



**Chronic Poverty**  
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## Chronic Poverty and Household Dynamics in Uganda

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### What is Chronic Poverty?

The distinguishing feature of chronic poverty is extended duration in absolute poverty.

Therefore, chronically poor people always, or usually, live below a poverty line, which is normally defined in terms of a money indicator (e.g. consumption, income, etc.), but could also be defined in terms of wider or subjective aspects of deprivation.

This is different from the transitorily poor, who move in and out of poverty, or only occasionally fall below the poverty line.



## Abstract

Using an eight-year panel of 1309 households from Uganda, the study investigates the extent to which household dynamics influence chronic poverty. The study argues that changes in household welfare might result either in a demographic event or in an income/economic event or both. The findings seem to suggest that these changes yield mixed results on the likelihood of a household living in chronic poverty.

**Keywords:** Household dynamics, chronic poverty, poverty, panel data, Uganda

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## Contents

<b>1 Introduction .....</b>	<b>0</b>
<b>2 Background .....</b>	<b>5</b>
<b>3 Methods and data .....</b>	<b>6</b>
3.1 Methods .....	6
3.2 Data .....	8
<b>4 Empirical results.....</b>	<b>9</b>
4.1 Household composition change and chronic poverty .....	10
4.2 Household dynamics and vulnerability .....	15
4.3 Household type change and chronic poverty .....	18
4.4 Household economic capacity change and chronic poverty .....	19
4.5 Multivariate regression results .....	22
4.6 Demographic change and conceptualization of chronic poverty .....	23
<b>5 Conclusions.....</b>	<b>25</b>
<b>References.....</b>	<b>26</b>
<b>Annex .....</b>	<b>27</b>



# 1 Introduction

There has been a great deal of empirical work documenting poverty and inequality trends in Uganda (Appleton, 2001; Appleton and Ssewanyana, 2003; Ssewanyana and Okidi, 2007). Specifically, the literature on poverty dynamics has been growing over time. Such empirical studies include Ssewanyana and Bategeka (2007) on chronic poverty and the role of markets; Benin and Mugarura (2006) on determinants of change in consumption; Kasirye (2005) on vulnerability; Okidi and McKay (2003) on poverty dynamics in general; Deininger and Okidi (2003) on growth and poverty reduction; and Lawson *et al.* (2003) on poverty dynamics. The last three studies endeavour to provide insights into factors affecting poverty dynamics.

These studies provide detailed important policy-relevant information but do not explicitly bring out the chronic poverty–household dynamics synergies. The importance of these dynamics in understanding persistence of poverty is yet to receive due attention in fighting poverty. There is a need to go a step further to explain and understand these dynamics as they relate to chronic poverty for the betterment of refining poverty interventions and social protection interventions in particular. In addition, these empirical studies treat household composition as exogenous to household economic capacity. For instance, most studies have come to a conclusion that high household size is a driver of chronic poverty.

In this study, we investigate how changes in household composition influence chronic poverty. Put differently, we investigate how changes in household income might influence household composition. There are other issues that motivated the present study. These include, first, the availability of panel data (one wave for the entire country); second, the fact that poverty reduction policies and interventions are focusing on the currently poor and treat the poor population as a homogenous group; and third, the fact that there is more focus on poverty dynamics with little focus on income mobility in general. Poverty dynamics focus on transitions above or below the poverty line, whereas income mobility focuses on mobility throughout the whole distribution of income. This study focuses on income mobility as well. We argue that a better understanding of household dynamics would provide insights into the motivations of certain kinds of demographic behaviour as they relate to persistence of poverty.

The next section presents background information. Section 3 discusses methods and data sources. Section 4 presents the empirical results, discussing trends in demographic change by poverty trajectory as well as changes in household structure and economic capacity. This study focuses mainly on demographic analysis and economic capacities at household level. Finally, Section 5 presents a summary of the main findings of the study and its main conclusions.



## 2 Background

Most studies on developing countries view household composition from a production perspective. They emphasise the role it plays in household production (see Singh *et al.*, 1986) and there is little focus from a consumption perspective. In Uganda, household size is considered as among the drivers of persistent poverty (Chronic Poverty Research Centre in Uganda, 2005). This aggregate statistic conceals a great deal of information on the composition of household members and its effect on persistence of poverty. In addition, much attention has been given to the effect of the characteristics of the household head on incidence of poverty, ignoring the role other household members might play in the overall household's welfare. This is among the issues we address in this study.

It is clear from the existing literature that poverty is a consequence of economic and demographic conditions, and these two conditions are not independently determined. For instance, demographic conditions might be influenced by fertility decisions, which are influenced by the prevailing economic conditions. Similarly, economic conditions today are influenced by past demographic conditions. This study focuses on the former. Demographic factors have a direct and indirect impact on household income and consumption. Changes in size, age and gender composition of household members influence size of labour force, number of dependents, dependency ratio and consequently poverty trajectory. The simple correlation between demographic variables and poverty state cannot be taken as evidence of a causal relationship. There are many other factors at play and low household size, say, may be in part an outcome of poverty. Most studies have reported that high household size is a driver of chronic poverty. The question at hand is whether reducing household size and more specifically population growth is an effective measure to reduce poverty.

The study examines the significance of household dynamics for falling into, and escaping from, persistent poverty. It provides insights on the direction and strength of the correlation existing between changes in household composition and related change in economic capacity on the one hand and incidence of poverty on the other. Specifically, the study poses the following questions:

- Are changes in household composition (e.g. age, sex, size) and related economic capacity (e.g. employment status, labour force) associated with incidence of poverty?
- To what extent are household dynamics: 1) a source of vulnerability for poorer households? For example, death of the breadwinner, dissolution of legal or consensual unions as in widowhood; birth of children; and/or 2) a protection instrument? For example, as in co-residence of extended households facing economic crises or unemployment; or in fertility and mortality as a response to crises and insecurity;



- What can be said about the exogeneity and/or endogeneity of household dynamics for poor and especially persistently poor households? For example, in the context of persistent poverty, are specific exogenous household changes more likely to result in persistent poverty? Are specific household responses to risk and vulnerability involving household dynamics (e.g. co-residence of multigenerational households) significant? Ineffective?
- What can be said about the ‘economic viability’ of poorer households as an explanation of persistent poverty and particularly the intergenerational persistence of poverty? For example, are particular configurations of households (size, composition, dependency ratios, sex ratios) more or less strongly correlated with persistent poverty?
- What are the implications of household dynamics for the conceptualisation and measurement of chronic poverty? Do household changes over time undermine use of the household as the unit of analysis for poverty persistence?

## 3 Methods and data

### 3.1 Methods

Our unit of analysis is the household whose members include persons related through marriage and blood and co-residing non-relatives. Previous poverty analysis in Uganda takes the household as the unit of analysis for which poverty is defined. An individual is defined as poor if the income of the household normalised by the adult equivalent scale for which s(he) is a member falls below the official absolute poverty line. Household members are assumed to pool income and see fair distribution.

