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Impact of HIV/AIDS on Households' Food Production in Bushenyi District, Uganda

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Abstract

AIDS has had a devastating impact on Uganda and has significantly lowered life expectancy, reduced the country's labor force, reduced agricultural output and food security. Although much research has been done on the impact of HIV/AIDS in general, relatively little research has been conducted to establish how HIV/AIDS has affected food production at the household level. The objective of the study was to investigate the extent of the HIV/AIDS impact on households' food production in Bushenyi district in the context of their demographic and economic backgrounds. This was a cross-sectional study that used the quantitative research design. The study applied a multi-stage cluster sampling of the administrative units; and a complete coverage of the villages was randomly selected. Results show that age, level of education of the household heads, religion, and the form of income, had a great influence on the impact of HIV/AIDS on households' food production.

1. Background

Throughout African history, few crises have presented such a threat to public health and to social and economic progress as the HIV/AIDS epidemic has done (FAO, 2002). It is even more troubling given that much of the suffering and the destitution caused by the epidemic could have been prevented. HIV/AIDS can no longer solely be considered a health problem, but a development problem as well. Due to AIDS, decades of development have been lost in Africa, and the countries' efforts to reduce poverty and enhance living standards have been greatly undermined (FAO, 2002).

The HIV/AIDS epidemic has become a major threat to human development, especially in the poorest regions of the world. The number of new infections in Uganda was at 120,000 in 2009 and it is feared HIV prevalence may

be rising again (UNECA, 2011). There are many theories why this may be happening, including a general complacency or 'AIDS-fatigue'. It has been suggested that antiretroviral drugs have changed the perception of AIDS from a death sentence to a treatable, manageable disease. This may have reduced the fear surrounding HIV, leading to an increase in risky behavior (Primah, 2011).

AIDS has had a devastating impact on Uganda. It has significantly lowered life expectancy and reduced the country's labor force, reduced agricultural output and food security, and weakened educational and health services (GoU, 2008). The large number of AIDS related deaths amongst young adults has left behind over a million orphaned children (UNAIDS, 2008). Mann (1988) noted that the socio-economic impact of AIDS includes the loss of the working age population (20-40 years), who are the main sources of income of the family. The victims of AIDS have most often been adults in their prime, representing the loss of a valuable resource to their countries (UN, 1988).

Bushenyi district has had high HIV/AIDS prevalence rates of up to 25% in some urban areas. Being on the African highway to the Democratic Republic of Congo (DRC), several truck drivers spend nights in all townships along this highway. This increases the possibility of the spread of the illness, since it is most spread through having sex with infected persons. Many households have lost their members and helpless orphans have been left behind (Nuwaha et. al., 2002).

1.1 The Statement of the Problem

Even when HIV prevalence and incidence have been falling in Uganda and some researchers have noticed that HIV prevalence is currently leveling off, there remains a big number that is HIV positive and some of these are with AIDS illnesses. Although much research has been done on the impact of HIV/AIDS on the general economy, relatively little research has been conducted to establish the extent to which this epidemic has affected food production at the household level. Most have not or rather inadequately factored in the demographic and economic backgrounds to determine how they directly or indirectly influence the levels of the HIV/AIDS impact on food production at the household level.

1.2 Objective of the Study

The broad objective of the study is to investigate the extent of the HIV/AIDS impact on households' food production in Bushenyi district in the context of their demographic and economic backgrounds.

The specific objectives were to:

- Measure the reduction in labour supply due to HIV/AIDS illnesses/deaths in the affected households;
- Establish the reduction food availability as a result of the reduced labour supply;

1.3 Hypotheses

The following hypotheses were tested:

- HIV/AIDS illnesses reduce the supply of household labour
- Time spent caring for the sick reduces food production in the households

1.4 The Conceptual Framework

Figure 1.1 gives the conceptual Framework in which three levels are clearly given: The Background factors, the intermediate variables and the Outcome.

