrees. Vegans do not consume any foods that are or contain ingredients from an animal source.

Production

Most food has always been obtained through agriculture. With increasing concern over both the methods and products of modern industrial agriculture, there has been a growing trend toward sustainable agricultural practices. This approach, partly fueled by consumer demand, encourages biodiversity, local self-reliance and organic farming methods. Major influences on food production include international organizations (e.g. the World Trade Organization and Common Agricultural Policy), national government policy (or law), and war.

In popular culture, the mass production of food, specifically meats such as chicken and beef, has come under fire from various documentaries, most recently Food, Inc, documenting the mass slaughter and poor treatment of animals, often for easier revenues from large corporations. Along with a current trend towards environmentalism, people in Western culture have had an increasing trend towards the use of herbal supplements, foods for a specific group of people (such as dieters, women, or athletes), functional foods (fortified foods, such as omega-3 eggs), and a more ethnically diverse diet.

Several organisations have begun calling for a new kind of agriculture in which agroecosystems provide food but also support vital ecosystem services so that soil fertility and biodiversity are maintained rather than compromised. According to the International Water Management Institute and UNEP, well-managed agroecosystems not only provide food, fiber and animal products, they also provide services such as flood mitigation, groundwater recharge, erosion control and habitats for plants, birds fish and other animals.

Taste perception

Animals, specifically humans, have five different types of tastes: sweet, sour, salty, bitter, and umami. As animals have evolved, the tastes that provide the most energy (sugar and fats) are the most pleasant to eat while others, such as bitter, are not enjoyable. Water, while important for survival, has no taste. Fats, on the other hand, especially saturated fats, are thicker and rich and are thus considered more enjoyable to eat.

Sweet

Generally regarded as the most pleasant taste, sweetness is almost always caused by a type of simple sugar such as glucose or fructose, or disaccharides such as sucrose, a molecule combining glucose and fructose. Complex carbohydrates are long chains and thus do not have the sweet taste. Artificial sweeteners such as sucralose are used to mimic the sugar molecule, creating the sensation of sweet, without the calories. Other types of sugar include raw sugar, which is known for its amber color, as it is unprocessed. As sugar is vital for energy and survival, the taste of sugar is pleasant.

Food supply is a condition related to the supply of food, and individuals' access to it. Concerns over food security have existed throughout history. There is

evidence of granaries being in use over 10,000 years ago, with central authorities in civilizations including ancient China and ancient Egypt being known to release food from storage in times of famine. At the 1974 World Food Conference the term "food security" was defined with an emphasis on supply. Food supply, they said, is the "availability at all times of adequate world food supplies of basic foodstuffs to sustain a steady expansion of food consumption and to offset fluctuations in production and prices". Later definitions added demand and access issues to the definition. The final report of the 1996 World Food Summit states that food security "exists when all people, at all times, have physical and economic access to sufficient, safe and nutritious food to meet their dietary needs and food preferences for an active and healthy life".

Household food supply exists when all members, at all times, have access to enough food for an active, healthy life. Individuals who are food secure do not live in hunger or fear of starvation. Food insecurity, on the other hand, is a situation of "limited or uncertain availability of nutritionally adequate and safe foods or limited or uncertain ability to acquire acceptable foods in socially acceptable ways", according to the United States Department of Agriculture (USDA).¹ Food security incorporates a measure of resilience to future disruption or unavailability of critical food supply due to various risk factors including droughts, shipping disruptions, fuel shortages, economic instability, and wars. In the years 2011-2013, an estimated 842 million people were suffering from chronic hunger. The Food and Agriculture Organization of the United Nations, or FAO, identified the four pillars of food security as availability, access, utilization, and stability. The United Nations (UN) recognized the Right to Food in the Declaration of Human Rights in 1948, and has since noted that it is vital for the enjoyment of all other rights.

The 1996 World Summit on Food Security declared that "food should not be used as an instrument for political and economic pressure" According to the International Centre for Trade and Sustainable Development, failed agriculture market regulation and the lack of anti-dumping mechanisms cause much of the world's food scarcity and malnutrition.

Food supply indicators and measures are derived from country level household income and expenditure surveys to estimate per capita caloric availability. In general the objective of food supply indicators and measures is to capture some or all of the main components of food supply in terms of food availability, access and utilization or adequacy. While availability (production and supply) and utilization/adequacy (nutritional status/anthropometric measures) seemed much easier to estimate, thus more popular, access (ability to acquire sufficient quantity and quality) remain largely elusive. The factors influencing household food access are often context specific. Thus the financial and technical demands of collecting and analyzing data on all aspects of household's experience of food access and the development of valid and clear measures remain a huge challenge. Nevertheless, several measures have been developed that aim to capture the access component of food supply, with some notable examples developed by the USAID-funded Food and Nutrition Technical Assistance (FANTA) project, collaborating with Cornell and Tufts University and Africare and World Vision.

A household

Consists of one or more people who live in the same dwelling and also share at meals or living accommodation, and may consist of a single family or some other grouping of people. A single dwelling will be considered to contain multiple households if either meals or living space are not shared. The household is the

basic unit of analysis in many social, microeconomic and government models, and is important to the fields of economics and inheritance. Household models include the family, varieties of blended families, share housing, group homes, boarding houses, houses in multiple occupation (UK), and a single room occupancy (US). In feudal times, the royal Household and medieval households of the wealthy would also have included servants and other retainers.

Government

For statistical purposes in the United Kingdom, a household is defined as "one person or a group of people who have the accommodation as their only or main residence and for a group, either share at least one meal a day or share the living accommodation, that is, a living room or sitting room"

The United States Census definition similarly turns on "separate living quarters", i.e. "those in which the occupants live and eat separately from any other persons in the building A *householder* in the U.S. census is the "person (or one of the people) in whose name the housing unit is owned or rented (maintained);" if no person qualifies, any adult resident of a housing unit is a householder. The U.S. government formerly used the terms "head of the household" and "head of the family" to describe householders; beginning in 1980, these terms were officially dropped from the census and replaced with "householder".

A household includes all the persons who occupy a housing unit. A housing unit is a house, an apartment, a mobile home, a group of rooms, or a single room that is occupied (or if vacant, is intended for occupancy) as separate living quarters. Separate living quarters are those in which the occupants live and eat separately from any other persons in the building and which have direct access from the outside of the building or through a common hall. The occupants may

be a single family, one person living alone, two or more families living together, or any other group of related or unrelated persons who share living arrangements. (People not living in households are classified as living in group quarters.)

According to Statistics Canada, since July 15, 1998, "a household is generally defined as being composed of a person or group of persons who co-reside in, or occupy, a dwelling.

Economics

Most economic theories assume there is only one income stream to a household this a useful simplification for modeling, but does not necessarily reflect reality. Many households now include multiple income-earning members.

Most economic models do not address whether the members of a household are a family in the traditional sense. Government and policy discussions often treat the terms *household* and *family* as synonymous especially in western societies where the nuclear family has become the most common family structure In reality, there is not always a one-to-one relationship between households and families.

Social

In social work the household is a residential grouping defined similarly to the above in which housework is divided and performed by householders. Care may be delivered by one householder to another, depending upon their respective needs, abilities, and perhaps disabilities. Different household compositions may lead to differential life and health expectations and outcomes for household

members Eligibility for certain community services and welfare benefits may depend upon household composition

In sociology 'household work strategy', a term coined by Ray Pahl is the division of labour between members of a household, whether implicit or the result of explicit decision-making, with the alternatives weighed up in a simplified type of cost-benefit analysis. It is a plan for the relative deployment of household members' time between the three domains of employment: i) in the *market economy*, including home-based self-employment second jobs, in order to obtain money to buy goods and services in the market; ii) *domestic production work*, such as cultivating a vegetable patch or raising chickens, purely to supply food to the household; and iii) *domestic consumption work* to provide goods and services directly within the household, such as cooking meals, child-care, household repairs, or the manufacture of clothes and gifts. Household work strategies may vary over the life-cycle, as household members age, or with the economic environment; they may be imposed by one person or be decided collectively.

Feminism examines the ways that gender roles affect the division of labour within households. Sociologist Arlie Russell Hochschild in *The Second Shift* and *The Time Bind* presents evidence that in two-career couples, men and women, on average, spend about equal amounts of time working, but women still spend more time on housework. Cathy Young, another feminist writer, responds to Hochschild's assertions by arguing that in some cases, women may prevent the equal participation of men in housework and parenting

THE INDIVIDUAL AND THE HOUSEHOLD

Since a household is composed of individuals, we must either construct a theory of the household which is based on and derived from the theory of behavior

This is a revised version of the paper delivered at the conference, reworked to strengthen the substantive results and stripped of some interesting but unessential material of individuals, suitably modified to take account of their association within the household, or ignore those individuals altogether and construct a theory of the household which is *sub* generis and not based on individuals. The theory of the consumption function is of this latter kind, not derivable from standard micro theory, as are ad hoc models such as the stock adjustment model of Houthakker and Taylor (1970).

We shall be entirely concerned here with models of the first kind, based on the theory of individual behavior and using the results of micro theory. Remarkably little has been done in this area, although Samuelson (1956) tackled the problem directly in what is probably the fullest discussion in the economics literature of the relation of household decisions to individual preferences. Becker (1965), Muth (1966) and others since have considered the problems associated with production (implicit and explicit) within the household and with time allocation within the household, but assumed away any problems associated with the household's decision function. There is, of course, an extensive literature on both aggregation and the construction of social welfare functions, two problems directly relevant to the theory of the household, but with the emphasis placed on large, rather than small, groups. The marketing literature contains much discussion of intra household decision processes, primarily from the point of view of trying to influence sales by manipulating these,' and there has been considerable recent work in the empirical investigation of who makes what decisions within the household.

Finally there is decision theory, especially the work on teams by Marshak and

Radner (1972), which has relevance to the household decision process. For the basic problem with which we are concerned here, however, we cannot draw on any of this literature except that on aggregation and social welfare functions (including the Samuelson article), since we shall confine ourselves to the pure demand properties of households under conditions that do not involve production, time or uncertainty.

2.2 Theoretical review

Malthusianism is a school of ideas derived from the political/economic thought of the Reverend Thomas Robert Malthus, as laid out in his 1798 writings, *An Essay on the Principle of Population*, which describes how unchecked population growth is exponential while the growth of the food supply was expected to be arithmetical.

In fact, Malthus observed that population would tend to increase at a geometric rate (2, 4, 8, 16, 32, 64, etc.), but food supply would tend to increase at an arithmetic rate (2, 4, 6, 8, 10, 12). Thus, at the end of two hundred years "population would be to the means of subsistence as 259 to 9; in three centuries as 4,096 to 13, and in two thousand years the difference would be incalculable." Malthus believed there were two types of "checks" that could then reduce the population, returning it to a more sustainable level. He believed there were "preventive checks" such as moral restraints (abstinence, delayed marriage until finances become balanced), and restricting marriage against persons suffering poverty and/or defects. Malthus believed in "positive checks", which lead to 'premature' death: disease, starvation, war, resulting in what is called a Malthusian catastrophe. The catastrophe would return population to a lower, more "sustainable", level the term has been applied in different ways over the

last two hundred years, and has been linked to a variety of other political and social movements, but almost always refers to advocates of population control

Neo-Malthusianism generally refers to people with the same basic concerns as Malthus, who advocates population control programs, to ensure resources for current and future populations. In Britain the term *Malthusian* can also refer more specifically to arguments made in favour of preventive birth control, hence organizations such as the Malthusian League. Neo-Malthusians seem to differ from Malthus's theories mainly in their enthusiasm for contraception. Malthus, a devout Christian, believed that "self-control" (abstinence) was preferable to artificial birth control. In some editions of his essay, Malthus did allow that abstinence was unlikely to be effective on a wide scale, thus advocating the use of artificial means of birth control as a solution to population "pressure". Modern "neo-Malthusians" are generally more concerned than Malthus was, with environmental degradation and catastrophic famine than with poverty.