The study follows two approaches to investigate the influence of household dynamics on chronic poverty. The first is based on simple bivariate analyses relating household dynamics to poverty trajectory. This approach is complemented with a multivariate analysis to determine the relative influence of household dynamics on the probability of being persistently poor – the study employs the ordered Logit estimation.

The second approach will follow a counterfactual analysis. We assume a household maintains the current period income/consumption expenditure but takes on the past period’s demographic composition. In other words, we illustrate what the poverty trajectory would be today if the size, age and gender structure were equal to that observed in the past eight years. Then a new per adult equivalent consumption is constructed and the poverty trajectory recomputed.



The household surveys data have information gathered on household income and consumption expenditure. Income poverty analyses in Uganda focus, for obvious reasons, on consumption expenditure. Previous poverty analysis by Appleton (2001) connects household consumption expenditure to its demographic composition (including age, sex and size) as expressed in Eq. (1). The  $i^{th}$  household consumption expenditure ( $y_i$ ) is normalised by the adult equivalent scale. The overall level of poverty is influenced by the distribution of household members according to their position in their household lifecycle. We divide the age spectrum into  $g$  non-overlapping age groups, where  $g=1, 2, \dots, m, m+1, \dots, G$ . The adult equivalent scale as expressed in the denominator takes into account the recommended caloric requirement ( $r_{jg}$ ) for the  $g^{th}$  age group by  $j^{th}$  sex; and  $n_{jg}$  for the number of household members falling in the  $g^{th}$  age group by  $j^{th}$  sex. The reference person is an adult male aged 18 to 30 years. The first term in the denominator refers to members of the household aged below 15 years whereas the second term refers to members aged 15+.

$$(1) \quad y_i = \frac{hh \exp_i}{\sum_i \left( \sum_{g=1} n_{jg} r_{jg} / 3000 \right) + \left( \sum_{g=m+1} n_{jg} (0.42 + 0.58 r_{jg} / 3000) \right)}$$

It is evident from Eq. (1) that changes in per adult consumption expenditure might come about as a result of change in household consumption expenditure ( $hh \exp_i$ ) (income/economic events) or in household composition (demographic events) or both. Put differently, for example, more household members for a given amount of income would be worth less in per adult equivalent terms. Alternatively, a change in consumption expenditure as a proxy for income for a given household composition would be more/less in per adult terms. This suggests that a distinction between income events and demographic events is crucial when examining the correlates of persistent poverty. Demographic events might be associated with joining events (e.g. new births, new partner, etc.), leaving events (e.g. death of a partner, marital dissolution, child leaving household, etc.) Income events are associated with changes in type of sources of income, labour supply, etc. Thus different income and demographic events might impact on households differently.

The study first employs descriptive methods to answer some of the research questions posed above. As a first step towards quantifying the effects of household dynamics on persistence of poverty, we compare the changes in household composition in all survey



rounds. We also investigate the sources of growth/reduction in household members and their relationship to household head. Among the demographic events, we consider the following: household size; household composition (age, sex, size); and household mobility (left and new members). Households also go through lifecycles (e.g. formation through marriage, having young children then adult children, etc.) that might have an independent effect on household welfare. These variables are linked to persistence of poverty at household level. The analysis demonstrates whether there was a change in demographic events concurrently with persistent poverty. Then, among those households reporting changes, we determine what type of demographic event was involved. Similar analysis is conducted for income/economic events. Variables of interest constructed from the data include changes in the main income sources, household insurance (by diversifying sources of income within a household – is a household with several different types of workers better insured than a more homogenous one? etc.) and household composition of the prime age population 15 to 59 years (employment status, occupation, sector).

In order to unravel the separate effects of income and demographic events occurring simultaneously, we go for some form of a multivariate regression model. This approach throws light on the relative effect of household dynamics on the probability of a household living in chronic poverty. We employ an ordered Logit model.

### 3.2 Data

The study uses the panel data that was collected as part of nationally representative household surveys conducted by the Uganda Bureau of Statistics (UBoS). Nearly 1300 households were first interviewed in 1992/1993 as part of the Integrated Household Survey (IHS) and re-interviewed in 1999/2000 as part of the Uganda National Household Survey (UNHS I)<sup>2</sup>. This gives us only two observations per household for a period of eight years. The sample attrition between the two periods was about 6 percent, which is relatively low for panel surveys. Several studies (for example Ssewanyana & Bategeka (2007), Benin & Mugarura (2006), Kasirye (2005), Okidi & McKay (2003), Deininger & Okidi (2003), Lawson *et al.* (2003)) have used this panel dataset but with differing objectives. In their study, Okidi & McKay (2003) empirically demonstrated that most estimates of panel and non-panel population based on the 1999/2000 dataset were not statistically different within each survey year. This builds confidence that the analysis using this panel dataset portrays a picture for the entire Uganda.

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<sup>2</sup> The 1999/2000 national household survey did not cover the sub-region of Acholi and districts of Kasese and Bundibugyo owing to insurgence at the time of the survey.





The surveys captured information on household roster capturing demographics, employment, consumption expenditure and income among others. UBoS defines a household as a group of people who have been living and eating their meals together for at least 6 of the 12 months preceding the interview. The Bureau categorises household members into three resident types including usual, regular and visitors/guests. But this study focuses on usual members to be consistent with previous poverty analysis in Uganda. Usual members are those members that have lived in the same households at least six months prior to the survey. It also includes babies born by usual members and other members who have lived there for less than six months but intend to stay permanently. The survey followed up households not individual. More important, it did not follow up splits.

Demographic variables of interest include: age, which is captured in completed years of each individuals in a given household; sex; and household size, which is total number of usual members in a household. We define sex ratio as the number of males per 100 females. While the survey of 1999/2000 captured information on the members' relationship to household head, it did not make a distinction of whether the children in the household were biological children or grandchildren to the head.

We follow closely the consumption expenditure per adult as constructed in the previous poverty analysis by Appleton (2001). Consumption expenditure includes expenses on food, beverage and tobacco; expenditure on non-durable and frequently consumed items; and expenditure on semi-durable and durable goods and services. In each period, consumption expenditure is converted into 1997/98 prices on a monthly basis. This is important for comparability over time. All estimates are weighted unless stated otherwise. However, there are data caveats worth mentioning. Some statistics are not statistically representative for each disaggregated grouping; and the time periods of the surveys do not coincide perfectly.

## 4 Empirical results

Table 1 presents the poverty transition matrix with the household as the unit of analysis. Of all households, nearly 13 percent slipped into poverty but about 31 percent moved out of poverty. Put simply, over the eight years of the panel, nearly four in every ten households were vulnerable to poverty – transitory poor. The chronically poor households accounted for 18.4 percent of all panel households. Studies (Lawson *et al.*, 2003; Okidi and MacKay, 2003) have demonstrated a regional dimension, with northern Uganda accounting for a greater share of the persistently poor households.



