Determinants of Household size: a case study of Eastern Uganda

By

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DECLARATION

I Dhabunansi Paul hereby declare that the work presented here is original to the best of my knowledge and has never been submitted to any institution of higher learning for any award.

Signed……. Date……

Paul Dhabunansi

APPROVAL

This dissertation has been submitted for examination with my approval as the University Supervisor.

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DEDICATION

This piece of work is dedicated to my parents Mr. and Mrs. Musoga, my brothers; Jackson and Michael, Aunt Kevin, my wife Rosemary and my Children; Katherine, Gregory and Klaudia for their immense contribution to my education and for all the support, love and encouragement they have given me since I started my academic career.

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I thank the Almighty who has made everything possible for me.

May God bless you all richly.

ABSTRACT

The study investigated the determinants of household size in Eastern Uganda.

Secondary data from the Uganda National Household Survey (2005/2006) provided by Uganda Bureau of Statistics (UBOS) was used. A total sample of 1922 households in both urban and rural areas of Eastern Uganda was used in the study and their prevailing demographic; socio-economic; housing and welfare conditions were assessed to establish the significant determinants of household size. The analysis was mainly based on the study questions indicated in the questionnaire attached to the report as an appendix. Data analysis was carried out using SPSS version 10 and the Pearson chi square test and logistic regression model used as analytical tools.

The study found out that age, marital status, education level of household head, employment status, dwelling unit and the number of rooms in a dwelling unit, were associated with and significantly determined household size in Eastern Uganda. It was found out that compared to small households, a bigger percentage of respondents from big households were in the 35-44 age interval (31.9% compared to 17.4%). Therefore, it was concluded at this stage that most of the respondents were in their median ages and also, at older ages (75+) more respondents lived in small rather than big households. Household size and age of respondent came outstanding of all other variables and it was clearly confirmed that in age interval 25-34, household members stood higher chances of belonging to small households. It was also found out that unmarried household members were more likely to live in small household sizes than in big households. Most respondents in polygamous marriages belonged to big households. This was related to the number of household members as a result of the many children from different wives. The study, also, revealed that as the level of education of the household head improved, for instance from primary to secondary and beyond, more household heads were found with small household sizes. This was attributed to the knowledge and awareness about the advantages of small household sizes gained from schooling and general enlightenment.

Analysis of housing conditions like type of dwelling unit, tenure status and number of rooms revealed that more respondents from big households lived in complete houses unlike the huts or tenement for small households, implying that a big household owned rather than rented, and used more than six rooms. This was basically related to the big number of occupants that made it

economical and convenient to use a bigger space compared to small households. It was found out that more members from big households used firewood for cooking compared to those in small households who used charcoal with a very small number using electricity and gas. Having more big households especially in rural areas may imply more usage of firewood, clearing of bushes and forests and possibly more environment degradation

It was also concluded that a household member's marital status especially the head of household is more likely to determine the size of the household; Most likely to result into a big household if the head is in a polygamous marriage than when he is in a monogamous or never married.

The following recommendations are suggested; Adult and continuing education that incorporates family planning information should be given top priority by the government and other actors to encourage smaller household sizes in Eastern region, the creation of employment opportunities through prioritization of agriculture sector since this is the source of employment for many and provision of convenient loans and financial assistance to enable heads of households establish themselves in the informal sector. The government should try to fight all the barriers that exist in the informal sector, which deter household participation. These include insecurity, high taxes, bribery. Markets should be opened up and the government should organize the population and help in acquiring market for the produced goods through mobilizing them into cooperatives. A big number of respondents reportedly indicated farming as the major source of earning. Any move towards the promotion of and mordernisation of agriculture would result into more employment opportunities especially for the big number of respondents from big households and this may result into increased household incomes.

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ACRONYMS

MFPED	Ministry of Finance Planning and Economic Development
MGLSD	Ministry of Gender Labour and Social Development
NGO	Non Governmental Organization
SPSS	Statistical Package for Social Scientists
TFR	Total Fertility Rate
UBOS	Uganda Bureau of Statistics
UDHS	Uganda Demographic and Health Survey
UNDP	United Nations Development Programme
UNHS	Uganda National Household Survey
UPPAP	Uganda Participatory Poverty Assessment Project

CHAPTER ONE
INTRODUCTION

This chapter shows the background to the study and statement to the problem. It reveals the objectives for which the study was carried out, presents research questions and explains some key concepts and definitions of the most important terms and words in the context of the study.

1.1 Background to the study

Household size has been related with almost all the demographic implications and it is believed to influence macro and micro economic determinants. And as noted, an important factor in population growth relates to changes in how densely housing is occupied or shifts in average household size (Asian American Federation of New York, 2003). The effect on and to education is even more pronounced. For instance, in Niger in 1998 Total Fertility Rate (TFR) was 7.8 for women without any education but 4.6 for those with secondary education (Population Reference Bureau 2001). The same trend characterizes Uganda with a TFR 7.7 and 4.4 for women without education and those with secondary or higher education respectively (Uganda Bureau of Statistics 2006). Household size worldwide is believed to reduce or strain the capacity of an individual especially the household head and consequently the provision of social services. For instance, a study in the United States of America (USA) in 2003, found out that children from larger households had lower levels of education. It was further reported that a separate negative birth order effect existed, and that the household size effect still resurfaced even after controlling for birth order (Alison & Hiau, 2005). In developing countries this has been more pronounced and does not only affect education but also, incomes, savings, investments and other socio economic variables.

According to MFPED/UBOS (2006), Uganda has a population of approximately 27 million people and has the highest total fertility rate of 6.9 in the region (UBOS, 2000).
The average household size has been ranging between 5.1 and 5.2 since 1999 with rural areas accounting for the biggest percentage compared to urban areas. Despite the fact that rural

households are bigger than their urban counterparts, the available evidence indicates that since 2000, urban household size had been increasing while in rural areas, household size had been reducing (Uganda Bureau of Statistics, 2006). The size of a household at a micro/household level has a big effect at the national level. Household size greatly contributes to the national population size, implies more government expenditure and this can put a strain on the economy especially in the under-developed countries like Uganda. Particularly, the urban household size increase implies that more people may have moved from rural to urban areas increasing rural urban migration and its related socio-economic consequences. Also, the regional increase in household size may be related to over utilization of resources and stretching service delivery and provision. For instance, it is reported that compared to other regions, the biggest proportion of migrants in Eastern Uganda stressed education as the main cause agent (Ministry of Finance, Planning and Economic Development, 2006). The implication could be that the available educational services are limited or working below expected targets.

Several national reports and surveys have revealed that over the years, Eastern Uganda has registered the highest average household size in the country and this has consistently increased every other year from 5.3 to 5.5 and 5.6 in 2000, 2003 and 2006 respectively. This is unlike other regions with either a reducing or constant household size as shown in Table 1.1. Unfortunately, the region has the lowest literacy rates of 61 after Northern Uganda with 59, highest poverty rate after Northern region and the same region has a poor record of health status. According to UBOS/NSDS (2004), the region had the highest percentage (37.6 %) of households having reported to have been ill in the last 30 days preceding the survey and this increased to 49% in 2006 (UBOS/UNHS 2006)-the highest in the country.

Table 1.1: Regional average household size between from 1999-2006

Region	**1990/00**	**2003/2003**	**2005/2006**
Central	4.8	4.8	4.8
Eastern	5.3	5.5	5.6
Northern	5.3	5.1	5.2
Western	5.7	5.2	5.3
Uganda	5.2	5.1	5.2

Source: UBOS 2006

Household size is very much related to ill health especially resulting from congestion in small rooms, higher risk of transmission of diseases from one member to another and high/frequent medical expenses. Indeed Uganda poverty Status Report 2000 found out that malaria is a major problem experienced by most people and sicknesses in general are related to poverty in Uganda (MFPED, 2002).

It should, however, be noted that the big size of a household may not necessarily be negative. A big household size may be very advantageous especially in rural areas for example, it may provide enough labour for agriculture, provide security especially where boys are produced and may be a source of transfer of earnings during old age.

Despite the aforementioned advantages of a big household size, it is evident that with limited employment, investment and savings and persistent poverty, a big household size may not be all that desirable. Available literature (UBOS, 2003) has revealed that the head count poverty ratio in Uganda increased from 35% to 38% in 2003. Deaton and Tarrozi (2000) argued that poverty is on the rise because of the related high expenditure on food, rent, transport and electricity. Whereas this may not necessarily be felt by only members from big households, the implication and effect may not be the same for households with a small number of members and those with a big number. Unfortunately, few studies have been conducted to establish the related associates of the big household size in the region and establish a link with other socio-economic consequences. The study therefore intended to discover such socio-economic and demographic aspects which may explain the region's poor performance in relation to other regions in the country. It is against the above background that this study was conducted to establish if there are any socio- economic and demographic implications of household size, what they are and suggest ways of managing such manifestations.

