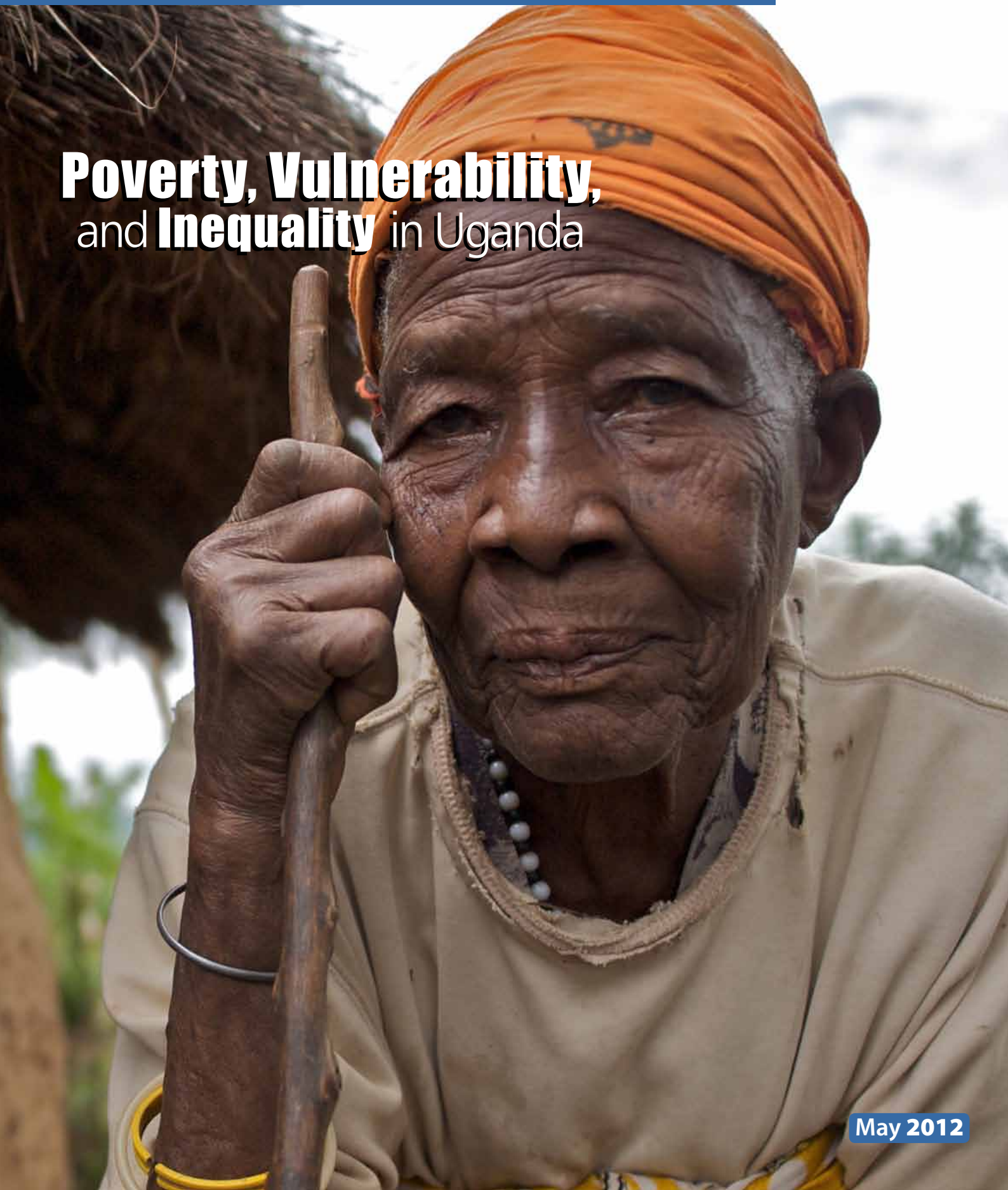
REPUBLIC OF UGANDA

better life chances for all

EXPANDING SOCIAL PROTECTION

Poverty, Vulnerability, and Inequality in Uganda



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About Expanding Social Protection

The Expanding Social Protection Programme (ESP) Programme is a Government of Uganda initiative implemented under the Ministry of Gender, Labour & Social Development. Since 2006, the Ministry of Gender, Labour & Social Development has championed efforts to promote social protection in Uganda. These efforts culminated in the design of the ESP which was approved by the Cabinet in June 2010. The five year programme is funded by the Department for International Development (DFID), Irish Aid and UNICEF.

The goal of the Expanding Social Protection programme is to reduce chronic poverty and improve life chances for poor men, women and children in Uganda. Its purpose is to embed a national social protection system that benefits the poorest as a core element of Uganda's national policy, planning and budgeting processes.

The programme comprises two main components. The first is to develop and implement a national social protection vision and policy framework for Uganda, including strengthening the institutional capacity of the various entities in the Government of Uganda to deliver the framework.

The second element of the programme is to put in place a pilot social transfer, known as the Social Assistance Grants for Empowerment (SAGE) in 14 districts of Uganda including; Apac, Kaberamaido, Katakwi, Kiboga, Kyenjojo, Moroto, Nakapiripirit, Nebbi, Amudat, Kyegegwa, Kyankwanzi, Zombo, Napak and Kole.

Executive Summary

According to existing survey analysis, Uganda has made steady progress in poverty reduction over the past decade. However, these gains have not been experienced evenly, with large disparities in poverty levels across geographic areas and household characteristics. These disparities persist when poverty is examined across multiple deprivations – such as health, education, sanitation, and housing – rather than only consumption.

Understanding the nature of poverty, the sources of risk and vulnerability, and the impacts of shocks is essential in order to inform an appropriate policy response to achieve objectives related to human development but also economic growth and the equity of the transformation trajectory. These are all the more important in the context of the transmission of poverty from one generation to the next, where inequalities in consumption and access to education in childhood have powerful long-term consequences for inequalities amongst adults as well as the transformation of the economy.

This study aims to fill some of the gaps in the current understanding of poverty, vulnerability, and equality in Uganda, with a particular view to informing the on-going policy discussions within the social protection sub-sector. The Uganda National Household Survey (UNHS) Report (UBOS 2011) provides an excellent foundation, and this current study takes the opportunity to extend the analysis of poverty and vulnerability further while using a social protection lens.

High-level trends in poverty and vulnerability

No matter which poverty line is used, it is clear that poverty has been reducing quickly in Uganda over the past 10 years. The incidence of poverty fell from 13.7% to 9.1% in urban areas between 2005/6 and 2009/10 and in rural areas from 34.2% to 27.2%, for a national average of 24.5%. The depth of poverty, which measures the average distance of the poor below the poverty line, has also fallen, so that on average the poor in rural areas now have consumption levels that are 7.6% below the official poverty line.

It is important to note, however, that the distribution of consumption is very flat, meaning that there are many households living near the poverty line. So although the poor subsist on average fairly close to the poverty line, there is also a large percentage of the population who, while not official below the poverty line, are nevertheless just above it. Fully 40% of households live above the poverty line and below two times the poverty line and are highly vulnerable to falling into poverty.

This 'flatness' in the distribution of income and the large number of people living just above the poverty line is all the more striking when the level of Uganda's poverty line is considered in the international context; the official poverty line is comparable to 'extreme' or 'food' poverty as defined in most other countries[1] . This is set at the level required to justmeet daily caloric requirements and no more, meaning that in reality households at or below the poverty line must sacrifice the minimum level of food intake in order to purchase other items necessary for survival (such as soap, fuel, clothes, etc).

This means that households living at twice the poverty line are still extremely vulnerable by any reasonable understanding of welfare. Another way of illustrating the levels of vulnerability even of those above the poverty line is to assess what would happen if consumption levels fell by 20% across the board (which would be entirely common in the case of a bad harvest, for example). If this were to occur, poverty would increase by almost three times that rate (55%), and the incidence of poverty would increase from the current level of 25% to 38%. That such a small – and entirely plausible – drop in consumption would cause so many to fall beneath the poverty line emphasises just how important it is to continue to improve welfare amongst the poor and near-poor in order to ensure that the recent impressive progress in poverty reduction is sustainable.

The distribution of poverty across regions varies widely. The North contains only 20% of the population but 38% of the poor reside there. By contrast, the Central region contains 27% of the population but only 12% of the poor. However, it is important to note that these broad regional figures hide quite a lot of variation within regions: in Karamoja (the North-East sub-region), the incidence of poverty is currently a staggering 75%, compared to 40% in Mid-Northern and West Nile sub-regions. Furthermore, poverty in the North-East has not fallen as quickly as the rest of the country, reducing only 5% between 2005/6 and 2009/10 compared to the 21% reduction nationally. At the same time, the Mid-Northern region registered a greater-than-average reduction of 34%. Somewhat worryingly, poverty actually increased in the Mid-Western region between 2005/6 and 2009/10 by 9%.

Finally, it is important to note that some consumption groups have benefitted more than others; households in the middle-income groups were able to increase their consumption, while those at the very poorest end of the distribution saw very little change. This suggests that, again, while overall progress on poverty reduction has been impressive, there is a need to ensure that the poorest do not miss out.

1 The nominal value of the poverty line of course varies across countries, since it represents the relative level of consumption needed to achieve 'basic needs', but the methodology employed – which should be standard across countries – is the same one used to calculate 'extreme' poverty in other countries.

Understanding the characteristics of the poor

Beyond these overall trends in poverty, it is important to gain some further understanding of the characteristics of those living under the poverty line in order to attempt to establish the extent to which poverty and vulnerability are correlated with education, demographic factors, geography, or membership of particular 'vulnerable' groups.

Education

Households with no member having achieved at least primary completion have a poverty incidence of 35%, ten percentage points higher than the national average of 24.5%, while households with at least primary completion have a slightly lower incidence of poverty at 22%, and households with post-primary schooling have a much lower poverty incidence of 12%. Not surprisingly, the highest level of education obtained varies considerably by region; half of all households in the Central region have at least one member with post-primary education, while 60% of households in the North have no member who has completed primary.

Demographic characteristics

Larger households with 7-13 people have a higher poverty incidence than average of around 32%, as do households with 4-9 children. Even more important than household size is the dependency ratio, with households having 4-5 dependents per working adult facing a much higher incidence of poverty at nearly 50%. All categories of households with more dependents than working-age adults have above-average poverty rates. It is important to bear in mind, however, that the relationship between household size and poverty does not imply causation; households are not necessarily poorer because they have more children but rather poorer households may decide to have larger families in order to provide more household labour and to ensure that parents have children to take care of them in their old age.

Orphans

Although orphans are often considered amongst the most vulnerable groups, it is first important to note that residence patterns are not generally so cut and dry, particularly in rural areas; even children who are not orphans may be fostered out or living parents may migrate for work. In Uganda, fully 16% of children live in some sort of fostering arrangement, where at least one parent is alive but the child lives with others, and another 15% of children have both parents alive but they only live with one. Amongst these, it is more common for the father not to reside with the child, presumably reflecting

2 This is known more technically as 'allocative efficiency'

Social care services: these are services that provide social support and care for needy individuals and households (often referred to as social work in other countries), including child protection, gender-based violence, and care of people living with disabilities or chronic illnesses (such as HIV/AIDS).

greater opportunities for migration for purposes of employment but also a higher rate of child abandonment by fathers than mothers. Only 5.8% of children are single orphans, with the vast majority of these being paternal orphans, and only 2.3% are double orphans. The majority of children (60%) live with both of their parents.

Children who have one or both living parents but who are fostered out are less likely to be living in a poor household. This may reflect the fact that children are likely to be fostered by households that are better-off, for example being sent to live with relatives if their parents face economic hardship, however we do not know anything about their vulnerability within these households. By contrast orphans whose mother has died and are living with their father have a very high incidence of poverty at 37%, however these represent only about 1% of all children. Children living with their mother only (even if their father is alive) appear to be more vulnerable to poverty than children living with both parents.

Disability

The incidence of disability increases significantly with age, as would be expected: at age 56-65 only 0.5% of the population has a severe disability, but this increases by 6 times for those individuals in the next age bracket of 66-75. For partial disability, the incidence increases by 50% between the age groups of 36-45 and 46-55, and continues to more than double for each subsequent age bracket.

The correlation of disability status with poverty is perhaps not quite as strong as would be expected, but households with at least one severely or partially disabled member [2] are more likely to be poor, with a poverty incidence of 29.7% compared to 23.5% for those without. It is however important to note that the welfare measure used to assess poverty does not include any accommodation for the fact that people with disabilities are likely to need to consume more – in terms of health care, assistive devices, transportation, or paying for assistance with chores and manual labour – to reach a given level of well-being.

Elderly

Looking at consumption by the age of the household head, there is a sharp drop of more than 25% in consumption amongst those 80 and older compared to those aged 55-65. However, looking at only the age of the household head masks some of the issues related to elderly poverty, since many elderly may have consumption levels that are high only as a result of employment in old age in order to avoid destitution. Looking at trends in employment levels by age group amongst the elderly, after the age of 65 there is a sharp difference in the level of employment amongst the elderly in the poorest quintile compared to richer quintiles. Poorer

elderly are less likely to be employed, probably a result of not being able to work due to disability or illness, while many elderly in the upper consumption quintiles are above the poverty line only because they continue to work well into their old age, beyond the point where they should have been able to 'retire'.

Poverty and the uptake of education

Net primary enrolment figures are fairly high, at just over 80% nationally. However, apart from the North-East, there were only minor gains in the net primary enrolment rate between the last two survey rounds(2005/6 and 2009/10), indicating near stagnation in educational uptake. Another notable trend is that, in spite of the provision of fee-free education as part of the Universal Primary Education policy, there has been an increase in the proportion of children attending private schools and a decrease in those attending government schools, particularly amongst those in the richest consumption quintile.

Enrolment is highly dependent on age, with many children of primary school age starting late. Over the last five years, it appears that these delays have gotten worse, with somewhat fewer children aged 6 attending school. Delays in education are worrisome because they tend to curtail the total amount of education a child receives and the likelihood of completing primary school or more. Holding everything else constant, increasing the years of education of the household head by one increases the odds of completing primary school by 1.1 times (meaning that a child in a household with one more year of head's education will be 1.1 times more likely to complete primary). Living in an urban household increases the odds by 2.2, while children living in the Eastern, Northern, and Southern region are only around half as likely to complete primary compared to children living in the Central region. A child residing with both parents is 1.6 times more likely to complete than one that is not. The level of household consumption also has a large impact on completion, as would be expected. Increasing consumption by one standard deviation at the mean would increase the odds of completion by 1.6. Somewhat surprising is the fact that boys are actually less likely to complete primary than girls, and living in a household with a female head actually increases the odds of completion by 1.7 times. This is also true across levels of consumption and years of schooling of the head.

This suggests that, while UPE took an important step in providing fee-free education for all, more work is needed to ensure children from all backgrounds are able to benefit, and that the quality of provision in government schools is improved so that children with the financial means do not decide to 'opt out' of the government system.

2 Individuals are defined as severely disabled if they have no ability along any of the following dimensions: sight, hearing, walking/mobility, cognition/memory, self-care, and communication. Partial disability is defined as having 'a lot of difficulty' in at least two of the dimensions.

Poverty dynamics over time

The panel survey allows us to look in closer detail at the way in which individual households fare over time, providing a deeper understanding of poverty and vulnerability. The data show that 10% of Ugandans are chronically poor (meaning they were below the poverty line in both 2005/6 and 2009/10), with chronic poverty found overwhelmingly in rural areas. Unsurprisingly, the North has the most disproportionate share of the chronic poor in the country. A further 25% of the population were considered to be in the category of the 'transitory poor', meaning that they were poor in one but not both of the survey rounds; 15% were poor in 2005/6 but moved out of poverty in 2009/10, while 10% were non-poor initially but fell into poverty. This suggests that, as suggested by the general 'flatness' in the consumption distribution, a significant part of the population is highly vulnerable to poverty even if not below the official poverty line.

A further analysis of the data revealed that life-cycle factors played a role in poverty dynamics, with chronically poor households and those falling into poverty having larger household sizes and dependency ratios than never-poor or those escaping poverty, as well as having a higher frequency of female-headed households and heads of household who are living with a disability. Households falling into poverty were also more likely to have registered an increase in the number of elderly members.

Agro-climatic shocks in the form of drought/infrequent rains impacted households most frequently, but health shocks also affected at least 6% of the population. Even though less frequent, other shocks such as high prices of inputs, low prices of outputs, and the loss of employment (including the death or illness of a working-age adult) all had a negative impact on asset holdings, food production, and/or food consumption.

It is, however, not just the occurrence of a shock that matters; rather, it is the extent to which households are able to cope with the shock that ultimately determines their poverty trajectory. The survey results show that better-off households (those who are never poor) were most able to rely on savings to cope with shocks, while the chronic and transitory poor were most likely to cope by changing dietary patterns involuntarily.

Inequality of Opportunity

Taking the analysis of inequality further, we distinguish between inequality due to effort and inequality due to circumstance. The former is generally considered to be acceptable and indeed fair – since it results from individuals being rewarded for different levels of effort – while the latter is seen as being unfair and undesirable, since it is the result of factors which are entirely outside the control of individuals. The analysis found that around 30% of the inequality in consumption amongst adults of working age is attributable to just 5 circumstances (related

to parental education, fathers' occupation, and location at birth). This is a lower bound on the inequality of opportunity; if a more detailed dataset were available, our estimation of inequality attributed to circumstance would necessarily increase.

A similar pattern of inequality is also seen in the access of today's education to children; fully 1/3 of current educational places would need to be re-allocated to achieve equality in the access to primary schooling. In an international context, this reflects a very high degree of inequality of access to basic services compared to a recent study of Latin America, in which only two countries in the region had an index of inequality of opportunity above 0.2.

Policy implications, and recommendations

This picture points to a new understanding of poverty, vulnerability and inequality in Uganda as well as a new role for social protection in addressing these challenges. The increasingly unequal nature of Uganda society across multiple welfare dimensions suggests the need for direct measures to ensure that all Ugandans are able to benefit from, and contribute to Uganda's growth and development. These findings suggest that there is a need for policy to respond to the inequalities in access to basic services, focusing on the gaps in access across regions, in rural areas, and across socio-economic levels. This clearly implies a role for direct income support in providing the resilience and income security households need to effectively deal with shocks, make productive investments and carve a sustainable path out of poverty. The key points which emerge are:

- Address the specific nature of poverty in the North with appropriate social protection instruments combined with expanding access to services: Although declining nationally, the North of Uganda continues to experience extremely high levels of chronic poverty. Direct income support targeted at labour-constrained households will allow a strategic shift to take place in development strategies by ensuring that the most vulnerable are protected from the worst forms of deprivation, as governments and aid agencies scale up activities to support productive livelihoods for those who are able to work. These efforts should also include replacing the short term 'injection' approaches of food, voucher and cash for work programmes with longer term, government-led, more socially-protective public works which provide minimum guarantees of income in return for guaranteed public work.

- Ensure that UPE is successful in providing a full cycle of primary education to all children in the country: While UPE has been successful in increasing gross and (to some extent) net enrolment, it is important to ensure that there is equal access to the full cycle of primary education, delivered to a high quality standard. This will surely require improvements in the supply and quality of public education, but the importance of household income and the education and occupation of the head of the household also suggests that further demand-side policies (such as direct income support) may be required to ensure children

from disadvantaged households can complete a full cycle of primary. The role of direct income support in redressing national and regional imbalances and overcoming demand-side barriers to accessing services should be considered.

- Ensure that an understanding of life-cycle events is incorporated into the design of policy: This would imply the need to focus direct income support on addressing key life-cycle risks, including old age, death of working-age adults and widowhood, and the addition of young children. Regular and predictable direct income support ensures that the elderly can live in dignity without the threat of extreme poverty and that children have access to equal opportunities to education and health, breaking the cycle of poverty that would otherwise be transmitted from one generation to the next.

Ultimately, understanding the role of direct income support in addressing poverty, vulnerability, inequality and the multiple risks faced by Ugandans across the life-cycle, points to a new role for social protection as being central to the GoU's efforts to support human development, productivity and broad-based, inclusive growth. Building a comprehensive system of direct support will take many years, and should be considered a medium-term objective as the country moves towards middle-income status. In the immediate term, however, the current programs in Uganda will serve as essential building blocks upon which future programmes can be built.

1 INTRODUCTION

1.1 CONTEXT

According to existing survey analysis, Uganda has made steady progress in poverty reduction over the past decade, with the incidence of poverty falling from 39% in 2002/3 to 24.5% in 2009/10. These gains have, however, not been experienced evenly, with large disparities in poverty levels across geographic areas and household characteristics. These disparities persist when poverty is examined across multiple deprivations – such as health, education, sanitation, and housing – rather than only consumption.

Positive upward trends at the aggregate level also hide a much more dynamic picture of the poverty experience at household level, where there is considerable variation in consumption over time. This variation can be due to risks in production and income (for example a poor harvest due to low rainfall, rises in input prices for small businesses, or injury or illness that limits working ability) or to life cycle events that impact consumption (for example increased medical care costs in old age or as a result of disability). The exposure to these kinds of risks and the coping mechanisms households have available determines not only their well-being at any one point in time, but also their ability to improve their situation in future years and, indeed, the prospects for the next generation of children as they become adults themselves.

Understanding the nature of poverty, the sources of risk and vulnerability, and the impacts of shocks is essential in order to inform an appropriate policy response to achieve objectives related to human development but also economic growth and the equity of the transformation trajectory.

11.2 OBJECTIVES

This study aims to fill some of the gaps in the current understanding of poverty, vulnerability, and equality in Uganda, with a particular view to informing the on-going policy discussions within the social protection sub-sector. The Uganda National Household Survey (UNHS) Report (UBOS 2011) provides an excellent foundation, and this current study takes the opportunity to extend the analysis of poverty and vulnerability further while using a social protection lens.

1.3 METHODOLOGY

The analysis contained in this report is entirely quantitative, making use of the UNHS data from the 2005/6 and 2009/10 survey rounds. The UNHS is a nationally-representative survey comprising of a cross-sectional and a panel survey. The cross-sectional survey included around 6,800 households in 2009/10, while the panel survey is smaller at only 2,300 households.

The analysis of survey data provides an important opportunity to explore the extent and nature of poverty in the country in a robust manner. By their nature, however, household surveys are necessarily somewhat limited in that for most indicators the unit of measurement is the household rather than the individual. This means that it is not possible to measure the extent to which consumption within households is distributed. The implication of this is that many aspects of poverty remain largely obscured from view, in particular many of the ways in which gender, age, or disability status influences the experience of poverty; women, children, the elderly, and people living with disabilities may live in households that are non-poor, but they as individuals may face disproportionate deprivations along a number of dimensions.

Nevertheless, in spite of these limitations, the combination of the cross-section and panel survey allows the analysis to explore poverty and vulnerability from different angles to tease out as many of the dimensions of poverty as possible. In the cross-section this includes constructing a profile of poverty to understand the characteristics associated with higher poverty incidence and an analysis of the relationship between consumption poverty and deprivations along health and educational dimensions. The panel survey, although much smaller, allows instead a deeper look at the dynamics of poverty over time, by measuring how individual households fare in multiple periods and provides insights specifically related to movements in and out of poverty and risks and shocks facing households. .

1.4 STRUCTURE OF THE REPORT

The report proceeds as follows: Chapter 2 provides an overview of the national trends in poverty, vulnerability and inequality. This is meant to provide the high-level context for the more detailed analysis which follows in the poverty profile in Chapter 3. In this chapter, the analysis goes below the surface of the high-level trends to better understand poverty and vulnerability, answering questions such as: Who are the poor? What are the characteristics that distinguish between the poor and those who are better off? Chapter 4 answers the question: how does poverty manifest itself in terms of other dimensions such as assets and uptake of basic services? Chapter 5 then turns to a more detailed look at inequality, using the framework of equality of opportunity to assess the extent to which inequality is related to circumstances beyond an individual's control (such as the education level or occupation of their parents, or their place of residence), and how much is related to effort. This is followed in Chapter 6 by an analysis of the panel survey data to explore the dynamics of poverty over time, and the role of risks and shocks in household poverty trajectories.

Finally, Chapter 7 discusses the policy implications that emerge from the analysis.