**Table 1: Poverty transition matrix, 1992/1993 to 1999/2000**

1992/1993	1999/2000		All	1999/2000 (% in total)	
	Non-poor	Poor		Non-poor	Poor
Non-poor	71,821	25,391	97,212	37.1	13.1
Poor	60,573	35,586	96,159	31.3	18.4
All	132,394	60,977	193,371	68.5	31.5

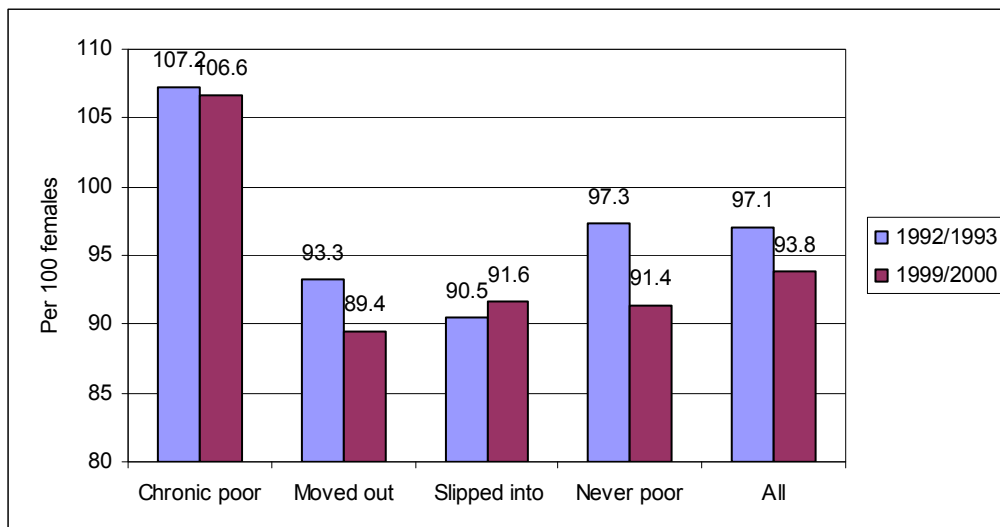
*Notes: The discrepancies in these estimates with other studies that have used the same panel data owe mainly to the sample size and sample weights used in the analysis.*

*Source: Author's own calculations.*

#### 4.1 Household composition change and chronic poverty

In this section, we consider the extent to which changes in demographic composition have had an impact on a household's poverty trajectory. The sex ratio provides useful insights into the understanding of past trends in population change. There is a predominance of female population over male population (Figure 1). The only exception is noted for households living in chronic poverty, where the male population exceeds the female population. Figure 1 further depicts a consistent drop in the male population over the eight-year panel period except for households that slipped into poverty. This declining trend is consistent with the national picture based on Population and Housing Census data (Uganda Bureau of Statistics (UBoS), 2006).

**Figure 1: Males per 100 females by poverty trajectory**



Household size increased from 4.7 to 4.8 based on the Population and Housing Census (PHC) of 1991 and 2002, respectively. According to UBoS (2006), this result reflects stable fertility behaviour in Uganda. The total number of households stood at 5.04 million in 2002



and increased to 5.2 million in 2005 to 2006. The Ugandan population is youthful and is becoming younger over time. Nearly 51 percent of the population is below 18 years old. The increase in average size owes partly to the increasing number of children. The panel data mirror similar trends. These findings are not surprising given the fact that fertility rate remains high in Uganda – the number of births per woman stood at 6.7 in 2001.

Empirical evidence based on the household survey reveal that household size increased from 5.3 in 1992 to 1993 to 5.8 in 1999 to 2000.<sup>3</sup>

Table 2 reveals that more than half of the households reported an increase in family size; those that experienced a reduction were twofold of those with no change over a period of eight years. It is worth noting that there are significant differences in the distribution of households by their poverty trajectory and their experiences in household composition change. Of the households that experienced a reduction in household size, a greater proportion climbed out of poverty (45 percent) followed by never poor (of 34 percent). Similar patterns are observed when one considers households reporting an increase in household size but decrease in magnitude. More notable, the contribution of households that slipped into poverty was greater towards an increase than reduction. Overall household reduction, especially of children, is important for getting out of poverty.

Table 2 further provides insights into the source of changes in household size at a more disaggregated level. Households clustered in moving out and never poor. The overall contribution to each type of household composition change for never poor and those that slipped into poverty is greater than their overall share in the total population. The overall contribution of households living in chronic poverty by source of change in adult members is not different from the aggregate picture. All this suggests that a change in adult membership might not be a cause of chronic poverty. On the other hand, changes in the number of children yield mixed results. The disaggregated analysis presented in Annex 1 reveals that a reduction in the number of children increases the likelihood of being chronically poor. This probably owes to a lower labour supply, since poorer households rely heavily on child labour. Like the child population, the contribution of households living in chronic poverty owing to changes in the elderly population varies by source of change. An increase in the number of elderly persons increases rather than reduces the likelihood of chronic poverty, pointing to elderly persons as economic dependants.

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<sup>3</sup> Household size estimates differ slightly from that based on the PHC.

**Table 2: Household composition change by poverty trajectory (%)**

Composition	Poverty trajectory				
	All	Chronic poor	Moved out	Slipped into	Never poor
<i>Household size</i>					
No change	16.2	21.4	27.2	10.0	41.3
Reduction	32.3	16.6	45.0	4.4	34.0
Increase	51.5	18.6	24.0	19.6	37.8
<i>Adults 18-59 years</i>					
No change	47.1	18.4	31.1	11.8	38.7
Reduction	29.2	18.1	35.7	10.6	35.6
Increase	23.8	18.8	26.4	18.9	36.1
<i>Children &lt;18 years</i>					
No change	20.3	20.5	29.5	11.5	38.5
Reduction	30.6	18.0	45.9	3.6	32.5
Increase	49.1	17.8	23.0	19.8	39.5
<i>Elderly persons</i>					
No change	77.5	18.5	30.3	14.7	36.5
Reduction	5.8	11.8	37.1	10.4	40.7
Increase	16.7	20.1	34.1	7.0	38.8
<i>Overall</i>	100.0	18.4	31.3	13.1	37.1

Table 2 further shows that the households that climbed out poverty seem to have experienced a greater increase in the adult labour supply but at the same time an increase in the number of children. Considering only those households that reported an increase in number of children over a period of eight years, the contribution of households that slipped into poverty is greater than their overall percentage in total household population (see also Annex 1). It is also evident that households that slipped into poverty contributed more to increases than reductions in household size. Increase in child population increases the likelihood of slipping into poverty with least contribution of children aged between 15 and 17 years. All this suggests that an increasing number of children increases the burden on certain households and reduces their productive capabilities, in turn leading to negative impacts on their income. Overall, the distribution by poverty trajectory of changes in composition of membership yields mixed results.

Table 3 presents changes in average numbers by poverty trajectory. Consistent with the existing literature, chronic poverty is positively associated with higher family size. Household size among the chronically poor owes largely to presence of many children. In other words, larger households with a large number of children in particular are more likely to be persistently poor. On average, the number of children in households that slipped into poverty increased significantly over the period of eight years. Similar patterns are observed in chronically poor households, although the magnitude was lower relative to those households that moved into poverty. The theory of peasant economy, put forward by the Russian economist A.V. Chayanov, that well-endowed households with many household workers are



typically less likely to be poor seems to not hold in Uganda. We observe the chronically poor and households that slipped into poverty having a greater number of adults, on average.