1.2 Problem statement

The total national population has increased and so has the household size. In Eastern Uganda, there has been a steady increase in average household population from 5.1 persons in 1997 to 5.3 persons in 2000, 5.5 in 2003 (UBOS, 2003) and 5.6 persons in 2006 (UBOS, 2006). This has

been followed by an increase in the poverty head count ratio from 35% in 2000 to 46% in 2003, deteriorating health status and high illiteracy rates (UBOS, 2006). The increase in household size and poverty rate may pose a threat to the household members' housing conditions and the household socio-economic status. This may be reflected by the poorest record of health status in the country and the region in particular (UBOS, 2004).

Unfortunately no link has been established with the socio-economic determinants in the context of household size. Eastern Uganda seems to be at the helm of problems next to Northern Uganda but there is limited data pertaining to aspects that relate to the size of households especially in rural areas. The numerous national household surveys produce aggregated data that needs more and better analysis to establish such determinants and this has not been done. There is, therefore, a need to establish the determinants of household size. This study, therefore, sought to examine the determinants of household size in Eastern Uganda and also establish the dominant factors that determine household size. Establishment of such factors would provide a foundation to help in especially addressing negative consequences of big household size and other problems faced by the region.

1.3 Objectives of the study

The overall objective of the study was to examine the determinants of household size in Eastern Uganda.

1.3.1 Specific Objectives

1. To establish the socio-economic determinants of household size
2. To establish the Demographic determinants of household size
3. To assess the housing and welfare factors that determine household size

1.4 Research questions

i) To what level does age of household head determine household size?

ii) What is the relationship between marital status of household head and household size?

iii) Does the sex of household head influence the size of a household?

iv) There is a positive relationship between level of education attained by the household head and size of household

v) Does employment status of household head determine the size of a household?

vi) Is there any relationship between household size and type of dwelling unit?

1.5 Significance of the study

The findings of this study will subsequently contribute information to government agencies and programs like Rural Water and Sanitation (RUWASA), programs like Health Sector Strategic Plan (HSSP), Plan for Modernisation of Agriculture (PMA), and Non-governmental organizations. These are involved in service provision and a clear grasp of household size variables would help in enhancing service delivery.

The findings will, also, contribute literature for academicians especially at the Institute of Statistics, Department of Population Studies and other institutions of learning considering the fact that very few studies have been undertaken on the topic.

Eastern Uganda is performing poorly with poor health, high poverty rates and a low literacy rate. The findings will not only help the government during planning but will also help the population to comprehend and understand the root cause of the problems. This is envisaged to result into identification of better and efficient strategies for uplifting the quality of life of the concerned people and the community at large.

1.6 Definition of key concepts

Determinants; This refers to household related aspects that shape the subsequent household size. Understanding such determinants would help in devising strategies for offsetting household size related problems.

Household; This refers to a person or group of persons related or unrelated to each other living in a dwelling unit or its equivalent, eating from the same pot and sharing the common housekeeping arrangement.

Household size; This refers to the number of members in a particular dwelling unit grouped in the ranges of 1-5 (small), 6-10 (medium) and 11 above (big size)

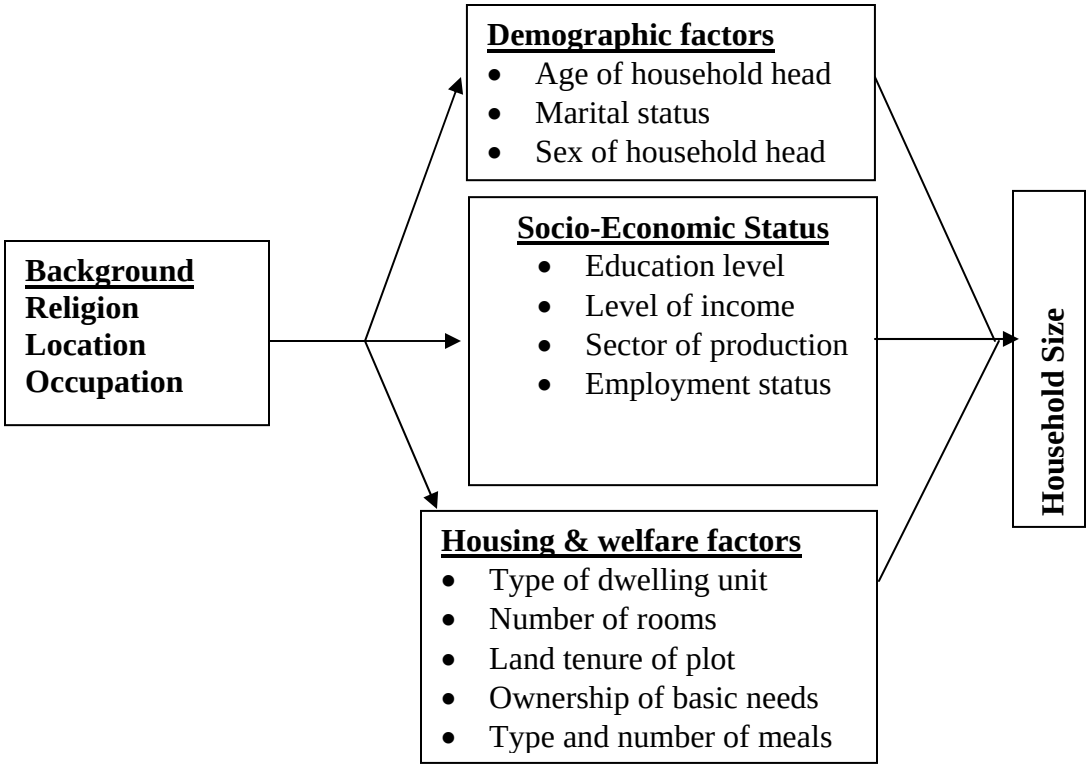
The head count ratio (incidence of poverty); this refers to the percentage or proportion of the population taken to be poor. That is, those people who are below the poverty line.

NGOs; These are non-profit, non-government organizations that are legally formed, working in areas of relief, advocacy and development.

1.7 Theoretical conceptual framework

It should be noted that a household is the basic unit of reproduction and production. The individual household's reproductive behaviour largely influences the national population and its productive capacity and determines the nation's wealth. Hence the impact of population size, growth and structure will ultimately be felt in determining the level of welfare of individuals, the family and household. It is, also, believed that with limited resources, high fertility depresses savings and makes it increasingly difficult for most households to adequately feed, clothe, house and educate children. Further, frequent child bearing deprives the mother of the opportunity for gainful employment, career advancement, and increases susceptibility to ill health. In some rural families, large household sizes coupled with the traditional practices of dividing land at every generation has led to further fragmentation of small individual farm holdings leading to low yield and low income.

Figure 1.1: Conceptual model of the Determinants of household size in Eastern Uganda.



In the conceptual framework, the background factors are religion, location and occupation. The interplay of independent housing and demographic, socio-economic factors influences the subsequent household size. For instance, the age of a household head is believed to be related with the number of household members. Older household heads are presumed to have more members in the household compared to younger heads. The assumption is that there could be more children, grand children as the household head grows older. This, however, can be altered by education and is more apparent in rural areas compared to urban areas because of limited high expenditure in the latter.

Also in a rural setting, the sector of production could influence the household size. For example, because of limited technology, where agriculture is concerned, preference may be made for bigger rather than smaller households so as to provide the required labour.

Similarly, religious beliefs may result into big household sizes. For example, a Moslem head of household is more likely to take on many wives who altogether may produce more children and in a traditional area like, Busoga, a number of polygamous husbands keep their women in one house calling for a big house with many rooms.

Household size is the dependent variable and was categorized into small family and big household size. The number of members in the household was therefore presumed to be determined by the different socio-economic, demographic and housing factors as shown in the conceptual model (Figure 1.1)

CHAPTER TWO
LITERATURE REVIEW

2.1 Introduction

In assessing socio-economic status and more particularly economic status, measuring variables other than household income may be useful, for example assets such as inherited wealth, savings, employment benefits, or ownership of homes or motor vehicles (Berkman & Macintyre, 1997). While *income* represents a *flow of resources* over some period of time, *wealth* captures the stock of assets at a given point in time, and thus *economic reserves*. Income and wealth are positively correlated, but they are not interchangeable, as shown by the example of an elderly person with a modest fixed income but substantial accumulated wealth.

2.2 Characteristics of Household Heads by Gender of Head

The marital status of the heads of the female-headed households is quite different from that of the heads of male headed households. Pradeep K. P (1997), in his study on *"female headship, poverty and child welfare in rural Orissa, India"* found out that, Female-headed households were less than half as likely as male-headed households to be married -- 35 per cent as opposed to 71 per cent. They were also three and half times as likely to be widowed -- 52.1 per cent as opposed to 15.5 per cent. They were also twice as likely to be divorced or separated. They were also less than half as likely to be single. Female heads of households were more than one and half times as likely as male heads of households to be over age 60 -- 40 per cent as opposed to 24 per cent. They were correspondingly one and half times less likely to be under age 40 -- 23 per cent as opposed to 36 per cent. They were slightly less likely to be in the prime earning range of 40- 60.