Many critics believe that the basis of Malthusian theory has been fundamentally discredited in the years since the publication of *Principle of Population*, often citing major advances in agricultural techniques and modern reductions in human fertility. Many modern proponents believe that the basic concept of population growth eventually outstripping resources is still fundamentally valid, and "positive checks" are still likely in humanity's future if there is no action to curb population growth.

Malthusian terms can carry a pejorative connotation indicating excessive pessimism, misanthropy and/or inhumanity. Some proponents of Malthusian ideas believe that Malthus's theories have been widely misunderstood and misrepresented; these proponents believe his reputation for pessimism and inhumanity is ill deserved. Malthusian ideas have attracted criticism from a

diverse range of differing schools of thought, including Marxists^[1] and socialists, libertarians and free market enthusiasts, social conservatives, feminists and human rights advocates.

Malthus was not the first to outline the problems he perceived. The original essay was part of an ongoing intellectual discussion at the end of the 18th century regarding the origins of poverty. *Principle of Population* was specifically written as a rebuttal to thinkers like William Godwin and the Marquis de Condorcet, and Malthus's own father who believed in the perfectibility of humanity. Malthus believed humanity's ability to reproduce too rapidly doomed efforts at perfection and caused various other problems.

His criticism of the working class's tendency to reproduce rapidly, and his belief that this, rather than exploitation by capitalists, led to their poverty, brought widespread criticism of his theory.

Malthusians perceived ideas of charity to the poor, typified by Tory paternalism, were futile, as these would only result in increased numbers of the poor; these theories played into Whig economic ideas exemplified by The Poor Law Amendment Act of 1834. The Act was described by opponents as "a Malthusian bill designed to force the poor to emigrate, to work for lower wages, to live on a coarser sort of food" which initiated the construction of workhouses despite riots and arson.

Malthus revised his theories in later editions of *An Essay on the Principles of Population*, taking a more optimistic tone, although there is some scholarly debate on the extent of his revisions.^[1] According to Dr. Dan Ritschel of the Center for History Education at the University of Maryland,

The great Malthusian dread was that "indiscriminate charity" would lead to exponential growth in the population in poverty, increased charges to the public purse to support this growing army of the dependent, and, eventually, the catastrophe of national bankruptcy. Though Malthusianism has since come to be identified with the issue of general over-population, the original Malthusian concern was more specifically with the fear of over-population by the dependent poor

One of the earliest critics was David Ricardo. Malthus immediately and correctly recognized it to be an attack on his theory of wages. Ricardo and Malthus debated this in a lengthy personal correspondence.

Another one of the 19th century critics of Malthusian theory was Karl Marx who referred to it as "nothing more than a schoolboyish, superficial plagiary of De Foe, Sir James Steuart, Townsend, Franklin, Wallace" (in *Capital*, see Marx's footnote on Malthus from *Capital* - reference below). Marx and Engels described Malthus as a "lackey of the bourgeoisie Socialists and communists believed that Malthusian theories "blamed the poor" for their own exploitation by the capitalist classes, and could be used to suppress the proletariat to an even greater degree, whether through attempts to reduce fertility or by justifying the generally poor conditions of labour in the 19th century

One proponent of Malthusianism was the novelist Harriet Martineau whose circle of acquaintances included Charles Darwin, and the ideas of Malthus were a significant influence on the inception of Darwin's theory of evolution. Darwin was impressed by the idea that population growth would eventually lead to more organisms than could possibly survive in any given environment, leading him to theorise that organisms with a relative advantage in the struggle for survival and reproduction would be able to pass their characteristics on to further

generations. Proponents of Malthusianism were in turn influenced by Darwin's ideas, both schools coming to heavily influence the field of eugenics. Henry Fairfield Osborn, Jr. advocated "humane birth selection through humane birth control" in order to avoid a Malthusian catastrophe by eliminating the "unfit."

Malthusianism generally became a less common intellectual tradition as the 19th century advanced, mostly as a result of technological increases, the opening of new territory to agriculture, and increasing international trade. Although a "conservationist" movement in the United States concerned itself with resource depletion and natural protection in the first half of the twentieth century, Desrochers and Hoffbauer write, "It is probably fair to say, that it was not until the publication of Osborn's and Vogt's books [1948] that a Malthusian revival took hold of a significant segment of the American population. There are two types of checks which can keep population on a level with the means of subsistence. They are the preventive and a positive check.

The first proposition is that the population of a country is limited by the means of subsistence. In other words, the size of population is determined by the availability of food. The greater the food production, the greater the size of the population which can be sustained. The check of deaths caused by want of food and poverty would limit the maximum possible population.

The second proposition states that the growth of population will out-run the increase in food production. Malthus thought that man's sexual urge to bear offspring knows no bounds. He seemed to think that there was no limit to the fertility of man. But the power of land to produce food is limited. Malthus thought that the law of diminishing returns operated in the field of agriculture and that the operation of this law prevented food production from increasing in proportion to labour and capital invested in land.

Therefore, Malthus asserted that population would ultimately outstrip food supply.

According to the third proposition, as the food supply in a country increases, the people will produce more children and would have larger families. This would increase the demand for food and food per person will again diminish. Therefore, according to Malthus, the standard of living of the people cannot rise permanently. As regards the fourth proposition, Malthus pointed out that there were two possible checks which could limit the growth of population: (a) Preventive checks, and (b) Positive checks.

Preventive Checks:

Preventive checks exercise their influence on the growth of population by bringing down the birth rate. Preventive checks are those checks which are applied by man. Preventive checks arise from man's fore-sight which enables him to see distant consequences. He sees the distress which frequently visits those who have large families.

He thinks that with a large number of children, the standard of living of the family is bound to be lowered. He may think that if he has to support a large family, he will have to subject himself to greater hardships and more strenuous labour than that in his present state. He may not be able to give proper education to his children if they are more in number.

Further, he may not like exposing his children to poverty or charity by his inability to provide for them. These considerations may force man to limit his family. Late marriage and self-restraint during married life are the examples of preventive checks applied by man to limit the family.

Positive Checks:

Positive checks exercise their influence on the growth of population by increasing the death rate. They are applied by nature. The positive checks to population are various and include every cause, whether arising from vice or misery, which in any degree contributes to shorten the natural duration of human life.

The unwholesome occupations, hard labour, exposure to the seasons, extreme poverty, bad nursing of children, common diseases, wars, plagues and famines are some of the examples of positive checks. They all shorten human life and increase the death rate.

Malthus recommended the use of preventive checks if mankind was to escape from the impending misery. If preventive checks were not effectively used, positive checks like diseases, wars and famines would come into operation. As a result, the population would be reduced to the level which can be sustained by the available quantity of food supply.

Criticism of Malthusian Theory:

The Malthusian theory of population has been a subject of keen controversy.

The following are some of the grounds on which it has been criticized:

(i) It is pointed out that Malthus's pessimistic conclusions have not been borne out by the history of Western European countries. Gloomy forecast made by Malthus about the economic conditions of future generations of mankind has been falsified in the Western world. Population has not increased as rapidly as predicted by Malthus; on the other hand, production has increased tremendously

because of the rapid advances in technology. As a result, living standards of the people have risen instead of falling as was predicted by Malthus.

(ii) Malthus asserted that food production would not keep pace with population growth owing to the operation of the law of diminishing returns in agriculture. But by making rapid advances in technology and accumulating capital in larger quantity, advanced countries have been able to postpone the stage of diminishing returns. By making use of fertilizers, pesticide better seeds, tractors and other agricultural machinery, they have been able to increase their production greatly.

In fact, in most of the advanced countries the rate of increase of food production has been much greater than the rate of population growth. Even in India now, thanks to the Green Revolution, the increase in food production is greater than the increase in population. Thus, inventions and improvements in the methods of production have belied the gloomy forecast of Malthus by holding the law of diminishing returns in check almost indefinitely.

(iii) Malthus compared the population growth with the increase in food production alone. Malthus held that because land was available in limited quantity, food production could not rise faster than population. But he should have considered all types of production in considering the question of optimum size of population. England did feel the shortage of land and food.

If England had been forced to support her population entirely from her own soil, there can be little doubt that England would have experienced a series of famines by which her growth of population would have been checked. But England did not experience such a disaster. It is because England industrialized itself by developing her natural resources other than land like coal and iron, and

accumulating man-made capital equipment like factories, tools, machinery, mines, ships and railways, this enabled her to produce plenty of industrial and manufacturing goods which she then exported in exchange for food-stuffs from foreign countries.

There is no food problem in Great Britain. Therefore, Malthus made a mistake in taking agricultural land and food production alone into account when discussing the population question. As already said, he should have rather considered all types of production.

(iv) Malthus held that the increase in the means of subsistence or food supplies would cause population to grow rapidly so that ultimately means of subsistence or food supply would be in level with population, and everyone would get only bare minimum subsistence. In other words, according to Malthus, living standards of the people cannot rise in the long run above the level of minimum subsistence. But, as already pointed out, living standards of the people in the Western world have risen greatly and stand much above the minimum subsistence level.

There is no evidence of birth-rate rising with the increases in the standard of living. Instead, there is evidence that birth-rates fall as the economy grows. In Western countries, attitude towards children changed as they developed economically. Parents began to feel that it was their duty to do as much as they could for each child.

Therefore, they preferred not to have more children than they could attend to properly. People now began to care more for maintaining a higher standard of living rather than for bearing more children. The wide use of contraceptives in the Western world brought down the birth rates. This change in the attitude

towards children and the wide use of contraceptives in the Western world has falsified Malthusian doctrine.

(v) Malthus gave no proof of his assertion that population increased exactly in geometric progression and food production increased exactly in arithmetic progression. It has been rightly pointed out that population and food supply do not change in accordance with these mathematical series. Growth of population and food supply cannot be expected to show the precision or accuracy of such series.

However, Malthus, in later editions of his book, did not insist on these mathematical terms and only held that there was an inherent tendency in population to outrun the means of subsistence. We have seen above that even this is far from true.

There is no doubt that the civilized world has kept the population in check. It is, however, to be regretted that population has been increasing at the wrong end. The poor people, who can ill-afford to bring up and educate children, are multiplying, whereas the rich are applying breaks on the increase of the size of their families.

Modern Malthusianism

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Malthusian theory is a recurrent theme in many social science venues. John Maynard Keynes, in *Economic Consequences of the Peace*, opens his polemic

with a Malthusian portrayal of the political economy of Europe as unstable due to Malthusian population pressure on food supplies. Many models of resource depletion and scarcity are Malthusian in character: the rate of energy consumption will outstrip the ability to find and produce new energy sources, and so lead to a crisis.