**Table 3: Household size age composition by poverty trajectory**

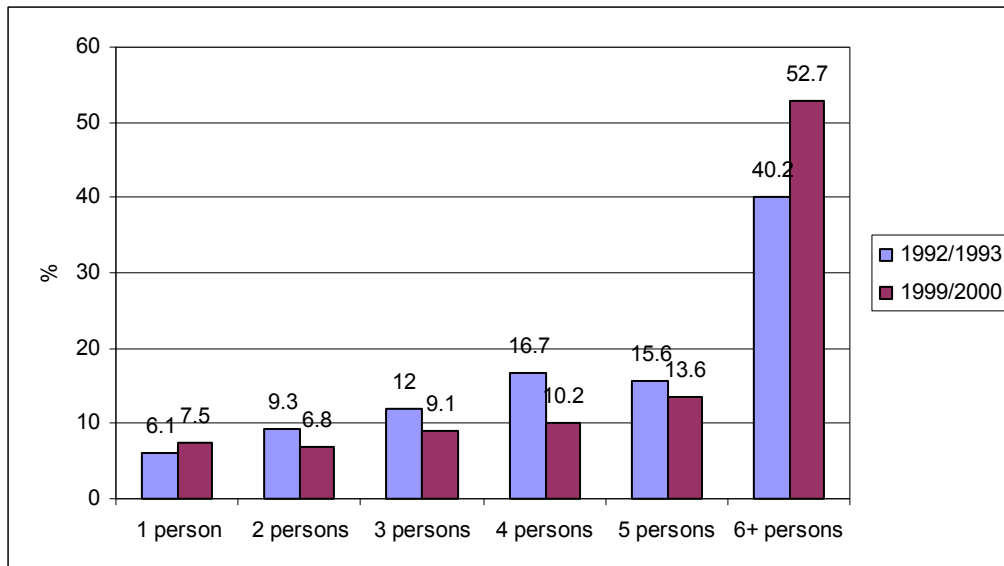
Poverty trajectory	1992/1993				1999/2000			
	Household size	Composition			Household size	Composition		
		Children	Adults	Elderly		Children	Adults	Elderly
Chronic poor	6.1	3.7	2.2	0.2	6.6	4.1	2.1	0.4
Moved out	5.8	3.4	2.1	0.3	5.5	3.2	1.8	0.4
Slipped into	4.6	2.6	1.8	0.2	6.4	4.2	1.9	0.2
Never poor	4.7	2.6	1.9	0.2	5.4	3.3	1.8	0.3
All	5.3	3.0	2.0	0.2	5.8	3.5	1.9	0.4

Source: Author's own calculations.

Figure 2 shows that six or more person households constituted the largest share of the total number of households in both years. However, the share increased by nearly 12.5 percentage points in a period of eight years. The five-person household became the second most common in 1999 to 2000 compared with the four-person household in 1992 to 1993. The one-person household accounted for only 7.5 percent in 1999 to 2000 of the total number of households.<sup>4</sup> This finding suggests that few Ugandans live a single life.

But how have these dynamic changes (Figure 2) impacted on the poverty trajectory?

**Figure 2: Changes in household size**



<sup>4</sup> This estimate is slightly lower than the 13.5 percent based on the 2002 PHC.



Table 4 shows that the contribution of persistently poor households increases with the number of persons per household. It is worth noting that the contribution of the households that moved out of poverty to smaller family sizes has increased over time. The reverse is observed for households moving into poverty.

**Table 4: Changes in household size by poverty trajectory (%)**

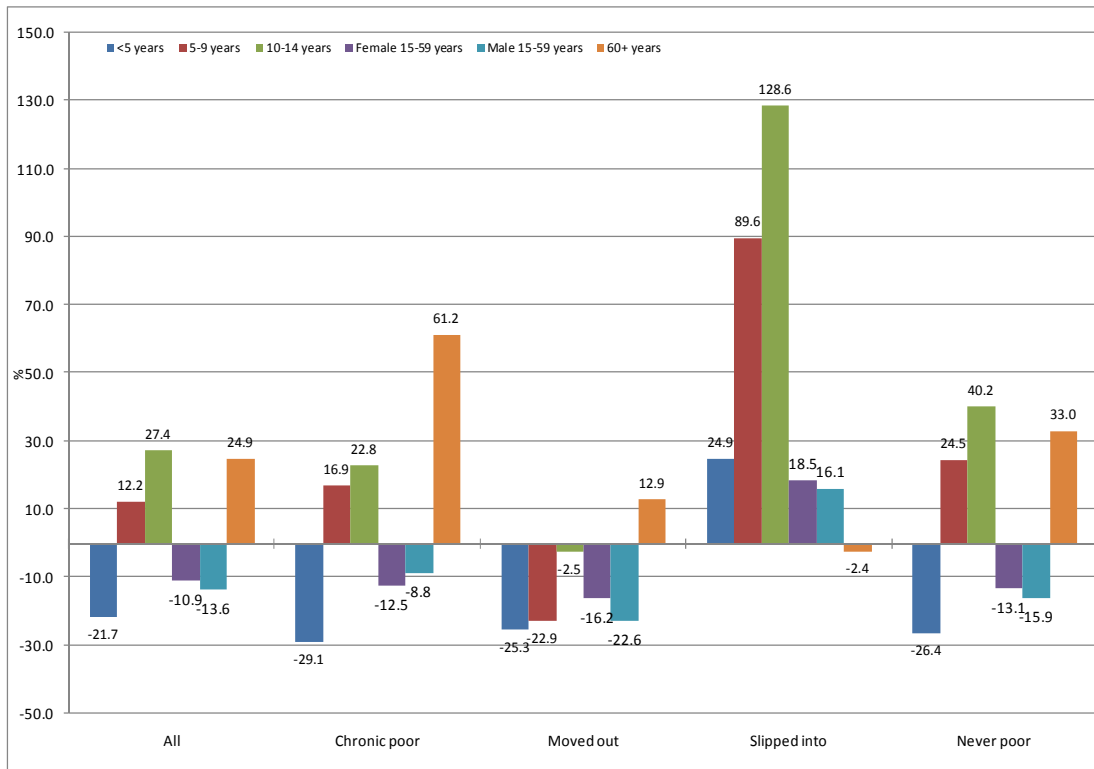
	Chronic poor	Moved out	Slipped into	Never poor
<i>1992/1993</i>				
1 person	9.2	10.9	13.7	66.2
2 persons	5.6	24.1	16.3	54.1
3 persons	8.2	35.3	15.2	41.3
4 persons	15.9	29.9	19.8	34.5
5 persons	21.7	28.1	16.0	34.1
6+ persons	25.6	36.8	7.8	29.8
<i>1999/2000</i>				
1 person	5.1	37.8	5.2	51.9
2 persons	7.1	40.8	2.6	49.5
3 persons	17.0	37.7	4.7	40.5
4 persons	12.8	40.7	5.9	40.6
5 persons	14.9	28.8	22.0	34.3
6+ persons	24.0	26.9	16.2	32.9
<i>All</i>	<i>18.4</i>	<i>31.3</i>	<i>13.1</i>	<i>37.1</i>

Source: Author's own calculations.