There are systematic differences in the education status of male and female heads of households. Female heads of households were half as likely as male heads of households to be literate -- 22 per cent as opposed to 44 per cent. They were also less than half as likely to be above the level of primary education. Thus, differential earnings are likely to be due to inferior levels of formal

education on the part of the female heads. Female heads of households were somewhat less likely to work than were male heads of household -- 75 per cent as opposed to 80 per cent. However, occupational structure of heads of household differed markedly by the sex of the head of the household. For instance, female heads of household were half as likely as male heads of household to be self-employed in agriculture -- 20 per cent as opposed to 38 per cent. They were also two and half times as likely to be agricultural wage labourers -- 50 per cent as opposed to 21 per cent.

Finally, they were less than one third as likely to be self-employed in non-agricultural activity and half as likely to be non-agricultural wage labourer. When working, female heads of household worked fewer days in the last year prior to survey. While 43 per cent of female heads worked for less than 3 months in a year, only 20 per cent of male heads worked for such a less period. On the contrary, at the upper end, while only 10 per cent of female heads worked for more than 9 months as high as 40 per cent male heads worked for such a lengthy period. This implies lower earnings of female heads of households partly because of more time devoted to domestic work and partly because of non-availability of work as a result of seasonal employment in agriculture. As noted, half of the female heads worked for agricultural wages, and all of them worked for a lesser period (less than six months). Moreover, earnings from agricultural wages for females were less than males. All these factors imply a markedly different level of earnings between male and female heads of households.

2.3 Household Size and Household Composition by Gender of Head

According to Pradeep Kumar Panda (1997), Female-headed households are smaller than male-headed households. Their household size was 3.6 members, as compared to 5.6 for the Male headed households. The smaller average size of female headed households stems partly from the lesser tendency of women to live in large size households. Of all the large size households (more than 6 members), only 5 per cent were headed by women, according to the study. These accounted for 14 per cent of female-headed households. On the other extreme, of all single person households, one half, were women and they accounted for 28 per cent of female-headed households as opposed to only 7 per cent of male-headed households. Female-headed households had relatively fewer children, both in terms of the average number of children per household and

in terms of the per cent of household members who are children. There was an average of only 0.3 children aged 0-4 years in female-headed households, but 0.7 in male-headed households. Extending the range of children aged 0-9 and 0-14, doubled and tripled the numbers respectively, but nevertheless, maintaining the patterns.

2.4 Household size and poverty status

Lanjouw and Ravallion (1994) observed that the widely held view that larger families tend to be poorer in developing countries has influenced research and policies. But the basis for this 'stylized fact" is questionable according to Lanjouw and Ravallion. Widely cited evidence of a strong negative correlation between household size and consumption per person is unconvincing, given that even poor households face economies of size in household size than their Engel curve estimate suggests. Lanjouw et-al (1994) found out that the correlation between poverty and household size vanishes in Pakistan when the size elasticity of the cost of living is about 0.6. This turns out to be the elasticity implied by a modified version of the food-share method of setting scales.

In their study *"Determinants of regional poverty in Uganda"*, Okurut, Odwee and Adebua (2002), found out that the larger the household, the higher the dependency ratio, hence the tendency to perpetuate poverty in the long run. In a subsistence economy, the large household size tends to increase competition for land resource use between food crops and cash crops, which may be coupled with declining soil productivity. This may result in low output, low household income and the perpetuation of poverty. The national mean household size for the sampled households is 5.2; Eastern region has the highest mean of 5.6, followed by Western region (5.3), Northern region (5.2) and Central region (4.8). Eastern Uganda being predominantly rural implies that the major production factor that they depend on is land. As the household size increases, the land will be continuously fragmented, resulting in decreasing returns due to overuse.

2.5 Household Wealth

The wealth of a household can be defined as its net balance of economic assets measured at a given point in time. Household wealth affects living conditions in at least two ways. First, real capital or physical items like consumer durables, have a direct "user value" for the household members. Second, liquid assets indirectly yield welfare benefits if transformed into other living condition components. Household wealth may be acquired through saving of income, inheritance, or appreciation of household economic assets. Apart from receipt or inheritance of gifts, the ability of a household to generate wealth depends on the size of the income, which remains after daily consumption expenditures like food and clothing have been deducted.

Indispensable for human physical survival, absolute expenditure on such basic items is less dependent on the household income level than other goods are. Their share of the budget is consequently greater, the lower the household income is. The residual character of wealth leads to greater variation in household wealth than in household income. Household wealth is thus particularly useful as an indicator for identification of households which suffer economic deprivation. The lower the level of a household's economic resources, the greater the vulnerability its members will be towards economic fluctuations. The sedimentary nature of household wealth makes it less vulnerable to sudden changes in the economic environment than for example (continuous) labour income. The relative short-term stability of wealth makes it an important buffer against the insecure economic situation

Wealth is a source of economic security providing an index of a household's ability to meet emergencies or absorb economic shocks such as unemployment. However, the importance of wealth as a source of economic security may vary among societies (e.g., the vast majority of people in Sweden have relatively little wealth, but the social welfare system provides the resources to absorb economic shocks). Wealth can, also, be assessed by classifying people according to household assets such as whether the family home is owned or rented, and whether there is a car or garden. In Britain, markers of low available income, such as not being a home owner or having access to a car, are strongly associated with increased mortality risk according to Judith Stewart (2002).

2.6 Household Wealth and Composition

"With every mouth comes a pair of hands". This saying indicates the dual effect of household size on economic resources. On average it seems reasonable to assume that the more household members there are the higher the household income, but also the household expenditure. In the introduction it was asserted that the ability of a household to generate wealth depends on the size of the income which remains after daily consumption expenditures like food and clothing have been subtracted. Investigation of the correlation between household size and household wealth should thus give a more correct picture of the possible effect of household size on household economic resources than the correlation between household size and household income. In particular, a high number of adult men in the household could be expected to increase household wealth, because most men receive income from labour activity. A high number of children, on the other hand, could be expected to increase household expenditures more than household income.

CHAPTER THREE
METHODOLOGY

3.1 Introduction

This chapter shows how respondents were selected and thereafter, how data was analyzed. It highlights the different data sources and types and how they were related to the study. The study was designed to establish the relationship between household size and housing conditions and it adopted a case study approach with focus on eastern Uganda. Different analytical tools were used to establish the relationship between the research variables.

3.2 Scope of Study

The study investigated the determinants of household size and specifically focused on establishing the relationship between household size and demographic, socio-economic, housing and welfare factors of household heads in Eastern Uganda. Eastern Uganda is made up of 15 districts of Bugiri, Busia, Iganga, Jinja, Kaberamaido, Kamuli, Kapchorwa, Katakwi, Kumi, Mayuge, Mbale, Pallisa, Sironko, Soroti and Tororo. The choice of the region is related to the fact that it had the highest average household size in Uganda. The socio–economic module of the Uganda National Household Survey (2006) was used to provide the dataset.

3.3 Sample data used

The UNHS 2005/2006 data, a sample of which was used for this study, was collected on all the socio-economic aspects of a household and covered a sample of 7417 households in the whole country. Out of these, a total of 1922 household respondents were from Eastern Uganda and this is the sample data that was used for analysis.

3.4 Data source and collection methods

The analysis relied on secondary data and used quantitative data analysis techniques. The study was based on the Uganda National Household Survey UNHS 2005/2006 – Socio-economic module. Uganda Bureau of Statistics (UBOS) and Ministry of Finance and Economic planning conducted the survey. The survey was chosen because it was comprehensive as it covered all the aspects that matter to the research and was the most recent at the time.

3.5 Weaknesses of secondary data

The study recognised the limitations/weaknesses of using secondary data, as discussed below;
Accuracy of the data could not be verified and only relied on the credibility and good track record of UBOS that conducted the survey. The study did not have control over data quality and yet with no direct contact with respondents to clarify data issues. Also, the fact that the data were not collected to analyse the study questions in hand. Every research study is conducted with a specific purpose in mind, and is designed to take account of the study purpose; responsibilities for data collection, completeness of the data and classification systems, timing, sampling criteria and delimitations; known biases; operational definitions; and methods of data collection. These considerations may limit the extent to which the data provides an appropriate source of information to address alternative research questions and hypothesis.

3.6 Research variables

The main variables in the study were: Demographic, Socio-Economic, Housing and Welfare factors. Demographic factors are; age of head of household, marital status of household head and the sex of household members. The variables of housing and welfare factors were divided into smaller specific variables and these included; type of dwelling unit, number of rooms occupied, type of meals, and availability of basic needs like clothes, number of pairs of shoes etc. Socio-economic factors like means of production, education and income levels, health status were, also, correlated with household size.

Education level: In this variable the education level of household members was analyzed. The schooling status of children in the household was given special treatment with reference to the total household size. It is believed that in big households, due to heavy educational expenses involved, parents find themselves forced to pay school fees for a few or at worst non for children's education. Also, the educational level of the household head helped in establishing whether household size presses a significant effect on the number of household members. This was because household heads that are not educated are usually associated with big household sizes because they believe in quantity unlike educated people who believe in quality-having a few children who are well looked after and cared for.