2 HIGH-LEVEL TRENDS IN POVERTY AND VULNERABILITY

No matter how poverty is measured, it is clear that there have been improvements in well-being in the last decade in both urban and rural areas.The incidence of poverty fell from 13.7% to 9.1% in urban areas between 2005/6 and 2009/10 and in rural areas from 34.2% to 27.2%. The depth of poverty, which measures the average distance of the poor below the poverty line, has also fallen, from 3.5% to 1.8% in urban areas and from 9.7% to 7.6% in rural areas, meaning that on average the poor in rural areas have consumption that is 7.6% less than the poverty line. While these trends in urban and rural areas are positive, we can see that urban areas have benefitted more, with reductions in the poverty measures by around 50% compared to only around 20% for rural areas[3].

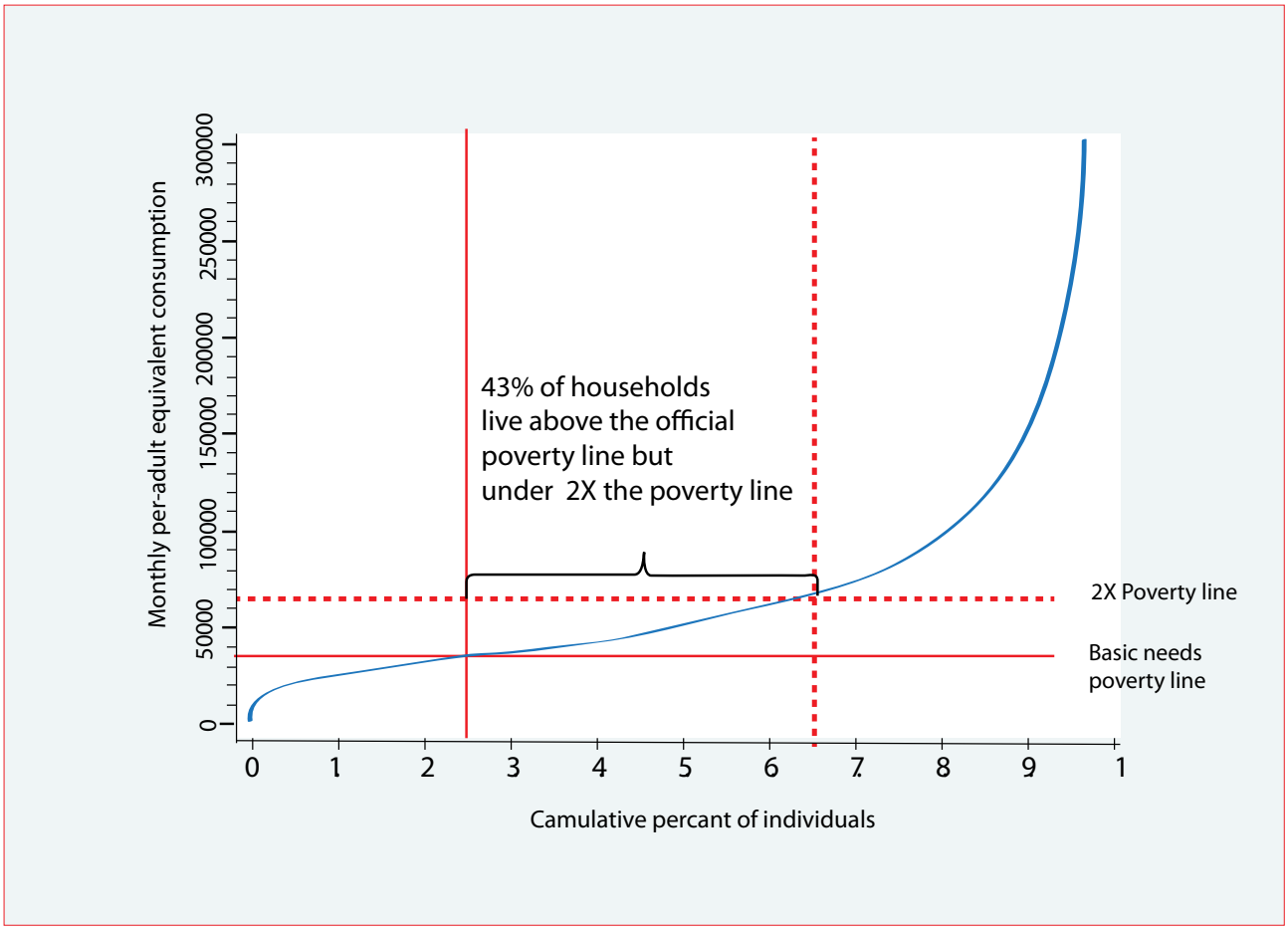
It is important to note, however that the distribution of consumption is very flat, meaning that there are many households living near the poverty line. As the figure below illustrates, an additional 43% of households live between the poverty line and twice the poverty line.

Table 1 Poverty incidence, depth, and severity, rural and urban 2005/6 and 2009/10

	2005/6			2009/10		
	Poverty incidence	Poverty depth	Poverty severity	Poverty incidence	Poverty depth	Poverty severity
Urban	13.7	3.5	1.4	9.1	1.8	0.6
Rural	34.2	9.7	3.9	27.2	7.6	3.1
National	31.1	8.8	3.5	24.5	6.8	2.8

3 In other words, no matter what threshold or poverty line is used, the downward trend is clear. See World Bank (2012) for an analysis of poverty trends using different poverty lines.

Figure 1 Distribution of per-adult equivalent consumption, 2009/10

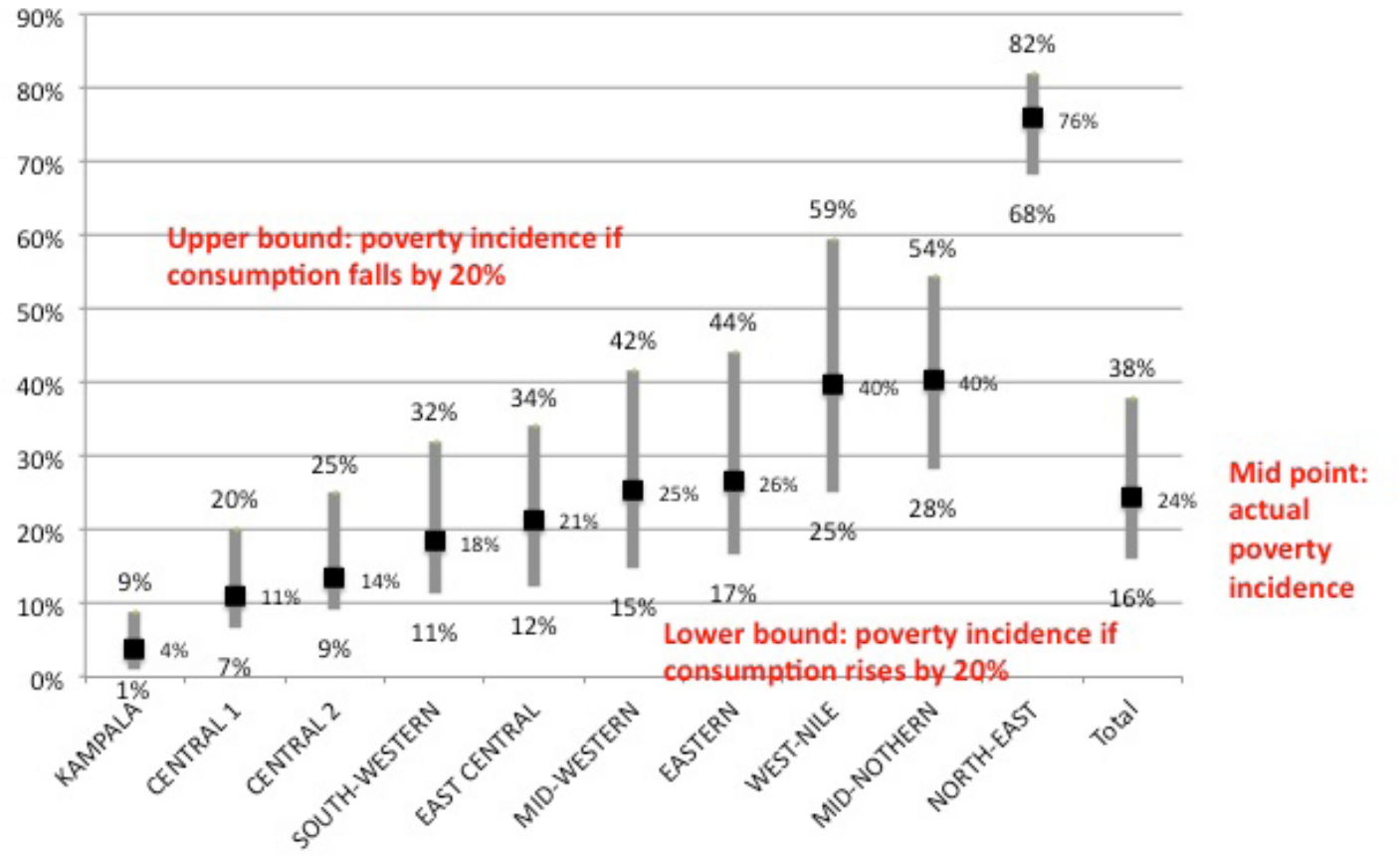


This vulnerability to poverty is all the more striking when we consider that Uganda's poverty line is set at a low level when compared internationally. The methodology employed to estimate the poverty line is the same one used to estimate 'extreme', 'ultra', or 'food' poverty in other countries. The methodology is based on a 'basic needs' approach, where the poverty line is set at the level needed for survival. However, normally the level of basic needs is set at the minimum caloric requirements needed for survival plus some additional non-food expenditure; in Uganda, by contrast, the level is set at the level just equal to the basic caloric requirement. This means that households that are living at the poverty line are in fact consuming less than the minimum daily caloric requirement, because they must sacrifice some food consumption for essential non-food items (such as housing, soap, clothing, etc). For a more detailed discussion of the poverty line calculation in the context of the international literature, see Annex A.

The implication of this very flat consumption distribution is that a large number of households, while not officially poor, could easily fall back into poverty with even a small change in consumption. The figure below illustrates this, showing the poverty incidence that would arise if per-adult equivalent consumption either rose or fell by 20%. The result is that if consumption decreased by just 20% - say as a result of a

bad harvest - poverty would increase by more than 20%. At the national level, it would increase by 55%, from 25% currently to 38%. By contrast, if consumption were to increase by 20%, poverty would fall nationally from 25% to 16%. Across all regions, the change in poverty incidence that would occur from a 20% fall in consumption is much larger than what would occur from a 20% increase in consumption. This asymmetrical impact underscores the vulnerability to poverty and the fragility of the improvements that have been achieved.

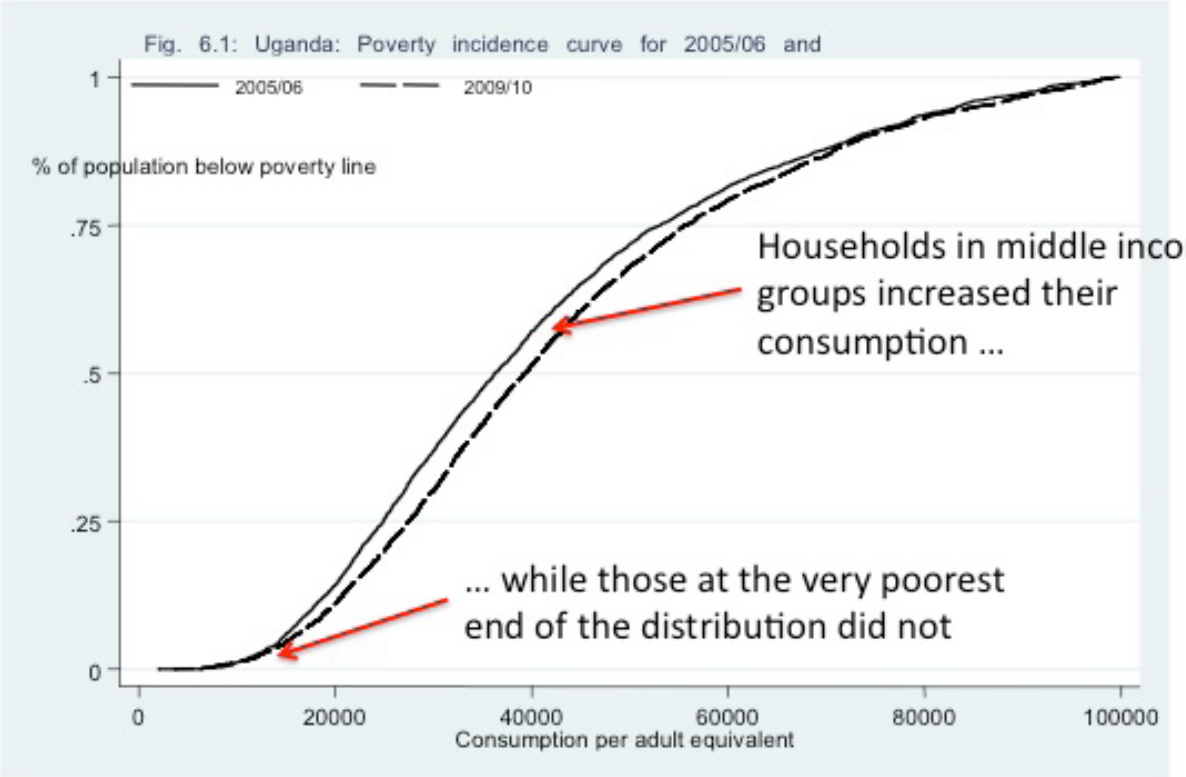
Figure 2 an illustration of the potential impact of shocks on poverty



Finally, some consumption groups have benefitted more than others, as shown in the figure below. Households in the middle-income groups were able to increase their consumption, while those at the very poorest end of the distribution saw very little change in their consumption. This suggests that while overall progress on poverty reduction has been impressive, there is a need to ensure that the poorest do not miss out.

Figure 3 Cumulative consumption distributions 2005/6 and 2009/10

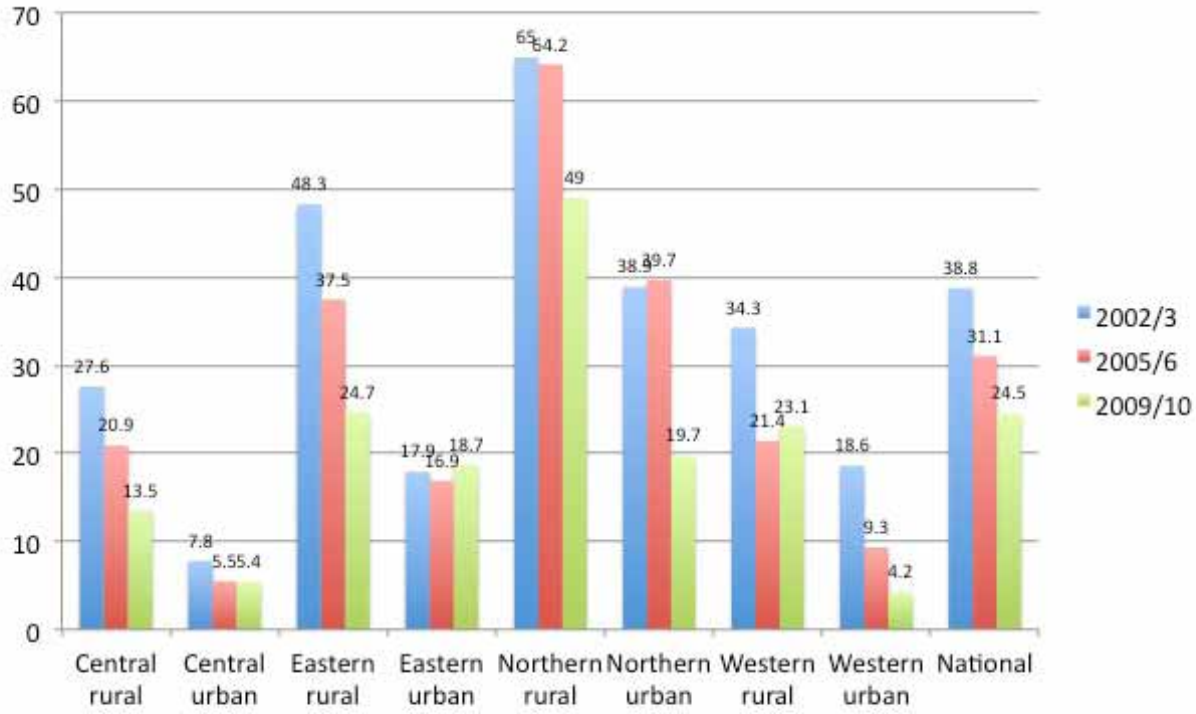
- The Gini coefficient increased from .408 in 2005/6 to .426 in 09/10.
- Inequality worsened in urban areas.



Geographic distribution of poverty

The distribution of poverty across regions varies widely. The North contains only 20% of the population but 38% of the poor reside there. By contrast, the Central region contains 27% of the population but only 12% of the poor.

Figure 4 Poverty incidence by region and rural/urban residence, 2002/3 to 2009/10



It is important to note that these broad regional figures hide quite a lot of variation within regions: in the North-East sub-region (which is comprised of Karamoja), the incidence of poverty is currently a staggering 75%, compared to 40% in Mid-Northern and West Nile sub-regions. Furthermore, poverty in the North-East has not fallen as quickly as the rest of the country, reducing only 5% between 2005/6 and 2009/10 compared to the 21% reduction nationally. At the same time, the Mid-Northern region registered a greater-than-average reduction of 34%. The table below illustrates clearly which sub-regions have been able to benefit from poverty reduction and which are being left behind. Somewhat worryingly, poverty actually increased in the Mid-Western region between 2005/6 and 2009/10 by 9%.

Table 2 Poverty incidence by sub-region 2005/6 and 2009/10

Sub-region	2005/06	2009/10	Change
Kampala	4.5	4	-11%
Central 1	18.8	11.2	-40%
Central 2	19.7	13.6	-31%
East Central	32.7	21.5	-34%
Eastern	39.2	26.5	-32%
Mid-Northern	61.1	40.4	-34%
North-East	79.4	75.8	-5%
West Nile	55.3	39.7	-28%
Mid-Western	23.2	25.3	9%
South-Western	18.7	18.4	-2%
Total	31.1	24.5	-21%

3 BELOW THE SURFACE OF POVERTY: CHARACTERISTICS OF THE POOR

Beyond these overall trends in poverty, it is important to gain some further understanding of the characteristics of those living under the poverty line in order to attempt to establish the extent to which poverty and vulnerability are correlated with education, demographic factors, geography, or membership of particular 'vulnerable' groups. This chapter begins with an examination of these characteristics individually, and then builds on this understanding with a multi-variate analysis.

3.1 HOUSEHOLD CHARACTERISTICS AND POVERTY

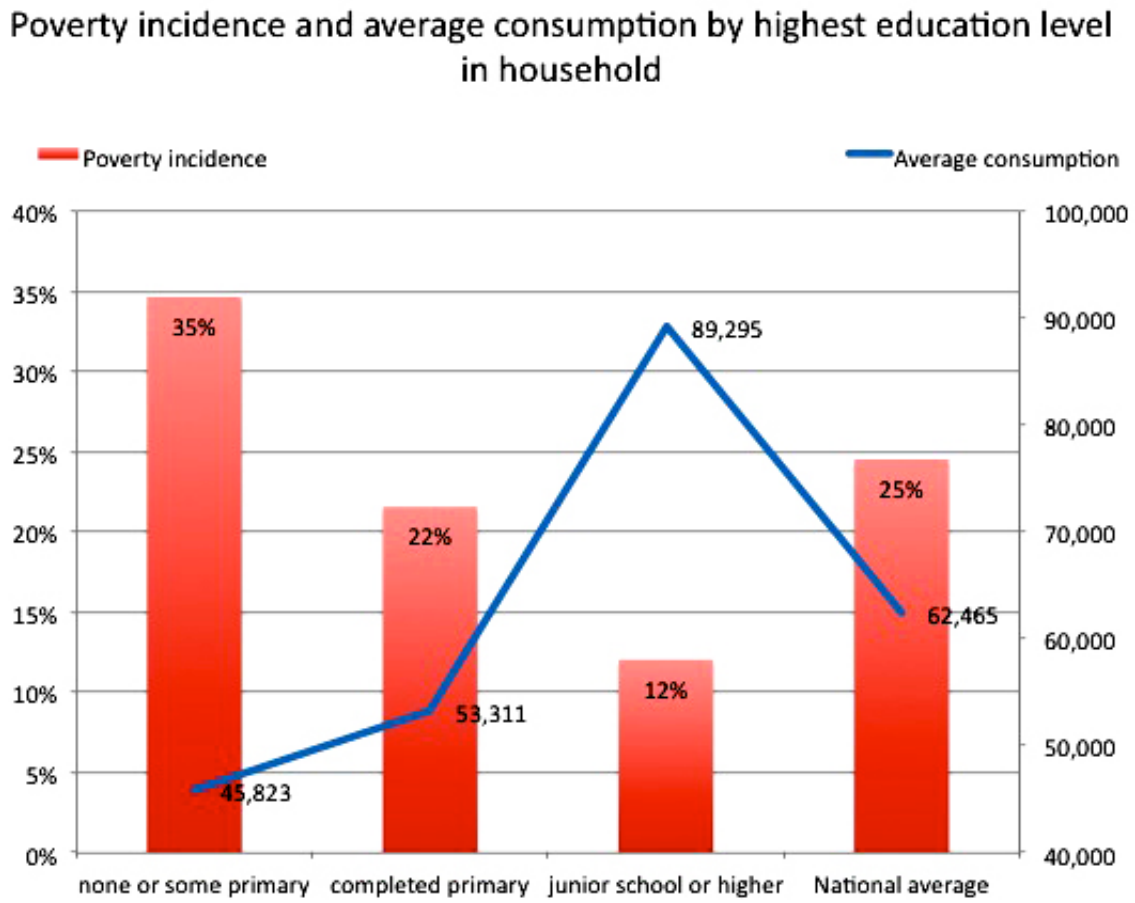
Although there are many characteristics of individuals that are associated with poverty, the nature of the household survey – where welfare is calculated for the household as a whole unit – means that we cannot analyse poverty of individuals specifically. We can, however, compare households with individuals meeting different criteria – for example whether there are children or elderly present, or members of particular vulnerable groups such as orphans or female-headed households.

3.1.1 EDUCATION LEVEL IN THE HOUSEHOLD

One of the most obvious characteristics that we would expect to be correlated with poverty is the education level of working-age adults in the household. Education enables access to more productive and better-paying jobs, allowing some to move from subsistence agriculture to other activities, but it also would be expected to raise productivity and income levels even amongst those working in agriculture through greater skills in numeracy and understanding of more productive farming techniques.

The figure below shows the poverty incidence and average consumption levels in households according to the maximum level of education achieved by anyone in the household[4]. Households with no member having achieved primary completion or higher have a poverty incidence that is ten percentage points higher than the national average, while households with at least primary completion have a lower level than average, and households with post-primary schooling have a poverty incidence that is half the national average. This latter group with post-primary education comprises only around 1/3 of all households, while those with less than primary completion comprise **½.**

Figure 5 Poverty incidence and level of consumption by the max education level in household



4 This can also be measured by the level of education of the household head, but the advantage of using the maximum level of education in the household overall (whether this is achieved by the head or another member of the household) is that it better reflects the income earning potential of the household.

It is not surprising that the highest level of education obtained varies considerably by region, as shown in the table below. Half of all households in the Central region have at least one member with post-primary education, while 60% of households in the North have no member who has completed primary.