In this conceptual framework, the background factors were divided into two, namely demographic and socio-economic factors. The demographic factors were age and sex of the household members. On the other hand, the socio-economic factors that were considered include education, household income, occupation and religion. The conceptual framework (Figure 1.1) indicates that the affected households have reduced savings as a result of the costs met on medication. The households also have reduced human capital resource and reduced production capacity due to illnesses and deaths. The extent to which each particular household is affected is determined not only by HIV/AIDS exposure and management, but also by the demographic and socio-economic backgrounds o

In the Nkole culture in general and Bushenyi district in particular, men are the owners of the household property. Even at the death of a male household head, an heir who is most of the time the first born son is installed to take on the ownership, management and decision making of the household. This determines the access to the household income and assets and therefore the availability of the required care, diet and the ability to sell some of the household assets in case liquid money is not available. Illness management behaviours of different household members are therefore a result of the sex of the sick household members. Depending on how the illnesses/death was managed, different households had different experiences which include: reduced

household savings/assets and reduced household production due to the sick and those caring for the sick which reduces household labour supply. The extent to which food production is reduced therefore depends not only on the sex of the sick, but also of those who care for them.

The age categories of the household members also determine access to household resources and directly affect the availability of labour in case of illness or death of a household member. This is so if the sick/dead or those who take care of the sick are the middle aged who otherwise are the source of household labour. This reduces the household working capacity which affects food production since Bushenyi district is mostly of a peasant class.

Occupation of the household head determines the welfare of the household. Classifying household members by the occupation of the household head helps to identify the expected monthly earnings. This is because, most of the income to the household apart from that which comes from the household assets, is earned through the occupation of the household head. Since most of the households are of the peasant class, who survive on tilling land for food production, the reduction in labour supply due to illness/death of a household member or due to time spent caring for the sick and funerals, directly affects food production in the household.

Education of the household members also determines the welfare of the household. The more educated are more likely to earn a steady and higher income compared to the uneducated. This gives such households opportunity to hire man power to till their land and do other manual work, including caring for their sick household members. This keeps their food production processes not much affected compared to the less or none educated.

Economic theory predicts that HIV/AIDS reduces labour supply and productivity, reduces exports, and increases imports. The epidemic has already reduced average national economic growth rates by 4% a year across Africa (Dixon, 2002). The impact does not only begin and end at the macro level. It later percolates down to the households at the micro level through loss of incomes, social services and other public amenities. The epidemic also affects the micro economic development since the sick people cannot produce. They lack the energy to actively engage in a productive life (FAO, 2003).

1.5 Significance of the Study

Being a subsistence economy, who sells what remains after consumption to buy other basic needs, the findings on the HIV/AIDS impact on households' food production in Bushenyi district will help to answer questions like; How is food production directly or indirectly affected by HIV/AIDS illnesses and deaths, What happens to the orphans at the death of their parents or the widows and widowers at the death of their spouses? Understanding the levels to which the demographic and economic states of the households influence how HIV/AIDS illnesses/deaths affect the households will help in designing policies targeting such households for proper planning.

1.6 Impact on Food Production

Agriculture is one of the most important sectors in many developing countries, providing a living or survival mechanism for up to 80 percent of most countries' populations. While agriculture is extremely important to many African countries, not least of all for household survival, there are marked differences among countries in terms of current economic conditions and agricultural and economic potential (Walker, 2002). Agriculture faces major challenges, including unfavourable international terms of trade, mounting population pressure on land, and environmental degradation. The additional impact of HIV/AIDS is also severe in many countries. The major impact on agriculture includes serious depletion of human resources, diversions of capital from agriculture, loss of farm and non-farm income and other psycho-social impact that affects productivity (Mutangadura & Mukurazita, 1999).

Agricultural production is often central to the rural economy. This form of production is usefully differentiated into the commercial farming sector, where the organization and running of a farm often approximates a business, and the subsistence sector, which is characterized by a close relationship between the general activities of a household (including child care and rearing, support relations between adult members, home maintenance and food processing) and the production of crops and care of animals (Barnett, 1999).

The adverse effects of HIV/AIDS on the agricultural sector can, however, be largely invisible. What distinguishes the impact from that on other sectors is that it can be subtle enough to be undetectable (Topouzis, 2000). Rugalema (2000) underscores this notion when he writes as follows:

"Even if rural families are selling cows to pay hospital bills, one will hardly see tens of thousands of cows being auctioned at the market. Unlike famine situations, buying and selling of assets in the case of AIDS is very subtle, done within villages or even among relatives and the volume is small Rugalema (2000)."

About 80 percent of Africans derive their living from agriculture, but HIV/AIDS which has infected more than 25 million people in sub-Saharan Africa, has left fewer and fewer people able to till the soil.

"African agriculture depends on labour. You cannot produce crops if there is nobody to work on the farms," (Kormawa, 2005).