Marital status: In a country with a high total fertility rate like Uganda, it is believed that the marital status especially of the household head has a lot to do with the total household size. Household heads that are single are likely to have a very small size even when they have dependants (Muganga 2006). Polygamous household heads on the other hand will have a big family. Marital status was therefore used to reveal the true picture behind a household's size.

Source of income: Households whose source of income is agriculture will mostly require more labour and prefer a bigger household size compared to, for example, those who depend on salaries or wages. Also, households with limited income may find it difficult to maintain a bigger household because of the related expenses on food and general accommodation. Therefore both the level and source of income may help in influencing the size of the household and were integrated into the study.

Household conditions: Household conditions like type of dwelling unit, number of rooms were used to explain household size. It was believed that dwelling unit and tenure of occupancy may determine the number of household members. In areas where the land tenure system is customary and the land is enough, parents may be encouraged to produce more. The sheer size of the land may itself encourage agricultural productivity which is more likely to rely on human labour because of limited technology, necessitating a big household size.

3.7 Data analysis

Data analysis was carried out in three stages: univariate, bivariate and multivariate. To reduce on the errors during analysis, most of the categories or variables with small frequencies or percentages were either eliminated or merged with other minor categories to get better results. In order to make the presentation of data attractive, tables with related variables were also grouped together. Where possible, Charts were employed to give more clarification.

In the first stage of analysis - univariate level, the variable of household size was divided into two categories of 1-5 members (small households) and 6+ (big households). Later, simple distributions and frequencies of the socio-economic and housing conditions were constructed and presented in tables with the corresponding percentages. Among the variables presented included; age of household head, marital status, level of education, type of fuel for cooking, type of bathroom and source of income for the household.

Bivariate analysis involved the cross tabulation of independent variables with the dependent variable-household size so as to establish the association between them. All the independent variables in the first stage of analysis were used in this bivariate stage. Independent variables like age, education, marital status were cross-tabulated with the dependent variable (household size) and contingency tables used to present the results. The results were later used to establish whether there was any statistical relationship between the mentioned variables. This was done using the Pearson Chi- square test and the level of significance assumed to p, was set at p=0.05. This, therefore, implied that any association above 0.05 was considered insignificant.

The chi – square statistic (χ^2) was given by:

$$\chi^2 = \sum_{i}^{r} \sum_{j}^{c} \frac{(O_{ij} - E_{ij})^2}{E_{ij}}$$

Where

O_{ij} is the observed frequency ($i_{=1\ldots r,\ j=1\ldots c}$)

E_{ij} is the expected frequency assuming independence

r is the number of categories of the independent variables

c is the number of categories of the dependent variable

At multivariate level of analysis, the logistic regression analysis was used. This was because of the nature of the dependent variable, which had two categories. Initially multinomial logistic regression was used but was found not fit for the data. The binary logistic regression was, therefore, adopted and the dependent variable was constructed into two categories of small households (1-5 members) and big households (6 + members). Therefore the dependent variable (household size) was coded 1-small household, 2-big household.

The dependent variable was later regressed on the predicator variables representing the demographic, socio-economic and housing conditions. During the analysis, some of the independent variables especially those that came out significant at bivariate level of analysis, were used and categories/dummy variables created by use of SPSS package to further establish which category among the variables was more significant. The category with the highest frequency was made the reference category taking on the value of 0 and the rest assuming the value of 1. Since the dependent variable (household size) was coded 1-small household and 2-big household, small household=1 was set to 0 so that the remaining coefficients measured change relative to 1(y=1).

Logistic regression model took the following form;

$$\log\left(\frac{p_i}{1-p_i}\right) = b_0 + b_1 x_1 ..... + b_K x_K + e$$

Where

p_i = Probability of belonging to a small household size

$1 - p_i$ = Probability of belonging to a big household

x_s = Are the independent variables

b_s = Are the estimated coefficients

e = Error term

Interpretation of data specifically the independent variables was made in reference to the dependent category (household size). The odds ratio, which is the risk of the event occurring, when a variable changes by one unit, was used to explain the association. The odds ratio referred to the probability of a member of household falling in the household size range relative to the

identified reference category of the variable when all the other variables are kept constant. The chances of falling within a particular household size range increased when the odds ratio was greater than 1, decreased when it was less than 1 and when 0, it meant the odds remain unchanged.

CHAPTER FOUR
STUDY FINDINGS

4.1 Characteristics of respondents

This section examines the background characteristic of respondents. It is divided into three subsections that is; demographic and location factors, socio-economic and welfare factors and housing conditions. The selection of the variables relates to household size determinants. Demographic and location factors include; age, sex, household size, marital status and location. Housing conditions include; dwelling unit of household, rooms occupied, tenure status-all these were presumed to greatly influence the size of the household.

4.1.1 Demographic and location factors

Household size is a demographic attribute that greatly influences the population size and structure of a community and even a nation. This section elucidates on the information about the demographic and location characteristics of households. These characteristics were later used to describe and establish the determinants of household size.

Table 4.1: Demographic and location characteristics of respondents

Variables	**(1-5) Small family**		**(6+) Big family %**		**Total**	
	Freq	**Percent**	Freq	**Percent**	Freq	**Percent**
Household size	889	**46**	1033	**54**	1922	**100**
Substratum						
Urban	237	**26.7**	168	**16.3**	405	**21.1**
Rural	652	**73.3**	865	**83.7**	1517	**78.9**
Total	889	**100**	1033	**100**	1922	**100**
Age intervals						
15-24	136	**15.3**	22	**2.1**	158	**8.2**
25-34	249	**28**	254	**24.6**	503	**26.2**
35-44	155	**17.4**	330	**31.9**	485	**25.2**
45-54	96	**10.8**	207	**20**	303	**15.8**
55-64	95	**10.7**	143	**13.8**	238	**12.4**
65-74	97	**10.9**	63	**6.1**	160	**8.3**
75+	61	**6.9**	14	**1.4**	75	**3.9**
Total	889	**100**	1033	**100**	1922	**100**
Sex						
Male	623	**70.1**	820	**79.4**	1443	**75.1**
Female	266	**29.9**	213	**20.6**	479	**24.9**
Total	889	**100**	1033	**100**	1922	**100**
Marital status						
Married monogamously	424	**47.7**	604	**58.5**	1028	**53.5**
Married polygamously	143	**16.1**	296	**28.7**	439	**22.8**
Divorced/separated	107	**12**	29	**2.8**	136	**7.1**
Widow/widower	146	**16.4**	96	**9.3**	242	**12.6**
Never married	69	**7.8**	8	**0.8**	77	**4**
Total	889	**100**	1033	**100**	1922	**100**

Household size and location

Table 4.1 shows that a big number of households fell in the 1-5 members range which was categorized as small household and constituted 46% of the entire household population. Most of the household members (54%) lived in households of more than six members. Further analysis shows that the majority of households were in rural areas compared to urban areas with 78.9% and 21.1% respectively. It can, also, be shown that households in urban areas were characterised with small household sizes compared to their rural counterparts (26.7% compared to 83.7% respectively)

Age of respondents

Age was reported in complete years and later a 10 years age interval was used to group the reported ages. Table 4.1 shows that a bigger number of respondents belonged to the 25-34 age interval (26.2%) followed by the 35-44 age interval. A small number of respondents were observed between 15 to 24 years but this small number emerged again as years went by; 8.3% in the 65-74 age interval and 75+ in 3.9% in 75 years and above category. It can also be noted that most of the respondents whether from big or small household, were in the median ages and the number reduced as people became older. The implication could be; as the numbers of years go by especially in relation to the head of the households, household size may reduce. This may partly be due to children and grown up siblings leaving the household for education, work and marriage-were they start their own separate households.

Sex

The sex composition of a household head may very much determine the household size. Information about the sex of the head of the household was sought because it was felt that this would determine reproduction especially where male heads of households are concerned. Table 4.1 shows that males accounted for the highest percentage (75.1%) compared to females (24.9%). The Table further shows that there were more male heads of households in big sized households (79.4%) compared to small households (20.6%).

Marital status of respondents

The respondents were asked about their marital status. Table 4.1 shows that more than half of the heads of the households were married monogamously (53.5%). There were a small percentage of respondents who were divorced/separated or unmarried (7.1% and 4% respectively). The marital status may greatly determine the size of a household. It can be held that a big number of respondents, who were unmarried, divorced or separated belonged to small sized households. Table 4.1, further, shows that compared to small size households, there were more respondents in big households who were in polygamous relationships (28.7%) compared to 16.1% in small households. However, the majority of the respondents whether from big or small households were married and in monogamous relationships.

4.1.2 Socio-economic and welfare factors

Household size may be a function of not only the demographic attributes but, also, other aspects that may stretch to the socio-economic divide. This section highlights the findings on the socio-economic factors deemed to influence household size. The variables relate to the head of the household and include; education attendance especially of the household head, employment status, source of earning and ownership and access to welfare necessities like food, blankets and clothing.