The changes in population by age are depicted in Figure 3. Overall, the child population below six years of age in 1999 to 2000 was lower in 1992 to 1993, nearly one-fifth less. However, greater increases are observed among age groups five to nine, ten to 14 and 60+ and over. Yet, the picture by poverty trajectory is quite different. The pattern for the chronic poor and never poor is similar to the overall picture. The population increases for all age groups, with the exception of the elderly population for households that slipped into poverty. The reverse is observed for those households that moved out of poverty. Overall, the results do confirm the extent of young population in households that slipped into poverty. The adult male population decreased faster than their female counterparts among the chronically poor households but the reverse is observed for those that escaped poverty. How about changes in the share of prime age adults at household level? Further analysis of the changes in the adult population by gender reveals a greater percentage change in the supply of female than male for households that remained chronically poor and slipped into poverty (Table 5). This seems to suggest that a greater share of adult females within the household is associated with persistent poverty. That is, an increase in the composition of female members may increase household vulnerability to poverty. The reverse is observed for households in the other poverty trajectory.



**Figure 3: Population changes by poverty trajectory (%)**



**Table 5: Share of adult persons (15-59 years) in household size (%)**

Poverty trajectory	Male		Female	
	1992/1993	1999/2000	1992/1993	1999/2000
Chronic poor	18.6	19.4	20.9	23.7
Moved out	19.1	21.0	23.0	24.2
Slipped into	17.6	21.6	20.0	27.1
Never poor	19.6	26.6	22.0	26.8
Total	19.0	22.9	21.9	25.5

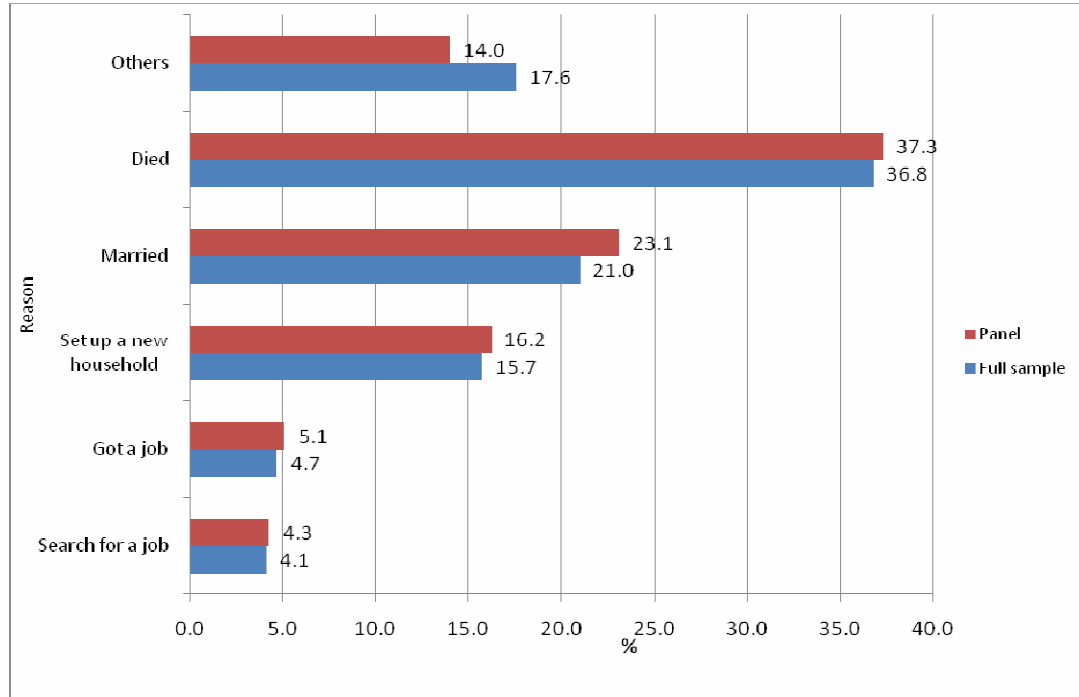
## 4.2 Household dynamics and vulnerability

The key research question here is the extent to which household dynamics are a source of vulnerability or protection. The survey of 1999 to 2000 captured information on whether a household had experienced a reduction in membership since 1992, and the reasons for the reduction. Six out of ten households reported at least such a reduction. As expected, the majority leaving the households were children to the household head, followed by other relatives. Loosely speaking, the patterns observed for the panel households are similar to those of the entire sample (Figure 4). The reduction owed mainly to death (36.7 percent), followed by marriage and setting up a new household. Very few household members left to



search for job opportunities. All this suggests that household splits are evident since 1992, although the reasons were either exogenous or endogenous.

**Figure 4: Reasons for reduction in household size between 1992 to 1993 and 1999 to 2000 (%)**



Households that slipped into poverty were less likely to report a reduction in household composition since 1992, as shown in Table 6. The picture by poverty trajectory is similar to that at aggregate level, with the cause of reduction being death followed by marriage. Marriage occurred mostly among the chronically poor households and those that moved out of poverty. The likelihood to leave for marriage was greater for females than males in households living in chronic poverty. Households that slipped into poverty were less likely to report a member leaving owing to death or for job opportunities compared with other households. In part, the low entry into labour markets by the poor explains the latter. The households never in poverty accounted for 43.5 percent of all reduction owing to job opportunities.

**Table 6: Household distribution by cause of reduction in household composition (%)**

Poverty trajectory	Reduction in size	Cause of reduction			
		Death	Job	Marriage	Others
Chronic poor	63.5	34.4	7.7	34.0	10.2
Moved out	65.7	35.0	8.3	34.2	11.8
Slipped into	51.1	28.4	3.7	21.9	7.0
Never poor	62.7	34.9	9.3	25.7	12.4
All	62.3	34.0	7.9	29.4	11.1

Notes: 1) job includes left to search for a job and got a job; marriage includes left to set up a new household and marriage; and 2) the cause of reduction is expressed as percentage of households in a given poverty path.

Source: Author's own calculations.





The literature notes that mortality yields increased vulnerability, particularly if the deceased was a productive adult household member (White and Robison, 2000). But it is also true to some extent that households respond differently to economic impacts of death – in most cases, it involves sale of assets. Table 7 reveals no systematic pattern observed on the incidence of death and the poverty trajectory. The households that slipped into poverty are less likely to report such a death (28.4 percent, see Annex 2). However, the impact varies according to the deceased’s position in the household, especially as related to age (Table 8). While the likelihood to report a child death is higher for households living in chronic poverty, the adult death is higher for households never in poverty relative to their overall share in total households. Linking our finding on child death and large number of children in households living in chronic poverty (as discussed earlier) reconfirms the literature on fertility, which suggests that a higher incidence of infant mortality is associated with higher fertility.