Perhaps, the most immediate impact on household assets is the shortage of labour experienced by households in which one or more members suffer from HIV/AIDS. Not only does the household lose the productive labour of the afflicted member(s), but it also loses significant labour of other household members whose time is absorbed in caring for the sick and dying member(s). Additional productive labour is lost during funerals and traditional periods of mourning. The difficulty in developing indicators and measuring the effects of HIV/AIDS on household food security stems from the fact that many of the impacts and coping mechanisms employed in response to AIDS are similar to those stimulated by other deleterious events. Nonetheless, by identifying impact of HIV/AIDS on livelihood assets, we can begin to identify some of the proximate mechanisms through which food security is threatened (Stokes, 2003).

Seven million agricultural workers are estimated to have died from AIDS since 1985 and FAO (2002) estimates that another 16 million of the agricultural labour force in sub-Saharan Africa could die by 2020. These macro-level impacts are paralleled by equally negative consequences for rural agricultural households by increasing both livelihood insecurity and poverty on the micro-level (FAO, 2002). In addition, they are reversing decades of hard-won improvement in the households' livelihood assets, the capabilities, resources and activities through which rural households seek to earn a living. Identifying and measuring the impact of HIV/AIDS on rural households is essential to the development of effective mitigation strategies. Moreover, it is important to monitor and evaluate the impact of mitigation strategies if their beneficial effects are to be maximized (Stokes, 2003).

Kormawa (2005) says that the epidemic also causes delays in planting and weeding, declines in livestock, falling food quality and quantity, and smaller farms. The worst affected region of the world is sub-Saharan Africa with 64 percent of all HIV positive people worldwide and 76 percent of all women with the virus. For the past 20 years since HIV/AIDS was discovered, the disease has had a great impact on the African farming community. HIV/AIDS is known to have had an impact on households' ability to produce their own food, thus, leading to food insecurity (Guerney, 2002). It has been projected that in Uganda, AIDS will reduce agricultural workforce by 14% for the period 1985 to 2020 (FAO, 2001). In many rural areas, it is clear that the HIV/AIDS epidemic has contributed seriously to increase poverty and food insecurity. The tragedy is that the AIDS epidemic erodes the main assets of the poor, their time and their labor capacity (Ekaas, 2003).

HIV/AIDS represents a potentially devastating shock to farm household survival. The illness or death of one or more household members can affect each of the livelihood assets resulting in a reduction in the ability of the household to adjust to future shocks (Stokes, 2003).

Reducing the spread of the HIV/AIDS epidemic has become one of the major challenges of the 21st century to the fight against poverty and to development. Worldwide, HIV/AIDS has become the leading cause of death and the most important contributor to the burden of disease among adults aged 15-49 years (WHO, 2003).

Although HIV/AIDS is not a poverty disease, there is a very close relationship between poverty and vulnerability to HIV/AIDS. This is particularly the case for African countries where 40 percent of the population survives on less than US\$ 1 a day. Poor populations, unskilled workers and people with a low educational level have become increasingly more vulnerable to HIV infection and are disproportionately affected by the epidemic (UN, 2005). Since Bushenyi district is predominantly occupied by peasants who grow food for home consumption and sell any that remains, the illness and eventual death of the middle aged who are the most productive affects all processes food production including planting, weeding and harvesting.

The loss of adult on and off-farm labour is one of the most widely discussed effects of the HIV/AIDS epidemic (Topouzis & du Guerny 1999). The loss of experienced agricultural workers affects both individual households and communities, resulting in labour shortages and declines in productivity, both on and off the farm. Declining productivity, in turn, leads to declines in household income through decreases in the household's own production and through declines in off-farm income and remittances. An increase in household expenditures on medical care results in a decline in savings and the loss of assets through the sale of both productive and non-productive assets. Thus, the loss of human capital leads directly to declines in the financial capital of the household. For food insecure households or those slightly above this threshold, the loss of labour, income and increased expenditures for medical care can push them further into poverty and food insecurity (Stokes, 2003).

2. Research Methodology

This describes the study area, the population, the sampling and the data collection methods, data processing, analysis and some of the limitations to the study.

2.1 The Study Area

The study was conducted in Bushenyi district, Western Uganda. Bushenyi district is on the African highway to the Democratic Republic of Congo (DRC). Several truck drivers spend nights in all townships along this highway. This increases the possibility of the spread of the illness, since it is most spread through having sex with infected persons. Mutambi (2005), a key informant who works with Integrated Community Based Initiatives (ICOBIs), a community based organisation that sensitises and tests HIV/AIDS at household level, said that although the prevalence rates in the district were at 7%, they could be as high as 25% in some urban areas and as low as 3% in some rural areas.