Education background of respondents

Respondents were asked about the level of education attained. It was found out that most of the respondents had attended school in the past (75.8%). This, however, did not imply that they had necessarily completed specific levels of education. Table 4.2 shows that 17.3% of respondents had never gone to school while 6.6% were currently schooling. Of the household heads who had attended school in the past, an inquiry was made into the level of education attained.

Table 4.2: Socio economic and welfare characteristics of respondents

Education attendance	**Small household**		**Big household**		**Total**	
	Freq	**Percent**	**Freq**	**Percent**	**Freq**	**Percent**
Never attended	194	**21.8**	145	**13.8**	339	**17.4**
Attended in the past	655	**73.7**	801	**77.5**	1456	**75.8**
Currently attending	40	**4.5**	87	**8.7**	127	**6.8**
Total	889	100	1033	100	1922	100
Fathers education						
Less than primary	631	**73.2**	647	**78.3**	1380	**75.9**
Primary	142	**16.5**	142	**14.8**	284	**15.6**
Secondary	74	**8.6**	56	**5.9**	130	**7.1**
Tertiary	15	**1.7**	10	**1**	25	**1.4**
Total	862	100	855	100	1819	100
Employment status						
Employer/self employed	599	**74.2**	728	**75.8**	1327	**75**
Unpaid worker	61	**3.9**	132	**11.3**	193	**7.9**
Government worker	64	**4.3**	81	**5.7**	145	**5.1**
Private worker	165	**17.6**	92	**7.2**	257	**12**
Total	889	100	1033	100	1922	100
Source of earnings						
Farming	425	**49.5**	623	**66.6**	1048	**58.4**

Wage employment	167	**19.4**	124	**13.3**	291	**16.2**
Non agricultural enterprise	177	**20.6**	154	**16.5**	331	**18.5**
Property income	1	**0.1**	3	**0.3**	4	**0.2**
Support/transfers	89	**10.4**	31	**3.3**	120	**6.7**
Total	859	100	935	100	1794	100
Ownership of blankets						
Yes	213	**37.6**	261	**28**	474	**31.6**
No	349	**61.5**	668	**71.7**	1017	**67.9**
Hh not existent	5	**0.9**	3	**0.3**	8	**0.5**
Total	567	100	932	100	1499	100
Number of meals per day						
1	78	**7**	44	**2.7**	122	**4.9**
2	544	**65.3**	551	**65.9**	1095	**65.6**
3	231	**26.1**	260	**29.6**	491	**27.9**
4	36	**1.6**	25	**1.8**	61	**1.6**
Total	889	100	880	100	1769	100
Land acreage						
0-10	450	**71**	576	**71.7**	1026	**71.4**
20-Nov	102	**8.3**	125	**10.2**	227	**9.3**
21-30	132	**13.7**	143	**12.7**	275	**13.1**
31-40	62	**1.1**	58	**1.1**	120	**1.1**
41-50	68	**2.2**	62	**1.6**	130	**1.9**
51+	77	**3.7**	70	**2.7**	147	**3.2**
Total	891	100	1034	100	1925	100
Use of land						
Cultivation	112	**5.6**	98	**3.4**	210	**4.3**
Wetland	84	**0.7**	77	**0.5**	161	**0.6**
Fallow	81	**0.2**	73	**0**	154	**0.1**
Building	613	**93.5**	787	**96.1**	1400	**95**
Total	890	100	1035	100	1925	100

Table 4.2 further shows that the majority of household heads 75.9% had attained education levels that were less than primary. That is, had not completed primary level. There were a small number of household heads who had attained post primary education and the number reduced drastically with tertiary education. The general indication is that most of the respondents, who were interviewed, were lowly educated. An in depth outlook into the implication of education on household size shows that there were more uneducated heads of households in big size compared to small size households.

Employment status

A big percentage (75%) of the household heads were employed and mostly self employed, 7.9% were involved in unpaid work while a small number of respondents (5.1%), were government workers. Table 4.2 further shows that among the self employed respondents, 75.8% were from big households compared to (74.2%) from small households. There was, also, a big number of respondents (11.3%) from big households involved in unpaid work compared to small households (3.9%). This may be true because of the big size of households, which may leave other members without what to do. The general impression, however, was that most of the respondents whether from small or big households, were self employed.

Source of earning

It was hypothesised that a big household size was related to agricultural production especially in rural areas where the demand for human agricultural labour is high. Table 4.2, shows that a big number of respondents both from small and big sized households had agricultural as the main source of earning (49.5% and 66.6% respectively). 58.4 % of all the respondents stated agriculture as the major source of earning. Whereas this does not necessarily imply that such respondents are directly involved in agricultural production, it gives a big clue as to the sector of employment, which would be used to confirm participation in agricultural production. It can also be shown that there were more big size households involved in agriculture compared to small households. However, there were more respondents from small households who stated non agricultural enterprises as their major source of earning. A quick conclusion was that big households relied on agriculture as their major source of earning compared to small households involved in non agricultural enterprises.

Land acreage and land use

The results in Table 4.2 indicate that most of the respondents were self employed and agriculture was their major source of earning. An investigation followed as how big their land acreage was and what the land was exactly used for so as to determine whether indeed big households were involved in agricultural production. It can be shown that the majority of respondents (71.4%) had small land size between 0-10 acres. This was the average land acreage for both small and big

households and as the acreage increased, the number of respondents fell. This implied that there were few respondents who had a big land acreage more than 40 acres.

Examining what the possessed land was used for, the biggest number of respondents (95%) used the land not for agriculture but rather for building and construction. Only 4.3% of the respondents used their land for agriculture and a very small number of respondents 0.6 %, reported their land to be in wetland areas. The general impression at this stage is that neither small nor big households used their land for agriculture contrary to our hypothesis but this will be confirmed later in the next section.

Ownership of blankets and average number of meals per day

Ownership of a blanket is one of the basic needs that relates to shelter. Overall, 67.8% of the respondents did not own a blanket. Table 3.2 further shows that a big number of respondents from big households (71.7%) did not have or own a blanket compared to those in small households (61.6%). It can, therefore, be concluded that most of the respondents had a poor welfare status. In addition to ownership of blankets, a question was posed on the number of meals taken per day. 65.6% of respondents had 2 meals a day. On average, there were more respondents (29.6%) from big households who had three meals per day compared to small households (26.1%).

4.1.3 Housing conditions

Housing conditions were used as proxies in the measurement of poverty and they could not independently explain whether households are poor or not. However, they go along way in filling in some missing gaps especially where variables that are difficult to quantify are concerned. They include; fuel for cooking, type of Kitchen, type of bathroom and type of toilet.

Dwelling unit of a household

Table 4.3 shows that 55.1% of the respondents in Eastern Uganda, live in independent houses. However, a relatively big number of respondents both from small and big households live in huts/garages (29.2%). A close look, however, reveals that 65.9% of respondents in big households compared to 44.3% of the respondents in small households lived in an independent

house. The implication is that more respondents from big households were living in complete houses and this could have been as a result of the big number that definitely necessitated complete bigger houses rather than huts or garages.

Household tenure status

Table 4.3 shows that most of the respondents owned the houses that they occupied and this high percentage is uniform for both members from small and big households (80.2%). However, just like the dwelling unit, a bigger number of respondents (89.9%) from big households owned houses compared to small households (70.5%). Only 14.9% of the respondents rented while a small number of respondents occupied free houses (4.9%).

Table 4.3: Household conditions of respondents in Eastern Uganda

Household conditions	**Household size**					
Dwelling unit of household	**small family %**		**Big family%**		**Total %**	
House/flat/apartment	394	**44.3**	681	**65.9**	1075	**55.1**
Tenement/Muzigo	213	**24.0**	77	**7.5**	291	**15.7**
Hut/garage	282	**31.7**	275	**26.6**	557	**29.2**
Total	889	**100.0**	1033	**100.0**	1922	**100.0**
Household tenure status						
Owned	627	**70.5**	929	**89.9**	1555	**80.2**
Rented	194	**21.8**	83	**8.0**	276	**14.9**
Free	68	**7.7**	22	**2.1**	90	**4.9**
Total	889	**100.0**	1033	**100.0**	1922	**100.0**
Occupied rooms						
1-5	821	**92.4**	671	**65.0**	1493	**78.7**
6-10	62	**7.0**	342	**33.1**	404	**20.0**
11+	5	**.6**	20	**1.9**	25	**1.2**
Total	889	**100.0**	1033	**100.0**	1922	**100.0**
Fuel for cooking						
Firewood	627	**70.5**	886	**85.8**	1513	**78.2**
Charcoal	206	**23.2**	145	**13.9**	351	**18.6**
Paraffin/electricity/gas	21	**2.4**	1	**.1**	22	**1.2**
Biogas/saw dust	35	**3.9**	1	**.1**	36	**2.0**
Total	889	**100.0**	1033	**100.0**	1922	**100.0**

Number of rooms occupied

Table 4.3 shows that 78.7% of respondents occupied 1-5 rooms. However, as the number of rooms occupied increased, the number of respondents reduced and this applies to both big and small households. For instance, 20% of respondents occupied 6-10 rooms and only 1.2% occupied 11 or more rooms. On average, respondents from small households occupied 1-5 rooms while big size households respondents occupied more than 6 rooms. Ideally, small households occupying few rooms is logical especially in a developing country like Uganda where resources are scarce and this may be the reason why more respondents from big households occupied more rooms compared to small households.