In France, terms such as "*politique malthusienne*" ("Malthusian politics") refer to population control strategies. The concept of restriction of population associated with Malthus morphed, in later political economic theory, into the notion of restriction of production. In the French sense, a "Malthusian economy" is one in which protectionism and the formation of cartels is not only tolerated but encouraged

One critic of Neo-Malthusian theory (but not of birth control and abortion in general), was Vladimir Lenin, the leader of the Bolshevik Party and main architect of the Soviet Union

"Neo-Malthusianism" may be used as a label for those who are concerned that overpopulation may increase resource depletion or environmental degradation to a degree that is not sustainable with the potential of ecological collapse or other hazards The term is also often immediately connected with eugenics

The rapid increase in the global population of the past century exemplifies Malthus's predicted population patterns; it also appears to describe socio-demographic dynamics of complex pre-industrial societies. These findings are the basis for neo-Malthusian modern mathematical models of *long-term historical dynamics*.

In his *An Essay on the Principle of Population*, Malthus made the specific prediction that world population would fall below a line going upward from its

then current population of one billion, adding one billion every 25 years. He wrote:

If the subsistence for man that the earth affords was to be increased every twenty-five years by a quantity equal to what the whole world at present produces, this would allow the power of production in the earth to be absolutely unlimited, and its ratio of increase much greater than we can conceive that any possible exertions of mankind could make it yet still the power of population being a power of a superior order, the increase of the human species can only be kept commensurate to the increase of the means of subsistence by the constant operation of the strong law of necessity acting as a check upon the greater power.

There was a general "neo-Malthusian" revival in the 1950s, 60s and 70s after the publication of two influential books in 1948 (Fairfield Osborn's *Our Plundered Planet* and William Vogt's *Road to Survival*). During that time the population of the world rose dramatically. Many in environmental movements began to sound the alarm regarding the potential dangers of population growth. The Club of Rome published a famous book entitled *The Limits to Growth* in 1972. The report and the organization soon became central to the neo-Malthusian revival. Paul R. Ehrlich has been one of the most prominent neo-Malthusians since the publication of *The Population Bomb* in 1968. Other prominent Malthusians include the Paddock brothers, authors of *Famine 1975! America's Decision: Who Will Survive?*

The neo-Malthusian revival has drawn criticism from journalists, academics and other commentators. Writers have claimed the Malthusian warnings were overstated or premature because the green revolution brought substantial increases in food production and will be able keep up with rapid population

growth.^{[6][27]} Julian Simon, a noted cornucopian has written that contrary to neo-Malthusian theory, the earth's "carrying capacity" is essentially limitless. Responding to Simon, Al Bartlett reiterates the potential of population growth as an exponential (or as expressed by Malthus, "geometrical") curve to outstrip both natural resources and human ingenuity. Bartlett writes and lectures particularly on energy supplies, and describes the "inability to understand the exponential function" as the "greatest shortcoming of the human race".

Prominent neo-Malthusians such as Paul Ehrlich maintain that ultimately, population growth on Earth is still too high, and will eventually lead to a serious crisis. The 2007–2008 world food price crisis inspired further Malthusian arguments regarding the prospects for global food supply.

In Aldous Huxley's classic novel (published 1932) about a fictional *Brave New World*, he integrates Malthusianism as a central theme, replete with numerous mentions of "Malthusian belts". In his future world, recreational sex is an integral part of society. According to the World State, sex is a social activity, rather than a means of reproduction (sex is encouraged from early childhood). The few women who can reproduce are conditioned to use birth control, even wearing a "Malthusian belt" (which resembles a bandolier and holds "the regulation supply of contraceptives") as a popular fashion accessory. The maxim "everyone belongs to everyone else" is repeated often, and the idea of a "family" is considered pornographic; sexual competition and emotional, romantic relationships are rendered obsolete because they are no longer needed. Marriage, natural birth, parenthood, and pregnancy are considered too obscene to be mentioned in casual conversation. Thus, society has developed a new idea of reproductive comprehension.

Malthusianism was a major theme in the 1973 science fiction film *Soylent Green*, the 2009 film *Pandorum*, and the 2013 Dan Brown novel *Inferno*.

2.3 Review of the related literature

Factors responsible for food supply

The major challenge to food security in Africa is its underdeveloped Agricultural sector that is characterized by over-reliance on primary Agriculture, low fertility soils, minimal use of external farm inputs, environmental degradation, significant food crop loss both pre- and post- harvest, minimal value addition and product differentiation, and inadequate food storage and preservation that result in significant commodity price fluctuation. Ninety five percent of the food in Sub Saharan Africa is grown under rain fed Agriculture. Fan S., Chan-Kang Connie (2004)

Hence food production is vulnerable to adverse weather conditions. There is an overall decline in farm input investment including fertilizers, seeds, and technology adoption. Access to fertilizer use is constrained by market liberalization and trade policies that increase fertilizer prices relative to commodity prices, limited access to markets and infrastructure, limited development of output, input and credit markets, poverty and cash constraints that limit farmer's ability to purchase fertilizer and other inputs⁶. The soils continue to degrade leading to a reduction in the productivity of the farms. Some of the causes of soil fertility depletion in Africa include the limited adoption of fertilizer replenishment strategies and soil and water conservation measures; the decline in the use and length of fallow periods; expansion of Agricultural production into marginal and fragile areas; and the removal of vegetation through overgrazing, logging, development, and domestic use. Other causes

include rapid population growth, limited access to Agriculture-related technical assistance and lack of knowledge about profitable soil fertility management practices leading to expansion into less-favorable lands. A significant amount of food is lost through pre- and post-harvest losses. The tropical climate makes foods produce in these regions prone to pests and diseases. Poor handling and storage further increase the post-harvest losses. Management of the African Agricultural system is further complicated by the existence of diverse heterogeneous systems. Fan S., Chan-Kang Connie (2004)

Poor policies have greatly affected the food security in Africa. The problem arises when the focus on policies, structures and institutions is put above that of the people themselves. When policies are not inclusive in their design they tend to handicap the exempted lot by providing barriers. One such way in which this may take place is uneven development within countries where certain regions are preferentially developed for political reasons at the expense of others. Policies that promote monopolistic competition for the large-scale industries hurt the cottage and small industry. When we fail to provide safety nets for vulnerable groups, we doom them to destruction.

Disease and infection continue to plague the African continent. Diseases such as malaria, tuberculosis and HIV/AIDS not only reduce the man-hours available to Agriculture and household food acquisition, but also increase the burden of household in acquiring food. In Sub Saharan Africa, AIDS is the leading cause of adult mortality and morbidity. The Food and Agriculture Organization of the United Nations (FAO), estimates that by 2020 the epidemic will claim the lives of 20 percent or more of the population working in Agriculture in many Southern African countries. More than two thirds of the total population of the 25 most affected countries resides in rural areas, affecting Agricultural production as well as farm and domestic labour supplies. Lack of resources also makes it more

difficult for HIV-affected households to supplement their diet through the purchase of more nutritious and varied foods. The effect of malnutrition on food security is further exacerbated by the fact that individuals affected by disease and infection, have greater nutritional requirements. Haggblade Steven (Eds April 2004)

Hilary, J. 2004 contends that Access to markets another hurdle that smallholders have to overcome. The problem is many- fold: poor infrastructure and barriers in penetrating the market caused by their limited resource base, lack of information, lack of or inadequate support institutions and poor policies in place among other factors. Poor infrastructure literally limits the markets to which farmers can profitably take their produce by increasing the cost of transportation, and hence also acts as a barrier to market penetration. Other barriers include market standards, limited information, requirements for large initial capital investments, limited product differentiation, and handicapping policies. It is as detailed as the nutritional content per serving size, allowable bacterial load, and residual pesticide. Some markets have zero tolerance on the latter. The other aspect of the problem is the variation in the standards between markets. They are so varied that they necessitate the farmer to identify the market before production. Yet, the markets are not static. The volumes required and sometimes the standards vary. The farmers' risk is increased. Apart from the fact that standards in themselves provide a bottleneck as to the crop and amount thereof that a farmer can produce, standards also put a strain as to who can produce. Lastly, Africa's high export costs limit farmer's access to the international markets. In order to meet the standards there is need for information, capital, technology and expertise that the stallholder farmers have no capacity to meet without external assistance

Globalization is a concept that allows countries to benefit from capital flows, technology transfer, cheaper imports and larger export markets in the long term. However, the effect of globalization on any country depends on that country's level of economic development, structures in place during the implementation stage, flexibility of its economy. Globalization has three dimensions. The first refers to the multiplication and intensification of economic, political, social and cultural linkages among people, organizations and countries at the world level. The second dimension is the tendency towards the universal application of economic, institutional, legal, political and cultural practices. This is related to the first dimension in that increased linkages generate a need for common institutions and rules. The third dimension is the emergence of significant spillovers from the behavior of individuals and societies to the rest of the world. Due to the interrelation of the various dimensions, policies made in one country are bound to have effects on another. With globalization comes liberalization of markets. The food security threat caused by liberalization is due to dumping of heavily subsidized produce in developing countries and premature exposure of upcoming industries to genuine competition from producers in developing and developed countries. In addition, most profits are repatriated by transnational companies⁷ reducing the potential for poverty reduction to direct employment alone. In most cases, the pay is low because the national policies do not protect the labourer. Inter Academy Council. 2004

Effect of food SUPPLY on house hold income

Food insecurity and hunger are specifically related to limited household resources. Thus, by definition they are referred to as "resource-constrained or poverty-related" conditions. Financial resources available to households can include income earned by household members and additional resources derived from cash and in-kind assistance provided by public and private safety-net

programs, including public and private food assistance programs, housing subsidies, and energy assistance.

In Uganda, the economy is still characterized by low productivity, low competitiveness, and weak infrastructure, lack of access to finance, electricity, support services, market outlets and access. Meanwhile, the population growth of over 3% per year erodes economic gains and adds more than 300,000 frustrated job-seekers to the economy each year. Agriculture remains the major contributors to GDP but as diversification and transformation take root its share of GDP is expected to decline. However, Agricultural sector contribution in terms of output, employment incomes and agro-processing industrialization strategy will remain essential for reducing poverty. Although Agriculture will remain a means to broader developmental ends, and contributes about 40% of GDP, it is neglected in budget allocations and receives less than 5% of total budget (Kamuntu, August 2004).

Based on the official poverty definitions, in 2007 (the latest year for which data are available), 37.3 million people (12.5%) lived in households with incomes below the poverty thresholds in the U.S. Of these, 13.3 million were children under age 18 years, and 5.1 million were children under 6 years of age. Subpopulations with highest prevalence of poverty are people in female-headed households with no spouse present (28.3%), Blacks (24.5%), Latinos (21.5%) and children under age 6 years (20.8%).²² From 2000 to 2004 the poverty rates for all major ethnic groups increased steadily, though they declined slightly from 2005—2006 and increased in 2007.

In 2007, 39.9% of all people in the U.S. with incomes below the poverty thresholds were food insecure. Of all people with incomes equal to or above the poverty threshold but below 130% of poverty (gross income cutoff for SNAP in

most states), 30.3% were food insecure, while 21.3% of all people with incomes equal to or above 130% but below 185% of poverty (gross income cutoff for WIC) were food insecure. Only 5.7% of all people with incomes at or above 185% of poverty were food insecure. These prevalence estimates suggest that for some families "safety net" programs, such as the national food assistance programs, housing and energy subsidies, and in kind contributions from relatives, friends, food pantries, or other charitable organizations, not included in the federal poverty calculations, may partly decrease the risk of food insecurity. Families that do not receive public benefits for which they are income eligible (either because of bureaucratic barriers or because the programs are not entitlements and are insufficiently funded to reach all who are eligible) may be more likely to be food insecure. Moreover, many families whose incomes exceed the eligibility cut-off for these programs may still be unable to avoid food insecurity without assistance if the costs of competing needs such as energy or housing are overwhelming. From 1999 to 2004 the prevalence of food insecurity increased steadily for all major race/ethnic groups, but declined in 2005 and increased among Hispanic households in 2006 and among all three groups in 2007.