**Table 7: Changes in household size by poverty trajectory (%)**

Cause of change	Poverty trajectory			
	Chronic poor	Moved out	Slipped into	Never poor
<i>Reduction</i>	18.8	33.0	10.8	37.4
Death	18.7	32.3	11.0	38.1
Job	17.8	32.6	6.1	43.5
Marriage	21.3	36.5	9.8	32.4
Others	17.0	33.3	8.3	41.5
<i>Joining</i>				
Births	21.4	27.8	15.7	35.2
Elderly persons	14.4	38.3	5.4	42.0
All	18.4	31.3	13.1	37.1

Source: Author’s own calculations.

**Table 8: Deceased member’s position in household by poverty trajectory (%)**

Death of:	Poverty trajectory			
	Chronic poor	Moved out	Slipped into	Never poor
Head	14.6	36.9	6.8	41.7
Spouse	14.6	33.6	7.0	44.9
Child	22.2	27.1	12.8	37.9
Others	16.4	34.9	13.3	35.5
Any adult	17.8	32.1	8.5	41.7
All	18.4	31.3	13.1	37.1

Source: Author’s own calculations.

However, we do not have information on whether the deceased adult was a productive household member or not. In addition, we do not have information on the cause of death, although recent studies found higher prevalence of HIV/AIDS among the wealthier individuals. Otherwise, one would have expected a household that lost a prime adult member to be poorer. But our results seem to suggest the contrary. This finding has to be interpreted with caution, since households can often cope through sale of assets, as mentioned earlier. On the other hand, these results could be suggestive that death might not be a source of



vulnerability to poverty. The households never in poverty contributed a greater share owing to death relative to other households. The vulnerable households may cope with death of a household member by increasing dependence on their children's labour.

Reduction in family size owing to marriage is more likely to lead to persistent poverty. It leads to a reduction in the adult population and in turn reduces the earning capacity of households. As alluded to earlier, female members are more likely to leave for marriage than male members. Distribution as a result of other causes is similar to the aggregate level.

On births, Table 7 shows that the percentage share contribution of the persistently poor households is greater than their share in the total household population. While it is a common practice in Uganda for households, especially in urban areas, to send their children to their parents, the extent to which this impacts on welfare cannot be explored. But what is clear is that they cannot contribute to a household's income or consumption. Births increase vulnerability to chronic poverty to already large family sizes. The percentage share contribution of the households that moved out and never were in poverty with an elderly population is greater than their share in the total of households. Presence of elderly persons does not seem to increase a household's vulnerability to poverty. Overall, the results tend to suggest that vulnerability to poverty increases with a child born more than with death of a member in poor households. Children born to persistently poor and vulnerable households are associated with lower productivities and incomes.

### 4.3 Household type change and chronic poverty

Next we investigate whether certain household types are associated with a higher probability of a household becoming persistently poor. Changes in headship are almost similar for households in chronic poverty (Table 9). Taken as a whole, only 3.6 percent of the households reported a change from male to female headship. This dissolution of legal union as in widowhood or separation increases the likelihood of falling into poverty. Broadly speaking, Ugandan households do exhibit stable marriage life, with nearly 82 percent remaining in the same marital status (of which nearly one-fifth remained single) over a period of eight years. However, changes from unmarried to married status are associated with a higher probability of being chronically poor. We also categorise households as nuclear or extended family. A nuclear family includes two generations, including parents and children. Over the period of eight years, 48 percent of the panel households remained of a nuclear type. However, we note a greater change from nuclear to extended (26.2 percent) compared with from extended to nuclear. But the changes across poverty trajectory show no discernible pattern. This finding can be explained by endogenous responses to economic circumstances for households to maintain their living standards.

**Table 9: Household types by poverty trajectory (%)**

	Poverty trajectory				All
	Chronic poor	Moved out	Slipped into	Never poor	
<i>Headship</i>					
No change	18.6	30.8	13.3	37.3	88.5
Male – female	17.4	38.9	19.0	24.7	3.6
Female – male	16.9	33.5	8.2	41.3	7.8
<i>Marital status</i>					
No change	18.2	31.8	13.8	36.2	81.8
Unmarried – married	21.1	18.0	11.7	49.2	5.5
Married – unmarried	18.6	33.9	9.7	37.9	12.7
<i>Nuclear/extended</i>					
Remained extended	16.9	36.9	7.0	39.3	13.8
Extended – nuclear	19.4	32.4	7.7	40.5	12.0
Nuclear – extended	17.1	29.1	14.3	39.5	26.2
Remained nuclear	19.3	30.7	15.6	34.4	48.0

Source: Author's own calculations.

#### 4.4 Household economic capacity change and chronic poverty

The eight-year panel was conducted during a period when major economic reforms were implemented. More important, the period under review was the period of the world coffee price boom. This created opportunities for coffee farmers and others involved in the coffee chain, and partly explains the growth in consumption expenditure during the period.

Participation in the labour market is expected to contribute directly to increased income and consumption and in turn poverty reduction. Table 10 suggests that there was an increase in the proportion of households reporting presence of a prime-age earner. There are significant changes in overall contribution by poverty trajectory. Worth noting, the chronically poor households contributed only 4 percent in 1992 to 1993 of adult female earners, compared with 19.5 percent in 1999 to 2000. This finding reveals that increasing female participation in the labour force did not help the affected households to climb out of poverty. This is not surprising, since the majority of these females are less likely to be educated and hence more likely to be engaged in low-paying activities.



**Table 10: At least an earner prime-age adult by poverty trajectory (%)**

Gender	Poverty trajectory			
	Chronic poor	Moved out	Slipped into	Never poor
<i>1999/2000</i>				
Any adult	19.1	30.9	13.5	36.5
Adult female	19.5	31.2	14.0	35.3
Adult male	19.8	30.1	13.3	36.7
<i>1992/1993</i>				
Any adult	11.3	30.2	8.3	50.3
Adult female	4.1	32.3	14.0	49.6
Adult male	12.3	30.5	6.9	50.3

Source: Author's own calculations.

Demographic changes in prime-age adult earners are presented in Table 11. Nearly 81 percent of the households reported an increase in the number of adult earners and only 3 percent reported a decline in the same. The increasing number of adult earners is more important for getting out of poverty than getting into poverty. Presence of adult male earners increases the likelihood of living in chronic poverty. Studies have cited that poorer households in Uganda with adult male earners are more likely to spend a greater proportion of their consumption of expenditure on 'demerit' goods such as alcoholic beverages and tobacco.

**Table 11: Demographic changes in adult earners (%)**

Direction of change	Poverty trajectory				All
	Chronic poor	Moved out	Slipped into	Never poor	
<i>All</i>					
No change	12.8	34.0	8.4	44.9	16.6
Increased	20.1	31.1	14.0	34.8	80.6
Decreased	2.9	22.3	17.1	57.7	2.8
<i>Female</i>					
No change	14.1	34.3	7.0	44.6	22.3
Increased	19.9	30.8	14.5	34.8	76.5
Decreased	0.0	8.7	42.4	49.0	1.1
<i>Male</i>					
No change	15.7	34.1	12.0	38.3	43.4
Increased	21.4	29.2	14.7	34.7	51.8
Decreased	10.9	29.1	7.0	53.1	4.8

Source: Author's own calculations.