Fuel for cooking

Fuel for cooking in a household was deemed not a determinant of household size but would show how useful such size especially where fire wood collection is concerned. Table 4.3 shows that the major source of fuel for both small and big households was firewood (78.2%) followed by charcoal (18.6%) and a very small percentage used electricity or gas (1.2%). This small and limited use of electricity may be related to the high tariffs and costs related with electricity. The Table further shows that whereas firewood was the major source of fuel for cooking, more respondents from big households relied on firewood compared to small households (85.8% compared to 70.5% respectively). Small households on the other hand used charcoal compared to big households (23.2% compared to 13.9% respectively). Use of electricity and gas was adopted by more respondents in small households and this may be true because it becomes uneconomical using such energy sources for big households.

4.2 Bivariate analysis

The section shows the variables that came out significant during bivariate analysis. Bivariate associations between the main predictor variables and the dependent variables household size were examined. Socio-economic and housing conditions of household members such as; age of respondents, marital status, level of education, source of earnings, tenure status and ownership of blankets were analysed to investigate their association with the household size. Some of the independent variables were further cross-tabulated with each other to establish if there was any

association, unfortunately, the variables of land acreage, use of land, education attendance were not significant.

4.2.1 Location of respondents and household size

There is an association between location of respondents and household size in Uganda. The majority of respondents reside in rural areas compared to towns/urban areas (78.9% compared to 21.1%). There are more big households in rural areas compared to urban areas and the reverse is true. In urban areas, there is a bigger possibility of small households because of the related high expenses and cost of living unlike rural areas where some of the needs like food, housing are accessed for free. This is the reason why there may be few big size households in urban areas. In addition most of the people who stay in urban areas come from rural areas so as to work and go back to their villages, so they may not see any reason of coming along with the whole household making such households small.

4.2.2 Age of respondents and household size

The overall association when age of respondents was cross tabulated against household size was found to have a significant relationship (p=0.000). Table 4.4 shows that the ages of household members formed an inverted U shape with the youngest age interval 15-24 having a small frequency of 8.2%. As the years go by, the number increases but when it reaches in age interval 45-54, it starts to drop till age 75 and above years (15.8%, 12.4, 8.3% and 3.9% respectively).

Table 4.4: Results of demographic and location factors and household size in Eastern Uganda

Variables	(1-5) Small household %	(6+) Big household %	Total
Substratum			
Urban	26.7	16.3	21.1
Rural	73.3	83.7	78.9
Total	100.0	100.0	100.0
Chi square value=31.048, df=1, sig=0.000			
Age intervals			
15-24	15.3	2.1	8.2
25-34	28.0	24.6	26.2
35-44	17.4	31.9	25.2
45-54	10.8	20.0	15.8
55-64	10.7	13.8	12.4
65-74	10.9	6.2	8.3
75+	6.9	1.4	3.9
Total	100.0	100.0	100.0
Chi square value=222.932, df=6, sig=0.000			
Sex			
Male	70.1	79.4	75.1
Female	29.9	20.6	24.9
Total	100.0	100.0	100.0
Chi square value=22.094, df=1, sig=0.000			
Present marital status			
Married monogamously	47.7	58.5	53.5
Married polygamously	16.1	28.7	22.8
Divorced/separated	12.0	2.8	7.1
Widow/widower	16.4	9.3	12.6
Never married	7.8	.8	4.0
Total	100.0	100.0	100.0
Chi square value=178.444, df=4, sig=0.000			

Combining respondents from small and big households, it can be reported that there are more respondents from small households compared to big households at older age and the reverse is true for median age. Possible explanation as to the few respondents from big households at older ages relates to the fact that most of the siblings/children start their own households. In addition most of the old people usually join the households of their children who are still young and may, therefore, not have big households. In any case, there are very few people who survive at older ages given the short life expectancy in the country, making the number of respondent in both small and big households to reduce as years go by.

4.2.3 Marital status of respondents and household size

The association between marital status and household size is very significant (p=0.000). It is a widely held view that polygamous marriages result into big households at least from the households head point of view and more applicable where the household head is a male. It is true that there are more respondents in Eastern Uganda from big households (28.7%) who are in polygamous marriages compared to small households (16.1%). However, even in monogamous marriages, a big number of respondents are from big households compared to small households. On the other hand, there are very few unmarried respondents from big compared to small households. Unmarried heads of household are likely to belong to small households because it is obvious they have very few dependents. In most cases they do not have children and may be their own independent household. Married members especially in polygamous households are many in big households because of the shear numbers involved. This number increases especially as the husband takes on more women and each may produce more children-may be to attract more attention and support from the husband. This may be the genesis of polygamous marriages resulting into big households.

4.2.4 Father's education and household size

The association between father's education and household size came out significant (p=0.034). Table 4.5 shows, that there were more fathers with less than primary education in big households (78.3%) compared to small households (73.2%). Uneducated household heads (less than primary education) are more likely to be/have big households because they may not be able to know the value of small households. Most of the uneducated people are still attached to the traditional big household because of its ability to guarantee security, check the death of especially young ones and provide labour. Such views are likely to be shared more by the less educated and this may be one of the reasons why less than primary level education were more in big households.

Table 4.5: Results of socio economic factors and household size in Eastern Uganda

	Small household	Big household	Total
Fathers education			
Less than primary	73.2	78.3	75.9
Primary	16.5	14.8	15.6
Secondary	8.6	5.9	7.1
Tertiary	1.7	1.0	1.4
Total	100.0	100.0	100.0
Chi square value=8.644, df=3, sig=0.034			
Employment status			
Employer/self employed	74.2	75.8	75.0
Unpaid worker	3.9	11.3	7.9
Government worker	4.3	5.7	5.1
Private worker	17.6	7.3	12.0
Total	100.0	100.0	100.0
Chi square value=67.972, df=3, sig=0.000			
Source of earnings			
Farming	49.5	66.6	58.4
Wage employment	19.4	13.3	16.2
Non agricultural enterprise	20.6	16.5	18.5
Property income	.1	.3	.2
Support/transfers	10.4	3.3	6.7
Total	100.0	100.0	100.0
Chi square value=71.302 df=4 sig=0.000			
Ownership of blankets			
Yes	37.6	28.0	31.6
No	61.6	71.7	67.8
Hh not existent	0.9	0.3	.5
Total	100.0	100.0	100.0
Chi square value=17.588, df=2, sig=0.000			
Number of meals per day			
1	7.0	2.7	4.9
2	65.3	65.9	65.6
3	26.1	29.6	27.9
4	1.5	1.7	1.6
14	.1		.1
Total	100.0	100.0	100.0
Chi square value=17.897, df=4, sig=0.001			

However, as the level of education increases, the number of respondents from big households reduces while those from small households, increases. This is related to the same argument of education highlighting the advantages of small households stressing quality rather than numbers

(quantity). Unfortunately, there are fewer respondents at higher levels of education (1.4%) but it can be held that there are more respondents from small households at higher levels compared to big households.

4.2.5 Employment status and household size

Employment status of respondents was related to household size in Eastern Uganda (p=0.000). A big number of respondents both from small and big households are self employed (75%). However, there are more respondents from big households who are self employed compared to those in small households. This may be related to the source of earning discussed in the previous section 4.1.2. In addition, most of the respondents from big households are employed/earn from agriculture which is an open sector for most people especially rural sector as it has no restrictions posed by educational qualifications or technical skills. However, more respondents from big households are involved in unpaid work.

4.2.6 Source of earnings and household size

Table 4.5 shows that there is a statistical significance between source of earning and household size in Eastern Uganda (p=0.000). The Table shows that there are more respondents from big households (66.6%) who earn from agriculture compared to small households (49.5%). Conversely, there are more respondents from small households who depend on non agricultural enterprises compared to big households. The hypothesis that big households depend on agricultural production was not true as there was no association between use of land and household size, however, what can be held is that big household members are more likely to be engaged in an agricultural activity compared to members from small household. Because most respondents as shown in Table 3.3 come from rural areas, this may be the reason why their major source of earning is agriculture. It should be noted that agriculture is the backbone of Uganda's economy employing almost 70% of the population and more prominent in rural areas and as such, it is not a surprise that most of the respondents depend on it. However, there may be other underlying reasons as to why more respondents from big households compared to small households earn from agriculture. This may be related to limited education of especially household heads as shown in Table 4.5. The implication is that such people may not have the educational qualifications to be employed in non agriculture sectors and, therefore, find

agriculture the only option out since it does not require possession of specific skills and qualifications like in other sectors.