Food security in Africa has substantially worsened over the last 30 year, with high population and food demand growth consistently exceeding modest Agricultural production growth (Byerlee and Eicher, 1997). It is estimated that out of the world's 800 million people that are food insecure, about 180 million (or 23%) live in Sub-Saharan Africa (Pinstrup-Anderson et.al, 2001). The reasons behind Africa's poor Agricultural performance are myriad. A triple curse of poor resource endowments-including poor land quality, many land locked countries, endemic livestock disease, and human diseases- a colonial legacy of extraction and exploitation, and a policy environment that consistently undermined

Agriculture and the institutions that serve it has afflicted the continent since independence (World Bank 2000a).

Human capital itself is a very important output produced by families via the household production process. Parents combine their human capital with other inputs (time, attention, books, toys, food, etc.) using care and interaction to nurture critical human capital formation in their children. Taking education as an example, children in turn build gradually upon their sum total of human capital to accumulate the stock necessary for school readiness: capacity for future learning and successful physical, social, and psychological adaptation to new environments.

These capacities are heavily determined by the extent and quality of parent-child interactions and the level of stimulation in the home environment (household inputs). Early deficits in household inputs can diminish human capital in young children, predisposing them to failure in school and diminishing their potential for forming and expressing future human capital as successful, productive members of the workforce and society.

Strategies that can be adapted to increase food Supply

To meet a growing global demand for food and fodder one can opt for increasing yields through intensification and/or for extending the land base used for Agricultural cultivation. Intensification and concentrating food production in the most productive regions may appear the most efficient way to use the land. However, risks to food security may be increased, because supply chains become more vulnerable and because of pollution. Loss of crop diversity, decline of pollinators and increased vulnerability of monocultures to diseases are additional stress factors. On the other hand, regional or local self-sufficiency and the

reliance on extensive farming systems would require more cultivated land at the expense of natural habitats. Garcia, (2003)

Von (2004) argues that it is not enough to only increase total food production. The food must also be locally available, affordable and meet quality standards. The distribution channels and trade patterns are key in this respect. As long as we can afford to import food from other parts of the world, European food security may not seem to be at immediate risk, regardless of our support to European Agriculture. But the choices we make will affect trade and global food security, as well as availability of local food products, with implications for chain control, food safety and other quality concerns. Currently, the European Union is by and large self-sufficient for cereals, butter and beef, but a big net-importer of fodder for domestic livestock production.

Food security can also be tackled from the consumption perspective, for example by looking at the efficiency gains from changing diets. Livestock production is more than six times as inefficient as crop production in terms of protein output, and hence meat diets are associated with higher land take and nutrient losses (Frankenberg. 1993).

Gifford, 1997 argues that Nutritional Interventions. Malnutrition has devastating effects on any population. It increases mortality and morbidity rates, diminishes the cognitive abilities of children and lowers their educational attainment, reduces labour productivity and reduces the quality of life of all affected. I propose that in addition to investing in short-term interventions, at vital. African countries should increase their investment in long-term interventions dietary

Diversification food sufficiency and bio fortification. These have lower maintenance costs, a higher probability of reaching the poor who are vulnerable to food insecurity, and produce sustainable results. Dietary diversification still

remains the best way to provide nutritious diets to the sustainability of any population. It is possible to obtain the right mix of food to alleviate malnutrition from that which is locally produced. The probability of so doing is increased with increase in locally produced foods. Africa needs to increase its production of animal products, fruits, pulses and vegetables. Increased production would in part make these foods affordable to the poor and increase their protein, vitamin and mineral intake. One sure way is to revisit the cultivation of traditional fruits and vegetables that are adapted to prevailing environmental conditions. Once produced, there is need for more stringent post-harvest loss prevention measures. In addition, East and Central Africa should increase their roots and tuber production so as to reduce their dependency on cereals. This reduces the risk of crop failure during droughts since tubers like cassava are relatively more drought tolerant. We must continue to strive for food sufficiency. Food insufficiency creates dependency on the supplier and could be used as a weapon to bend preferences to the master's liking. If Africa is to be food sufficient it must produce more food not only in quantity but also in Variety (Pinstrup- Aderesen, p. 2002.

Garcia, (2003) contend that Disease and infection increase the nutritional requirement of the individual affected and may reduce nutrient intake through loss in appetite increasing the risk of malnutrition. More than half the water consumed in Africa is untreated. This causes water borne diseases, which lead to diarrhea and thus nutrient loss from the body thus increasing nutrient requirement of the population. Africa continues to lose many children through diarrhea. We need to invest in childcare and educate mothers on hygienic practices. For sustainable results, support systems should be put in place. Malaria, tuberculosis, HIV/AIDS and other related diseases continue to plague the continent. There is need to promote prevention practices and find affordable

curatives. We need more accessible, affordable and adequately equipped health care centers.

Facilitating Market Access. There is need to remove the barriers to trade. The focus by most African governments has been to open up markets in the hope that their people will benefit. Study shows that the projected gains of world trade liberalization tend to be minimal in Sub-Saharan Africa and that the income gains from trade liberalization will go to countries with a competitive advantage in the markets concerned⁹. Perhaps it is time that Africans produced for Africans both within the continent and Diaspora, increased their south to south trading, and consolidated their efforts on their comparative advantage for mutual benefit. We would have more control of the market if we acted as one. (Cox et al, 2001)

Clayton (1999) argues that rural off- farm opportunities will provide opportunities for both the landless rural poor and the group of non-adopters that fall out of business when the Agricultural sector becomes more efficient. In addition, provision of off- farm opportunities will curb rural to urban migration and possibly induce some urban to rural migration. It would reduce the number of non-motivated farmers who took up farming just because they had no other options, thus paving the way for more efficient farming. Some of the opportunities that African countries can look into include cottage industries that process food crops by value addition and/or enhancing shelf life through preservation techniques; production of small scale processing machinery; provision of credit; contract processing facilities; and market facilitation. Specific activities may include the production of items with enhanced shelf life that would allow for marketing in distant markets. These products may range from dairy products such as butter, cheese and ghee, to preprocessed and packaged cut vegetables such as carrots and shelled garden peas for the urban population; to dried fruits and vegetables. More sophisticated, yet relatively technically easy to

produce products, such as starch and vegetable oils, may also be produced. For this to be achievable there is need for collaboration amongst the multi-stakeholders.

Chinnery (2000) argues that Africa should focus on education, research and development, access to capital and infrastructure development. Measures to facilitate free primary education throughout Africa are urgently required. Education not only endows one with the power to read and hence be informed, but it also allows one to communicate. As an intervention to food security, education must go beyond the level of reading and writing to that of transfer of knowledge. To be useful, information transfer should be two-way. The poor have an idea of what would work for them and what they need. Since they are supposed to be the primary beneficiaries of food security related policies, it would be prudent to at least listen to them. In addition, education will open avenues to off-farm employment, thus acting as a safety net. It is time that Africans played an active role in research and development on matters that affect them. This includes food preservation at the village level, alternative medicine to make health more affordable to its people, creating more efficient Agricultural extension, options for improving soil fertility, best approach to manage the different Agricultural systems, and marketing strategies that would work best for a given group of farmers. Care should be taken to modify available technology to suit community setting and not the other way round. For benefits to be realized in all areas, infrastructure development must be high priority.

Anderson et al (2004) contend that there is an intrinsic gender issue where poverty is concerned. One of the ways in which this is manifested is in the shift from woman-lead leadership to man- lead leadership as one moves from subsistence farming to market driven farming. Women are important as food producers, managers of natural resources, income earners and caretakers of

household food security. Agricultural productivity has been said to increase by as much as 20 percent when women are given the same inputs as men!. The education of women is known to produce powerful effects on nearly every dimension of development, from lowering fertility rates to raising productivity, to improving environmental management. If women are to be fully effective in contributing to food and nutrition security, discrimination against them must be eliminated and the value of their role promoted. However, care should be taken not to aggravate the male gender while we pursue the noble task of empowering women. If we do not have the support in the local communities, public investments in education are less effective. We should, as much as it depends on us, avoid imposing our preferences on society without taking time to understand the existing cultural structure. As and when possible, an inclusive approach where men and women complement each other to achieve set objectives should be used.

One way to do this is by having open communication and group meetings. Nothing facilitates suspicion more than a breakdown in communication. If both men and women had more equal schooling, incomes, and therefore the economy, would grow faster. When only half of the labour force is able to read and write, obtain credit, develop a work skill and obtain work, it is hardly surprising that there will be losses in output. There is, without question, a need to address issues related to women's low status that is evident in their minimal access to resources like inputs, land, and credit and the fact that they have low income and low literacy. There is a tendency for planners and policymakers to think that rural women do not know their own problems. These women can clearly articulate their problems based on their own experience. We need to use methods like focus group discussions that capture this. It is not enough for the poor to have property rights over land, water, trees, or other assets unless there

are services to make those assets productive. Such services include roads, transport, access to market, and communications. (Anderson and Hazell, 2004)

Agnes (1995) argues that while it could be argued that all the above interventions are part of good governance, special emphasis on the need for good governance is prudent. All the above strategies can only work in a peaceful, corruption free environment. Part of good governance is the provision of safety nets to vulnerable groups. It should also provide for the minority and be totally inclusive in its decision-making. There is need to delink political interests from the basic needs of a nation. More often than not sustainable food security measures are long-term strategies, which need to be protected from volatile political interests of leaders. If this means that departments dealing with such issues need to be stable, then so be it. In addition, it is in everyone's best interest to have only the best handling the issues at hand without political interference from governments and donors alike.

2.4 Related studies

Steve Quarrie (Balkan Security Network, Belgrade, Serbia) and Richard Simmons (School of Applied Social Science, University of Stirling, UK)

Serbia's first Agricultural census for 50 years, completed in autumn 2012 (Statistical Office of the Republic of Serbia, 2013), showed that the country's 2,497,187 households (Statistical Office of the Republic of Serbia, 2011) include 628,555 family Agricultural holdings (25.2% of Serbia's households) with an average of 4.5 ha of land per household. An average family holding owns one tractor and raises one cow, four pigs, three sheep, 26 hens and one colony of bees. Despite continuing urbanization, still nearly half Serbia's population (46% in 2011) lives in rural communities, so Agriculture is a major source of income for many families.

Boljevac is a village community of 125 inhabitants (Statistical Office of the Republic of Serbia, 2011) located on the slopes of the mountain Jastrebac in southern Serbia. It is one of seven villages making up the parish of Ribare, 45 min drive by car south of the county town of Kruševac. Boljevac is only 3 km from Ribare but takes about 15 min by car because there is no asphalt road. This is typical of many rural communities in Serbia.