Table 3: Highest level of education in the household by region

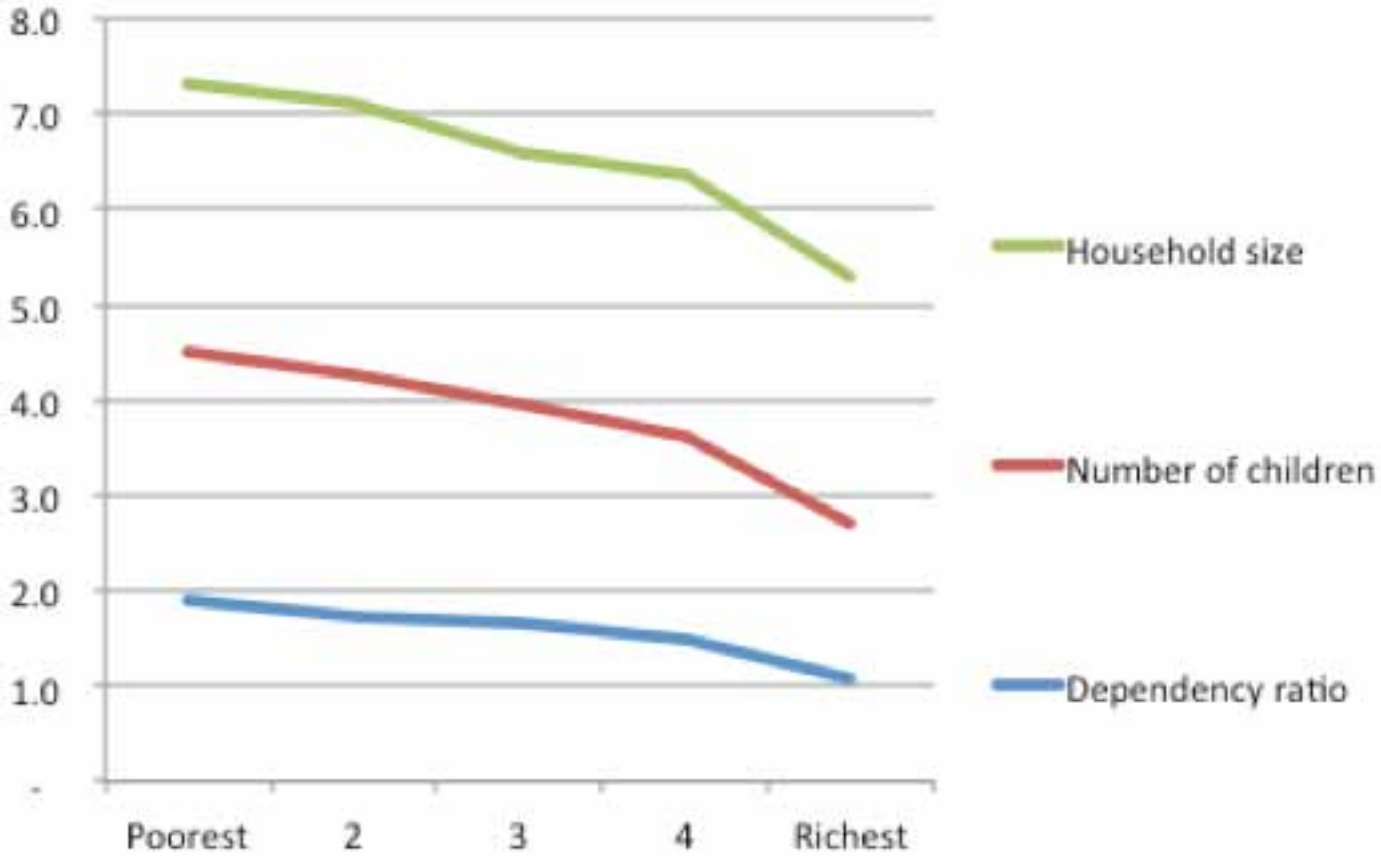
Region	None or some primary	Completed primary	Post primary	Total
Central	36.24	13.47	50.29	100
Eastern	54.32	15.03	30.65	100
Northern	59.75	13.38	26.86	100
Western	56.41	15.83	27.76	100
Total	50.2	14.43	35.37	100

3.1.2 DEMOGRAPHIC FACTORS

We would also expect that demographic factors would play a role in the consumption levels of households, with the ratio of dependent members to productive ones is an important determinant of the level of consumption for each individual. It is important, however, to bear in mind that this relationship does not imply causation; households are not necessarily poorer because they have more children but rather poorer households may decide to have larger families in order to provide more household labour and to ensure that parents have children to take care of them in their old age. The important factor here is of course in determining what a 'productive' member of the household is; where children provide labour (even if unpaid in terms of household chores) they are not just dependents and similarly elderly members may continue to work and contribute to household earnings. By contrast, when children's education is an investment made by households (in terms of direct costs as well as opportunity costs) they are fully dependent on working-age adults providing for them.

Nevertheless, whichever way the causality runs, the dependency ratio is a relevant indicator to explore the correlation between poverty and the number working-age adults compared to the number of children and elderly. We would expect that larger households would be poorer than smaller ones and would have smaller dependency ratios. These expectations are borne out in the data, as indicated in the figure below. Larger households with 6-13 people have a higher poverty incidence than average, as do households with larger numbers of children (4-9 children). However, dependency ratios appear to have a much larger impact on poverty incidence, with households having 4-5 dependents per working adult facing a much higher incidence of poverty at nearly 50%. All categories of households with more dependents than working-age adults have higher poverty rates than the average.

Figure 6 Demographic factors by consumption quintile



Furthermore, as shown in the table below, those households with larger numbers of people, more children, and the highest dependency ratios appear to have benefited less from reductions in poverty over the last five years, while those with fewer members have reduced poverty significantly. These trends are consistent with an analysis of the age of the household head, which show that young household heads (up to age 30) have reduced poverty more than older heads of households. These young households heads in single or smaller households are likely to be those who have benefitted most from education, who are able to take advantage of well-paying jobs and delay their marriage and family formation.

Table 4 Poverty incidence by demographic characteristics, 2005/6 and 2009/10

	2005/06	2009/10	% Change
Household size			
1 to 3 people	16.5	9	-45%
4 to 6 people	29.8	21.5	-28%
7 to 9 people	35.5	32.2	-9%
10 or more people	36.1	30.2	-16%
Number of children in Household			
No children	11.6	5.8	-50%
1 to 3 children	25.7	17.6	-32%
4 to 6 children	35.3	30.8	-13%
7 children and above	38.5	31.8	-17%
Dependency ratio			
0 to 1.00	24.7	17.6	-29%
1.01 to 2.00	33.2	26.1	-21%
2.01 to 3.00	39.6	34.4	-13%
3.01 to 4.00	45.7	34.6	-24%
4.01 and above	38.7	35.6	-8%
Total	31.1	24.5	-6.6

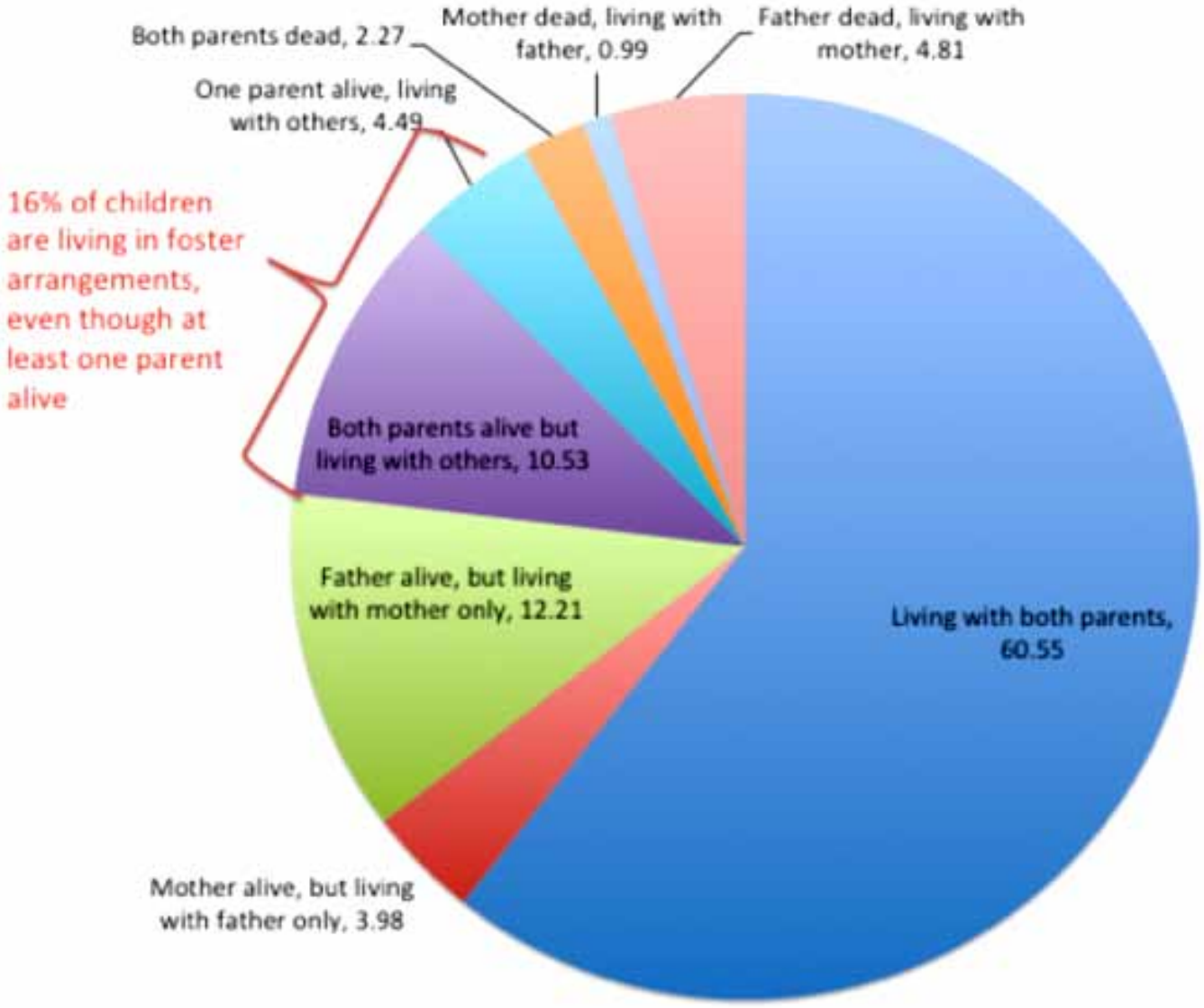
3.1.3 VULNERABLE GROUPS: POVERTY AND ORPHANHOOD

Orphans are traditionally considered to be a particularly vulnerable group, on the assumption that the loss of one or both parents necessarily implies a higher dependency burden (with the loss of a household's working-age adult), but also because non-parental carers may not invest in children to the same extent as their parents would have. In practice, however, it is first important to note that residence patterns are not generally so cut and dry, particularly in rural areas; even children who are not orphans may be fostered out or living parents may migrate for work[5] .

In Uganda, fully 16% of children live in some sort of fostering arrangement, where at least one parent is alive but the child lives with others, and another 15% of children have both parents alive but they only live with one. Amongst these, it is more common for the father not to reside with the child, presumably reflecting greater opportunities for migration for purposes of employment but also a higher rate of child abandonment by fathers than mothers. Only 5.8% of children are single orphans, with the vast majority of these being paternal orphans, and only 2.3% are double orphans. The majority (60%) live with both of their parents.

5 Indeed, the understandings of family composition are culturally-rooted; in many societies fostering out children is a common practice irrespective of modern trends in migration, where a child is raised by someone other than his or her natural parents but is cared for by their guardian as if their own child.

Figure 7 Children's residence status and poverty status 2009/10

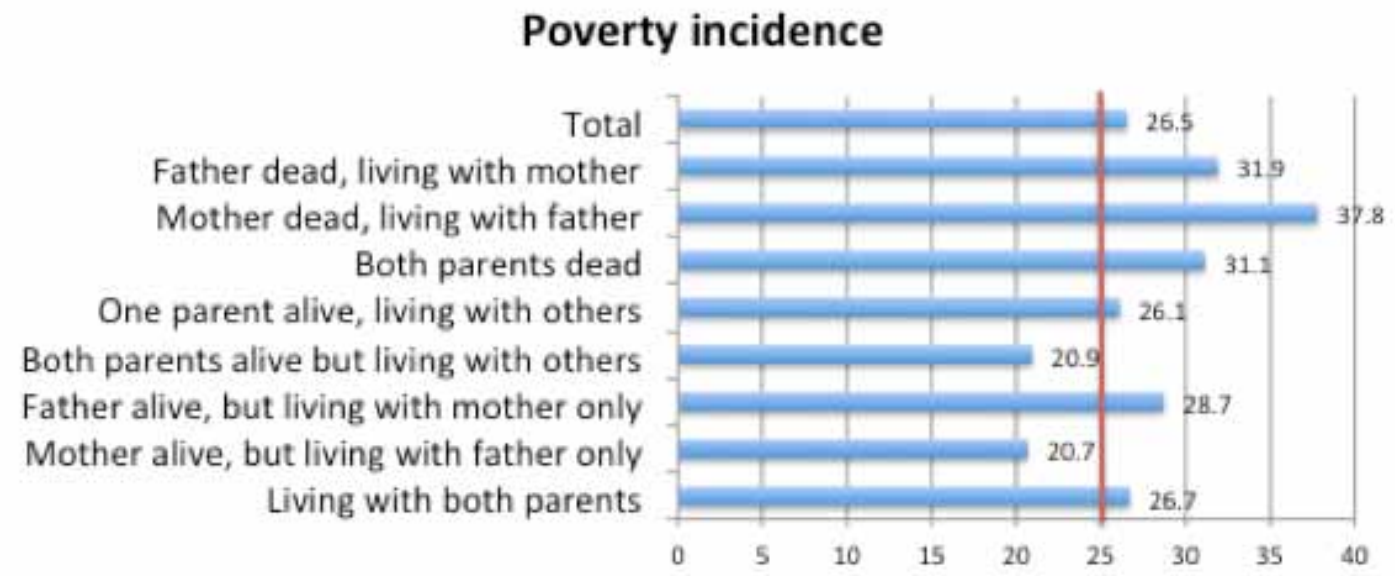


Children who have one or both living parents but who are fostered out are less likely to be living in a poor household. This may reflect the fact that children are likely to be fostered by households that are better-off, for example being sent to live with relatives if their parents face economic hardship, however we do not know anything about their vulnerability within these households. Children whose mother has died and are living with their father have a very high incidence of poverty at 37%, however these represent only about 1% of all children. Children living with their mother only (even if their father is alive) appear to be more vulnerable to poverty than children living with both parents.

Table 5 Orphanhood and poverty status 2009/10

	Poverty incidence	% of children
Both parents alive	26.0	87.3
Father is dead, mother alive	30.7	7.5
Mother is dead, father alive	28.3	2.3
Both parents are dead	31.1	2.3
Don't know parents	21.4	0.6
Total	26.5	100.0

Figure 8 Children's residence status and poverty status 2009/10



3.1.4 VULNERABLE GROUPS: POVERTY AND DISABILITY

The 2009/10 survey questionnaire included a comprehensive set of questions on disability, covering six domains (sight, hearing, walking/mobility, cognition/memory, self-care, and communication). Individuals respond with answers of 1 (no difficulty), 2 (some difficulty), 3 (a lot of difficulty), or 4 (cannot see/walk/hear/etc at all) for all household members aged 3 and above[6]. An individual is defined as 'partially disabled' if he or she has at least one score of 3 and none of 4, and as 'severely disabled' if he or she answers 4 to any question[7] .

Looking at the table below, it is clear that the incidence of disability increases significantly with age, as would be expected: at age 56-65 only 0.5% of the population has a severe disability, but this increases by 6 times for those individuals in the next age bracket of 66-75. For partial disability, the incidence increases by 50% between the age groups of 36-45 and 46-55, then continues to more than double for each subsequent age bracket.

6 Assessing disability before this age is not possible in the limited context of the household survey.

7 For a longer discussion of the incidence of disability and the rationale behind the categorization see Annex X

Table 6: Distribution of age categories across disability status

Age category	No disability	At least 1 score of 2 "some difficulty" and none of 3 or 4	Partial disability - At least 1 score of '3' and none of '4'	Severe disability - At least 1 score of 4	Total
3 to 5	95.29	2.97	1.15	0.6	100
6 to 10	89.61	7.97	1.51	0.92	100
11 to 15	91.09	6.66	1.72	0.54	100
16 to 25	90.4	7.34	1.85	0.41	100
26 to 35	88.78	9.14	1.86	0.22	100
36 to 45	78.87	18.08	2.85	0.2	100
46 to 55	61.93	30.98	6.64	0.44	100
56 to 65	50.24	36.87	12.41	0.48	100
66 to 75	32.35	45.24	19.83	2.57	100
76 to 85	21.24	44.57	30.65	3.53	100
86 and over	18.1	34.84	43.1	3.96	100
Total	87.1	9.74	2.63	0.52	100

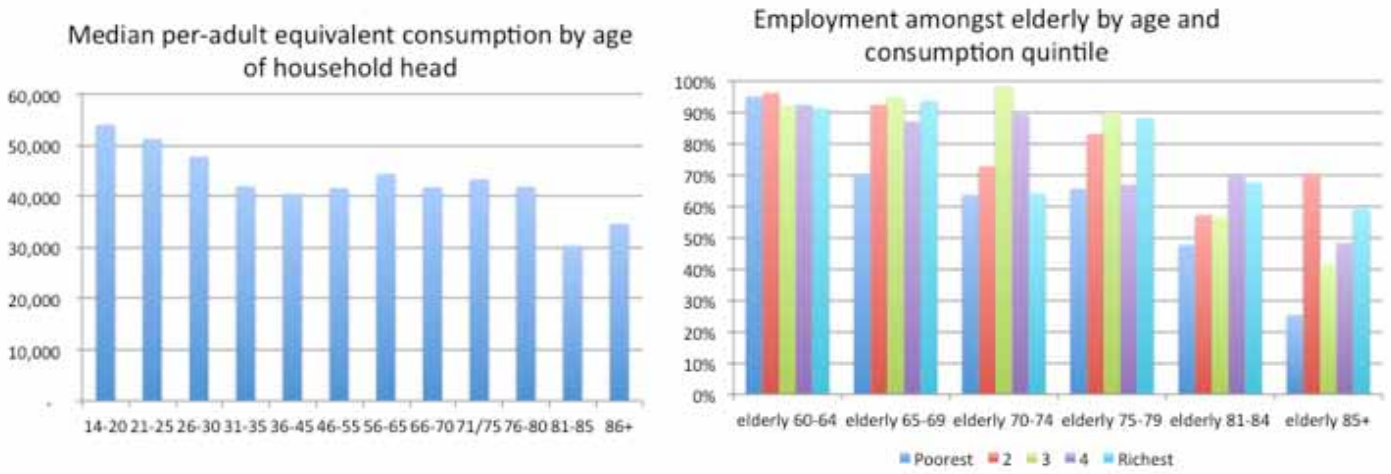
The correlation with poverty is perhaps not quite as strong as would be expected a priori, but households with at least one severely or partially disabled member [8] are more likely to be poor, with a poverty incidence of 29.7% compared to 23.5% for those without. It is however important to note that the welfare measure used to assess poverty does not include any accommodation for the fact that people with disabilities are likely to need to consume more – in terms of health care, assistive devices, transportation, or paying for assistance with chores and manual labour – to reach a given level of well-being than people who do not live with a disability. Ideally, then, we would construct a disability-adjusted poverty line measure to capture these additional needs, but in practice we do not have adequate data on individual consumption with a household to try and estimate what these additional consumption requirements would be.

3.1.5 VULNERABLE GROUPS: THE ELDERLY

We can also attempt to tease out differences in poverty levels by age of the household head, in order to better understand trends in poverty amongst the elderly. The left-hand side of the figure below shows that the median level of consumption (per-adult equivalent) decreases with age of the head through the age of 35-46, where it then increases slightly. This is most likely related to the fact that younger households have higher per-adult equivalent consumption since there are fewer dependents in the household, while from the ages of 45-65 consumption increases slightly as earnings increase with the level of experience of the head. Consumption then decreases again in old age, with a particularly sharp drop in consumption amongst those 80 and older.

[8] Individuals are defined as severely disabled if they have no ability along any of the following dimensions: sight, hearing, walking/mobility, cognition/memory, self-care, and communication. Partial disability is defined as having 'a lot of difficulty' in at least two of the dimensions.

Figure 9 Consumption and employment patterns by age



Looking at only the age of the household head masks some of the issues related to elderly poverty, however, since many elderly may have consumption levels that are high only as a result of employment in old age in order to avoid destitution. The right-hand side of the figure above shows trends in employment levels by age group amongst the elderly, by consumption quintile. This shows that after the age of 65, there is a sharp difference in the level of employment amongst the elderly in the poorest quintile compared to richer quintiles, with poorer elderly less likely to be employed. This is likely to be a result of these poorer elderly not being able to work due to disability or illness, and suggests that while elderly poverty may not appear as stark as might be expected initially (for example, we might expect to see a larger drop-off in consumption in the left-hand figure after the age of 65), this is because many elderly in the upper consumption quintiles are above the poverty line only because they continue to work well into their old age, beyond the point where they should have been able to 'retire'. This therefore suggests that much of the hardship experienced by the elderly is hidden underneath the standard poverty estimates, which focus mainly on levels of consumption rather than looking more comprehensively at the overall level of well-being (including the appropriate balance of work and rest/leisure).

3.2 MULTI-VARIATE POVERTY ANALYSIS: BRINGING THE POVERTY PROFILE TOGETHER INTO A MORE COMPLETE PICTURE

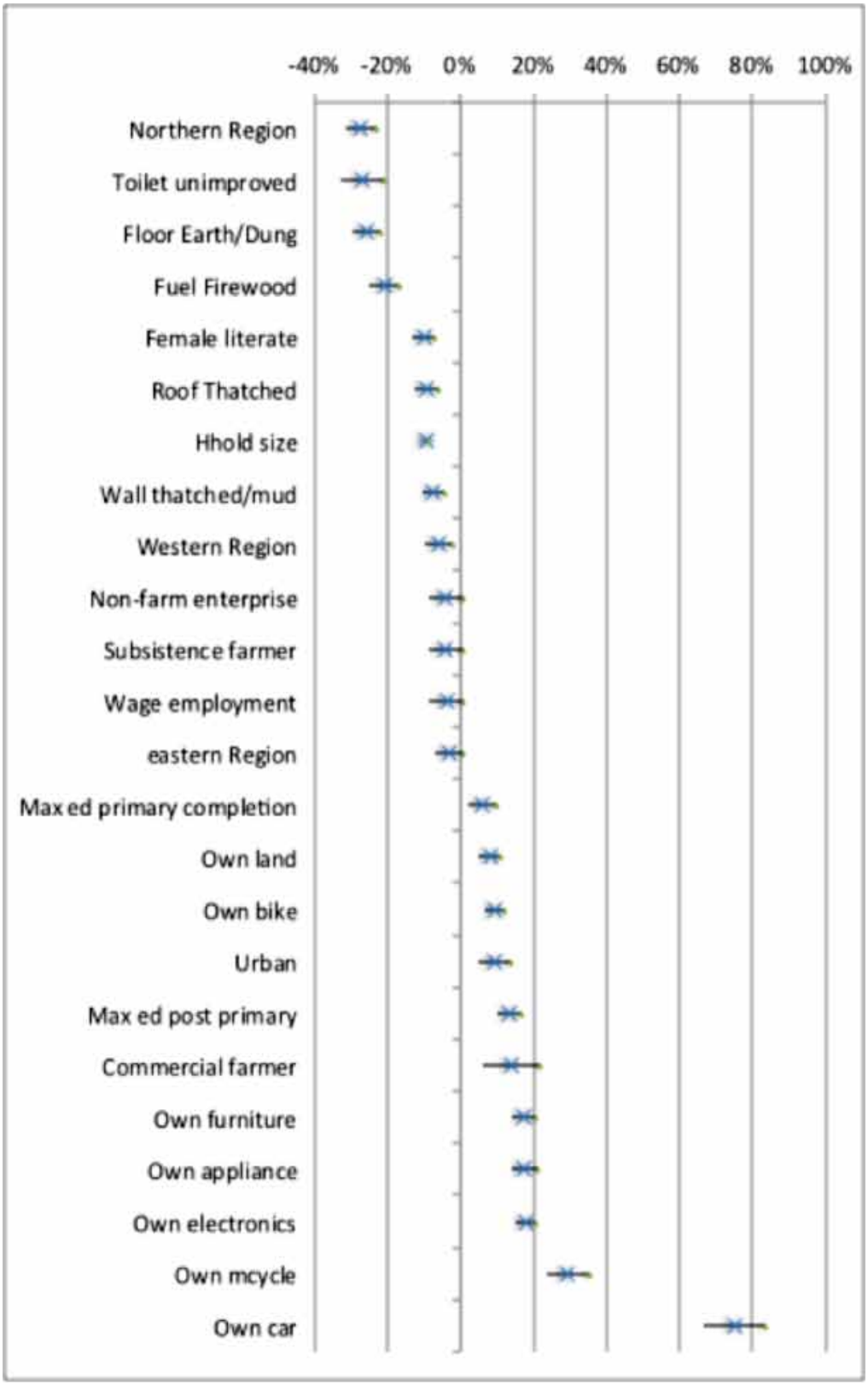
These individual bi-variate analyses of poverty can be brought together more comprehensively into an overall model of the correlates of poverty[9], which simultaneously controls for multiple factors. The model uses the natural log of consumption as the independent variable, which has the helpful feature that the estimated coefficients from the regression represent elasticities, or the percentage change in poverty resulting from a percentage change in a variable in the model.