4.2.7 Ownership of blankets and household size in Eastern Uganda

Ownership of blankets together with number of meals taken per day and ownership of shoes and two pair of clothes were used as proxies for determining the welfare of a household and the household head. However, the two variables; ownership of shoes and clothes came out insignificant and, therefore, had no association with household size. Table 4.5 shows that ownership of blankets was associated with household size (p=0.000). The Table further shows that a big percentage of respondents 67.7% did not own a blanket. However, there were more respondents from big households who did not own any blanket compared to small households. A close look at the number of meals taken per day, also, shows that a big number of respondents both from small and big households had two meals per day. People in Eastern Uganda, using the head of household as a key informant, are generally badly off and their welfare needs a lot to be improved. Using ownership of blankets, it can be argued that respondents from small households may be enjoying better welfare and standard of living compared to those in big households. Due to the low incomes, limited savings and the high poverty rate in Eastern Uganda, big households may find it difficult to raise the necessary resources to purchase the basic needs that relate to food and clothing compared to small households.

4.2.8 Dwelling unit and household size

It can be shown in Table 4.5 that dwelling unit is associated with household size in Eastern Uganda. A big number of respondents were living in complete houses but there were more respondents (65.9%) from big households compared to small households (44.3%). Also, a big number of respondents from small households were living in tenement/muzigo compared to those in big households. Because of the big number of members in a big size household, the necessity for a bigger house is inevitable and this may be the reason why they occupy complete houses. For small households on the hand, tenement/muzigo may be preferred because they are more economic as they are less costly to construct or pay rent for and since the members in such households are few sometimes only one person, it does not make sense to live in a big room. It

should be noted that most of the ‘muzigos’ are one roomed houses and typically are meant to accommodate a small number of occupants.

4.2.9 Household tenure status and household size

Household size is related to the tenure status p=0.000. Most of the respondents as already noted in section 4.1 have their own houses rather than rent. This can be related to the type of dwelling unit since most of the respondents from small households rent (21.8%) compared to (8%) for big households. It can be argued that since most of the respondents from small households were living in tenement/*muzigo* then obviously more respondents from small households would find themselves rather renting.

4.2.10 Number of rooms occupied and household size

The variable number of rooms occupied and household size in Eastern Uganda came out significant during cross tabulations (p=0.000). A big number of respondents from small households occupy between 1-5 rooms, this is different from big households which occupy 6-10 rooms. This is related to household dwelling unit because the bigger the household size, the more likely it is to occupy a complete house and a bigger number of rooms.

4.2.11 Fuel for cooking and household size

The association between fuel for cooking and household size was significant (p=0.000). Table 4.3 shows that whereas a big number of respondents were using firewood for cooking, more of the respondents were from big households rather than small households. Big households may use firewood more than small households because using other sources like charcoal and electricity may be uneconomical because of the related high expenses. In any case, using firewood may be convenient because wood may be collected for free from the nearby bushes especially given the fact that most of the respondents were from rural rather than urban areas.

4.3 Results of binary logistic regression analysis

This section highlights the results of the binary logistic regression analysis. The discussions that follow later, aim at highlighting the contribution and association of the different independent variables after controlling for certain aspects. All the independent variables that came out significant during cross tabulations were regressed on the dependent variable household size. Unfortunately the variables of sex, education attendance, ownership of blankets and fuel for cooking did not come out significant. Table 4.6 shows that at multivariate level of analysis with 95% confidence interval when all independent variables where regressed against the dependent variable and all the other factors were held constant, the variables of age, marital status, employment status, dwelling unit and number of rooms were associated with household size, ($p>0.05$).

4.3.1 Age of respondents

Table 4.6 shows that age of respondents came out significant ($p=0.000$), more significant compared to other variables like employment status even when the variable is broken into a number of categories. The analysis was based on age interval 15-24 as the reference category and it reveals that at median ages (25-44), the risk of female heads of households belonging to big households are high. The odds of a household member in age interval 25 - 34 staying in a big household increases by 5.751 times that of the reference category. The odds increase further by 12.568 times the reference category in age interval 35-44. However, compared to age interval 15-24 the risk of a household member aged 75 and above years belonging to a big household reduces by 0.941 times the reference category. In simple terms at median ages (25-44), a household member who may be the head of a household is more likely to belong to a big household compared to older ages especially 75 and above years. It can therefore be firmly concluded that age is a one of the correlates of household size in Eastern Uganda.

4.3.2 Marital status of respondents

The regressions show that the sex of respondents has nothing a lot to do with household size however; marital status is associated with household size (0.000). Monogamous marriages was made the reference category and set at 0 and it can be held just like at bivariate level that more respondents from polygamous marriages are more likely to come from big families.

Table 4.6: Results of multivariate regression

Variables	B	S.E.	df	Sig.	Exp(B)
Employment Status					
Self employed^^			3	.024	
Unpaid worker	-.319	.604	1	.597	.727
Government worker	.130	.286	1	.648	1.139
Private worker	-.576	.196	1	.003	.562
Dwelling Unit					
Complete house^^			2	.000	
Tenement/muzigo	-1.037	.193	1	.000	.355
Hut/garage	-.068	.143	1	.634	.934
Number Of Rooms					
1-5^^			2	.000	
6-10	1.519	.196	1	.000	4.568
11+	1.050	.569	1	.065	2.859
Marital Status					
Monogamous^^			4	.000	
Polygamous	.028	.153	1	.857	1.028
Divorced/separated	-1.960	.317	1	.000	.141
Widow/widower	-1.099	.273	1	.000	.333
Never married	-2.200	.513	1	.000	.111
Age Intervals					
15-24^^			6	.000	
25-34	1.749	.306	1	.000	5.751
35-44	2.531	.314	1	.000	12.568
45-54	2.324	.330	1	.000	10.215
55-64	1.980	.344	1	.000	7.241
65-74	1.120	.370	1	.002	3.065
75+	-.061	.550	1	.912	.941
Constant	-1.587	.301	1	.000	.205

^^ Reference category, Exp (B) is the odds ratio, Sig. shows the level of significance p=<0.05 for any association between variables.

The odds of a respondent in a polygamous marriage coming from a big household increases by 1.028 times the respondent in a monogamous marriage. However, the odds of a respondent who is divorced or separated belonging to a big household reduces by 0.141 times whereas, it reduces by a further 0.111 times the reference category for respondents who have never been married. Therefore, divorced and unmarried respondents are less likely to be found in big households. Divorced/separated individuals usually set up their own small households or join friends and relatives and are more likely to live alone or in small households. This may be more relevant for separated women who may have to leave behind their children and even belongings until a time when they return back home. In the time, however, when they are separated they are more likely to have or live in small households. In addition, it can be confirmed that unmarried individuals may belong to small rather than big households. This could be due to the fact that they are usually alone as they have no permanent partners and most likely no children and, therefore, find themselves having a few or no members to stay with especially if they hail from urban areas.

4.3.3 Employment status

Unpaid workers are less likely to belong to big households compared to self employed workers. The odds ratio of a household member who is doing unpaid work belonging to a big household reduces by 0.727 times the reference category. Private workers are also less likely to belong to big households. However, government workers are more likely to belong to big households and the odds of a government worker belonging to a big household increases by 1.139 times the reference category. This some how departs from the expectations of the chi square test cross tabulations.

4.3.4 Dwelling unit

Table 4.6 shows that the type of dwelling unit of a household is associated with household size in Eastern Uganda (p=0.000). The odds ratio of a household member from a big household in Eastern Uganda residing in a tenement/muzigo reduces by 0.355 times the reference category. The odds ratio reduces by 0.934 times the reference category for a household member from a

hut/garage. This implies that compared to the reference category (house/flat), household members from big households are less likely to stay in huts, garages and ‘muzigo’. This, as already noted is due to the limited space available in huts/garages and given the fact that big households (more than six members) plus their luggage would require a bigger physical space the small dwellings would be inconvenient.

4.3.5 Number of rooms occupied

The category 1-5 rooms was set to 0 and made the reference category. At 95% confidence interval, the number of rooms occupied was associated with household size just like at bivariate level. Big households were more likely to use more than six rooms and the likelihood increased as did the number of rooms. The odds of a household member from a big household residing in 6-10 rooms increased by 4.568 times while in eleven or more rooms (11+), the odds increased by 2.859 times the reference category. Just like it was confirmed during cross tabulations big households reside in more rooms compared to small households. Small households residing in a small number of rooms (1-5) may be associated with marital status of especially the household head, age and dwelling unit. Divorced and unmarried heads of households need not many rooms because as already discussed, they usually rent houses, reside in tenement/muzigo unlike complete houses and can be presumed to have few dependents. Married members especially in polygamous relationships require more rooms to accommodate the bigger number of wives and children. This is especially more relevant to Eastern Uganda where a man can have a number of wives who-all of them stay in the same house. Ideally, such a house is meant to be big and have many rooms unlike that occupied by a member who is unmarried. Therefore, it may be concluded that in Eastern Uganda small/few rooms are for small households and many rooms are for big households.