Such rural communities lack competitiveness and their farmers lack bargaining power. Because there is no good road to the village, buyers do not bother to go to the village. The local Agricultural cooperative in Ribare, which most villagers fondly remember, collapsed over 10 years ago, so householders have to make their own arrangements to sell Agricultural produce. Nearly all Agricultural produce is taken out of the village by tractor and trailer. There used to be an Agricultural market at a small town half-way to Kruševac, but that also closed some years ago. Therefore, fruit, vegetables and livestock are usually taken to Kruševac, or if they can afford the extra fuel and time, cattle go to Novi Pazar (about 4 h by car) where they can get better prices as it is a town with a Muslim majority, where cattle are preferred to pigs.

Milk is collected every two days in a tractor-towed tanker and taken to the local dairy in another of Ribare's villages. Although milk yields are often better than average because cows graze on local grass and hay rather than concentrates, milk prices are often below average as the quality is frequently claimed to be poor. Most cows are milked by hand. As there is only one buyer, villagers have to accept whatever they are offered. A major factor determining the wealth of the community is the weather. A drought in 2012 resulted in much of the village's livestock being taken to market because of lack of feed.

The only processed food made by the community used to be kaymak (a traditional salted cream), which was taken to Kruševac. However, the lady making this stopped doing so last year as it proved more trouble than it was worth - keeping all utensils sufficiently sterile, and the inconvenience and expense of getting it to Kruševac market. Although the concept of food processing in the village to give it added value is attractive to many inhabitants, they lack the resources (primarily financial) and skills to set this up as a "Boljevac" brand. Credit co-operatives would be ideal to support such local initiatives, though they are not allowed by Serbian law. A new law was being drafted in 2011-2012 to allow credit cooperatives, but has been stuck in the Ministry for reasons of both politics and business (vested interests not welcoming any competition or changes to the status quo). Population drift to the towns continues.

Steve Quarrie (Balkan Security Network, Belgrade, Serbia)

The aflatoxin affair illustrates how a fungal disease can impact through the food chain, affecting feed producers, farmers, milk suppliers, the public, milk analysis laboratories, international trade, officials in the Ministry of Agriculture and government policy. It had its origins in the summer and early autumn of 2012, which were marked by severe drought and high temperatures, ideal conditions for growth of the *Aspergillus* fungus responsible for toxic aflatoxins.

In October 2012 the first warning of aflatoxins in Serbian maize, which was exported to Italy, came from the EU Rapid Alert System for Food and Feed. In November 2012 the exporter announced that test results of 375 samples indicated that more than 70% of Serbian maize was contaminated with aflatoxins and must not be used for cattle feed to prevent contamination of milk. In December 2012 exporters expressed their concern but the Ministry of Agriculture

claimed that it had no official information. One problem was that Serbia had until May 2013 no national reference laboratory for the analysis of mycotoxins. However, following urgent inspections, the Minister of Agriculture announced that "not a single sample of milk was found to be contaminated with aflatoxin", adding that everything had been done to prevent the use of contaminated corn.

In the spring of 2013 safety concerns grew. On the 13th February the Ministry of Agriculture finally announced the results of its milk sampling declaring that of 300 samples tested, 272 were completely safe, while in 28 samples aflatoxin was at the permitted limit. However, other actors were unconvinced - a former Minister of Agriculture on her blog proclaimed "don't drink milk" and there was much confusion in the press as to the permitted limit. The upper limit in Serbia for aflatoxins in milk used to be 0.5 micrograms per litre, as it still is in the USA and many other countries, but to align its regulations with those of the EU, the upper limit was reduced to only 0.05 micrograms per litre in 2011. While Serbia in 2011 reduced the level of aflatoxin allowed in milk, it retained older regulations for animal feed. A major problem was that incompatible regulations cover the presence of aflatoxin in milk and animal feed.

On the 18th February tests in Vojvodina suggested that over half the milk sampled had concentrations up to two times the permitted limit. This stimulated widespread media interest and milk sales fell dramatically. Affected milk was withdrawn from retail sale. The response of the Minister of Agriculture was to drink milk on television and announce that the old regulations on maximum aflatoxin levels (0.5 µg/kg) would be re-introduced as "those amounts cannot have a negative effect on people's health and will allow us to export milk to two thirds of the world".

CHAPTER THREE

METHODOLOGY

3.0 Introduction

This chapter discusses the methodology that was used to study on the inventory information management on organizational performance. It highlights how data was collected and analyzed. This chapter also described in detail the overall research design adopted by the study, population of the study, sample size and sample selection strategy, data collection methods, and data collection instruments, validity and reliability of instruments, data analysis, ethical procedure and limitations of the study.

3.1 Research design

Research design provided the glue that holds the research project together. A design was used to structure the research, to show how all of the major parts of the research project - the samples or groups, measures, treatments or programs, and methods of assignment - work together to try to address the central research questions (William M.K. Trochim 2006)

According to S.Sarantakos (993), this w s the most significant element of the research process where the whole research was designed, options considered, decisions made and details of the research laid down for execution. The study was to be carried out mainly using quantitative approach of research. The research employed the self administered questionnaire as a too of data collection and to counter the shortcomings that would accrue from use of that tool, an interview was also conducted with some of the respondents. A correlation design of the quantitative approach was utilized to establish the relationship between the independent and dependent variables.

3.2 Research population

A population refers to the total elements of the study that the researcher has interest in regards to the provision of data (Eco, E (2009)). For the purpose of this study the researcher targeted the population that includes the civil servants, selected local leaders armed political leaders. The total population of the sub-county was estimated at 2000 people. It is from this population that the researcher selected the sample population.

Table 1: showing categories of respondents

Number	Category	Population	Sample size	Accessed sample
1	Political leaders	150	50	10
2	Civil servants	350	40	07
3	Local people	1500	160	53
Total		2000	250	70

Source of primary data 2016

3.3 Sample Size

Sample comprised of 250 respondents from political leaders, civil servants, and local people, however, due to limitation of attraction, only 70 questionnaires were retrieved, the researcher obtained, this sample size after employing Solven's formula

$$n = \frac{N}{1 + N(e)^2}$$

Where,

n=sample size

N= accessible population

α = level of significance at 0.05

3.4 Sample Technique

According to Sekaran (2003), sampling is the process of choosing the research units of the target Population, which are to be included in the study. The samples used in the study was selected using purposive sampling which is a function of non- probability sampling. Under purposive sampling technique, the researchers purposely choose who, in their opinion are thought to be relevant to the research topic. In this case, the judgment of the researcher was more important than obtaining a probability sample. The process of sampling in this case involved purposive identification of the respondents. The sample size was therefore selected from all the different respondents of choice in the study population.

3.5 Data sources

The researcher gathered information from two sources that was primary and secondary sources.

3.5.1 Primary source

This was the data source that enabled the researcher to attain information from the field. Data collection in this case was through the use of questionnaire. Data was collected from people's opinions, ideas through questioning and interviewing the study respondents.

3.5.2 Secondary Source

Secondary data was collected from official records /documents at the macro and transactional levels. Among others, the records/documents included stores records and journal, meeting correspondences and information pertaining the

nature of inventory as for documents which included ordering documents among others.

3.6 Data collection instruments

3.6.1 Questionnaire

Questionnaire consists of a number of questions printed or typed in a definite order on a form or set of forms. In this method questionnaires were sent to a respondent with the request to respond.

Both open and closed ended questionnaire were administered to respondents. Questionnaire was used because it was simple, free from bias of the researcher, and it maintains confidentiality those who respond it.

3.6.2 Interview guide

The researcher conducted a face-to-face interaction making conversations between the interviewee and the interviewer with the sole aim of soliciting data. The researcher used formal interviews to get more information in greater depth, reduce resistance and also obtain personal information from the respondents. Interviews also enabled the researcher in tracking consistencies within the information given in the questionnaire.

3.7 Validity and Reliability of the Instruments

Data quality control refers to reliability and validity of instruments, validity refers to the appropriateness of the instruments while reliability refers to its consistence in measuring whatever it was intended to measure

According to Amin (2005) the researcher instruments must be appropriate for the study objectives to be achieved.

To establish the validity the researcher discussed the instrument with the colleagues and supervisors who are knowledgeable in the field of research. While in order to establish the reliability of the items in the questionnaire, the researcher carried out test retest method where a respondents who had completed questionnaire were asked to complete it again after two weeks and his/her choices were proved for consistence.

Reliability was determined by crombach's alha. It is expressed as follows. Coefficient (a) using formula below

$$a = \frac{K}{K-1} \left[1 - \frac{\sum (SDi)^2}{(SDt)^2} \right]$$

K= Number of items in questionnaire

(SDi)² standard questionnaire for each individual

(SDt)²variety for total items in the questionnaire

The (a) calculation was established at 0.98 a value that is within the accepted statistical range of $> 0 \leq 1$ results confirmed that instruments used were reliable.

3.8 Ethical procedure

The researcher chose a topic and supervisor at the University, upon approval of a research topic by the supervisor; the researcher attained a letter of introduction from Kampala international University College of economics and management .The researcher begun on data collection process. The researcher made questionnaires commensurate to the number of respondents, and then personally delivered them to the questionnaires to reproductive health Uganda and distributed to the respondents. The researcher ensured honesty and

confidentiality in data collection including respecting the rights respondents, thus free and did not compulsion After all questionnaires were back, the researcher organized the work by summarizing all responses. Data was fed into the computer using Microsoft excel. After computation, the researcher prepared the final reports for submission to the department of social work and social administration of Kampala International University.

3.9 Data analysis

Data analysis is the science of examining raw data with the purpose of drawing conclusions about that information. The collected data was analyzed using quantitative analysis which majorly involved six major activities namely, data preparation, counting, grouping, and relating, predicting and statistical testing. Data preparation involved all forms of manipulations that were necessary for preparing data for further processing e.g. coding, categorizing answers to open-ended questions, editing and checking as well as preparation of tables; counting included the mechanical task of registering the occurrence and frequency of the occurrence of certain answers or research items; grouping and presentation involve ordering of similar items into groups and this result in distribution of data presented in the form of tables and graphs; relating involved cross-tabulation and statistical tests to explain the occurrence and strength - of relationships; predicting is a process of extrapolating trends identified in the study into the future and this method helped the researcher complete this task.

The following mean ranges were used to arrive at mean of the individual indicators and interpretation.

Mean range	response made	interpretation
1.00-1.26	strongly disagree	very low

1.26-2.50	disagree	low
2.51-3.25	agree	moderate
3.26-4.00	strong agree	high

Pearson's linear correlation coefficient regression and correlation analysis were used to establish whether there is any sufficient relationship between food supply and Household income in Katikékile sub county Moroto district.

3.10 Limitations of the study

Insecurity in the area of study was very prominent and more so it was outside Katikékile sub county. Therefore this was certainly a serious problem that affected adequate data collection exercise during field movements.

Inadequate funds; as a matter of fact, the researcher was in danger of funding problems while procuring the data collection materials, tools and facilitation during the field studies or data collection field work.

Unpredictable weather conditions, given the current situation of the weather conditions, the unpredictable changing weather conditions hindered the data collection exercise because of being too rainy or very hot at certain moments hence affecting data collection in the field. This affected the movement of the researcher in the field movements.

Difficulty in accessing the respondents due to their busy schedules, however the researcher used multiple slows like call backs, re arranging appointments and extensive mappings

Extraneous variable which were beyond the researcher's control such as respondent's honesty, personal biases and uncontrolled setting of the study were a challenge to the researcher study.

Some respondents voluntarily refused to respond to some questions fearing that management may victimize them. However this was minimized by researcher via cultivating and instilling a sense of trust in the minds of respondents and assuring them confidentiality.