The findings from the regression are shown in the figure below (for the full regression output, see Annex C). The point estimate and confidence interval for each variable is illustrated, and these can be interpreted as reflecting the percentage change in consumption that are the result of a one unit change in the variable. So, for example, this shows that, holding everything else constant, living in the Northern region is associated with a 27% lower consumption level than the average household, and each increase in the household size by one member reduces consumption by 9%.

By contrast, factors associated with increased consumption are households having a member educated to primary completion or post-secondary education (increasing consumption by 6% and 13% respectively), ownership of land, bicycles, furniture, appliances, or a car. Livelihood factors are also important, with commercial farmers having 14% higher consumption than average (with subsistence farmers having lower consumption)[10] .

9 These are sometimes referred to as the 'determinants' of poverty, however this is not entirely accurate since we cannot establish causality. What we can measure is the extent to which particular characteristics are correlated with poverty. 10 Note that the livelihood variables are not ideal, in that they do not allow a full picture of the livelihood options facing households (including multiple activities). Rather, they only reflect the 'main' livelihood occupation of the household. This means that certain key factors such as whether the household has

Figure 10 Results from the multi-variate poverty correlates model, OLS regression using log of per-adult equivalent consumption as the independent variable



Note: the coefficients in this figure can be interpreted as the percentage change in consumption resulting from a unit change in the variable.

diversified livelihood sources (for example supplementing farming with some other kind of business, or resorting to agricultural wage labour) are not apparent. In addition, the category of 'wage labour' includes both agricultural and non-agricultural labour, which would ideally be separated since these represent two polar opposite ends of the employment spectrum (with non-agricultural wage labour likely to include some high-value employment and agricultural labour often including the poorest of the poor).

4 POVERTY AND THE UPTAKE OF EDUCATION AND HEALTH

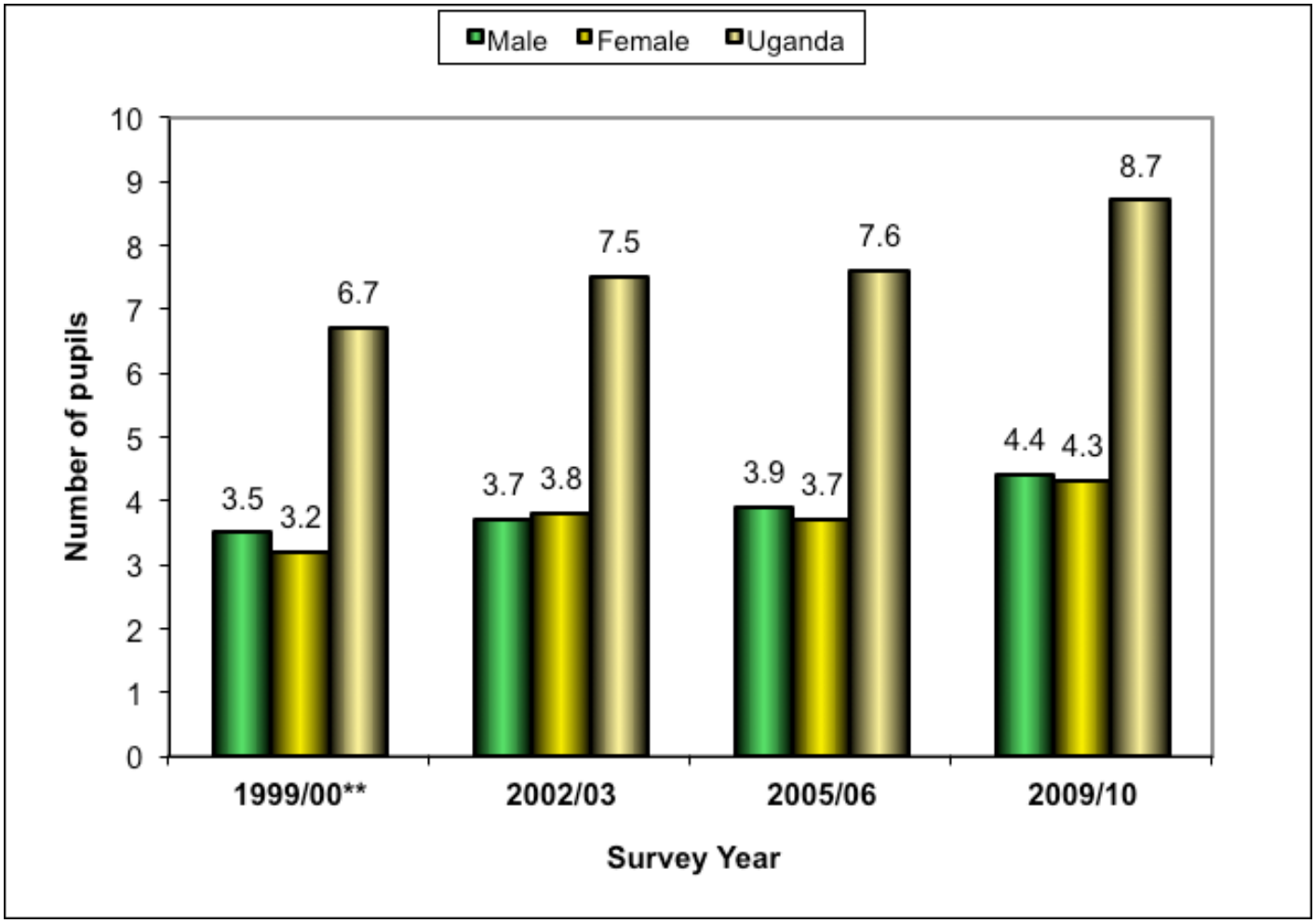
Investments in education and health are important to understand firstly because attainment of education and a good health status are themselves additional indicators of overall well-being; indeed access to health and education are considered basic rights of children in the Convention on the Rights of the Child. Uptake of health and education services is also important, however, because of their particular role in the inter-generational transmission of poverty; where households cannot afford to invest in the human capital of its children, the overall life chances of that child are compromised forever. While the extent of inequality of opportunity will be explored in more detail in Chapter 6, this chapter will focus on the trends and patterns in the uptake of education across the 2005/6 and 2009/10 study periods and a less detailed look at patterns in the uptake of medical services.

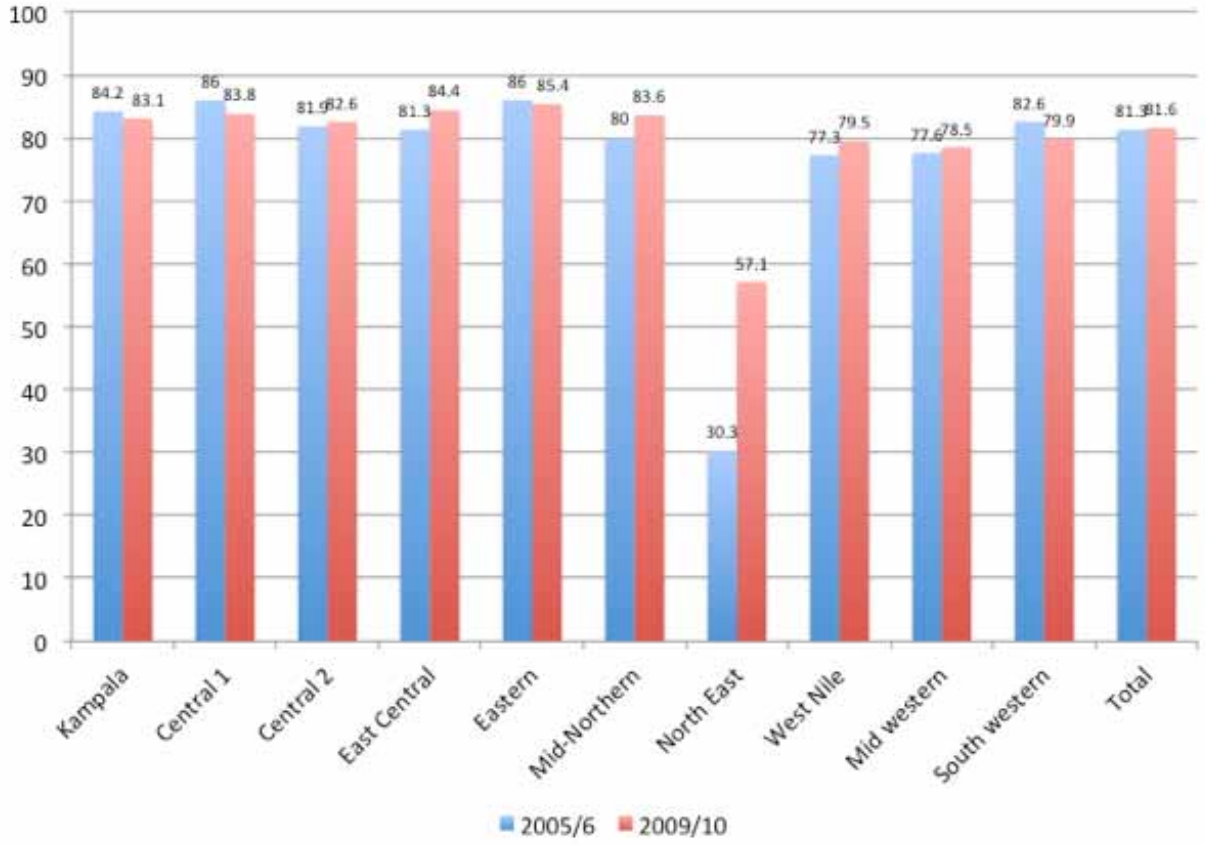
4.1 PRIMARY EDUCATION

Uganda's Primary education sub-sector has experienced consistent increases in primary school enrolment over the last 10 years. As of 2009/10, gross primary school enrolment is estimated at 8.7 million pupils, which is an increase of about 13 percent when compared with 2005/06. Net primary enrolment figures are also fairly high, at just over 80% nationally.

However, as shown in the figure below, apart from the North-East, there were only minor gains between the last two survey rounds, indicating near stagnation in educational attainment.

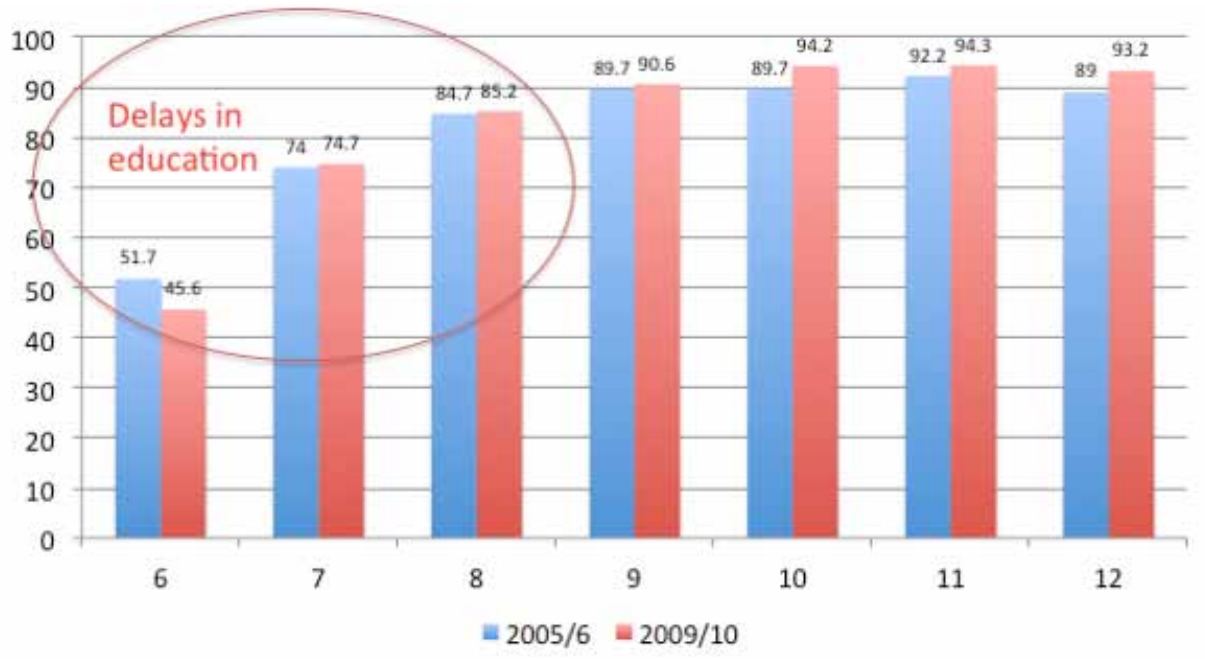
Figure 11: Total Primary School Enrolment (Million)





Enrolment is highly dependent on age, with many children of primary school age starting late, as seen in the figure below. Over the last five years, it appears that these delays have gotten worse, with somewhat fewer children aged 6 attending school

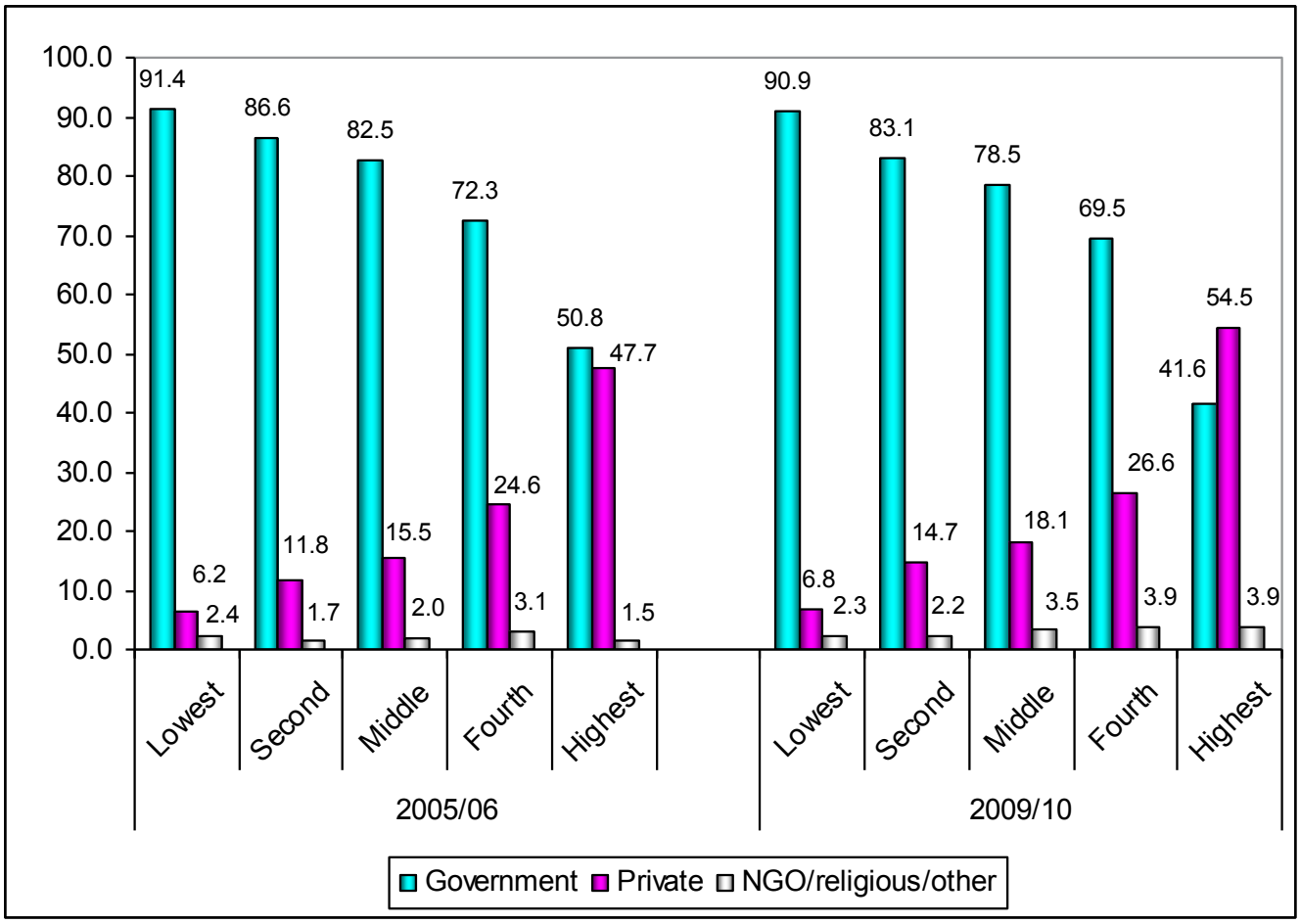
Figure 13: Net primary enrolment by sub-region, 2005/6 and 2009/10



In relation to the orphanhood status of a child, the survey findings show that there were slight drops in Net Primary Enrolment for all the categories of orphans across the two survey periods but the rates of enrolment for orphans remain higher than the national average. In addition, enrolment was generally higher among girl child orphans compared to their male counter parts for the two survey periods.

The survey findings reveal that across all the five consumption quintiles, for the two survey periods, the majority of persons of school-going age (6-12 years) attended schools managed by the government, although there is a sharp distinction by consumption quintile with those in the poorest quintiles far more likely to attend government schools. In spite of the fact that government schools are fee-free through the Universal Primary Education (UPE) policy, in 2009/10, there was a slight decline in the proportion of persons 6 to 12 years who attended schools managed by the government (and a slight increase in the proportion attending private schools). This decrease was found across all quintiles, but was particularly noticeable in the richest where government school attendance dropped by nearly 10 percentage points.

Figure 14: Type of school management by consumption quintile, children aged 6-12, 2005/6 and 2009/10



When the data are further disaggregated by residence (urban/rural) and consumption decile, it is clear that schools managed by the government were mainly attended by children in rural areas across the two survey periods, while those in urban areas were more likely to attend private schools (see Table A.1 in the annex). However even in rural areas there was a three percentage point increase in the proportion of persons aged 6 to 12 years who attended privately managed schools, while in urban areas the proportion of children attending government schools dropped by nine percentage points over the two survey periods. It would therefore appear that students with the financial and physical access to private schools are opting out of the government system, suggesting that while UPE goes a long way in providing fee-free education, issues related to quality will also need to be tackled.

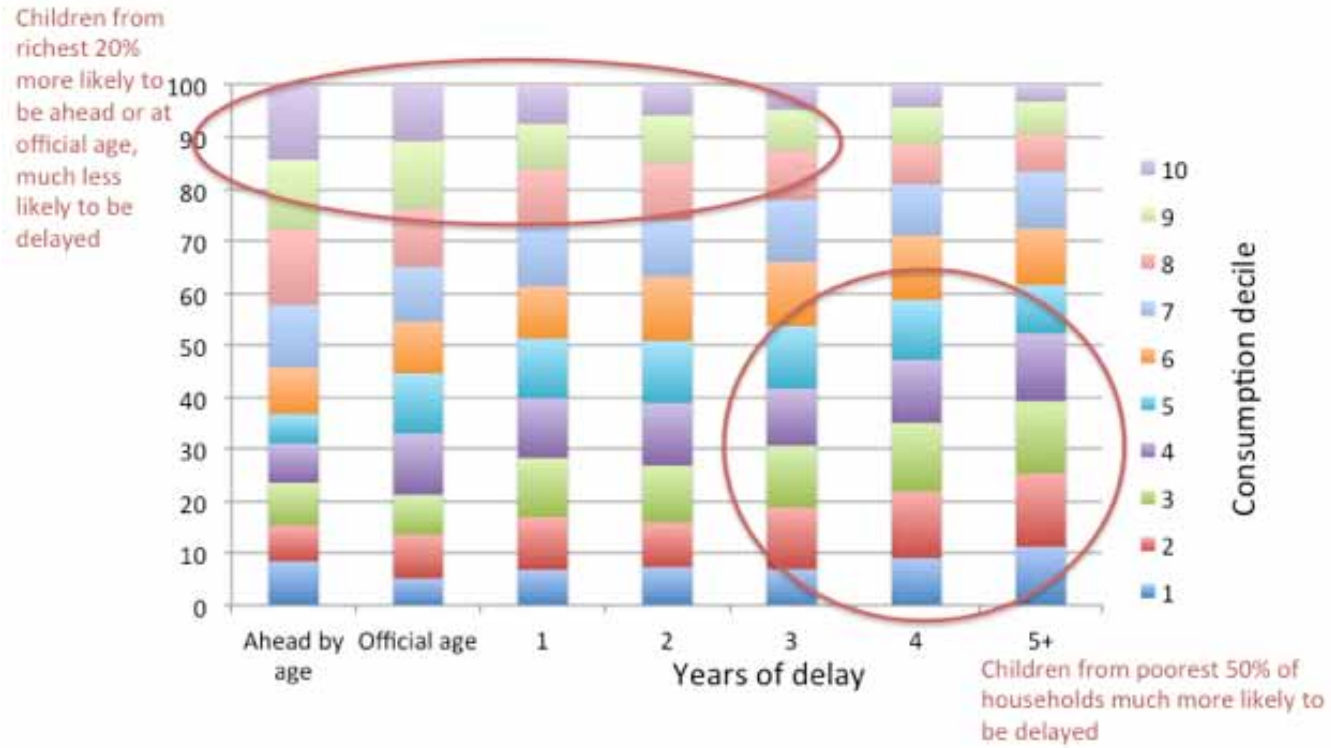
4.2 OVERALL EDUCATIONAL ATTAINMENT

If children attended the correct year for their age, it would be fairly simple to measure the percentage who manage to complete primary or higher. Uganda's official primary school going age is 6 to 12 years. However, given the delays in education already noted above along with high levels of grade repetition, many children stay in primary school far beyond age 12. We must therefore look at all children age 13 and above to understand the patterns of educational attainment.

The analysis examined children of secondary school going age (13 to 18 years) that were either still in primary, dropped out before completing primary, completed primary but did not start secondary as well as those who had obtained some secondary schooling but were no longer at school. The table below presents the distribution of children 13 to 18 years by their completion status and consumption deciles.

Examining the data by consumption decile, it is clear that these delays in education are worst for children from the poorest households. Children from households in the richest two deciles (9th and 10th) were more likely to have started school earlier, while the reverse is true for those in the poorest three deciles, who were more liked to have delayed for one year or more for both survey periods.