2.2 Scope of the Study

The study was limited to HIV/AIDS impact on households' food production in Bushenyi district. It covered the demographic and socio-economic backgrounds of the respondents. This helped to understand clearly how and to what extent they influenced the HIV/AIDS illnesses/deaths impact on food production of the victims' households. The questionnaires were made in such a way that the household heads gave the responses on behalf of other members. The schedule was seeking for the socio-economic and demographic factors of the household members, such as, age, sex, occupation, and levels of income, forms of income, educational level, religion and number of household members. The schedule also had questions seeking information on the type of illness/cause of death, length of illness and forms of deprivation on the households due to the illnesses/deaths of the household members. These questions were answered by the household heads on behalf of all the household members that were living in the households in the previous five years. This includes those that were still living in the household and those that had died.

2.3 The Study Design

This was a cross-sectional study that used the quantitative research design. The study applied a multi-stage cluster sampling of counties, sub-counties, parishes and villages; then a complete coverage of those villages that were randomly selected.

2.4 Data Collection and Management

The data was collected using the personal interview method with already prepared questionnaire schedules. The interviewers moved from house to house in the sampled villages of the three counties, interviewing the household heads on behalf of the households. Data collection took seven days to complete. The raw data were edited at the end of the day's work from the place where the data collection team was staying. This was for accuracy, consistency and completeness of the data.

2.5 Data Processing and Analysis

Since the data were categorised according to the groups that would best describe the different variables, descriptive statistics with their percentages were used to explain the patterns of the background and outcome factors. The multinomial logit was later used at the multivariate analysis level. The multinomial logit regression was used since the dependent variable in question is nominal and consists of more than two categories.

This is given by:

$$\ln\left(\frac{P(Y = 2)}{P(Y = 1)}\right) = b_{20} + b_{21}X_1 + b_{22}X_2 + \dots + b_{2k}X_k \dots\dots\dots 1$$

3. Background Characteristics of the Respondents

It is necessary to understand the background characteristics of the population under study. This is because the background characteristics influence the behaviour of the population and affects their decision making. The reader is, thus, helped to place the study findings and conclusions in their proper context. These characteristics include age, sex, level of education of household heads, occupation of the household heads and religion.

3.1 The Distribution of the Respondents by Age

Age is one of the most important background characteristics in shaping ideas, views and responsibility (Odwee, 2000). Age determines one's dependence on guardians/parents.

Table 1 shows that age was presented in three categories of 0-14, 15-64 and 65 and above. This was based on the productive capacities of individuals depending on their age categories. The middle aged, who were the most productive, but also the age group most prone to catching HIV/AIDS illness was 51.9%. These two broad age groups, 0-14 and 65+ are the least productive and are dependants on the middle age group. There is much dependency of the many on the few, since such type of age distribution does not encourage production. With many orphans, especially in this era of rampant HIV/AIDS illnesses/deaths, and the illness is more prevalent in the middle age category, productivity is reduced.

3.2 Education Level of the Household Head

This background characteristic determines the ability, the level and efficiency of production. It also determines the possibility of getting employed and at what level. This can either be in the private or public sector. The level of education determines the income levels and the ability to hire some workers for farm production. Unlike those who have the capacity to hire workers for farm production, those who are uneducated and unemployed will find it very difficult to manage their farms when they are sick. They lose on planting, weeding and on harvesting which generally affects their household food production. Unfortunately, the biggest percentage of the household members was peasants who till the land by themselves for household food production and consumption.

3.3 The Distribution of the Respondents by Sex

Sex as a background factor is very crucial since it defines the roles played by wives and husbands in a family, and the society at large. Table 1 shows that Bushenyi district had slightly more females (50.4%) than males (49.6%). In the district, especially for those that are in the category of no formal education, a housewife stays at home to look after the children as she does all the household chores, while the husband goes to till the land and look after the animals. It was also true that more men compared to women were affected by HIV/AIDS illness. This directly reduces the labour force which in the long run has a heavy impact on food production.