There was limited time allocated for the research study. This meant that extra effort was needed to accomplish it in the shortest time possible.

CHAPTER FOUR

DATA PRESENTATION, INTERPRETATION AND ANALYSIS OF FINDINGS

4.1.0 Introduction

The data is presented and interpreted in view of the topic effect of food supply on household income in karamoja, Uganda. The focus was on 70 respondents. The interpretation also sought to answer the research questions that were raised in chapter one. Presentation and interpretation of data in this chapter has been done with the aid of quantitative and qualitative methods. Quantitative methods involved the use of tables, graphs, percentages and personal analysis and interpretation presented in essay form as shown below;

4.2.0 Respondents information

4.2.1 Age distribution of respondents

Table2: Showing age distribution of respondents

Respondents	Frequency	Percentage
18—25	4	5.7
26-30	27	38.6
31—35	10	14.3
36—40	7	10
41—45	9	12.8
46 -50	6	8.6
50above	7	10
Total	70	100

Source: Primary Data, 2016

Table 2 above clearly indicates that, the majority of respondents were aged between 26 — 30 years 27(38.6%) respondents followed, by 31 - 35 years represented by 10(14.3%) respondents, followed by 41 - 45 represented by 9 (12.8%) respondents followed by two age groups of 36 — 40 and 50 above having an equal of 7 respondents and 10% followed by 46 -50 with 6(8.6%) and lastly 18 — 25 had only 4 respondents contributing to 5.6% making it the least. From the above analysis, it can be construed that majority of the respondents are mature hence the information obtained from them can be trusted and looked at as true and good representation of the information the researcher was looking and the youngest people has the least because they don't look after families therefore have little knowledge about the subject matter.

4.2.2 Gender of respondents

Table 3 Showing Gender respondents

Respondents	Frequency	Percentage
Female	29	41.4
Male	41	58.6
Total	70	100

Source: Primary Data, 2016

From table, 3 it can be seen that the majority of respondents are male that is 41 representing 58.6% of the total number of respondents, 29 respondents are female representing 41.4% of the respondents. This is an indication that gender sensitivity was taken care off so the findings therefore cannot be doubted on gender grounds; they can be relied for decision making in Katikékile sub-county region.

4.2.3 Marital status of respondents

Table4: Showing the marital status of respondents

Respondents	Frequency	Percentage
Single	15	21.4
Married	41	58.6
Separated	14	20.0
Total	70	100

Source: Primary Data, 2016

4.2.4 Academic Qualifications of respondents

Table 5 Showing academic qualifications of the respondents

Academic qualifications	Frequency	Percentage
Primary	4	5.7
Secondary	14	20
Certificate	14	20
Diploma	8	11.4
Degree	20	28.6
Post degree	10	14.3
Total	70	100

Source: Primary Data 2016

Results in table 4 indicate that majority of the respondents were 20 for degree holders representing 28.6% followed by secondary level and certificate holders with 14 respondents each representing 20% , diploma followed with 8 respondents representing 11.4% and finally primary who were 4 representing 5.7%. This implies that the respondents are well educated and therefore the

information obtained from them can be relied on for the purpose of this study. The higher rate of secondary leavers was attained from the local population whose education levels were low. It is of no doubt therefore that information is attained from highly educated respondents. Information can therefore be relied on for decision making in this topic.

4.3.0 The level of how much money households spend on food monthly

House hold expenditure was broken into three aspects indicated in table below.

Respondents ranked how satisfactory each item was by showing the extent to which they agree with each. Their respondents were analyzed using STATA and summarized using means, as indicated below

Table 6 showing the level of household expenditure on food in Katikile Sub County

Household expenditures	Mean	Interpretation	rank
1000-10,000	3.215	Moderate	1
20000-50000	1.520	Low	2
100,000-1000000	1.190	Very low	3
Average mean	1.979	Low	

Source: primary Data 2016

Ranking scale

Mean Range	response model	interpretation
1.00-1.25	strong disagree	very low
1.26-2.50	disagree	low
2.51-3.25	agree	moderate

3.26-400

strongly agree

high

One aspect on expenditure was ranked moderate with mean range of within (2.51-3.25) which corresponds with moderate. This means that they moderately spend between 1000-10,000 on food in katikekile

Aspect was reflected low with average mean range of (1.26 -2.50) which corresponds with disagree on response mode. The mean that people spend less money on food that is between 20,000 -50,000

Another aspect was ranked very low with average mean range of (1.00-1.25) corresponds with strongly disagree on the response made. This implies, some people totally do not have what to spend on food in Katikekile Sub County

Over all expenditures in Katikekile sub-county as being low with (mean = 1.979) hence strategies to intervene to increase house hold expenditure, people totally spend nothing of food thus poverty exists and need to improve household income.

4.3.1 Level Of trend for which food supply situation prevailed in Katikekile Sub County.

Trend for which food supply prevailed was broken into four aspects indicated in table 8.

Respondents ranked how satisfactory each item was by showing the extent to which the agree with each. Their responses were analyzed using STATA and summarized using means as indicated below

Table7: showing level of trend for which food supply situation prevailed in Katikekile Sub County.

Prevalence	Mean	Interpretation	Ranks
Less than a year	3.54	high	1
1-2 years	3.12	Moderate	2
3-5 years	2.23	Low	3
More than 5 years	1.17	Very low	4
Average mean	2.903	Low	

Source: Primary data 2016.

Ranking scale

Mean Range	response model	interpretation
1.00-1.25	strong disagree	very low
1.26-2.50	disagree	low
2.01-3.25	agree	moderate
3.26-4.00	strongly agree	high

A response on food prevalence was ranked with High with mean range of within mean range of (3.26-4.00) which corresponds with high implying that food supply prevailed for less than a year.

Another was ranked moderate with mean range (2.51-3.25) which Corresponds with moderate as per response made, for these that agreed that it takes 1-2 years food supply prevalence in Katikekile Sub County

Ranked with low with mean range (1.26-2.00) corresponding with low as per response made. Meaning that they would lack food for 3-5 years.

Another response was ranked with very low with mean range (1.00-1.25) corresponds with very low as per response made "implying that food insecurity existed even beyond 5 years.

Over all time for which food supply prevailed in Katikile sub county as low with (mean 2.075), hence food insecurity prevails for long period, therefore strategies for term food supply.

4.3.2 Level of affection of food expenses on household income in Katikile Sub County

The effects of food expenses on household income was broken down into three respondents, ranked how satisfactory each item was by showing the extent to which they agree with each. The responses were analyzed using STATA and summarized using means, as indicated in table below:

Table 8 showing level of affection of food expenses on household income in Katikile sub county

Response	Mean	Interpretation	Rate
Good	3.36	High	1
Poor	2.31	Low	2
Very poor	1.11	Very low	3
Average	2.26	Low	

Source: primary data 2016

Ranking scale

Mean Range	response model	interpretation
1.00-1.25	strong disagree	very low
1.26-2.50	disagree	low

2.01-3.25	agree	moderate
3.26-4.00	strongly agree	high

Concerning the affection of food expenses household income response was ranked high with average mean ranging from (3.26-4.000) equivalent of strongly agree as per response moderate implying that household expenditure is generally good

A response ranked low with an average mean between (1.26-2.000) an equivalent of disagree implying that house hold income is affected by food expense severely.

Another response ranked very low with an average mean ranging from (1.00-1.25), meaning house hold income is a alarming and Food expenses much affect Household income

The over all affection of food expenses household income as low (mean 2.26) meaning that many households are poor and this standard of living is low.

4.3.3 Level of whether food expenses affect household incurs in Katikale Sub County.

This was broken down into three responses indicated in table below

Respondents ranked how satisfactory each response was by showing extent to which they agree with each other.

Their response were analyzed using STATA and summarized using mean as indicated below

Table 9: showing level of whether food expenses affect household incomes in Katikiekile Sub County.

Response	Mean	Interpretation	Rate
Yes	3.58	High	1
No	1.32	Low	2
Not sure	1.18	Very low	3
Average mean	2.027		

Source: Primary data.

Ranking scale

Mean Range	response model	interpretation
1.00-1.25	strong disagree	very low
1.26-2.50	disagree	low
2.01-3.25	agree	moderate
3.26-4.00	strongly agree	high

Concerning of whether food expenses affect house hold income, one response was ranked high with average mean ranging from (3. 26-4.00) an equivalent of strong agree, implying that mean of 3. 08 agree that food expenses affect household income.

Ranked low with an average mean ranging from (1.26-2.50) means that mean of 1.32 disagree that food expenses fairly affect household.

Another response ranked with average mean from (1.50-1.25), equivalent very low as response made. Mean of 1.18 means that they are not sure.

Over all response as low with mean (2.027) hence trend to intervene in matter because of these disagreed and not sure thus food expenses severely affect households incomes

4.3.4 Level of how food expense affects Household incomes in Katikékile sub-county

This was broken down into 8 responses as indicated below.

Respondents ranked how satisfactory each response was by showing extent to which they agree with each other.

The responses were analyzed using STATA and summarizes using mean as indicated below

Table 10 showing: How Food expenses affect Household income in Katikékile sub- county

Responses	Mean	Interpretation	Rate
Low productivity	3.28	High	1
Low competitiveness	3.52	High	2
Poor infrastructure	3.1	High	3
Lack of support service	3.46	High	4
Lack of access to finance	3.81	High	5
Limited market outlets & access	3.48	High	6
Lack of electricity	3.28	High	7
Introduction of free programs like world food program (WEP)	3.62	High	8
Average mean	3.58		

Source: primary data 2016

Ranking scale

Mean Range	response model	interpretation
1.00-1.25	strong disagree	very low
1.26-2.50	disagree	low
2.01-3.25	agree	moderate
3.26-4.00	strongly agree	high

The 8 responses on how food expenses affect household incomes was ranked high with an average mean ranging from (3.26-4.00), all of which fall under strongly agree on response mode. All strongly agreed that food expenses affect household incomes.

Over all 8 responses were computed and mean = 3.58 high and equivalent to strongly agree on response made. Implying that there is huge food expense effect on house hold income on people of Karamoja

Strategies can be employed to increase food supply for house hold income.

4.3.5 Level of whether there are strategies employed to increase food supply for household income of Katiekile people

Strategies employed were broken into three responses as indicated below.

Respondents were ranked how satisfactory each response was by showing extent to which they agree with each other. Their responses were analyzed using STATA and summarized using mean as indicated below:

Table 11 showing the level of whether there are strategies employed to increase food supply in Katikékile Sub County.

Prevalence	Mean	Interpretation	Rank
Yes	3.42	High	1
No	1.63	Low	2
Not sure	1.14	Very low	3
Average mean	2.063		

Source: primary data 2016

Ranking scale

Mean Range	response model	interpretation
1.00-1.25	strong disagree	very low
1.26-2.50	disagree	low
2.01-3.25	agree	moderate
3.26-4.00	strongly agree	high

Concerning whether there are strategies in increase food supply, one prevalence was ranked high with an average mean ranging from (3.26-4.00) they strongly agree that there are strategies to improve food supply.

Another prevalence was ranked low with an average mean ranging from (1.26-2.50). Meaning, they disagreed that there are no strategies to increase food supply.

The last prevalence was ranked very low with average mean ranging from (1.00-1.26) meaning that they were not sure whether there are or not strategies to increase food supply

Overall prevalence was computed with mean = 2.063 low equivalent to disagree as per response made .Implying that there are not strategies to increase food supply. Hence need for government and other charitable organization to set strategies for increasing food supply.