Figure 15 Delays in education by consumption decile 2009/10



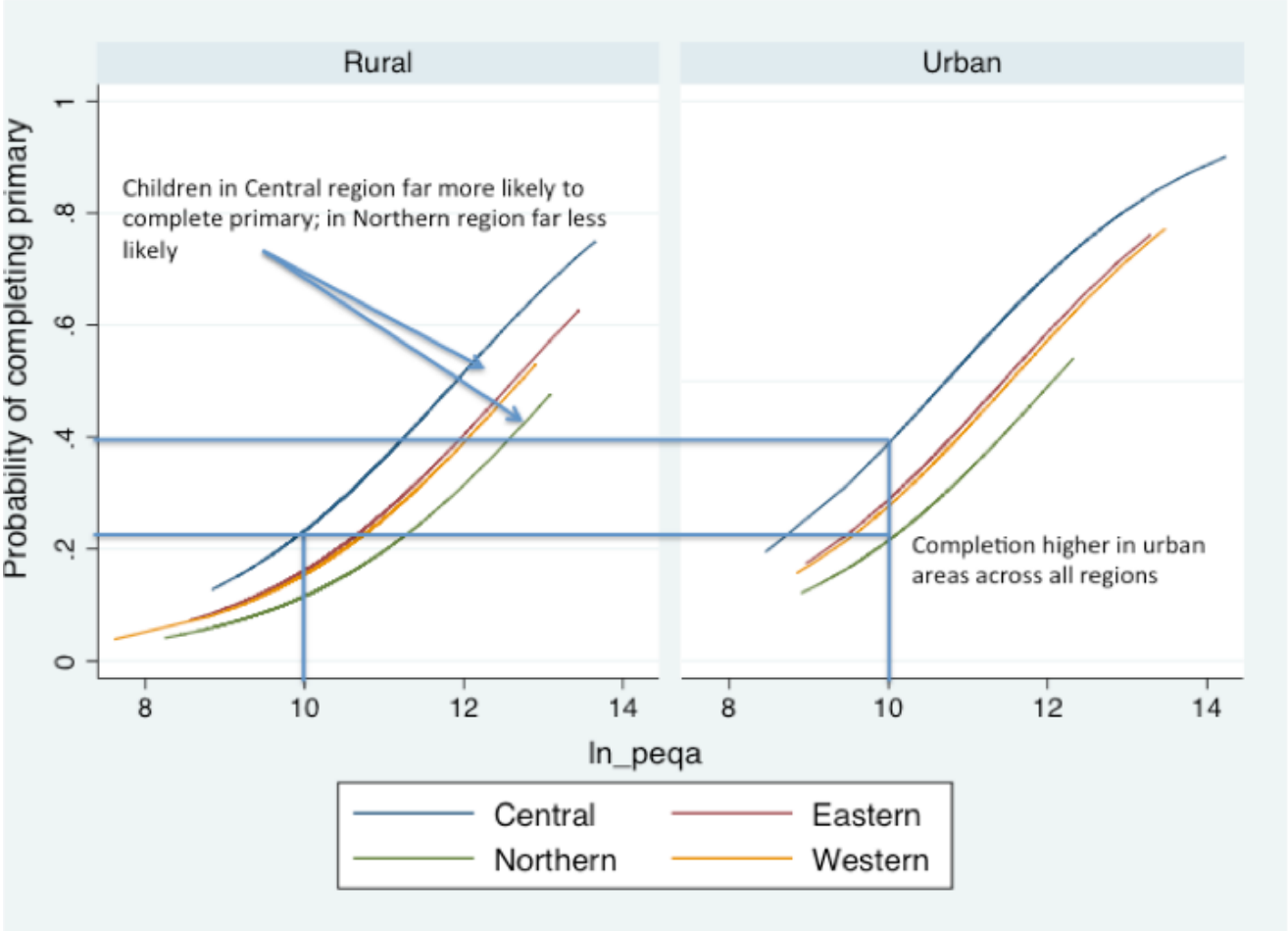
These delays in education noted above are worrisome because they tend to curtail the total amount of education a child receives. Looking at completion rates for all children aged 13-18 – who should be in secondary school - it is clear that delays to education mean that the vast majority of 13-18s are still in primary. Again, these trends are worse for children in the poorest households: drop-outs are highest among females in the poorest quintile, although in general girls appear to attain higher levels of primary completion and some secondary school, particularly in the higher consumption deciles. Drop-outs before completing primary are highest among males aged 13 to 18 in the poorest two deciles

Table 7: Completion of Primary School for children 13-18 years by Deciles and Survey year (%)

2005/06						
Consumption deciles	Still in					
Primary	Dropped out					
before completing						
primary	Completed Primary,					
no secondary	Some					
Secondary	Total	Numbers				
1	74.5	19.3	4.6	1.6	100.0	338,880
2	82.6	12.2	3.9	1.4	100.0	340,458
3	79.7	16.4	2.4	1.5	100.0	322,265
4	82.2	13.1	2.8	1.9	100.0	353,435
5	82.2	11.5	3.6	2.7	100.0	347,213
6	77.8	14.2	4.8	3.2	100.0	271,373
7	81.3	10.9	2.7	5.2	100.0	320,364
8	77.9	12.5	3.9	5.7	100.0	300,436
9	76.6	11.8	6.1	5.6	100.0	271,983
10	76.7	12.0	6.6	4.7	100.0	214,917
Total	79.3	13.5	4.0	3.2	100.0	3,081,326
2009/10						
	Still in					
Primary	Dropped out					
before completing						
primary	Completed Primary,					
no secondary	Some					
Secondary	Total	Numbers				
1	79.8	14.8	3.5	1.9	100.0	251,798
2	77.5	18.1	3.4	1.0	100.0	388,948
3	78.8	15.0	4.3	1.9	100.0	375,644
4	76.2	14.7	7.1	2.0	100.0	388,256
5	78.0	15.7	4.3	2.1	100.0	334,379
6	77.7	16.7	2.7	2.8	100.0	403,373
7	84.7	8.9	5.0	1.4	100.0	352,990
8	72.3	15.8	5.1	6.7	100.0	306,823
9	75.6	15.8	3.5	5.1	100.0	246,884
10	69.3	15.0	5.9	9.8	100.0	213,040
Total	77.4	15.1	4.5	3.1	100.0	3,262,133

A multi-variate analysis of the probability of completing primary school reveals that, holding everything else constant, increasing the years of education of the household head by one increases the odds of completing primary by 1.1 times (meaning that a child in a household with one more year of head's education will be 1.1 times more likely to complete primary). Living in an urban household increases the odds by 2.2, while living in the Eastern region decreases the odds by 0.56, living in the Northern region by 0.49 and in the Southern region by 0.61 (compared to living in the Central region) . A child residing with both parents is 1.6 times more likely to complete than one that is not . The level of household consumption also has a large impact on completion, as would be expected. Increasing consumption by one standard deviation at the mean would increase the odds of completion by 1.6.

Figure 16: Probability of completion by region and (log of) per-adult equivalent consumption (ln_peqa)



11 Full estimation results provided in Annex D 12 Only 60% of all children live with both parents; some are orphaned or live in households with one parent absent, but a large number are also fostered out to other households (often sent to live with other relatives).

Somewhat surprising is the fact that boys are actually less likely to complete primary than girls, at 0.88 times that of girls. This higher probability of completion for girls than boys is consistent across all levels of household consumption, although the effect is greater with greater levels of consumption, and across all levels of education of the household head. Also interesting from a gender perspective is the finding that living in a household with a female head actually increases the odds of completion by 1.7 times. This is also true across levels of consumption and years of schooling of the head.

Figure 17: Probability of completion by gender of household head and log of per-adult equivalent consumption

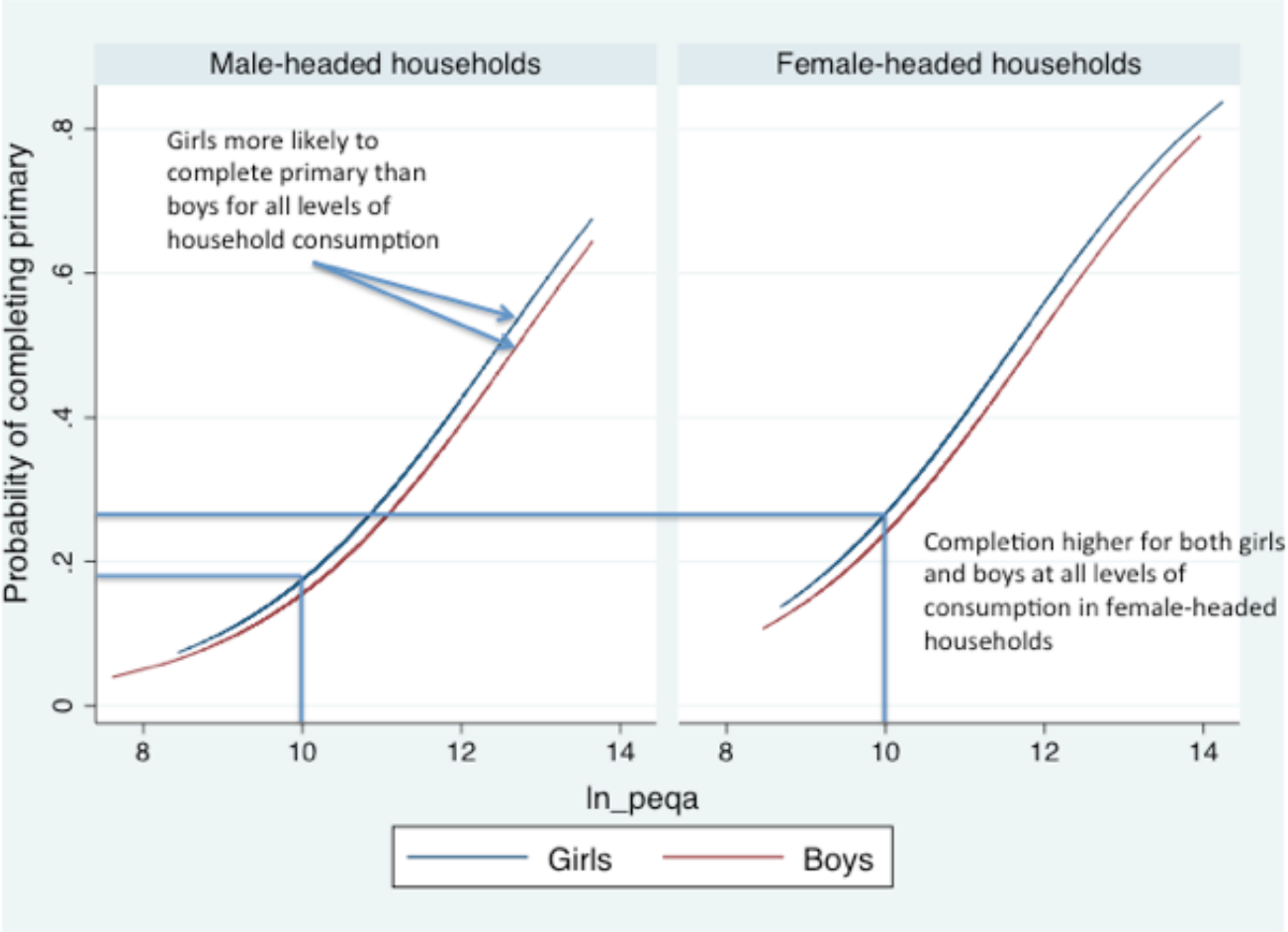
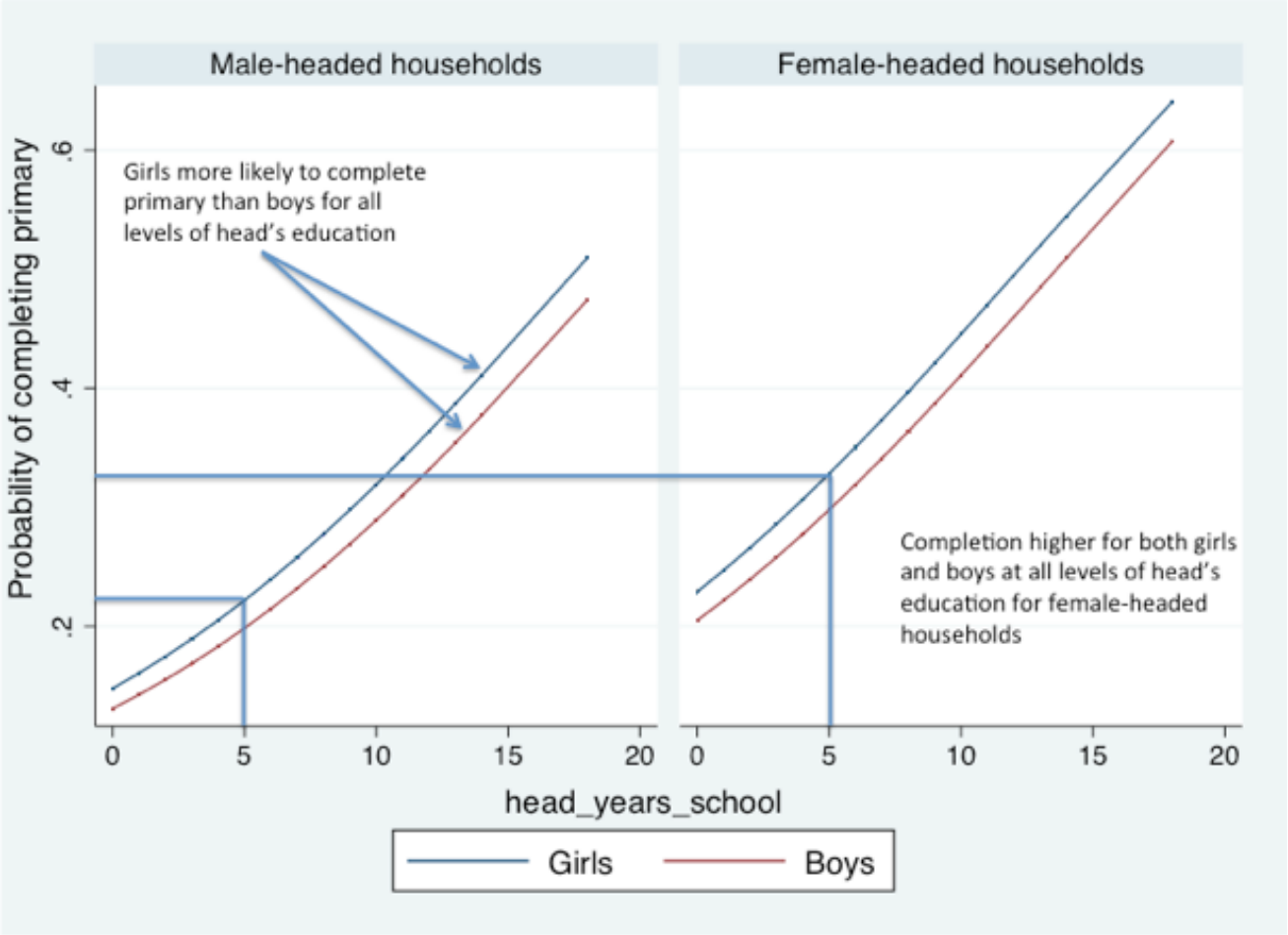


Figure 18: Probability of completion by gender of household head and head's level of education



Also somewhat surprising is the fact that children in households with three or more children are actually more likely to complete primary school than households with 2 or less.

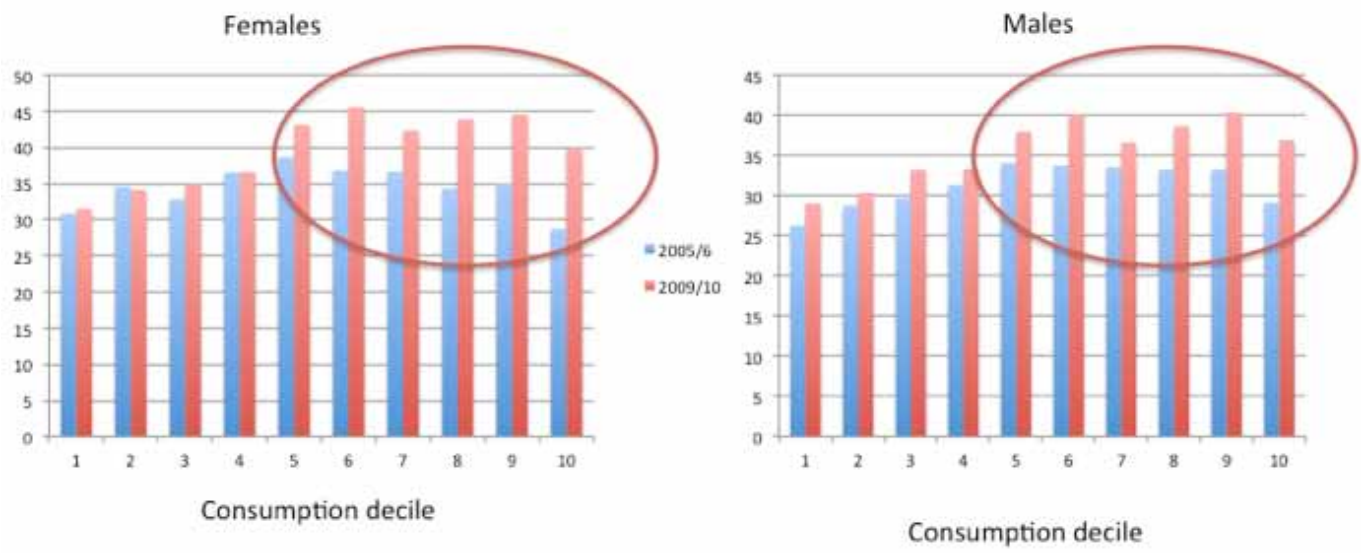
4.3 UPTAKE OF HEALTH CARE

In order to measure the uptake of health care, the household survey asks about recent illness and care-seeking behaviour of households who experienced some sort of ill-health within the recall period (the past 30 days). Unlike education, where it is straightforward to assess whether a child is in school or not, this kind of survey question on health remains somewhat qualitative, as respondents themselves judge what the definition of 'ill health' is; some may not report an illness if it was not deemed to be serious whereas others may report any and all recent illnesses.

Bearing these reporting issues in mind, it is still nevertheless interesting to look at the pattern of uptake of health care for those who experienced illness (however individually defined). There was some improvement in health-seeking behaviour over the last five years, but as seen in the figure below this was only amongst the richest consumption deciles. There was some improvement amongst poorer males, but almost no improvement amongst women in the poorest half of households.

Of those in the poorest deciles who did seek care, there was a small decrease in the percentage attending private clinics and a corresponding increase in the percentage attending government facilities.

Figure 19 Uptake of medical care, among those reporting having been ill 2005/6 and 2009/10



The importance of financial barriers to entry is also illustrated in the table below, where the poor are far more likely to cite cost as a reason for not seeking medical care. Also interestingly, the lack of available drugs is cited more frequently among the poor, suggesting the increase in use of government facilities by this group has not been matched by the necessary resources in terms of essential supplies.

Table 8 Reasons for not seeking medical care 2009/10 by headship and poverty status

Reasons for not consulting	Male headed	Female Headed	Non-poor	Poor	Total
Illness mild	40.3	38.1	43.5	29.3	39.6
Available facility costly	23.4	26.0	21.7	30.8	24.2
Facility far	8.7	9.2	7.6	12.1	8.9
Others	12.9	11.1	13.1	10.4	12.3
Drugs not available	6.8	7.8	6.1	9.8	7.1
Facility inaccessible	4.8	5.5	5.1	4.9	5.1
Staff related issues	3.1	2.3	3.0	2.6	2.9
Total	100.0	100.0	100.0	100.0	100.0

5 VULNERABILITY OVER TIME: A LOOK AT POVERTY DYNAMICS

To complement this snapshot view of poverty in the cross-sectional survey data, we can also examine poverty dynamics directly using the smaller sample of households surveyed across multiple years. This allows us to look at the way individual households fare over time: which households are able to improve their consumption levels, and which experience a decline? What triggers descents into poverty or movements out of it? What are the characteristics of households who remain in poverty over time? For those moving out of poverty, are their movements sustainable, or do they merely 'churn' around the poverty line with small changes in consumption from one survey round to the next?

The way in which these questions are typically understood is in the distinction between chronic and transitory poverty. Chronic poverty can be defined for the present purposes as households who remain below the poverty line over both survey rounds, while transitory poverty is defined as being poor in just one of the two rounds. These concepts of chronic and transitory poverty help to deepen our understanding of vulnerability, enabling us to distinguish both those households that are stuck in a 'poverty trap', who have not been able to benefit from the improvements in welfare over time, as well as those households who, while managing to be above the poverty line in one round fell below it in the next. Especially in the context of the very flat consumption distribution outlined in the previous section, even those households who moved out of poverty are likely to be highly vulnerable.

5.1 CHRONIC AND TRANSIENT POVERTY

We find that 10% of households can be considered chronically poor. More households moved out of poverty (15%) than slipped into poverty (10%), however the fact that 2/3rds as many households slipped into poverty as exited suggests that there is a fair amount of 'churn' around the poverty line. This 'churn' is also corroborated by the fact that 31% of households moved upward (in terms of consumption quintile), while 35% moved downward.

As expected, chronic poverty is a rural phenomenon, with nearly 12% of rural households chronically poor compared to just 3% of urban ones. The Northern region has the highest incidence of chronic poverty that stood at almost 26.4 percent, although this marks an improvement over the previous period from 2004 related to the restoration of peace and resettlement of the formerly internally displaced persons. Households in the rural areas and those residing in the Northern region accounted for 94% and 49% respectively of the chronically poor households.

Transitory poverty is more frequent than chronic poverty, with 26%of households either slipping into or moving out of poverty (interpreted as being vulnerable to income poverty). This figure shows a reduction from 4-% observed with the 1992-1999 panel (Lawson et al. 2004). Despite this reduction, Ugandan households remain highly vulnerable to income poverty. Spatially, households residing in the Central and Western regions seem to be more likely to move into poverty than being in persistent chronic poverty. And these were the regions always reported to be with better access to services.

Table 9: Poverty trajectory

	Poverty trajectory All				
	Chronic	**Moved out**	**Slipped into**	**Never poor**	
Panel A: Poverty headcount, %					
All	10.0	15.1	10.5	64.4	100.0
Rural	11.5	17.7	12.0	58.7	100.0
Urban	3.1	3.4	3.6	89.9	100.0
Central	3.0	10.1	6.1	80.8	100.0
Eastern	11.9	21.1	10.6	56.4	100.0
Northern	26.4	22.6	11.8	39.2	100.0
Western	5.8	11.1	15.2	67.8	100.0
Panel B: Contribution headcount, %					
All	100.0	100.0	100.0	100.0	
Rural	94.3	96.0	93.7	74.6	
Urban	5.7	4.0	6.3	25.4	
Central	10.0	22.6	19.8	42.5	
Eastern	26.7	31.4	22.8	19.7	
Northern	48.5	27.4	20.7	11.2	
Western	14.8	18.7	36.7	26.7	

Nationally, the consumption of chronically poor households remained stagnant in both periods [13] , whereas for those households that slipped into poverty consumption declined by almost 20% per annum. On the other hand, those households that moved out of poverty registered 20% annual growth in their consumption compared to 3% for those households that were never poor in both waves. Still, average consumption expenditure of the non-poor households is almost five-fold that of their counterparts living in chronic poverty.

We can further refine our look at poverty dynamics. Instead of only measuring a movement above or below the poverty line, we can also look at incremental movements along the consumption distribution. Table 10 shows that households in very extreme poverty (defined as consumption below ½ the poverty line seem to be constant, although there is significant 'churning' amongst the 'extremely poor' and the 'vulnerable' (those living between ½ and 2 times the poverty line). Those households defined as 'vulnerable' decreased between 2005/6 and 2009/10 from 61% to 55%. We further note that 11% maintained their income levels more than three times of the poverty line during the review period.

13 This is also seen in the cross-sectional data in Chapter 2 with the stagnation in consumption at the bottom tail of the distribution.

Table 10: Transition by proportionate increases in poverty line, %

2009/10					
2005/6	**Extremely**	**Vulnerable**	**Viable**	**Sustainable**	**All**
Extremely poor (<=0.5*Z)	0.5	2.4	0.2	0.0	3.1
Vulnerable (>0.5 and =2)*Z	2.7	41.1	11.0	6.3	61.0
Viable (>2 and <=3)*Z	0.0	7.4	4.8	5.5	17.7
Sustainable (>3*Z)	0.1	3.8	3.2	11.1	18.2
All	3.4	54.6	19.2	22.9	100.0

5.2 UNDERSTANDING THE TRENDS: LIVELIHOODS

Table 11 below presents the distribution of households within each poverty trajectory according to several livelihood indicators. It is important to examine the economic activity status of adult members (18-59 years of age) in various poverty trajectories. On average, there were no significant increases in the number of adult earners over the panel period. The only exception is among those households that slipped into poverty where the adult earners somewhat increased significantly from 1.7 in 2005/6 to 1.9 in 2009/10. However, this increase seems not to have translated into better welfare outcomes or to keep them from falling into poverty. Probably, these households were involved in low paying jobs or the fact that the households experienced a higher increase in the number of children and elderly persons.

The table further examines the extent to which all adult members were actively engaged in economic activity based on the short reference period (or living arrangement by earning status of adult members). A household is said to be fully employed if all its adult members were earners; partially employed if some of the adult persons were earners; and workless if there were no adults or the adult persons were not actively engaged in any economic activity. At national level, all working adult person households accounted for 76.7 percent and 72.8 percent of all households in 2005/6 and 2009/10 respectively. Going by poverty trajectory, those households that slipped into poverty registered the highest reduction of about 7.1 percentage points over the panel period. Worth noting, the chronically poor households show an increase in the share of households with no working adults, increasing by 1 percentage points over the panel period. Overall, these results might be reflecting the effect of drought/poor rains shocks discussed above. There might not have been work for the adult members to engage in outside agriculture leading to loss of employment. This calls for livelihood protection interventions such as public works during periods of erratic conditions that would prevent households from engaging in agricultural activities.