It is evident in Table 12: that changes in household consumption expenditure are associated partly with changes in adult earners. The increase in earners did not translate into higher incomes at household level, especially for the chronically poor and those who slipped into poverty. Among the households that reported a reduction in consumption expenditure, those that slipped into poverty contributed the most. By contrast, it translated into greater incomes for movement out of poverty. It is also evident that some chronically poor households



experienced increases in consumption expenditure but the increment was not enough to push them above the poverty line. The distribution of households by poverty trajectory is quite different depending on whether one considers reduction or increases in household consumption expenditure.

**Table 12: Changes in household consumption by changes in adult earners by poverty trajectory (%)**

Direction of change	Poverty trajectory				
	Chronic poor	Moved out	Slipped into	Never poor	All
<i>Reduction in consumption</i>					
No change in earners	14.2	22.1	15.9	47.9	21.3
Increase in earners	22.3	6.2	38.3	33.2	73.1
Decrease in earners	4.7	4.9	27.9	62.5	5.6
<i>Increase in consumption</i>					
No change in earners	11.9	41.7	3.5	42.9	14.5
Increase in earners	19.2	40.7	4.6	35.5	83.9
Decrease in earners	0.0	49.9	0.0	50.1	1.6

Source: Author's own calculations.

Next we consider the economic/welfare changes in household income proxied by consumption expenditure. Currently, the government's emphasis is on improving incomes at household level. Incomes at household level have to grow by more than 4 percent per annum if Uganda is to attain its Millennium Development Goal 1: of reducing income poverty (Ssewanyana, 2009). The results in Table 13 suggest that consumption grew at 4.7 percent per annum, but this reduces to 3.7 percent after controlling for household demographic composition. On disaggregating by poverty trajectory, the annualised growth rates vary considerably. Households that moved out poverty experienced the greatest growth in consumption. The growth for chronically poor households is comparable with households whose consumption was above the minimum income to meet basic needs in both periods. While growth in household income remains a source of poverty reduction, the change in the demographic composition yields mixed results.

Table 13 further shows the distribution of households owing to direction of change in their consumption expenditure by poverty trajectory. The contribution of chronically poor households is similar both at household and at individual level. Households that moved into poverty contributed nearly one-third of households that reported a decline in consumption, the chronically poor accounted for only one-fifth. While the never poor households registered a greater contribution to households reporting a decline in consumption, the impact was not significant enough in terms of a per adult basis. Evidently, a greater proportion of households moved into poverty or remained poor because of a fall in household consumption expenditure. Overall, the majority of households became poorer because of a fall in consumption.



**Table 13: Changes in consumption expenditure by poverty trajectory (%)**

Direction of change	Poverty trajectory				
	Chronic poor	Moved out	Slipped into	Never poor	All
<i>Per household</i>					
Decreased	19.6	9.5	32.9	38.0	30.7
Increased	17.9	41.0	4.4	36.8	69.3
<i>Per adult equivalent</i>					
Decreased	19.8	0.0	38.5	41.7	34.1
Increased	17.7	47.6	0.0	34.8	65.9
<i>Annualised growth rate (%)</i>					
Per household	3.6	11.1	-6.6	3.9	4.7
Per adult equivalent	2.2	12.7	-11.6	2.4	3.7

Source: Author's own calculations.

#### 4.5 Multivariate regression results

To determine the relative influence of household dynamics on the probability of being persistently poor, vulnerable/transitory poor and never poor, the study employs an ordered Logit estimation. Here, households are classified into three mutually exclusive groups: chronically poor, the vulnerable (combines those that slipped into and those who moved out) and the never poor. It is evident from the panel data that, on average, per adult consumption expenditure was Shs14,821 for the chronically poor, Shs30,488 for the vulnerable and Shs47,206 for the never poor in 1999. This ordering along the poverty trajectory suggests that we could employ an ordered Logit estimation. The results are presented in Table 14. The assumption of parallel regression is rejected, implying that the coefficients across poverty trajectory vary significantly. It is evident that the initial conditions in terms of geographical location, household size, stock of education of adult members and share of adult earners in total adult population contribute to the probability of being in all the three poverty states. Further demographic changes in terms of children aged five years and below and in the composition of adult members contribute to the probability of being in all poverty states. However, the marginal effects resulting from a change in any of these significant factors is quite different in terms of sign and magnitude on the probability of being in any poverty state. It is evident that the factors that make panel households more likely to be chronically poor have the same signs as those making a household more likely to be transitory poor. However, slight differences are observed in the size of the marginal effect, and significant differences are observed for panel households living in the northern region. Increases in the number of children below six years and the growing number of adult males increases the probability of a household living in chronic poverty, a finding that is consistent with the descriptive analysis.

Table 14: Ordered Logit estimates

Variable	Model A		Marginal effect on probability of:					
			Chronic poor		Transitory poor		Never poor	
	Coeff.	t-stat.	Coeff.	z-stat.	Coeff.	z-stat.	Coeff.	z-stat.
Log (household head age)	-0.026	-0.12	0.003	0.12	0.003	0.12	-0.006	-0.12
<i>Human capital variables</i>								
Stock of education for adults	0.059	5.66	-0.008	-4.98	-0.006	-4.90	0.014	5.73
Household size	-0.227	-6.96	0.029	6.36	0.023	5.18	-0.052	-7.11
Nuclear family	-0.063	-0.39	0.008	0.40	0.006	0.38	-0.014	-0.39
<i>Regional dummies</i>								
Urban Central	0.413	1.07	-0.046	-1.24	-0.052	-0.90	0.099	1.04
Rural Eastern	-0.348	-1.90	0.048	1.79	0.029	2.15	-0.077	-1.96
Urban Eastern	0.044	0.09	-0.006	-0.10	-0.005	-0.09	0.010	0.09
Rural Northern	-1.408	-5.99	0.238	4.57	0.030	1.22	-0.267	-7.65
Urban Northern	-0.940	-3.52	0.160	2.89	0.018	0.94	-0.178	-4.37
Rural Western	-0.067	-0.34	0.009	0.34	0.007	0.35	-0.015	-0.35
Urban Western	0.702	1.61	-0.070	-2.10	-0.101	-1.33	0.171	1.58
<i>Labor market variable</i>								
Share of adult earners	0.646	2.89	-0.082	-2.78	-0.066	-2.77	0.148	2.90
<i>Changes variables between 1992/1993 and 1999/2000</i>								
Number of children <6 yrs	-0.116	-2.24	0.015	2.20	0.012	2.18	-0.027	-2.25
Number of children 6-9 yrs	-0.086	-1.43	0.011	1.42	0.009	1.40	-0.020	-1.43
Number of children 10-14yrs	-0.058	-0.96	0.007	0.95	0.006	0.97	-0.013	-0.96
Number of children 15-17 yrs	-0.064	-0.75	0.008	0.75	0.006	0.74	-0.015	-0.75
Share of adult females	-0.704	-1.86	0.090	1.90	0.071	1.74	-0.161	-1.85
Share of adult males	-0.616	-2.04	0.078	2.05	0.062	1.92	-0.140	-2.03
<i>Changes in other variables</i>								
Stock of education	0.013	1.42	-0.002	-1.39	-0.001	-1.42	0.003	1.42
Share of adult earners	0.001	0.55	0.000	-0.55	0.000	-0.54	0.000	0.55
Extended nuclear family	0.142	1.13	-0.018	-1.13	-0.014	-1.09	0.033	1.12