3.4 Religion of the Household

This is a major factor that determines not only how people behave, leading to different infection rates, but also how they react to and manage the different illnesses. While some religions may take prevention measures, like use of condoms seriously, others like Catholics may outrightly reject it, and while some may go for medication only, others may go for both prayers and medication or prayers only. This influences not only the infection rates, especially between spouses with different sexual behaviours, but also the illness management thus, affecting the whole households differently depending on the religious beliefs. Table 1 shows that Bushenyi district was predominantly Protestant (66.2%) compared to both the Catholics (17.5%) and the Moslems (16.3%).

3.5 Relationship between Lack of Food and Selected Background Factors of Households

The results in the table help to identify the factors that influenced the lack of food as a result of long illnesses/death on the households. The results show that illnesses/death of the older household members were more likely to affect the availability of food in the households. This was because of the costs involved and the ownership of the household property. The older members were likely to spend more on their illnesses and to sell household property including land, compared to the younger household members. This, in the long run affected food production.

Level of education was one of the factors that determined the impact on availability of food during sicknesses/death of household members. Losing a member (especially a parent) who had acquired a tertiary level qualification least affected the availability of food in the households. This may be because they always got employed in agencies which could subsidize their expenses on medication and had good jobs which were permanent and were pensioned. Their salaries kept coming through their illnesses, and for some time after their deaths. Pension also helps the household members to adjust to the situation until they can sustain themselves. This was not the case for those who had not acquired any qualification, since their forms of incomes were always temporary and could be stopped anytime they were off work or had died.

4. Summary of Findings

The findings show that most of those that had had AIDS related illnesses or deaths were in the 15-64 age bracket. This affects their earning and availability of labour in those households, since it is the middle aged who were sick and the care givers. In case of death, the labour that would be supplied by the dead is completely lost. This has a significant impact on the welfare of households. This is apparent because the age bracket most affected by AIDS related illnesses is not only the most productive, but also the most reproductive, leaving behind the very old and young children without the required labour force. However, most of those that had other long illnesses were 65+ years.

The illnesses/death of the most productive age groups directly affected the production capacity of these households. Since most of the household heads were peasants, the reduction in labour directly affected food production. Such households depend on selling part of the produced food to raise school fees and clothing for their children. This leaves them without what to take to the market and, therefore, without money for school fees and clothing. Even for those who are employed, the spending on costly medication directly affects the reserves of money, thus leaving little or none for food purchases.

The findings also show that the level of education of the household heads was negatively related to the level of illnesses/deaths, such that those households with heads that had no formal education had the highest percentage of illnesses/deaths. The results also show that those household heads that had not gone to school had the highest percentage of HIV/AIDS related illnesses.

These findings indicate that level of education as a socio-economic factor, does not only affect the infection rates, but also the impact on the households. The more the household members, especially the household heads, are educated, the less the impact on the households. This is because it is the educated that are better employed, with better employment terms, have better prevention methods and know how to manage the illness compared to the uneducated.

The religion practiced by a household was also a major factor in determining the form of impact on the households. Anglican households compared to other households were most affected by lack of food due to the long illnesses/deaths of their members. The households that practice Islam were the least affected. This clearly shows that religion has an influence on the management of the long illnesses and their impact on the households.

5. Conclusions

There was sufficient evidence from the findings that the demographic and socio-economic backgrounds of the population, that is, age, level of education of the household heads, religion, and the form of income, had a great influence on the impact of HIV/AIDS on households' food production. It was also found that the households' welfare levels were directly affected and lowered, so much so that they would be worse off than before HIV/AIDS illnesses.

HIV/AIDS is a very expensive illness. This is because the medication costs are high and it is a long term illness. It affects the most productive, and much time is spent on caring for the sick.

When the most productive household members, the poor and the less educated are affected, the households are most affected. Such households can no longer produce enough for their living, leading to the sale of the little that would sustain their lives. This leaves the households poorer and in a more impoverished state than they were before the illnesses.

6. Recommendations for Policy and Programs

HIV/AIDS is both a preventable and a manageable illness. This is only possible if the population is knowledgeable and has the capacity to manage the illness or if the government directly comes in to assist. Since the demographic and socio-economic backgrounds of the population had a major influence in determining the impact on the households' food production, policies can be made for proper management of the long-term illnesses.