Next we endeavour to examine how these adult persons are participating in different economic activities to earn income. Table 11 reveals that the majority of the households with adult earners were engaged only in agricultural activities. An increase is observed among those households that slipped into poverty from 67.2 percent in 2005/6 to 70.8 percent in 2009/10. While the share of households with adults engaged only in non-agriculture increased by almost two-fold among those households that moved out poverty, a declining trend is noticeable among those households that slipped into poverty from 11.2 percent in 2005/6 to 7.9 percent in 2009/10. Notably, the households that escaped poverty show an increase in adults engaged in diversified economic activities from 10.3 percent in 2005/6 to 17.5 percent in 2009/10, indicating diversified economic activities may be beneficial indeed. The chronically poor households are more likely to have undiversified livelihoods and this poses serious economic shocks as already alluded to earlier.

More detailed analysis based on 2009/10 seems to suggest that the majority of the households were engaged in both livestock and crop agriculture. A greater proportion of households that slipped into poverty (non-poor households) were engaged only in crop agriculture (non-agriculture) relative to households in other poverty states.

In order to observe how engagement in different economic activities are contributing to overall household income and ultimately to poverty mobility, we examine the households' most important source of income during each of the year. It is evident that agriculture remains the main source of income and employment than any other economic activity. Regardless of poverty trajectory, there is a reduction in the share of households that reported subsistence agriculture as the most important source of income over the panel period, reducing by 3.6 percentage points for all households. The declining importance of subsistence agriculture could partly be related to the negative shocks as discussed below (Table 11). We further observe an increasing trend in the share of households that reported wage employment and non-agriculture as the most important source of income. These observed trends are consistent with the findings based on the routine cross section household surveys conducted during the same period.

The disaggregated analysis reveals that the share of the chronically poor households reporting subsistence agriculture as the most important source of income declined by 10 percentage points whereas the importance of non-agriculture increased by 5.2 percentage points. We further note that these households were less likely to report wage employment as the most important source of income relative to their counterparts in other poverty status. As expected, the non-poor households are more likely to derive their income from non-agriculture and wage employment relative to their counterparts in other poverty states.

Table 11: Livelihood indicators by poverty trajectory

Indicator	Poverty trajectory									
	Chronic		Moved out		Slipped into		Never poor		All	
	2005/6	2009/10	2005/6	2009/10	2005/6	2009/10	2005/6	2009/10	2005/6	2009/10
Most important source of income, %										
Subsistence	70.7	59.8	69.5	61.3	65.8	58.9	43.5	42.7	52.5	48.9
Wage employment	12.3	13.9	13.7	16.5	13.8	20.4	24.3	23.1	20.4	20.9
Non-agriculture	13.0	18.2	10.7	15.4	10.6	13.2	23.2	24.1	19.0	21.1
Transfer	0.8	0.0	3.6	0.1	5.4	0.0	4.6	0.6	4.2	0.4
Others	3.2	8.1	2.5	6.8	4.4	7.5	4.5	9.6	4.0	8.8
Labour market events [14], %										
Fully employed	84.6	76.8	83.6	77.4	77.3	70.2	73.8	71.2	76.7	72.6
Partly employed	10.0	16.8	9.9	15.3	12.9	20.6	19.8	22.1	16.6	20.4
Workless	5.4	6.4	6.5	7.3	9.8	9.2	6.4	6.7	6.7	7.0
Average adult earners#	1.84	1.90	1.92	1.83	1.73	1.90	1.77	1.80	1.79	1.82
Economic sector, %:										
No earners	5.2	6.4	6.0	7.3	9.8	9.2	6.4	6.7	6.6	7.0
Only in agriculture	78.1	71.8	77.1	63.0	67.2	70.8	46.1	41.8	56.2	51.0
Non-agriculture	7.1	8.8	6.6	12.3	11.2	7.9	30.4	33.3	22.5	25.0
Agriculture & others	9.6	13.0	10.3	17.5	11.9	12.1	17.1	18.2	14.8	16.9
Economic activities, %:										
Crop and livestock		79.9		81.3		70.3		59.5		66.0
Only crop agriculture		17.8		12.2		24.8		13.7		15.1
Only livestock		0.1		2.0		0.5		4.4		3.2
Non-agriculture		2.2		4.6		4.4		22.4		15.8

5.3 UNDERSTANDING THE TRENDS: LIFE-CYCLE RISKS

Table 12 below presents the direction of changes in household demographics, which is consistent with the findings presented above. We see that the never poor have on average a smaller household size while the chronic poor and those slipping into poverty have larger households. This appears to be largely driven by larger numbers of children. Changes in household size appear to be correlated with chronic poverty and movements into poverty, with those slipping into poverty having a 20 percentage point difference in terms of the percentage of households registering an increase in size compared to those who are never poor or moving out of poverty. The households that slipped into poverty registered the highest increase in the number of elderly persons. Notably, the chronically poor households also registered the highest increase in the number of persons living with disabilities (PLWDs).

Table 12: Demographic changes

	Poverty trajectory				
	Chronic	Moved out	Slipped into	Never poor	All
Household size (#s):					
2005/6	6.2	6.1	5.4	5.1	5.4
2009/10	6.7	6.0	6.7	5.3	5.7
Children <18yrs (#s):					
2005/6	3.9	3.6	3.2	2.8	3.1
2009/10	4.2	3.7	4.1	2.9	3.3
Share of children, %:					
2005/6	59.9	53.7	52.2	45.5	48.9
2009/10	60.7	53.8	56.1	46.7	50.1
Household size, %:					
No change	19.4	20.7	17.8	22.4	21.4
Reduction	28.0	34.7	17.7	32.7	31.0
Increase	52.7	44.6	64.5	44.9	47.7
Children <18yrs, %:					
No change	19.4	27.5	21.4	26.9	25.7
Reduction	30.9	31.6	20.6	31.0	30.0
Increase	49.7	40.9	58.0	42.1	44.3
Children<5yrs, %:					
No change	39.9	39.0	36.4	44.8	42.5
Reduction	35.0	33.3	31.0	28.5	30.1
Increase	25.2	27.8	32.6	26.8	27.4
Adults 18-59yrs, %:					
No change	55.2	52.4	48.5	50.4	51.0
Reduction	16.5	24.8	17.1	22.5	21.7
Increase	28.4	22.8	34.4	27.2	27.4
Elderly >=60yrs, %:					
No change	89.1	87.6	84.9	88.8	88.2
Reduction	2.8	4.0	3.2	3.2	3.3
Increase	8.1	8.4	12.0	8.0	8.5

Like most African countries, the elderly dependency ratio remains low. The increases over the review period were slower than those observed in the child dependency ratio. However, the increase was faster among those households that moved into poverty. Overall, the results confirm that changes in household demographics remain important factors in poverty entries and exits.

Next we consider households based on living arrangement as presented in Table 13 in terms of household membership and gender of the head. We see that the vast majority of households remained stable in terms of membership, either remaining nuclear or extended. Chronically poor households and those who slipped into poverty are more likely to be extended, suggesting that better-off households are more likely to afford nuclear arrangements that benefit less from economies of scale. Poorer households may also benefit from social capital associated with co-residence.

Furthermore, Table 13 reveals very few changes in headship during the panel period. However, there are slightly more households that had headship changing from female to male than male to female. More notably, the share of chronically poor households with female heads (33%) is significantly higher than the national average. Nearly 12% of women over 18 years of age were widows in 2005/6, rising to 13.5 % in 2009/10. Going by poverty trajectory, the share increased from 13.8% in 2005/6 to 16.6% in 2009/10 among the chronically poor households. This finding suggests that female households are more vulnerable to chronic poverty relative to their counterparts in other poverty trajectories. Households with heads who were widows/widowers increased significantly from about 12 % in 2005/6 to 14.7% in 2009/10.

Household heads living with disabilities are also more prevalent among the chronically poor households compared to households slipping into poverty or never poor. By contrast, elderly household heads are most common in those households slipping into poverty.

Table 13: Changes in household type base on living arrangement, %

	Poverty trajectory				
	Chronic	Moved out	Slipped into	Never poor	All
Household type, %:					
Remained extended	47.2	38.9	44.6	38.8	40.3
Extended-Nuclear	11.0	14.2	17.4	16.0	15.4
Nuclear-Extended	12.9	14.2	10.8	13.2	13.1
Remained nuclear	28.9	32.6	27.2	31.9	31.2
Headship, %:					
No change	90.0	90.3	89.5	91.2	90.8
Male-female	2.9	3.4	5.5	3.6	3.7
Female-male	7.1	6.3	5.0	5.2	5.5

Neither the incidence of households with an orphan (defined as having lost 1 or both parents) nor the mean number of orphans by poverty trajectory changed significantly over time. However, further analysis of the characteristics of households with and without orphans by poverty trajectory yields some patterns worth noting (Table 14). Households with orphans are significantly larger and more likely to have more number of children, on average, with the exception of the chronically poor households. Regardless of the poverty trajectory, households with orphans are more likely to have female heads and have older heads of households, but this is particularly striking amongst the chronically poor, who have female headship rates at nearly 70% compared to around 50% nationally amongst households with orphans.

Table 14: Selected characteristics by presence of orphans and poverty trajectory

		2005/6					2009/10				
Characteristic	Presence of orphans	Chronic	Moved out	Slipped into	Never poor	All	Chronic	Moved out	Slipped into	Never poor	All
Household size	Without	5.9	5.9	5.2	4.7	5.1	6.6	5.7	6.4	5.1	5.5
	With	7.2	6.8	6.5	6.6	6.6	7.0	7.0	7.7	6.4	6.7
Number of children	Without	3.7	3.3	3.0	2.5	2.8	4.2	3.4	3.9	2.7	3.1
	With	4.6	4.3	4.0	3.9	4.0	4.4	4.6	4.9	3.8	4.1
Age of house-hold head	Without	41.5	41.3	42.6	39.8	40.5	46.8	46.3	46.5	44.3	45.1
	With	52.2	46.9	48.9	47.3	47.9	51.2	48.7	52.7	49.7	50.0
%with male head	Without	75.1	80.9	79.5	79.1	79.0	71.5	76.1	83.0	77.9	77.5
	With	37.7	42.7	52.2	58.4	53.4	31.2	43.7	46.2	52.8	48.5

5.4 SHOCKS AND THE IMPACT ON POVERTY TRAJECTORIES

Shocks affect different households or individuals differently. During the 2009/10 survey households were requested to indicate whether they experienced shocks during the 12 months prior to the interview. They were also asked whether such shocks lead to a decline in income, assets, food production and purchases and to indicate the most important coping response. Overall, almost all households experienced at least one shock during the last 12 months prior to the interview. The table below presents the incidence of households reporting a given type of shock and its impact. Drought/irregular rain is the most reported distress event among the agro-climatic related shocks, which impacted nearly 46% of households. More than 80% of these households reported that the drought led to a decline in their income and food production, whereas only 23% of these households reported a decline in assets as a result.

'Economic-related' shocks were less common, with unusually high prices of agricultural inputs and low output prices affecting less than 2.5% of the population each. Health-related shocks were more common, impacting over 6% of households in the form of serious illness/ accident of either the income earner or any other member of the household.

In addition to a wide variation in the frequency of occurring, different shocks appear to have different impacts on income/consumption, assets, food production, and food purchases. Drought, crop and livestock pests/diseases, high input costs, low output put prices, and loss of employment including through health shocks had the greatest impact on income. Death of income earners or other household members disproportionately caused reductions in assets, as did crop/livestock diseases. The biggest impacts on food production were again from drought but also landslides and crop pests/ disease and high costs of agricultural inputs, while low output prices and high input prices along with loss of imployment (or death of income earner) had the biggest impact on food purchases.

Table 15: Shocks and their impact in 2009/10 (%)

%HHs		Of whom (%) reporting decline in:				
Distressful event		Income	Assets	Food production	Food purchases	Est. HHs
Agro-climatic related:						
Drought/Irregular Rains	46.1	80.8	22.6	94.1	46.0	2,400.1
Floods	2.0	41.0	15.1	77.7	24.1	103.1
Landslides/Erosion	1.0	45.0	8.2	80.9	0.0	53.9
Unusually High Level of Crop Pests & Disease	5.0	72.2	26.5	85.9	24.4	259.3
Unusually High Level of Live-stock Disease	3.2	65.2	39.4	17.5	12.4	167.6
Economic related:						
Unusually High Costs of Agricul-tural Inputs	2.2	73.7	26.2	73.7	52.3	112.7
Unusually Low Prices for Agri-cultural Output	1.7	90.7	14.5	31.3	52.0	88.2
Reduction in the Earnings of Currently (Off-Farm) Employed	1.0	100.0	34.9	26.3	41.7	51.7
Loss of Employment of Previ-ously Employed Household	0.2	76.6	25.3	43.0	60.5	9.6
Health related:						
Serious Illness or Accident of Income Earner(s)	6.4	95.9	26.4	53.8	35.3	331.1
Serious Illness or Accident of Other Household Member(s)	6.2	86.6	27.8	48.9	35.4	322.7
Death of Income Earner(s)	1.1	89.8	44.9	65.2	63.7	55.6
Death of Other Household Member(s)	2.7	71.0	43.5	35.3	21.2	138.9
Crime related:						
Theft of Money/Valuables/Non-Agricultural Assets	4.2	64.9	59.8	18.7	15.7	221.2
Theft of Agricultural Assets/ Output (Crop or Livestock	4.5	64.6	40.7	63.0	12.4	233.6
Others:						
Conflict/violence	1.3	50.6	44.0	44.4	23.3	66.3
Fire	1.0	77.8	97.6	11.4	20.2	51.6
Others	3.6	72.5	28.2	73.2	34.4	186.0

In response to agro-climatic shocks, the most common response was involuntary changes in dietary patterns, reported by 39% of households, followed by reliance on savings (17%) and household members taking on more off-farm employment (11%). However, there are marked differences in response by poverty trajectory; while reliance on savings was a more likely response by those households that either moved out or remained non-poor, involuntary changes in dietary patterns was a common response by those households that were either chronically poor or slipped into poverty during the panel period.

The percentages of chronically poor households and those that slipped into poverty whose members took on more non-farm employment

were well above the national average of 11%. However, these activities are likely to represent coping strategies rather than successful strategies for accumulation. Unlike households who moved out of poverty, chronic and descending poor household members are more likely to be engaged in poorly paid non-farm activities, selling their labour below market rates, as well as having higher dependency ratios. Interestingly, compared to other groups, the chronically poor households had a more limited ability to change cropping practices as a coping response.

Contrary to the prior expectations, there were very few households that reported distress sale of animals or households durable assets (2% and 1.6% respectively). That said, 3.4 percent of households living in chronic poverty sold off their animals in response to drought/irregular rains, seriously reducing their ability to maintain a sustainable livelihood. Informal networks were more prevalent among the chronically poor and those that slipped into poverty relative to the other poverty trajectories. As expected, very few households received assistance from their local government.

Table 16: Coping response to drought by poverty trajectory, %

	Poverty trajectory				
Coping response	Chronic	Moved out	Slipped into	Never poor	All
Unconditional help provided by relative	9.1	6.5	13.2	8.9	8.9
Unconditional help provided by local govt	1.9	0.7	0.0	1.2	1.0
Changed dietary patterns involuntarily	45.8	40.7	52.3	34.2	38.9
Changed cropping practices	1.3	4.9	4.6	4.6	4.3
Household member(s) took on more non-farm	15.4	12.5	14.1	9.4	11.3
Household member(s) took on more farm wage	7.3	9.3	3.5	3.2	4.9
Household member(s) migrated	0.0	0.0	0.8	0.2	0.2
Relied on savings	6.2	14.6	7.1	22.2	17.0
Obtained credit	0.8	0.6	0.9	2.0	1.5
Sold durable household assets (agric/non-agric.)	0.7	3.1	0.6	1.4	1.6
Sold land/building	0.7	0.0	0.0	0.0	0.1
Rented out land/building	0.0	0.0	0.3	0.1	0.1
Distress sales of animal stock	3.4	2.4	0.0	2.0	2.0
Sent children to live elsewhere	0.0	0.0	0.0	0.2	0.1
Reduced expenditures on health and education	0.0	0.0	1.8	1.1	0.8
Other(specify)	7.4	4.7	0.8	9.5	7.4
Total	100.0	100.0	100.0	100.0	100.0
Est. Households ('000)	293.4	465.7	260.2	1,351.6	2,370.9

5.5 CHANGES IN HOUSEHOLD BASIC NEEDS AND ASSET HOLDINGS

It is evident in Table 17 that the capacity of households to meet their basic needs varies. Broadly speaking, the proportion of Ugandan households with houses made of permanent materials for walls and roofs significantly increased over the panel period. The table further reveals that the chronically poor households started off with poor housing conditions relative to their counterparts in the other poverty trajectory and this remains true in 2009/10 as well.

The findings on the quality of walls is somewhat different from that of the roof and floor; those who are moving out of poverty have higher rates of improved walls compared to the chronically poor and those slipping into poverty, whereas for roof and floor those slipping into poverty are more likely to have improved conditions than those moving out of poverty. The pattern observed in terms of roofs and floors suggests that households invest in improvements as soon as they have some available resources, but these improvements cannot be 'undone' even when a household falls into poverty. So, those slipping into poverty appear to be better off on these indicators than the chronically poor or those who have recently moved out of poverty because this kind of asset is not quickly depleted.

By contrast, those who have slipped into poverty report a similar number of meals eaten per day to the chronically poor (2.1 and 2.0 respectively) compared to higher levels for those moving out of poverty (2.4) and the never poor (2.6).

This is because food intake responds immediately to changes in circumstance. Similarly, those who slipped into poverty are more likely to have members with at least two sets of clothing compared to the chronic poor, as they are able to continue to rely on their earlier 'investments' in clothing and shoes, even though they report similar number of meals consumed per day.

Table 17: Basic needs indicators by poverty trajectory, %

Indicator	Poverty trajectory All				
	Chronic	Moved out	Slipped into	Never poor	
Walls					
2005/06	39.4	44.0	32.7	58.5	51.7
2009/10	44.4	51.7	40.2	65.3	58.5
Roof					
2005/06	28.4	38.4	54.9	73.8	61.9
2009/10	37.7	50.0	64.6	81.1	70.3
Floor					
2005/06	2.0	3.0	13.2	39.2	27.3
2009/10	3.3	8.1	11.0	43.3	30.6
#meals*					
2005/06	1.8	2.0	2.2	2.4	2.3
2009/10	2.0	2.4	2.1	2.6	2.5
Clothes					
2005/06	63.7	76.5	86.2	93.3	87.0
2009/10	54.4	79.7	70.9	91.0	83.5
Shoes					
2005/06	8.4	22.7	33.2	66.4	50.5
2009/10	11.7	35.2	28.0	66.0	51.9
Safe water					
2005/06	66.1	61.0	60.5	67.3	65.5
2009/10	71.0	69.0	60.9	69.8	68.8

Table 18 shows the share of households that reported not having enough food to feed themselves during the last 12 months prior to the interview. On average, 44% of households at the national level report having insufficient food availability at some point during the previous year. We further observe that the incidence varies by poverty trajectory; 75% of the chronically poor households were food deficient compared to 61% of those who slipped into poverty, 54% of those who escaped poverty and 33%of the never poor. Of the households that reported inadequate food, the most cited reasons for these inadequacies were drought/ poor rains followed by inadequate income to enable them buy food from the markets, food being very expensive, and failure to plant enough food, among others.

We further note that the reasons given for food insufficiency varied by poverty trajectory. The households that were chronically poor and those that slipped into poverty were more likely to report a failure to plant enough food compared

to their counterparts in other trajectories. Notably, low incomes are more frequently cited by those households living in chronic poverty. Households were further requested to provide a month when they experienced food shortages. The most cited months when the shocks happened were June and July, which are the months that mark the end of the dry season (Table 18).

Table 18: Incidence of not having enough food in the last 12 months, 2009/10

Indicator	Poverty trajectory All					
	Chronic	Moved out	Slipped into	Never poor	%	Est. #HHs ('000)
Inadequate food	75.6	54.8	61.2	33.8	44.1	2,285.3
Why?						
Drought	77.5	81.9	75.0	66.6	72.6	1,658.6
Pests/floods	7.2	9.7	12.6	7.0	8.4	191.3
Did not plant enough	24.6	17.3	26.5	10.9	16.8	383.1
Not enough money	42.3	31.2	31.5	37.9	36.4	832.8
Food very expensive	20.6	23.5	27.3	25.3	24.4	558.1
Others	29.9	14.4	17.2	14.9	17.7	405.1
When it happened?						
Jan	28.1	14.2	19.0	14.8	17.6	402.7
Feb	30.1	16.3	22.5	14.5	18.7	427.4
Mar	35.3	20.7	29.4	18.2	23.3	532.5
Apr	40.7	27.0	31.5	27.4	30.3	691.3
May	51.6	35.9	37.2	33.8	37.8	862.9
Jun	58.1	52.4	35.9	39.8	44.7	1,022.7
Jul	47.8	49.6	32.0	38.9	41.4	947.2
Aug	42.5	41.9	33.8	39.2	39.5	901.9
Sep	39.4	35.1	29.8	35.7	35.4	808.1
Oct	35.8	31.0	23.8	30.5	30.5	697.1
Nov	29.1	16.3	19.9	23.4	22.6	515.5
Dec	19.1	10.9	20.6	14.4	15.5	353.9

Most households own their own home, reflecting the largely rural make-up of the country. However, as seen above these households vary considerably in terms of quality across poverty trajectory. The never poor are actually somewhat less likely to own their home, but this merely reflects the fact that the never poor are more likely to be based in urban areas where renting is more common than in rural areas.

In terms of other household assets, we see that bicycle ownership is lower in households slipping into poverty than those moving out, suggesting that households may sell bicycles when they fall into poverty. By contrast, radio ownership remained somewhat higher amongst households slipping into poverty than those moving out. For these assets there is, unsurprisingly a large difference in ownership between the chronic poor, the transient poor, and the never poor.

The incidence of own livestock by type is also presented in Table 19. It is evident that more households own poultry and small livestock (64% and 61% respectively) than cattle (37%), which is not surprising since cattle are much more costly assets to obtain and maintain. The national increase in the incidence of cattle ownership was driven by those households that moved out of poverty, amongst whom ownership increased by almost 12 percentage points. By contrast, ownership amongst all types of livestock is lower amongst those slipping into poverty than those moving out, again suggesting that households do sell livestock as a response to descents into poverty. It is however notable that the incidence of cattle ownership among the chronically poor households did not differ much from the national average or other poverty trajectories.