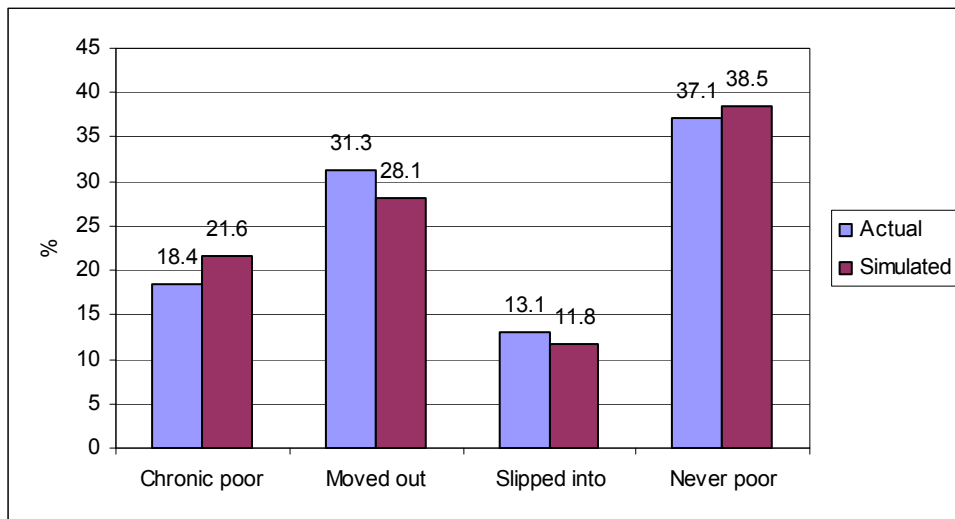
#### 4.6 Demographic change and conceptualization of chronic poverty

Next we consider how the demographic changes at household level as discussed above impact on the conceptualisation and measurement of chronic poverty. Following our methodological approach above, we compare our counterfactual poverty measure with the actual poverty measures in 1999 to provide insights into the contribution of demographic changes during the eight-year period. In other words, we consider what the poverty trajectory



would be if household size, gender and age structure of the panel population were equal to that observed eight years ago, holding consumption expenditure constant. Our simulations reveal that households living below the absolute poverty line would have been higher by 1.9 percentage points, by increasing from 31.5 percent to 33.4 percent, assuming no demographic changes between the panel periods. Evidently, the effect of demographic change varies by initial poverty trajectory (Figure 5). We observe an increase in the percentage of persistently poor households by 3.2 percentage points; a reduction with the same magnitude is observed for households that escaped poverty. Had there been no change in household demographic composition, 11.8 percent instead of 13.1 percent of the households would have slipped into poverty.

**Figure 5: Actual and simulated poverty trajectory assuming 1992 demographic composition**



However, Figure 5 does not provide insights on poverty trajectory mobility. Assuming demographic composition of 1992, 26.4 percent of the persistently poor would have moved out of poverty (Table 15). On the other hand, 25.9 percent of those that escaped poverty would have remained in chronic poverty. Of those households that slipped into poverty, 41.8 percent would have been classified as never in poverty. In part, this is attributed to the more dynamic nature of demographic composition among households that moved into poverty. Overall, demographic changes to some degree impact on our conceptualisation of chronic poverty.



**Table 15: Poverty trajectory mobility assuming 1992 demographic composition (%)**

	Simulated poverty trajectory				All
	Chronic poor	Moved out	Slipped into	Never poor	
<i>Actual</i>					
Chronic poor	73.6	26.4	0.0	0.0	18.4
Moved out	25.9	74.2	0.0	0.0	31.3
Slipped into	0.0	0.0	58.3	41.8	13.3
Never poor	0.0	0.0	11.2	88.8	37.1
All	21.6	28.1	11.8	38.5	100.0

Source: Author's own calculations.

## 5 Conclusions

This study has examined the extent to which household dynamics influence chronic poverty using an eight-year panel survey from Uganda. The study provides insights into how household dynamics influence persistence of poverty. The findings seem to suggest that certain changes in household composition cause a higher probability of a household being chronically poor. For instance, increase in adult males and reduction in child population especially between 6-14 years old increase the likelihood of being chronically poor. Changes in economic events, especially in terms of adult labour supply, influence a household's being persistently poor. Based on the ordered Logit results, it was evident that changes in household demographics had the same marginal effect on the probability of a household being chronically and transitory poor. But effects differ in magnitude, with impact on demographics greater on the former than the latter.



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## Annex

### Annex 1: Changes in children composition by poverty trajectory (%)

Composition	All	Poverty trajectory			
		Chronic poor	Moved out	Slipped into	Never poor
<i>All children</i>					
No change	20.3	20.5	29.5	11.5	38.5
Reduction	30.6	18.0	45.9	3.6	32.5
Increase	49.1	17.8	23.0	19.8	39.5
<i>0-5 years</i>					
No change	38.1	16.7	27.8	13.3	42.1
Reduction	34.0	22.4	36.7	9.6	31.3
Increase	27.9	15.8	29.6	17.2	37.4
<i>6-9 years</i>					
No change	39.0	16.0	31.7	12.8	39.5
Reduction	24.0	20.7	43.7	5.2	30.4
Increase	37.0	19.5	22.9	18.7	39.0
<i>10-14 years</i>					
No change	38.7	15.9	34.5	11.4	38.2
Reduction	22.0	21.6	38.8	8.2	31.3
Increase	39.2	19.0	24.0	17.6	39.4
<i>15-17 years</i>					
No change	63.0	16.1	28.5	14.7	40.7
Reduction	16.6	19.8	41.2	8.8	30.2
Increase	20.4	24.6	31.9	11.8	31.8

Source: Author's own calculations.

### Annex 2: Incidence of death by relation to household head (%)

Poverty trajectory	Incidence of death	Relationship to the current head				Any adult
		Head	Spouse	Child	Others	
Chronic poor	34.4	5.1	3.7	22.4	7.3	15.4
Moved out	35.0	7.6	5.0	16.0	9.1	16.3
Slipped into	28.4	3.3	2.5	18.1	8.3	10.3
Never poor	34.9	7.2	5.7	18.9	7.8	17.9
All	34.0	6.4	4.7	18.5	8.2	15.9

Source: Author's own calculations.



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