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Appendix

Figure 1: The conceptual framework

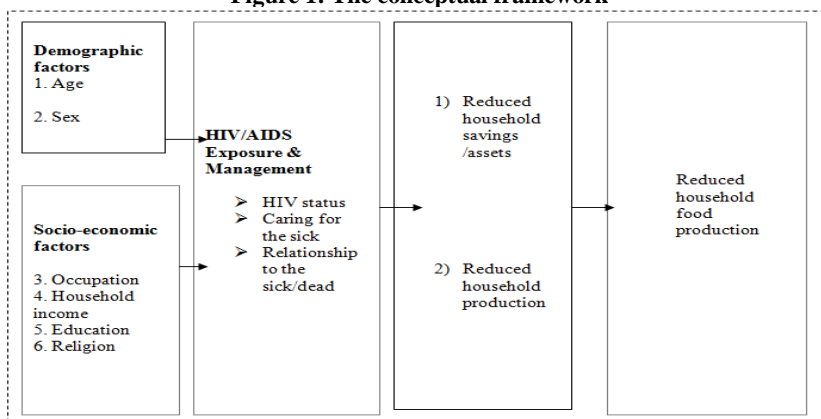


Figure 2: Map of Bushenyi District and its Location on the Map of Uganda (before 1st July 2010)

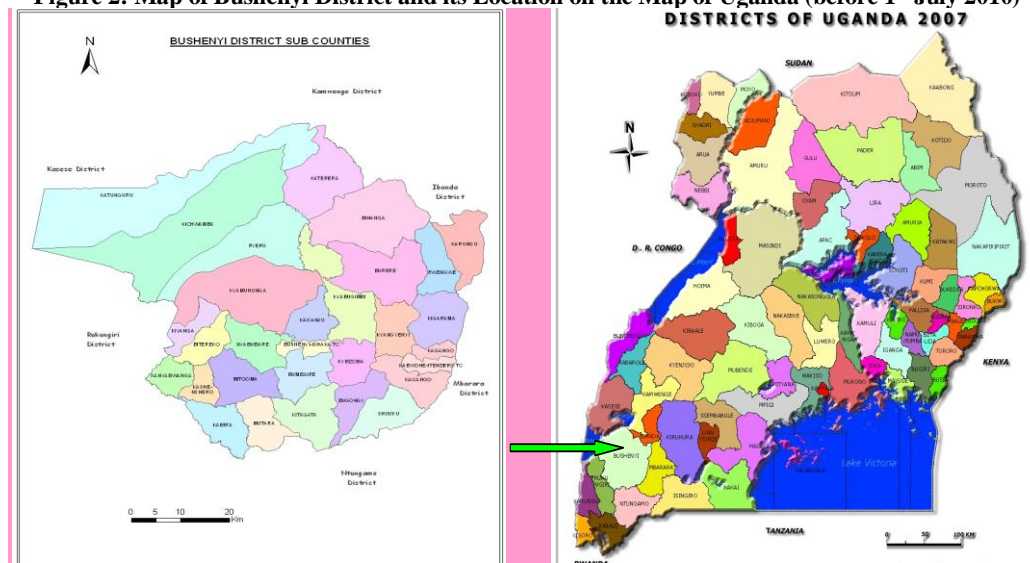


Table 1: Percent distribution of the household members by their background characteristics

Broad age group	N	%
0-14	250	40.8
15-64	318	51.9
65+	45	7.3
Sex		
Male	304	49.6
Female	309	50.4
Educational level of household head		
None	188	32.3
Primary	264	43.1
Secondary	98	16.0
Tertiary	53	8.6
Religion		
Protestant	406	66.2
Catholic	107	17.5
Moslem	100	16.3
Total	613	100.0

Table 2: Results of a regression analysis predicting the lack of food as an impact on the households

	β	Se	p	Exp(β)
Forms of impact on the households				
Lack of food				
Intercept	-0.800	0.856	0.350	
Age group				
0-14	-3.677	0.703	0.000	0.025
15-64	-0.891	0.420	0.034	0.410
65+*	0.000	.	.	1.000
Education level				
None	0.408	0.757	0.590	1.504
Primary	0.486	0.671	0.469	1.626
Secondary	0.569	0.707	0.421	1.766
Tertiary*	0.000	.	.	1.000
Religion				
Anglican	0.752	0.469	0.109	2.122
Catholic	0.655	0.648	0.312	1.925
Moslem*	0.000	.	.	1.000
Forms of income				
Salary	0.075	0.686	0.913	1.078
Sale of commodities	-0.399	0.450	0.375	0.671
Wage	-0.115	0.660	0.862	0.892
Income generating activities*	0.000	.	.	1.000

* The reference category