Table 19: Incidence of ownership of household assets by poverty trajectory, %

House	Chronic	Moved out	Slipped into	Never poor	All
2005/6	92.8	91.5	88.8	78.0	82.7
2009/10	88.5	92.0	84.8	79.0	82.5
Building					
2005/6	16.1	20.5	21.1	25.4	23.3
2009/10	24.3	25.3	28.1	30.3	28.7
Bicycle					
2005/6	29.1	43.5	38.9	43.1	41.4
2009/10	30.7	49.4	35.2	41.1	40.7
Land					
2009/10	82.9	84.6	80.8	74.0	77.2
TV					
2009/10	0.4	2.2	0.7	19.3	12.9
Radio					
2009/10	36.6	53.7	57.0	75.0	66.1
Motor cycle					
2009/10	0.7	3.2	2.8	10.0	7.3
Mobile phone					
2009/10	19.9	32.3	25.3	64.2	50.9
Cattle:					
2005/6	35.5	23.5	28.6	38.9	34.5
2009/10	36.4	35.4	29.6	39.1	37.0
Small Animals:					
2005/6	56.0	57.5	53.8	64.5	61.0
2009/10	63.4	64.4	55.5	60.8	61.1
Poultry:					
2005/6	64.9	59.7	68.8	64.8	64.4
2009/10	66.4	68.4	60.4	64.0	64.6

6 INEQUALITY THROUGH ANOTHER LENS: EQUAL TY OF OPPORTUNITY POVERTY AND THE UPTAKE OF EDUCATION AND HEALTH

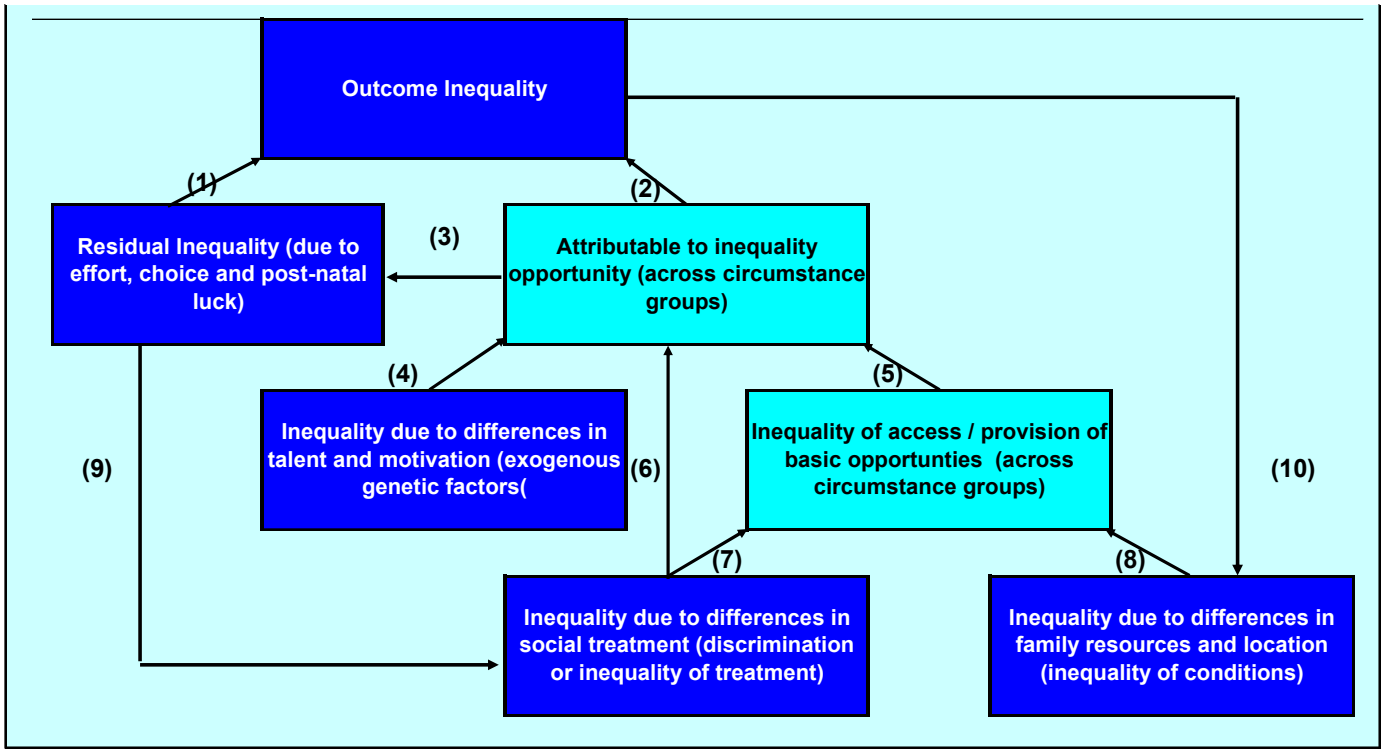
The trends in various dimensions of poverty (consumption, access to basic services, and assets) presented so far already give a sense of the nature and extent of inequality in Uganda; there are vast differences in outcomes across regions, urban and rural areas, education level of the household head, and demographic characteristics of households. These same discrepancies in consumption poverty are also reflected in the standard aggregate measure of inequality, the gini coefficient, which was shown to be high in an international context and increasing; it was 0.408 in 2005/6 and 0.426 in 2009/10 .

However, these measures of inequality are not entirely adequate for policy purposes. This is because not all forms of inequality are the same; inequality related to different levels of effort – for example where two otherwise identical workers earn different amounts because one worked hard to gain an additional qualification and one did not - are not generally seen as being unfair, nor would such an outcome be inefficient. By contrast, inequality related to differences in opportunities - for example if the additional qualification were only available to individuals from wealthy backgrounds – is generally perceived as being unfair, and such inequality of opportunity can lead to economically inefficient outcomes as well as, under certain circumstances, social conflict.

From a policy perspective, then, the key is to distinguish between inequality related to circumstance and inequality related to effort. In order to understand how much of the inequality in outcomes (such as earnings, income, or consumption) is caused by circumstance,

inequality of opportunity can be 'decomposed' into its constituent parts. The figure below illustrates how inequalities in terms of household resources or location (arrow 8) and in social treatment such as discrimination (arrow 7) contribute to inequality in access to basic opportunities, for example education or health or sanitation. This inequality in the uptake of basic services contributes to inequality of opportunity (arrow 5), and this in turn leads to outcome inequality directly (arrow 2) and indirectly (arrow 3), in the sense that inequality of opportunity may impact the choices people make (for example if discriminated groups have lower career aspirations because they do not believe they would be able to get a desirable job even if they invested greater effort in their education).

Figure 20: Outcome inequality decomposition



The approaches to measurement in the literature focus on different parts of this chain of causality. The measurement of the extent of inequality of opportunity relies on decomposing outcome inequality into that part that can be attributed to circumstances outside of the control of individuals (inequality of opportunity) and residual inequality due to effort, choices, and luck. To do this we need to measure arrows 2 and 3, and then the rest is calculated as the difference between total outcome inequality and that attributed to inequality of opportunity. This process is referred to as the 'top down' method.

Another approach is to measure inequality from the 'bottom up' in terms of the figure above, essentially trying to understand the causal inequalities in the access to basic opportunities such as education or health (arrows 5-8).

The data requirements and methods differ between the 'top down' and 'bottom up' approaches. The former is very data intensive, requiring information not only on individuals (adults, specifically, since it is only in adults that we can observe the 'outcomes' of interest) but also information about their parents' characteristics (education levels, occupation, etc) since these parental characteristics are important 'circumstances' (i.e. something over which the individuals themselves would have had no control). 'Bottom-up' measurement is less data intensive, since it requires information on the uptake of education (or health or education) that is readily available from most household surveys.

6.1 INEQUALITY OF OPPORTUNITY FROM THE TOP DOWN: HOW MUCH INEQUALITY IN CONSUMPTION IS DETERMINED BY CIRCUMSTANCE?

In order to measure inequality of opportunity in a 'top down' manner (allowing us to isolate the inequality resulting from circumstances from inequality resulting from effort, luck, etc), we need to be able to measure the key circumstances which are out of control of individuals but which have an important bearing on inequality of outcomes. We then identify which groups face disparities in opportunities by then identifying groups of individuals with the exact same set of circumstances (these groups are identified as 'types', which is simply a unique combination of circumstances[17]). Inequality of opportunity is then measured as the differences in outcomes between groups; inequalities within groups are due to the 'residual' component of effort/choice/etc.

6.1.1 METHODOLOGY

A detailed and more technical description of the methodology is provided in the annex. For the present purposes, the most important facets of the methodology to note are the circumstances that are used (father's education, mother's education, region of birth, birth in a rural/urban location, and father's occupation). This allows us to estimate the lower bound of inequality of opportunity (since including more circumstances would necessarily increase the estimation of the extent to which circumstances determine outcomes). We undertake two different methods of estimation, to account for the fact that our dataset is not as large as it would ideally be to provide sufficient data points for each unique type identified. The fact that the two methods (known as parametric and non-parametric) yield quite similar results indicates that our findings are reasonably robust.

6.1.2 RESULTS

The results presented below show the range of estimates for the lower bound on inequality of opportunity, across the different inequality indices and different methods (parametric and non-parametric). The analysis looked at both the total cohort of working-age adults aged 30-65, while the second limited the results to the younger portion of that group.

As in previous studies, the parametric and non-parametric results are reasonably close.
For the GE(0) measure, inequality of opportunity represents 28-36% of total inequality.

17 For example, if the circumstances found to be relevant are: region of birth (urban or rual), sex, and father's education (primary or none), then there are eight unique types: (i) urban birth, male, father primary education; (ii) urban birth, female, father primary education; (iii) urban birth, male, father no education; (iv) urban birth, female, father no education; () rural birth, male, father primary education; (vi) rural birth, female, father primary education; (vii) rural birth, male, father no education; (viii) rural birth, female, father no education.

This means that around 1/3 of all inequality can be attributed to the limited group of five circumstances that are entirely out of the control of individuals.

Table 20: Lower bound of the inequality of opportunity

	ALL ADULTS 30-65			ALL ADULTS 30-49		
	GE(0)	GE(1)	GE(2)	GE(0)	GE(1)	GE(2)
Non-parametric	0.36	0.34	0.22	0.37	0.35	0.25
	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)
Parametric	0.28	0.27	0.21	0.31	0.30	0.23
	(0.01)	(0.02)	(0.02)	(0.02)	(0.02)	(0.03)

NB: Bootstrapped standard errors in parentheses

There are some differences in the inequality of opportunity across age cohorts, however these are not significant.

Another way to view the results is to look at the cumulative distribution functions for the population by individual circumstance, as in the set of figures below. In the first figure, we see that the inequality in outcomes grows with the level of effort, but that adults whose father have post-primary education have around twice the level of consumption for the same level of effort as someone whose father had no education or only some primary.

Figure 21: Distribution of consumption by father's education

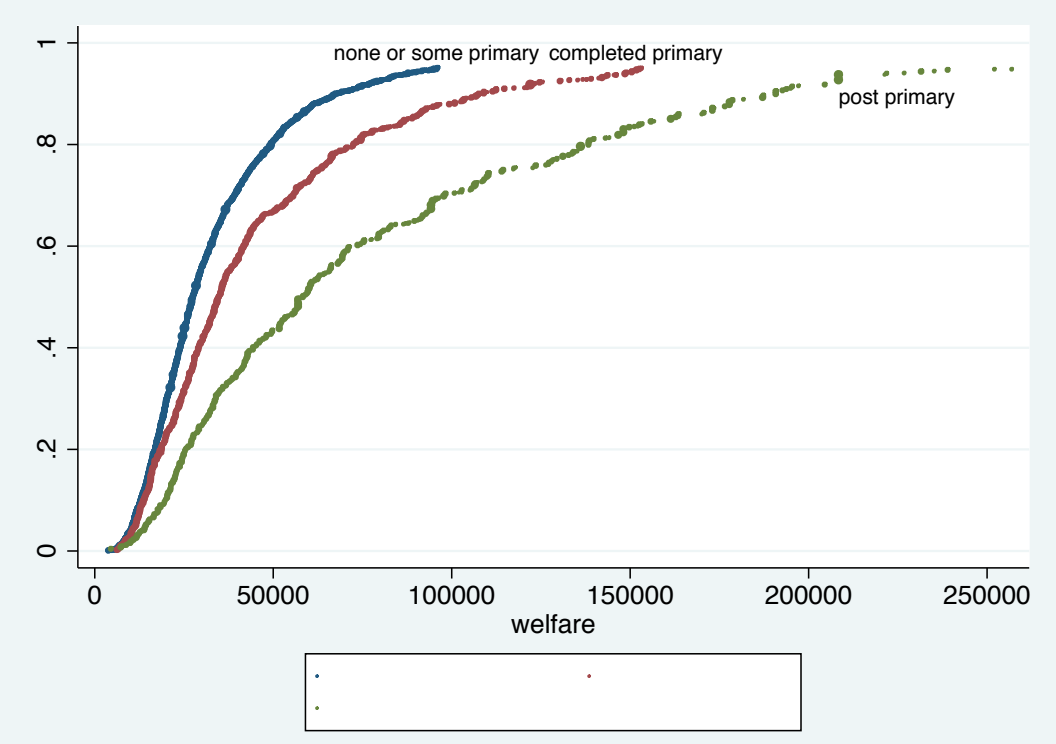
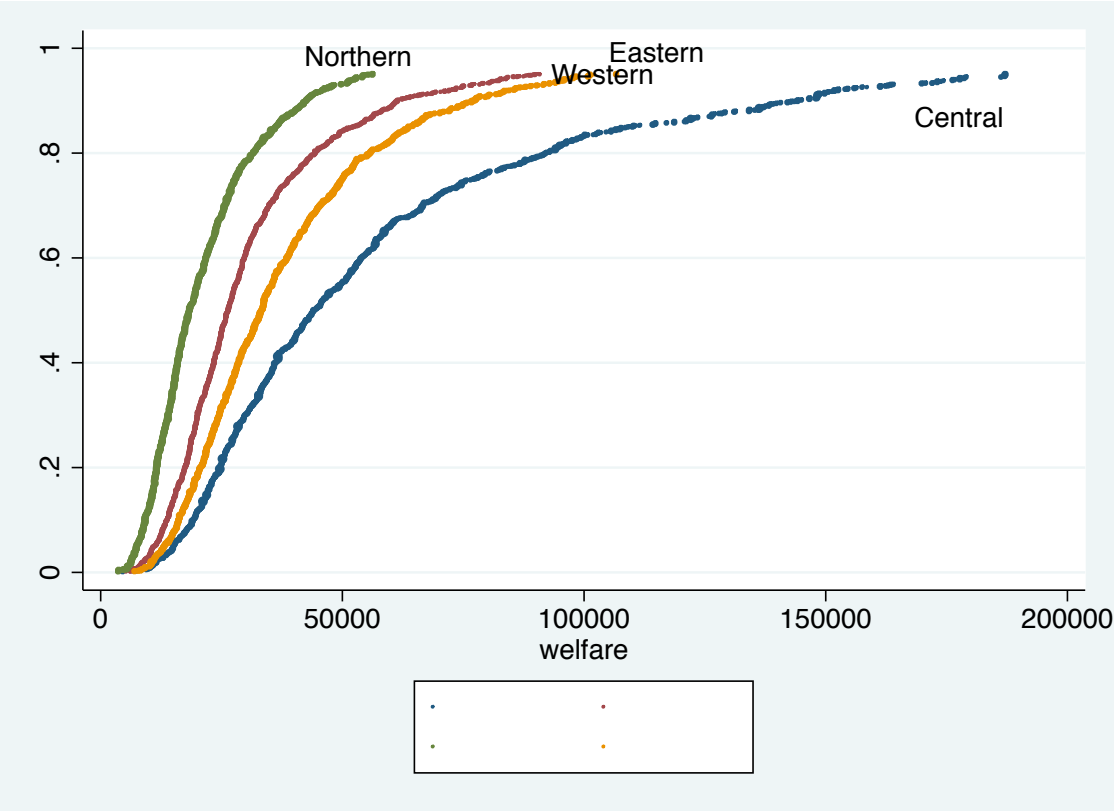


Figure 22: Distribution of consumption by birth region



The upper bound on the inequality of opportunity is estimated to be 65% using the GE(2) measure, which would mean that inequality of opportunity – the portion attributed to circumstance and not effort - would fall in the range of around 20-65%.

6.2 EQUALITY OF OPPORTUNITY FROM THE 'BOTTOM UP': ACCESS TO PRIMARY EDUCATION

Given the complexity of the results in the multi-variate model of primary completion presented in Chapter 4, we can also look at the results in terms of the probability of completing primary across 'types' of children. These types are groups of children by unique combination of circumstances, in this case combination of education of household head; whether the household head works in subsistence agriculture; the region; and the number of children in the household .

The probability of completing primary ranges from 10% in the most disadvantaged types to 69% in the most advantaged types. Looking at the characteristics of the most disadvantaged types (table 21), we see that the Northern Region dominates, but there are also one type from the Western Region and three from the Eastern. Six have household heads in subsistence agriculture, and all but one have household heads with no education.

We can compare these to the characteristics of the most advantaged types (table 22). Here the Central and Western regions dominate; only one has a household head working in subsistence agriculture; and all have heads who at least completed primary.

There are other circumstances of interest, such as whether the child resides with both parents, and whether the child lives in urban or rural areas. The number of circumstances has been limited here merely for tractability; otherwise the number of children falling into each group would be very small in some instances

Table 21: Characteristics of 10 most disadvantaged types

Head education	Head occupation (subsistence farmer or other)	N children in household	Region	Probability of completion
None	Subsistence farmer	2 or less	Northern	0.106723
None	Subsistence farmer	5 or more	Northern	0.1083433
None	Subsistence farmer	2 or less	Western	0.1117295
None	Other	2 or less	Northern	0.1127697
None	Subsistence farmer	3 or 4	Northern	0.1140758
None	Other	2 or less	Eastern	0.1224737
None	Other	5 or more	Northern	0.128555
Some primary	Subsistence farmer	5 or more	Northern	0.1344375
None	Other	3 or 4	Northern	0.1373086
None	Other	3 or 4	Eastern	0.1451808
None	Subsistence farmer	2 or less	Eastern	0.1452354

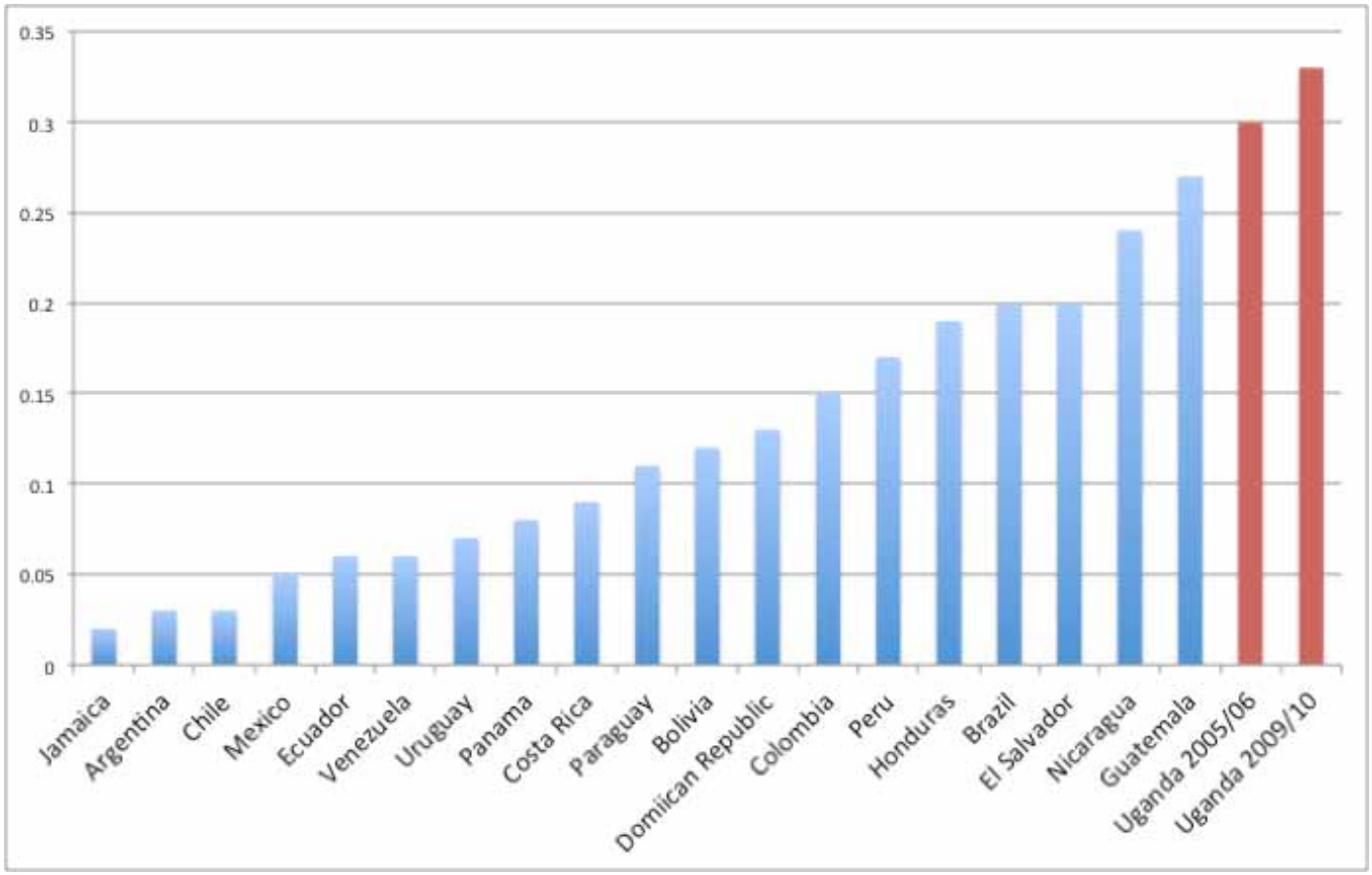
Table 22: Characteristics of the 10 most advantaged types

Head education	Head occupation (subsistence farmer or other)	N children in household	Region	Probability of completion
Secondary or more	Subsistence farmer	3 or 4	Central	0.4221342
Secondary or more	Other	2 or less	Western	0.4244792
Some primary	Other	3 or 4	Central	0.4311351
Completed primary	Other	5 or more	Central	0.4465593
Secondary or more	Other	3 or 4	Western	0.5443367
Completed primary	Other	2 or less	Central	0.5730872
Completed primary	Other	3 or 4	Central	0.573654
Secondary or more	Other	2 or less	Central	0.6378025
Secondary or more	Other	5 or more	Central	0.6755669
Secondary or more	Other	3 or 4	Central	0.6893736

Pulling all of these findings together into the aggregate index of dissimilarity, we find that 33% of current opportunities would need to be re-allocated in order to achieve equality of access to the completion of primary. This reflects an increase in inequality of opportunities over the period 2005/06, when the dissimilarity index was 0.30 (although this increase is not statistically significant).

Compared internationally, this reflects a high degree of inequality of access to basic opportunities when compared to a regional study in Latin America (Barros et al), as shown in the figure below. The average for Latin America is 0.12, and only Nicaragua and Guatemala have values over 0.20.

Figure 23: Index of Inequality of Opportunity (D) in Uganda and Latin America



7 CONCLUSIONS, POLICY IMPLICATIONS AND RECOMMENDATIONS

7.1 CONCLUSIONS

The analysis presented in this report makes clear that, while there have been significant and impressive reductions in poverty over the last ten years, there are two important features that are important for policy-makers to bear in mind:

1. The consumption distribution is very flat, which means that there are many households just above the poverty line who are very vulnerable to falling below it: 24.5% of the population is below the poverty line, plus a further 40% lives between the poverty line and twice the poverty line.
2. Furthermore, the poverty line is set at a low level, equivalent to 'extreme' poverty in other countries, which further emphasises the vulnerability of those households who live just above the line.

This vulnerability to poverty is further underlined by the findings from the panel survey, which finds that although 10% of the population are chronically poor (living below the poverty line in 2005/6 and 2009/10), there is a significant amount of 'churning' around the poverty line, with 15% of the population moving out of poverty over the period, but a further 10% falling back below it, for a net gain in terms of poverty reduction of 5%.

While recognising the achievement of reducing the overall incidence and depth of poverty in recent years, these findings remind us that it is important to continue to focus on the poor and those living around the poverty line, to ensure that all Ugandans are able to benefit from the transformation and growth of the economy.

In terms of who the poor are, it is apparent that some of the traditionally considered 'vulnerable groups' have higher rates of poverty than the national average. For example, households with

an elderly member have a poverty incidence of almost 29 per cent compared to 24.5% for all households. Double orphans have a poverty incidence of 31 per cent [19] and households with at least one severely or partially disabled member have a poverty incidence of almost 30 per cent. These figures tell us little, however, about the vulnerabilities of individuals within these households in terms of the distribution of resources, access to services, care and protection.

A closer look at data reveals that in addition to the traditionally considered vulnerable groups, dependency ratios appear to have a much larger impact on poverty incidence, with households having 4-5 dependents per working adult facing a poverty rate of nearly 50%. Furthermore, those households with larger numbers of people, more children, and the highest dependency ratios appear to have benefited less from reductions in poverty over the last five years, while those with fewer members have reduced poverty significantly.

Indeed, the view of poverty from a dynamic perspective reveals that both chronic and transitory poverty are heavily impacted by life cycle events. For example, nearly two thirds of households that slipped into poverty registered a positive and significant increase in family size, driven by a significant increase in the number of children. This suggests that even for many working families, the addition of new dependents causes the household to fall below the poverty line. Female-headed households bear the brunt of these life cycle risks the most, and as a result they are over-represented amongst the chronically poor. At the same time, at the other end of the life cycle, households that slipped into poverty were also those that registered the greatest increases in elderly dependency ratios. These life cycle factors are not only important for households falling into poverty; dependency ratios and household size are also much higher amongst those households that are chronically poor.