4.4 Conclusions

This chapter presented the background characteristics of respondents, the results of bivariate analysis and examined the results of multivariate analysis where binary logistic regression model was used as the main analytical tool. Demographic, social and housing conditions of respondents

in eastern Uganda were regressed on the dichotomous dependent variable household size. The variables, age, marital status, employment status, dwelling unit and number of rooms occupied came out significant and, therefore, determine the corresponding size of a household. Unfortunately some of the variables came out insignificant and were dropped from the discussion. These included; source of earning, welfare factors like ownership of blankets and education attendance of the respondents.

CHAPTER FIVE
SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

This chapter presents the findings, conclusions and recommendations about household size in Eastern Uganda. The information presented highlights the socio-economic, demographic and housing determinants of household size. These aspects include age of respondents, education level of household head, employment status of household head, source of earning, dwelling unit, fuel for cooking, ownership of basic necessities, land tenure, marital status, sex of household head and number of rooms occupied. The factors were subjected to a number of statistical tools and analysed at three levels that is; univariate where frequencies were run, bivariate involving cross tabulations using the chi square test and multivariate analysis were the binary logistic regression model was used.

5.2 Summary of the findings

A sample of 1922 households was used during the analysis and the respondents were heads of households because these were deemed to represent the whole household and to give an accurate picture of the correlates of household size in Eastern Uganda. The findings at univariate level revealed that the majority of the respondents were in the 25-34 age bracket. However, most of these respondents in the 25-34 age interval came from small size households. Compared to small households, a bigger percentage of respondents from big households were in the 35-44 age interval (31.9% compared to 17.4% respectively). Therefore, it was tentatively concluded at this stage that most of the respondents were in their median ages and also, at older ages (75+) more respondents lived in small rather than big households.

It was, also, found out that more unmarried household members were more likely to live in small compared to big households. The biggest percentage of respondents was married (76.3%) and this could have been as a result of focusing on heads of households compared to other categories. However, most of the married respondents were in monogamous relationships (53.5%) compared to polygamous (22.8%). It was, also, found out that most of respondents in polygamous

marriages belonged to big households. The reason behind such is related to the number of household members as a result of the many children from the different wives.

In addition it was, also, found out most of the respondents had attained some education (75.8%) but this did not imply that they were educated. For instance an inquiry into the father's level of education revealed that most household heads had attained less than primary education (75.9%) and this number was uniform for both small and big households. However, as the level of education improved, for instance from primary to secondary, more household heads were found in small big households. This was attributed to the knowledge and awareness about the advantages of small household size gained from schooling and general enlightenment.

The analysis of housing conditions like dwelling unit, tenure status and number of rooms revealed that more respondents from big households lived in complete houses unlike huts or tenement for small households, implying that a big number owned rather than rented and used more than six rooms. This was basically related to the big number of occupants that made it economical to and convenient to use a bigger space compared to small households.

It was, also, found out that firewood was the major source of fuel for cooking in both small and big households (78.2%) and this was attributed to the low cost and easy access compared to other energy sources like charcoal and electricity. A big number of respondents from big households (85.8%) however, used firewood compared to small households (70.5%). This was around the same argument of cost, convenience but in addition, a big number of members who could collect such firewood especially where children are involved.

The Chi square test was later used as an analytical tool at bivariate level and the Pearson Chi statistic was adopted to test the research questions stated at the start of the project. At this level, most of the variables that were cross-tabulated came out significant ($p<0.05$) save for a few like education attendance, ownership of two pairs of clothes, land acreage and use of land revealing no association with household size. For the variables that came out significant, the same argument as in univariate analysis was held with a few refinements and the significant variables were further subjected to another statistical test-the logistic regression to establish the specific association with household size in the face of other variables.

A further analysis at multivariate level aimed at establishing the contribution of the predicator variables on household size. All the independent or dependent variables were categorized and the first category made the reference/main category and was used to provide a basis for explaining

other categories. Results in Table 4.6 show that only the variables of employment status, dwelling unit, number of rooms, marital status and age, were associated with household size. The variables of sex, father's education, source of earning, ownership of blankets and fuel for cooking were generally not associated with household size. The rest of the variables were generally found to be significant ($p=<0.05$), however, some of categories would come out insignificant. Household size and age of respondent were the most outstanding variables of all the variables and it was clearly confirmed that in age interval 25-34 years; household members stood higher chances of belonging to small households. It was unfortunate the hypothesis speculated about agriculture production as the main pre-occupation of big households could not be confirmed.

5.3 Conclusions

In conclusion, it was found out that age, marital status, employment status, type of dwelling unit and number of rooms in the dwelling unit were, the major demographic, socio-economic and housing variables found to be associated with household size in Eastern Uganda.

A household head's marital status is very likely to determine the size of the household. Most likely to result into a big household if the head is in a polygamous marriage than when he is in a monogamous or never married. It was unfortunate that the survey never captured information on religious affiliation which would have shed more light on why household heads were monogamous or polygamous. Notwithstanding such a limitation, there are obvious reasons why the polygamous marital status of heads of households resulted into big household size. Most notably relates to the number of wives and usually in a traditional setting, this may result into production of more children by the individual wife so to attract more support and concentration from the husband. Also, polygamous households usually have big pieces of land and therefore may require more household members to utilize such lands

It could, also, be concluded that type of dwelling unit and number of rooms on the dwelling unit are likely to determine the size of a household in Eastern Uganda.

Big size households stayed in dwelling units with many rooms compared to small households. This again could be linked to the marital status of household heads. In Eastern Uganda, there is a considerable number of polygamous men who live with all their wives in the one house (same house). Obviously, such a house must be having many rooms because it is practically impossible

for several wives to sleep in one room including their children. In addition, to the big number of wives and children, there is a possibility of relatives from both sides to come and stay for a long time and this may influence the household head to set up a number of rooms.

The type of housing/dwelling unit further clarifies on the relationship between household size and number of rooms occupied. As noted, never married or monogamous heads of households were likely to be found in tenement/Muzigo houses while polygamous heads of households were more likely to be found in complete houses. Ideally a 'Muzigo' is likely to be having fewer rooms compared to a complete house that has many rooms. The fact that polygamous households were more likely to live in complete houses, therefore, simply implies that they use more rooms than monogamous households.

It can, also, be confirmed that there was no striking difference between the welfare of respondents from small and big households. Therefore, welfare factors were not found to determine household size in Eastern Uganda. Most of the respondents had two meals a day and this was the same scenario for both big and small household sizes. Small and big households owned at least one blanket but a bigger number of those who owned came from small households. It can, also, be concluded that whereas a big number of respondents from big households held farming as their major source of earnings, it does not necessarily imply that they are involved in agriculture but rather depend on agriculture sector output, for example, selling agricultural products like beans and other crops but not necessarily producing such crops.

5.4 Recommendations

An interesting finding relates to the energy source for cooking at univariate level. It was found out that more members from big households used firewood for cooking compared to those in small households who used charcoal with a very small number using electricity and gas. Having many big households especially in rural areas may imply more usage of firewood, clearing of bushes and forests and possibly more environment degradation. Therefore, big household sizes should be discouraged by every Actor especially the sectoral Government Institutions/Ministries through sustained education campaign especially on the socio-economic disadvantages of big

household sizes. Appropriate technology related to energy saving practices must be encouraged and where possible provided for free or subsidized especially for the rural big households so as to encourage such households not to destroy our environment

Given that most of the households in Eastern Uganda engaged in agriculture are significantly affected by price fluctuations and vagaries of nature, Government should put into considerable emphasis in diversification of sources of income for the poor households in the region. This can be done through establishment of cooperatives especially those offering soft credit to the poor to initiate income earning self-help projects

Adult and continuing education is particularly important especially for the heads of households. This comes out of the realization that most heads of households were fathers having attained less or equal to primary education. Most of these household heads were more likely to come from big rather than small households. Whereas it could not be established that members from small households enjoyed better welfare status than their big household counterparts, it is important that the provided adult education incorporates family planning information so as to interest such heads of households into maintaining small households in order to better the quality of their children and other household members. In any case, it was confirmed that less educated household heads were most likely to be found in big than in small households

Whereas the study did not aim at establishing the welfare status of the households in Eastern Uganda, it was evidently clear that households in Eastern Uganda are poor. Therefore, measures that relate to fighting poverty in the region should be encouraged and supported by Government. Such measures may include; supporting commercial farming and introduction of modern technology of farming for increased production since people in the region are farmers.

Most of the respondents from both small and big households are self-employed and most likely work in the informal sector. The government should try to fight all the barriers that exist in the informal sector which deter their participation. These include insecurity, high taxes, bribery. Markets should be opened up and the government should organize the population and help in acquiring market for the produced goods. A big number of respondents reportedly indicated farming as the major source of earning. Any move towards the promotion of and mordernisation

of agriculture would result into more employment opportunities especially for the big number of respondents from big households.

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APPENDEX

The 2005/2006 Uganda National Household Survey questionnaire