4.3.6 Level of strategies employed to increase food supply for household incomes

These strategies are broken into 7 responses Respondents ranked low satisfactory each response was by showing extent to which they agree with each.

Their responses were analyzed using STATA and summarized using mean as indicated below

Table12: showing level of strategies employed to increase food supply for hold incomes

Response	Mean	Interpretation	Rate
Food supply can be tackled from consumption perspective	3.33	High	1
Extending land base used for agricultural cultivation	3.36	High	2
Diversification food sufficiency & bio fortification	3.58	High	3
Should increase their investment in long-term interventions such as dietary	3.92	High	4
Special emphasis on governance	3.31	High	5

Communication & group meetings	5.59	High	6
Focus on education research and development of capital and infrastructure	3.65	High	7
Average mean	3.52	high	

Source: primary data 2016

Ranking scale

Mean Range	response model	interpretation
1.00-1.25	strong disagree	very low
1.26-2.50	disagree	low
2.01-3.25	agree	moderate
3.26-4.00	strongly agree	high

Table indicate that 7 responses on strategies to improve food supply were ranked high with mean average ranging from (3.26-4.00), all of which fall under strongly agree in response mode. Implying that these strategies are highly needed.

The overall responses on strategies average mean 3.52 as high meaning that several strategies needed to be put in place overcome the negative effects of food expenses on level of household incomes

4.3.7 Relationship between food supply and household income

The 3rd objective in the study was to establish whether there is significant effect between the food supply and house hold income in Katikekile Sub County.

On this, the researcher stated a null hypothesis that there no significant effect between food supply and household income. To achieve this objective and to

test this null hypothesis, the researcher correlated the means for all responses of food supply and the Household incomes using Pearson's linear correlation coefficient, as indicated.

Table 13: showing Pearson's linear correlation coefficient, testing the effect of food supply on household incomes

Variable correlated	r- value	Sig –value	Interpretation	Decision on Ho
Food supply and household income	0.956	0.0530	Positive & significant	Rejected

Source: Pearson linear correlation 2016

Results in table, indicate that food supply is significantly correlated with Household income (Sig 0.0030). Indicating that food supply is high positively correlated with Household income (r- Value 0.956).

Basing on the results, the stated null hypothesis is accepted at a 0.05 level of significance. There result lead to conclusion that food supply is significantly affected by Household income.

To get a picture on how food supply affects Household income, House hold income was regressed against food supply. Regression analysis by food supply and household income.

Table 14: showing regression analysis of food supply and Household income

Variable	Adjusted	F- value	Sig	Interpretation	Decision on Ho
Regressed	R ²				
Food supply & House hold income	0.947	9.37	0.0030	Significant	Rejected

Coefficients	Beta	T	Sig		
Constants	6.8152	2.93	0.048	Significant	Rejected

SOURCE: Regression analysis 2016

The linear regression results in Table above indicate that food supply has a significant positive effect on household income (F= 9.37, Sig =0.0030)

The results indicate that food supply affect 89.7 % on Household income (Adjusted R² =0.897).

The coefficients section of the table indicates extent to which explanatory variable affects the explained variable and this is indicated by Beta Values.

If food supply increased by one unit it implies that household income would increasingly affected by 0.947

CHAPTER FIVE

FINDINGS, CONCLUSION AND RECOMMENDATION

5.0 Introduction

This chapter provides the conclusion recommendations of the study. The conclusions and recommendations are derived from the findings of the study which represented in chapter four

5.1 Findings

This study was motivated by the desire to investigate and establish the level of effect of food supply on household incomes in order to promote food supply to each Household. The study was hence guided by the following objectives.

To establish the trend of food supply relative to Population.

The trend of food supply relative to population in Katikekile sub county was found to be low with average mean value of (mean = 2.063). This was within mean range of (1.26-2.50) which corresponded with strongly agree on a response made. This implies that food insecurity existed for a long time and even it can go beyond 5 years

Among experts and practitioners in food supply, there is common view that access to markets increase food supply in area. (Hilary, J. 2014).

To establish how much money household spend on food.

The establishment of how much money households spend on food was found to be low with mean value of mean= 2.26. This was within a mean range of 1.26-2.50 which corresponds with disagree on response mode. Implies that household spends less on food due to low incomes among the members. Therefore need for government and charitable agencies to intervene in improving household incomes of Katikekile sub-county people.

This report views expenditures on food and ensure that it builds enough reserves for capitalization to ensure continuity independent of external subsidies from donors and government.

However, on contrary, Adongo and Stork (2005) argue that charitable donor; involvement is proving start up funds for household generating income in positively associated

To establish the effect of food expenses on house hold incomes.

The results indicated that food expenses are positively and significantly correlated. Basing on these results, stated null hypothesis was accepted at 0.05 level of significance, implying that food expenses significantly affected household incomes.

The Linear relation results also indicated that expenses on food hard significance and effect on household incomes.

The regression model contributed 94.7% of expense on household incomes.

These findings are in line with; Okumu (2007) who also agrees in this study that food expenditure positively affects house hold incomes

However Havtarska and Vadolynie (2007) also show food expenditure does both have direct affect on household incomes.

To establish the strategies to increase food supply Katikekile sub county.

The level of establishment of strategies to increases food supply in Katikekile was found to be high with mean value of (Mean= 3.52). This was within a mean range of (3.26-4.00) which corresponds with strongly agree in response mode.

This implies that there is great need for strategies to increase the food supply. Therefore strategies employed to increase food supply on household incomes are as follows,

Focus on education so that all people get education on food supply

Research and development so that people are availed with information on better methods of production and seeds.

Access to capital and infrastructure development so that eases transportation of both inputs and outputs.

Food must be locally available, affordable and meet quality of standards.

Therefore need for government, charitable agencies to invest in long-term intervenient for food supply, improved production techniques modern farming, avail their capital so to increase food supply.

5.2 Conclusions.

It was found out in this research study that food expenditure, greatly statistically and significantly affect House hold and significantly affect household incomes in whole of Karamoja sub-region hence intervention to increase house hold incomes.

The trend of food supply relative to population was how. This means that trend of food supply in Katikékile sub-county was not persistent implying that Katikékile experience long period of food insecurity in the region.

Hence call long-term strategies for increasing food supply and reservation.

The research also found out that how much households spend on food was low, meaning that there are households in region that totally do not have what to eat due to low household incomes. It was discovered that some families totally spends nothing on food hence the region experience famine for long period of time. Hence serious call for government and organization to intervene in region to rescue people from prolonged famine and ensuring both household income and food availability in the region.

The research also discovered that effect of food expenditures on Household incomes spend less than 1000/=on food daily due to low incomes and poor standards of living.

It also found out that food expenses significantly affected the household incomes in away that expenditure patterns are worse hence call for strategies for increasing household incomes.

The research also found that several strategies to be employed is region to improve on both Household incomes, and food supply.

Although the research also found that food insecurity and scarcity in the area is caused by nature, most of factors were as a result of human ignorance and bad practices that documented the list.

Government and organization should establish several programs in this area and relief with the problem seems to continue worsening.

Capacity building by such organs in terms of expertise, labours, and powerful machines can be purchased and owned by government to support farmers.

Focus should be targeted on high perennial and yielding crops.

5.3 Recommendations

Effect of food supply from the findings on household income in Katikékile sub-county region karamoja region requires a comprehensive approach and these are likely recommendations;

The government should put in place agricultural research institutions in the area like the one in Makerere University to introduce seeds which are drought resistant and can bear with the high temperature and unreliable rain condition in this region

Local residents of Katikékile sub-county should venture in other economic activities like mining of the Gold which exist in this area to supplement on the season unpredictable harvest which in most cases are domestically consumed so little or nothing is left for selling to increase the house hold incomes.

Animal production in this area is traditionally and culturally raised and local cattle breed dominates their cattle, they should cross breed their cattle in order to get high yielding animals in terms of milk, meat that will sustain the local people.

It was discovered that most of the harvest is wasted in seasons of plenty and the other is used to feed cattle there fore there is need to establish public secure stores for locals to keep their produces in times of plenty and released later in times of scarcity to reduce the impact of food insecurity.

The researcher found out that it is necessary for government agencies to intervene and provide basic training to the farmers on best practices in agriculture to reduce on food insecurity and be able to save the small earnings through saccos as a means of increasing house hold income.

5.4 Areas of further research

The researcher suggests the following as possible areas for further researcher on food supply and level of house hold incomes.

- The causes of food insecurity in the area of Katikekile sub-county and neighborhood.
- The contribution of non government organizations towards the improvement of the food supply conditions
- The impact of the area economic activities on the income level of households in Katikekile sub county

REFERENCES

Action Centre La Faim (September-October 1997) Food Security and Agricultural Assessment (Unpublished Report).

Bahiigwa G. B. A., (1997) Household Food Security in Uganda: An Empirical Analysis. (Unpublished Research Report)

Deavers, K. L., and R. A. Hoppe. 1993. "Overview of the Rural Poor in the 1980s." In Rural Poverty in Agriculture Development.

Devereux Stephen (1998) From Policy and Programme Interventions to Vulnerable Groups:

Seminar on Food Security in ACP Countries.

Economic Policy Research Centre (1998), Food Security at Household Level in Uganda, Kampala Economists Association

Fan S., Chan-Kang Connie (2004) Government Spending and the Poor in Africa. Background paper prepared for 2020 Vision Initiative and International

Food Policy Research Institute (IPRI), 2020 Africa Conference on Assuring Food and Nutrition

Security in Africa by 2020: Prioritizing Actions, Strengthening Actors, and Facilitating

Partnerships, Kampala April 1- 3, 2004

Green watch (Undated) Legal and Institutional Arrangements for Enhancing Food Security

Through Sustainable Management of Trans- National Natural Resources in the Great Horn of

Africa: A Case Study (Unpublished Report).

Haggblade Steven (Eds April 2004) Building on Successes in African Agriculture, International Food Policy Research Institute (IFPRI) and 2020 Vision).

Hilary, J. 2004. Trade liberalization, Poverty and the WTO: Assessing the Realities. In: The WTO and Developing Countries. Homi Katra and Roger Strange (eds). Palgrave Macmillan

IFPRI (International Food Policy Research Institute). 2002. Reaching sustainable food security for all by 2020. Getting the priorities and responsibilities right. Washington, D.C:IFPRI

InterAcademy Council. 2004. Realizing the promise and potential of African Agriculture. Amsterdam

International Livestock Research Institute (2002) Food Security in Sub-Saharan Africa to 2020, International Livestock Research Institute, Working Paper No. 49, Nairobi.

Kamuntu Ephraim (August 2004) Issues Raised by the 2004/2005 Budget n, the Context of National Development (Unpublished Pape).

Maxwell, S., and T. R. Frankenberger. 1993. Household Food Security: Concepts, Indicators, Measurements. New York: United Nations Childrens' Fund—International Fund for

Morris, P. M., L. Neuhauser, and C. C. Campbell. 1992. "Food Security in Rural America: A Study of Nutrition Review 9(1): 2—13.

Pinstrup-Aderesen, P. 2002. Food and Agricultural Policy for a Globalizing World: Preparing for the Future. Amer. J. Agr. Econ.84: 1201-1214. American Agricultural

Pottier J., Orone P. (1993) Local Perception of Food Stress: A Study of Wera-Angole Parishes in Katakwi District, School of Oriental and African Studies, London.

Rank, M. R., and T. A. Hirschl. 1993. "The Link between Population Density and Welfare Participation." *Demography* 30(4): 607—622.

Rosegrant et al. 2005. Looking Ahead. Long-Term prospects for Africa's Agricultural Development and Food Security. Washington D.C.: IFPRI

Sanjur, D., P. Haines, S. Travis, M. Brooks, B. Hammons, and M.D.C. immink. 1979. "Foodn

Expenditures, Consumption, and Nutrient Availability among New York State EFNEP Households." *Human Ecology Search* 9: 1—58.

Sen Amartya (1981) Poverty and Famines: An Essay on Entitlement and Deprivation, Clarendon Press Oxford

Uganda Bureau of Statistics (1996), MFPED: Human Development Poverty Index by District, Entebbe.

Uganda Bureau of Statistics (2001) Uganda Household Survey, Entebbe.

Sturgeon, T. J. (2009). From commodity chains to value chains: interdisciplinary theory building in an age of globalization. In J. Bair (Ed.), *Frontiers Of Commodity Chain Research* (pp. 110–135). Stanford, CA: Stanford University Press.

Sutton, J. (1991). *Sunk Costs and Market Structure: price competition, advertising and the evolution of concentration*. Cambridge, MA: MIT Press.

Szymanski, A. (2006). *An Analysis of Variations in the Financial Performance of Enterprises in the Polish Food Processing Industry*. (PhD), Newcastle University, Newcastle upon Tyne.

Szymanski, A., Gorton, M., & Hubbard, L. (2007). A comparative analysis of firm performance in post-socialist economies: Evidence from the Polish food processing industry. *Post-Communist Economies*, 433-448. doi: DOI 10.1080/14631370701680113

Tacken, G. M. L., Banse, M., Batowska, A., Gardebroek, C., Turi, K. N., Wijnands, J. H. M., & Poppe, K. J. (2009). *Competitiveness of the EU dairy industry*. The Hague: LEI.

Thelwell, D., & Ritson, C. (2006). *The international competitiveness of the UK cereals sector*. Paper presented at the 98th EAAE Seminar: Marketing Dynamics within the Global Trading System: New Perspectives, Chania, Crete.

Tonsor, G. T., & Featherstone, A. M. (2009). Production efficiency of specialized swine producers. *Applied Economic Perspectives and Policy*, 31(3), 493-510. doi: 10.1111/j.1467-9353.2009.01450.x

Traill, W. B. (1998). Uncompetitiveness in a primary product: does Porter help? The case of UK horticulture. In W. B. Traill & E. Pitts (Eds.), *Competitiveness in the Food Industry* (pp. 118-148). London: Blackie Academic & Professional.

Traill, W. B., & Pitts, E. (1998). *Competitiveness in the Food Industry*. London: Blackie Academic & Professional.

Tsakok, I. (1990). *Agricultural price policy: a practitioner's guide to partial-equilibrium analysis*. Ithaca, NY: Cornell University Press.

- van der Werf, H. M. G., & Petit, J. (2002). Evaluation of the environmental impact of agriculture at the farm level: a comparison and analysis of 12 indicator-based methods. *Agriculture, Ecosystems & Environment*, 93(1-3), 131-145. doi: [http://dx.doi.org/10.1016/S0167-8809\(01\)00354-1](http://dx.doi.org/10.1016/S0167-8809(01)00354-1)
- Venturini, L., & Boccaletti, S. (1998). Sophisticated consumers and export success, but problems in the home retail sector: The Italian pasta industry. In W. B. Traill & E. Pitts (Eds.), *Competitiveness in the Food Industry* (pp. 179-208). London: Blackie Academic & Professional.
- Viaene, J., & Gellynck, X. (1998). Small firms, old traditions equals low profit: pigmeat processing in Belgium. In W. B. Traill & E. Pitts (Eds.), *Competitiveness in the Food Industry* (pp. 149-178). London: Blackie Academic and Professional.
- Wijnands, J. H. M., Bremmers, H. J., Van Der Meulen, B. M. J., & Poppe, K. J. (2008). An economic and legal assessment of the EU food industry's competitiveness. *Agribusiness*, 24(4), 417-439.
- Wijnands, J. H. M., Van der Meulen, B. M. J., & Poppe, K. J. (2006). Competitiveness of the European Food Industry: an economic and legal assessment. Luxemburg:: Office for Official Publications of the European Communities.
- Wilson, N. (1996). Supply chain management: a case study of a dedicated supply chain for bananas in the UK grocery market. *Supply Chain Management: An International Journal*, 1(2), 28-35.
- World Economic Forum. (2010). Global Competitiveness Report 2010-2011. Geneva: World Economic Forum.

World Economic Forum. (2012a). The Global Competitiveness Report 2012–2013. Geneva: World Economic Forum.

World Economic Forum. (2012b). Sustainable Competitiveness. Retrieved 21st March 2013, 2013, from <http://www.weforum.org/content/pages/sustainable-competitiveness>

APPENDICES

APPENDIX A

Research questionnaire

Dear respondent

I Ampaire Lodgers, a student of Kampala International University in the department of Economics and Applied Statistics pursuing bachelors of Science in Statistics .

This questionnaire is purely set to facilitate a study on **“The effect of food supply on household incomes in Karamoja, a case study of Katikekile sub-county, Moroto district”**.

Please take a few minutes of your precious time and answer them. Your responses will be used for academic purposes only and will be treated without most confidentiality.

In this section, you are kindly requested to tick that alternative response that fits your opinion.

Section (A) – Demographic Aspects

1. Age

18-25 years

26-30 years

31-35 years

36-40 years

41-45 years

44-50 years

Above 50 years

2. Gender

Male

Female

3. Marital status

Single

Married

Divorced

4. Qualification academically

Primary

Secondary

Certificate

Diploma

Degree

Post graduate

SECTION B: Trend of food supply relative to population

5. How much money do house hold spend on food?

1,000-10,000 ☐

20,000-50,000 ☐

100,000-1,000,000 ☐

6. Does food supply prevail in Katikékile sub-county?

Yes ☐

No ☐

7. How long has the food supply situation prevailed in Katikékile sub-county?

Less than 1 year ☐

1-2 years ☐

3-5 years ☐

More than 5 years ☐

8. What are the factors responsible for the trend of food supply in Katikékile sub-county?

SECTION C: Effect of food expenses on house hold income in Katikékile Sub-County

9. What is the status of house hold incomes in Katikékile sub-county?

Poor ☐

Good ☐

Very food ☐

10. Do food expenses affect house hold incomes in Katikékile sub-county?

Yes ☐

No ☐

Not sure ☐

11. How do food expenses affect household incomes in Katikékile sub-county?

SECTION D: strategies that can be employed to increase food supply for house hold incomes.

12. Are there strategies employed to increase food supply for house hold incomes?

Yes ☐

No ☐

Not sure ☐

☐

13. What are some of the measures that have been employed to increase food supply for household income?
14. What do you think are the strategies that can be employed to increase food supply for household incomes?

APPENDIX B:

INTERVIEW GUIDE

1. What is the status of food supply in katiekile sub-county?
2. Does food supply prevail in Katiekile sub-county?
3. How long has the food supply situation prevailed in Karamoja sub-region?
4. What are the factors responsible for food trend in Katiekile sub-county?
5. What is the status of house hold incomes in Katiekile sub-county?
6. Does food expense affect house hold incomes in Katiekile sub-County?
7. How does expense affect house hold incomes in Katiekile sub-county?
8. How does food supply prevail in Katiekile sub-county?
9. Are there strategies employed to improve food supply for household incomes?
10. What are some of the measures that have been employed to improve food supply for household income:
11. What do you think are the strategies can be employed to improve food supply for household incomes?

APPENDIX C:

RESEARCH BUDGET

Item	Cost	Quantity	Total
Stationary	500	200	100,000
Research instruments	30000	2	60,000
Transport	80,000	2	160,000
Research assistance	50,000	2	100,000
Binding	10,000	2	20,000
Miscellaneous	40,000	1	40,000
Total			540,000

APPENDIX D:

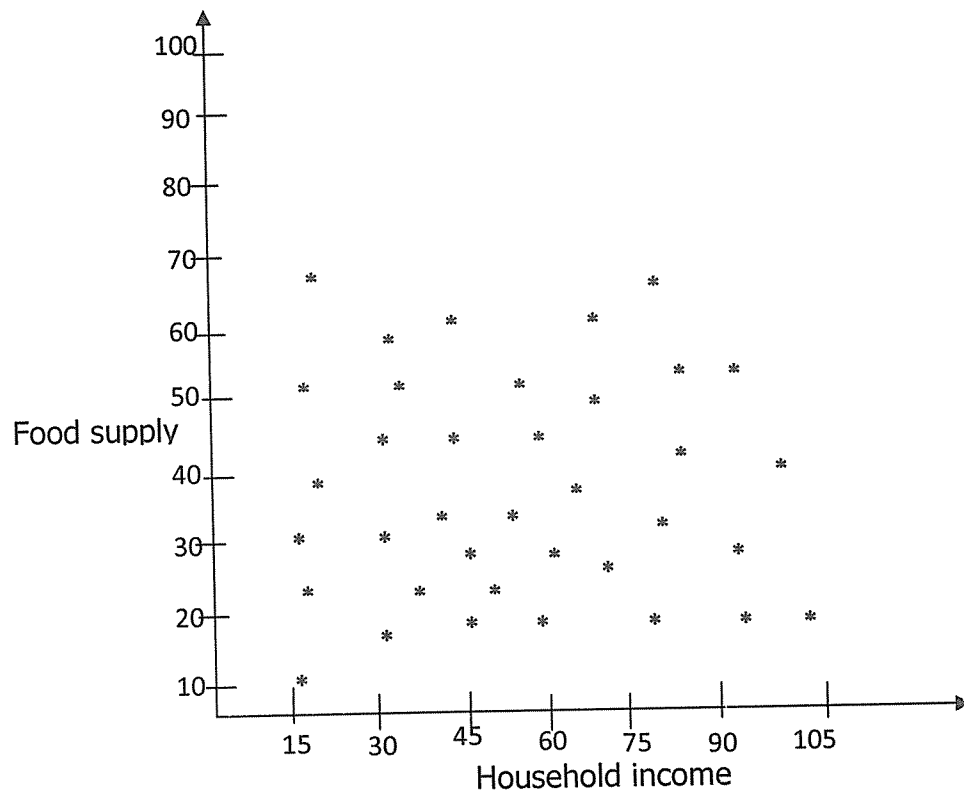
GHANT CHART SHOWING THE TIME FRAME

Item	Time months				
	Jun 2015	Aug 2015	Late may 2016	Early Jun 2016	Jun mid 2016
Proposal development					
Proposal approval					
Data collection					
Data analysis					
Report writing					
Final report submission					

APPENDIX E: **DATA ANALYSIS RESULTS**

Relate food supply and household income.

Scatter diagram of food supply and house hold income



Regression of food supply and Household incomes

Source	SS	DF	MS	number of bs =70
		F(1,69)		
Model	38.4944		38.4944	prob>F =0.0030
Residual	324.6414		794.1094	R ² =0.984
				Adj R ² = 0.947
Coefficients	constant			
0.943	0.8152			
(Se)= 0.0924	(Se)= 0.6842			