When we look beyond traditional measures of poverty and inequality to estimate inequality of opportunity instead, we see that a significant percentage (around 1/3) of inequality in outcomes (measured by consumption levels) is determined by just five circumstances entirely outside of the control of individuals relating to (education levels of their parents, their fathers' occupations, and the location of their birth). The same inequalities in opportunities are seen in the current generation, with the same set of circumstances explaining very wide variations in the completion of primary education. This inequality of opportunity is damaging not only to the social fabric, but also to the growth and transformation potential of the country; it is clear that without further concerted policy efforts a very large percentage of the population is likely to be left behind for some time.

7.2 POLICY IMPLICATIONS AND RECOMMENDATIONS: NEW DIRECTIONS FOR SOCIAL PROTECTION IN UGANDA

This picture points to a new understanding of poverty, vulnerability and inequality in Uganda as well as a new role for social protection in addressing these challenges. The increasingly unequal nature of Uganda society across multiple welfare dimensions suggests the need for direct measures to ensure that all Ugandans are able to benefit from, and contribute to Uganda's growth and development. These findings suggest that there is a need for policy

19 Although only 2.3 per cent of Uganda's children are double orphans

to respond to the inequalities in access to basic services, focusing on the gaps in access across regions, in rural areas, and across socio-economic levels.

Whilst a focus on the 7.5 million Ugandans living below the basic needs poverty is still essential, a more dynamic understanding of poverty and vulnerability would imply a broader focus for poverty and vulnerability reduction efforts. In particular if the GoU is to build on and consolidate the poverty reduction gains made over the past two decades, policy responses which address the risks and vulnerabilities experienced by high numbers of Uganda's population are necessary. This clearly implies a role for direct income support in providing the resilience and income security households need to effectively deal with shocks, make productive investments and carve a sustainable path out of poverty.

Although declining nationally, the North of Uganda continues to experience extremely high levels of chronic poverty. direct income support targeted at labour-constrained households will allow a strategic shift to take place in development strategies by ensuring that the most vulnerable are protected from the worst forms of deprivation, as governments and aid agencies scale up activities to support productive livelihoods for those who are able to work. These efforts should also include replacing the short term 'injection' approaches of food, voucher and cash for work programmes with longer term, government-led, more socially-protective public works which provide minimum guarantees of income in return for guaranteed public work.

The increasingly unequal nature of Ugandan society across regions and socio-economic groups, in terms of national income and access to basic services, clearly has implications for Uganda's long-term social and economic transformation. In particular, negative impacts on human development, social cohesion, stability, productivity, and growth are likely. Based on current trajectories, the impact of this inequality will reach beyond current generations, trapping future generations into a life of poverty and vulnerability, where they are unable to realise their full potential and contribute effectively to Uganda's growth. While UPE has been successful in increasing gross and (to some extent) net enrolment, it is important to ensure that there is equal access to the full cycle of primary education, delivered to a high quality standard. This will surely require improvements in the supply and quality of public education, but the importance of household income and the education and occupation of the head of the household also suggests that further demand-side policies (such as direct icome support) may be required to ensure children from disadvantaged households can complete a full cycle of primary. The role of direct icome support in redressing national and regional imbalances and overcoming demand-side barriers to accessing services should be considered.

A broader understanding of the nature of households living in poverty and particularly the life-cycle events that are associated with higher poverty levels would imply the need to focus direct income support on addressing key life-cycle risks, including old age, death of working-age adults and widowhood, and the addition of young children. Regular and predictable direct income support ensures that the elderly can live in dignity without the threat of extreme poverty and that children have access to equal opportunities to education and health, breaking the cycle of poverty that would otherwise be transmitted from one generation to the next.

Ultimately, understanding the role of direct income support in addressing poverty, vulnerability, inequality and the multiple risks faced by Ugandans across the life-cycle, points to a new role for social protection as being central to the GoU's efforts to support human development, productivity and broad-based, inclusive growth. Building a comprehensive system of direct support will take many years, and should be considered a medium-term objective as the country moves towards middle-income status. In the immediate term, however, the Senior Citizens Grant will serve as an essential building block upon which future programmes can be built.

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Annex A Estimation of the poverty line

According to Appleton (2001), the methodology for the construction of the consumption aggregate and poverty line follows the following procedure:

1. Aggregate total per-adult equivalent household consumption

a) Estimate market prices for all consumption (rather than using reported farm-gate prices for own-produced goods), using the median unit value .

b) Correct for spatial prices by creating a regional price index, using weights for goods based on national expenditure shares of major food items and associated minor items. Non-food items are assumed to have constant prices nationally.

c) Adjust for equivalence scale based on age categories (creating an index of calorie requirements with the reference group of men 18-30).

2. Construct the Cost of Basic Needs Poverty Line

a) Calculate the food poverty line:

- The estimate is based on only households in the poorest 50% of per-adult equivalent consumption as calculated above.
- Estimate the mean quantities consumed per person of 28 major food items (this is the reference basket).
- Estimate the calories per basket. This involves: (i) calculating the median price per kilo of purchased items; (ii) calculating the kilos consumed defined as the purchase value divided by the price per kilo; (iii) converting the kilos consumed into calories based on the conversion factors provided.
- Cost this basket of food items, using prices estimated from purchased items and then applied to all households on a per-kilo basis.
- Scale the cost up by the amount required for the basket to equal 3,000 calories (which is the reference amount for a man 18-30). So, for example, if the average basket contained only 2,000 calories, it would need to be scaled by a factor of 3,000/2,000.

b) Calculate the non-food poverty line:

- This is essentially calculated as a residual, using the logic that we can estimate the basic non-food needs by looking at those households whose total consumption is right at the level of the food poverty line; if these households choose to re-allocate some spending away from food it must be for items that are deemed absolutely the basic needs .
- This is estimated through a regression (following Ravallion and Bidani (1998)), which includes regional dummies and household characteristics as a way to control for regional differences in non-food consumption. Note, however, that in doing so it controls not just for differences in regional prices but also differences in standards of living across regions (for example, housing quality is likely to be higher in urban areas), and this must be taken into consideration in the interpretation of the findings.
- A separate non-food poverty line is then calculated using this method for each region, and then each region-specific poverty line is applied to the consumption aggregate outlined above in order to estimate the standard poverty measures (incidence, depth, severity).

This methodology does follow the recommendations from the methodological literature in many respects. However, there are a few issues with this approach that need to be borne in mind when interpreting the findings.

Firstly, the methodology does not generate a nationally comparable measure of consumption. The reliance on multiple poverty lines (by region) means that there is no measure to accurately compare consumption across households in different regions. So even households with the exact same per-adult consumption measure might have a different poverty status across regions. This makes any ranking of households at a national level highly problematic.

Normally it would be possible to work around this, since the regional poverty lines could serve as the basis for a spatial price index . However in this case a spatial price index is applied first - based on all households and only including food prices - and then the poverty lines are estimated second, based only on the poorest 50% of households. The end result is that the differences in regional poverty lines reflect only non-food price variation across region. The regional poverty lines cannot therefore provide a relative price index to normalise consumption across households.

Secondly, the poverty line is set only at a very extreme level – corresponding to the definition of extreme poverty in other countries. Standard practice (including the methodology of Ravallion and Bidani (1998) on which Appleton's approach is based) is to estimate two lines: one reflecting basic needs poverty including an allowance for non-food items over and above the basic food requirements, and one reflecting just the basic food needs (which is what Uganda's line currently measures).

Finally, as is common practice, the poverty line is not updated for each survey round, in order to allow like-for-like comparisons in poverty over time. The poverty line is therefore merely scaled for inflation for all subsequent years. It is not currently clear whether the line is scaled up with separate inflation factors for each region, or if inflation is estimated for each region separately [25]. The way in which this is handled will have a major bearing on the setting of the line and how individual households are treated.

In any case, given that the original poverty line estimates were based on data from the 1992 survey round, the consumption bundle used in the estimation is now twenty years. It is likely that consumption patterns have shifted in important ways since then[26] , so in future rounds it would be good to verify that the bundle of goods used in the calculation of the line is still reflective of the actual consumption patterns of the poor.

Finally, the literature has become more sophisticated with respect to estimating errors around the poverty estimates since the poverty line methodology was developed in Uganda. Since then, it has been shown that the two-stage sample design commonly used in household surveys has implications for the size of the errors – often doubling the variance. This is important from the perspective of understanding poverty and vulnerability, since these errors provide us with the confidence interval around the point estimates – the wider the confidence interval, the more we need to be aware that households around the line are also likely to be considered poor.

25 This will depend on the availability of CPI data and how disaggregated it is; normally CPI data is available only for urban areas, so it is unlikely that there would be data available for each poverty line region. 26 To take one example, mobile phone penetration would have been zero in 1992.

Annex B Further discussion on the categorisation of disability

In the survey questionnaire, there are questions about six domains (sight, hearing, walking/mobility, cognition/memory, self-care, and communication). Individuals respond with answers of 1 (no difficulty), 2 (some difficulty), 3 (a lot of difficulty), or 4 (cannot see/walk/hear/etc at all). From an analytical and policy perspective, the question is how to categorise the experiences of disability along these dimensions: is any difficulty to be categorised as disability, or should it be restricted to those who are blind/deaf/unable to walk? The answer to that question partially depends on how frequent the different scores are, since from a policy perspective it is helpful to narrow support to the small group of individuals who need special support.

As Table A.1 below shows that including all individuals with at least one response of '2' is likely to be too loose a definition of disability, as nearly 10% of the population meet this criteria.

Table A.1 Distribution of age categories across disability status

Age category	No disability	At least 1 score of 2 "some difficulty" and none of 3 or 4	At least 1 score of '3' and none of '4'	At least 1 score of 4	Total
under 3	100	0	0	0	100
3 to 5	95.29	2.97	1.15	0.6	100
6 to 10	89.61	7.97	1.51	0.92	100
11 to 15	91.09	6.66	1.72	0.54	100
16 to 25	90.4	7.34	1.85	0.41	100
26 to 35	88.78	9.14	1.86	0.22	100
36 to 45	78.87	18.08	2.85	0.2	100
46 to 55	61.93	30.98	6.64	0.44	100
56 to 65	50.24	36.87	12.41	0.48	100
66 to 75	32.35	45.24	19.83	2.57	100
76 to 85	21.24	44.57	30.65	3.53	100
86 and over	18.1	34.84	43.1	3.96	100
Total	87.1	9.74	2.63	0.52	100

To further inform the decision, we can look more closely at those individuals with responses of '2' (who are not already classified as partially or severely disabled). As Table A.2 illustrates, the large majority of individuals with at least one response of '2' have responded with a '2' to only one question (7.53%). Only 2.52% of individuals have responded with a response of '2' on two or more dimensions of disability

Table A.2 Number of responses of '2' for individuals not already classified as partially or severely disabled

Number of responses of '2'								
age_cat	0	1	2	3	4	5	6	Total
under 3	100	0	0	0	0	0	0	100
3 to 5	96.98	2.25	0.68	0.1	0	0	0	100
6 to 10	91.84	6.61	1.39	0.15	0.02	0	0	100
11 to 15	93.19	6.14	0.59	0.02	0.02	0	0.04	100
16 to 25	92.49	6.43	0.84	0.14	0.01	0.01	0.06	100
26 to 35	90.66	7.63	1.37	0.22	0.08	0	0.04	100
36 to 45	81.35	14.62	3.16	0.75	0.13	0	0	100
46 to 55	66.66	22.77	7.77	2.26	0.3	0.08	0.17	100
56 to 65	57.67	27.43	9.73	3.98	0.96	0.19	0.04	100
66 to 75	41.7	28.34	16.54	8.45	2.75	1.88	0.34	100
76 to 85	32.28	30.2	18.42	9.32	7.56	1	1.22	100
86 and over	34.19	27.88	14.34	8.79	5.47	9.34	0	100
Total	89.94	7.53	1.8	0.49	0.14	0.05	0.04	100

Another way to explore whether those with multiple responses of '2' should also be included in the definition of partially disabled is to look at the extent to which individuals feel their ability to work is impaired. Unfortunately, the responses to this question do not seem to be entirely reliable. As Table A.3 illustrates, the overall patterns are what would be expected, with the percentage of individuals who say that their disability sometimes or always reduces the amount of work they can do increases with the number of responses of '2' (i.e. 59.99% of those with one response of '2' responding that sometimes their amount of work is reduced, while 71.31% of those with two responses of '2', and the percentage of individuals whose work is always reduced increases from 5.49% of those with one response of '2' to 14% of those with five responses of '2'). However, these figures appear to be unreliable since even those with no responses of '2' say that their amount of work is reduced sometimes (49.95%) or all the time (4.76%).

Table A.3 Impact of disability on the amount of work that an individual can do, by the number of responses of '2' for individuals not already classified as partially or severely disabled

Does this disability reduce the amount of work [NAME] can do	0	1	2	3	4	5	6	Total
Yes, all the time	4.76	5.49	6.22	9.58	11.82	14.01	0	6.04
Yes, sometimes	49.95	59.99	71.31	73.51	71.94	50.91	85.91	63.13
No	24.26	28.84	18.06	10.08	8.04	0	0	24.84
NA (e.g. too young or	14.13	5.64	4.41	6.84	8.21	35.07	14.09	5.87
Missing	6.91	0.04	0	0	0	0	0	0.03
Total	100	100	100	100	100	100	100	100

Based on the analysis of the UNHS data, therefore, the recommendation is to use the following definitions of disability, as these are the definitions most likely to be both meaningful in terms of targeting those individuals most in need and practically implementable:

- Partially disabled: individuals who have at least one response of '3' and none of '4'
- Severely disabled: individuals with at least one response of '4'.

Annex C Correlates of poverty model

Independent variable: natural log of per-adult equivalent consumption

Dependent variable	**Coefficient**	**Confidence interval**
Max education = primary completion	0.0601**	[0.0213,0.0989]
Max education = post primary	0.132***	[0.0995,0.165]
Literate female = true	-0.101***	[-0.131,-0.0715]
Household size	-0.0903***	[-0.0953,-0.0854]
wall_thatchmud	-0.0730***	[-0.104,-0.0424]
floor_earthdung	-0.258***	[-0.299,-0.217]
roof_thatchstraw	-0.0908***	[-0.125,-0.0568]
toilet_unimproved	-0.261***	[-0.323,-0.200]
fuel_firewood	-0.208***	[-0.252,-0.164]
Own appliance	0.177***	[0.140,0.213]
Own furniture	0.173***	[0.139,0.208]
Own electronics	0.179***	[0.151,0.207]
Own car	0.734***	[0.648,0.820]
Own mcycle	0.296***	[0.237,0.356]
Own bike	0.0954***	[0.0671,0.124]
Own land_own	0.0836***	[0.0517,0.115]
livelihood_subsfarm	-0.0399	[0.0864,0.00656]
livelihood_commercia farm	0.141***	[0.0621,0.220]
livelihood_wage	-0.0383	[-0.0868,0.0102]
livelihood_nfe	-0.0405	[-0.0890,0.00790]
region_east	-0.0301	[-0.0697,0.00939]
region_north	-0.273***	[-0.316,-0.230]
region_west	-0.0573**	[-0.0972,-0.0173]
Urban	0.0956***	[0.0492,0.142]
Constant	11.64***	[11.55,11.73]
Observations	6750	
Adjusted R-squared	0.590	

95% confidence intervals in brackets
* p<0.05, ** p<0.01, *** p<0.001

Annex D Modelling primary completion

The model employed here is consistent with the literature[27] , with an emphasis on the key measurable circumstances of interest. The logit model uses the binary variable of completion of primary school among 13-18s (since in children should start primary school at age 7 and finish at 13, however many start late and continue primary school into their teens. In order to control for these differential patterns by age, the age of the student is included, as is a dummy for whether the child is male.

The circumstance variables included are the years of schooling of the household head; whether the child resides with both parents; the log of household (per-adult equivalent) consumption; the number of children in the household (included as a categorical variable); whether the child lives in an urban area; and the region in which the child lives.

The estimation results are provided in the table below. All of the variables aside fro m the gender of the child are significant.

Table A.4 Estimation results: logit (y = primary completion among 13-18s)

	b	z	P>z	e^b	e^bStdX	SDofX	%	%StdX
				(odds ratio)	(odds ratio for 1 std dev change in x)		(odds ratio as % change)	(odds ratio as % for 1 std dev change in x)
age	0.65296***	15.986	0.000	1.9212	2.5949	1.4603	92.1	159.5
Male child = true	-0.12616	-1.274	0.203	0.8815	0.9389	0.5	-11.9	-6.1
Female head = true	0.55322***	4.736	0.000	1.7388	1.3007	0.4752	73.9	30.1
Head years of schooling	0.08875***	6.607	0.000	1.0928	1.4726	4.3608	9.3	47.3
Reside with both parents = true	0.48531***	4.142	0.000	1.6247	1.2641	0.4828	62.5	26.4
Ln(per-adult equivalent consumption)	0.65694***	8.555	0.000	1.9289	1.6363	0.7496	92.9	63.6
Nchildren = 3/4	0.36622**	2.412	0.016	1.4423	1.1795	0.4508	44.2	18
Nchildren = 5/6	0.40976***	2.768	0.006	1.5065	1.2247	0.4947	50.6	22.5
Urban = true	0.79547***	4.667	0.000	2.2155	1.3279	0.3566	121.5	32.8
Eastern	-0.58675***	-4.376	0.000	0.5561	0.7653	0.4558	-44.4	-23.5
Northern	-0.69988***	-4.548	0.000	0.4966	0.7534	0.4047	-50.3	-24.7
Western	-0.49432***	-3.473	0.001	0.61	0.8086	0.4298	-39	-19.1

N = 4199; Psuedo R-squared = .2318
*** = significant at the 99% confidence level; ** = significant at the 95% confidence level

27 See, for example Al Samarrai and Peasgood for the estimation of completion in Tanzania, and Barros et al (2008) for the estimation of inequality of basic opportunity in Latin America.

Another way to interpret the data is to examine the predicted change in probability for each variable. Given that there are many categorical and binary variables, these probabilities provide a more readily interpretable result than estimates of marginal effects. The table below shows that a one standard deviation change (around the mean) in the age of the child increases the probability of completion by 15.8 percentage points, reflecting the fact that children are more likely to complete as they get older as a result of late entry into school and often repetition of grades. A one standard deviation change in the log of consumption increases the probability by 8.4 percentage points, while a similar increase in the head's years of schooling increases it by 6.5 percentage points.

For the binary variables, a more relevant change is from 0-1, where we see the importance of urban versus rural (where going from rural to urban increases the probability of completion by 15.3 points). Interestingly, once the other variables are controlled for the impact of the Northern region is not much larger than the other two regions (all of them are compared against the central region).

Being a male child decreases the probability by 2.1 points, holding everything else constant.

Table A.5 Estimated change in probability

	min-max	0-1	st dev
age	0.4409		0.1583
Male child = true		-0.0211	
Female head = true		0.0923	
Head years of schooling	0.31		0.065
Reside with both parents = true		0.084	
ln_peqa			0.0843
Nchildren = 3/4		0.0557	
Nchildren = 5/6		0.0632	
Urban = true		0.1531	
Eastern		-0.1072	
Northern		-0.1241	
Western		-0.0925	

We can also estimate the changes in probability while holding the categorical variables constant. In doing this we see that there is a greater difference between girls and boys in the Central region and when there are 3 or more children in the household. Similarly, the gender of the head of the household makes more of a difference in the Central region, and it increases with the number of children. By contrast, the level of household consumption makes less of a difference in the Central region, while it has the greatest impact in the Western region.

Annex E Methodology for the estimation of inequality of opportunity

A.1.2 Identifying a dataset with sufficient information

The first challenge with respect to data for the analysis of equality of opportunity is in having access information on all the relevant 'circumstances', and this includes, in particular, parental characteristics such as the level of education and occupation, as well as individual characteristics such as region of birth, gender, race/ethnicity, etc. The second is in ensuring a large enough sample size, since, even a very limited number of circumstances can lead to a large number of 'types', and each type must have a large enough sample size to allow robust of between-group differences in outcomes.

The potential for exploring the inequality of opportunity in Uganda therefore rests on the ability to access variables relating to (1) parental characteristics (since the individual characteristics are already easily available) and (2) economic outcomes (earnings, consumption), and ensuring that sample sizes are large enough. Unfortunately, in the latest UNHS round (2009/10), these circumstance variables related to parental characteristics are not available. However, in the 2005/6 round, there were questions on father's education, mother's education, and father's occupation, which makes it possible to undertake the analysis for this slightly earlier time-frame.

A.1.3 Methodology

The methodology for estimating equality of opportunity in the 'top down' sense is fairly straightforward. It involves the following steps:

1. Identify the relevant circumstances and group individuals by type

In theory, the more relevant circumstances that can be added to the estimation, the more accurate the attribution of inequality to circumstance will be[28]. In practice, we are of course limited by the data that is actually available in the household survey. There are also further limitations on the number of different circumstances based on the size of the sample; the larger the number of circumstances or the further the disaggregation of circumstances into categories, the larger the number of unique combinations of those circumstances, or types. This may lead to the number of observations in certain types to be very low, which would compromise the robustness of the estimation. In practice, therefore, the definition of circumstances is limited by the size of the sample and the need to keep the number of unique types to some tractable number.

For the present purposes we include the following circumstance variables:

- Father's education: We limit the number of categories to three: no primary or some primary; primary completion; higher than primary.
- Mother's education: Here we limit the categories to just two (no primary or some primary, and completion of primary and higher). This is because amongst current adults, very few of their mothers completed more than primary education.
- Father's occupation: This is defined as agriculture or other.
- Region of birth: The regions include:

28 For example, Bjorklund et al (2011) had access to a highly detailed dataset for Sweden, which allowed the analysis to identify 6circumstances and 1152 unique types. Using this data, they estimate for the percentage of inequality attributed to circumstance was around 30%, compared to other studies using far fewer number of unique types, where the result was around 10%. See World Bank (2008), and Ferriera and Gignoux (2008).

Northern, Southern, Eastern, Western, and Central.
- Born in rural or urban area.

This leads to the creation of 96 unique types.

2 Define or estimate the outcome variable of interest

There are two approaches to the definition of the outcome variable, in this case per-adult equivalent consumption. The first is to use the variable 'as is', i.e. the actual data point from the survey (the 'non-parametric' approach). The second is to use a predicted value, based on regression analysis (the 'parametric approach'). In less technical terms, the main differences between the two are that:

- The non-parametric approach is more flexible, in that it does not require any assumptions about the precise nature of the relationship between circumstances and consumption (in other words, it does not require knowledge about the 'functional form'). It does, however, have higher demands for the amount of available data; a sufficient number of observations are necessary for each type, otherwise the estimates may be biased and lack precision.
- The parametric approach, by contrast, requires some assumptions to be made about the functional form, but the trade-off is that it places lower demands on the amount of information.

The ultimate choice between the two should therefore be based on a judgement about the optimal trade-off between the gains from including more precisely defined types (from more circumstances or more categories within circumstances) and the gains from maximising the number of observations for each type.

In practice, it is common to use both techniques and compare results. In fact, in many other studies, the parametric and non-parametric estimates have tended to be quite similar in practice[29] .

3.Identify the measure of inequality to be used

The next step is to identify which measure of inequality will be used. The most common measures are from the class of indices known as the Generalized Entropy class, as these can be decomposed into the contribution of inequality of sub-groups to total inequality. These GE measures are often referred to as GE(a), where a is a measure of the sensitivity of the index to inequality at different points in the distribution. The lower the value of a, the more sensitive the measure is to inequality at the poorer end of the distribution, while higher values indicate greater sensitivity to the richer end of the distribution. GE(0) has the added valuable property of being path-independent, meaning that the same result is obtained whether one first estimates within-group or between-group inequality.

4. Estimate inequality in the outcome variable and decompose into within- and between-type inequality

This step can be easily undertaken using statistical software. The idea is that any inequality that occurs within types is related purely to effort, since the individuals within each type, by definition, have the same set of circumstances. By contrast, if we pick any particular point on the distribution within each type (for example, the mean or the median) and calculate the inequality between groups, we will measure only inequality related to circumstance, since the level of effort is held constant[30].

29 See World Bank (2008), and Ferriera and Gignoux (2008). 30 This assumes that effort is distributed consistently within each type, so that individuals at any particular point of the distribution in one type put forward the same level of effort as other individuals at the same point in the distribution in other types. So, for example, …

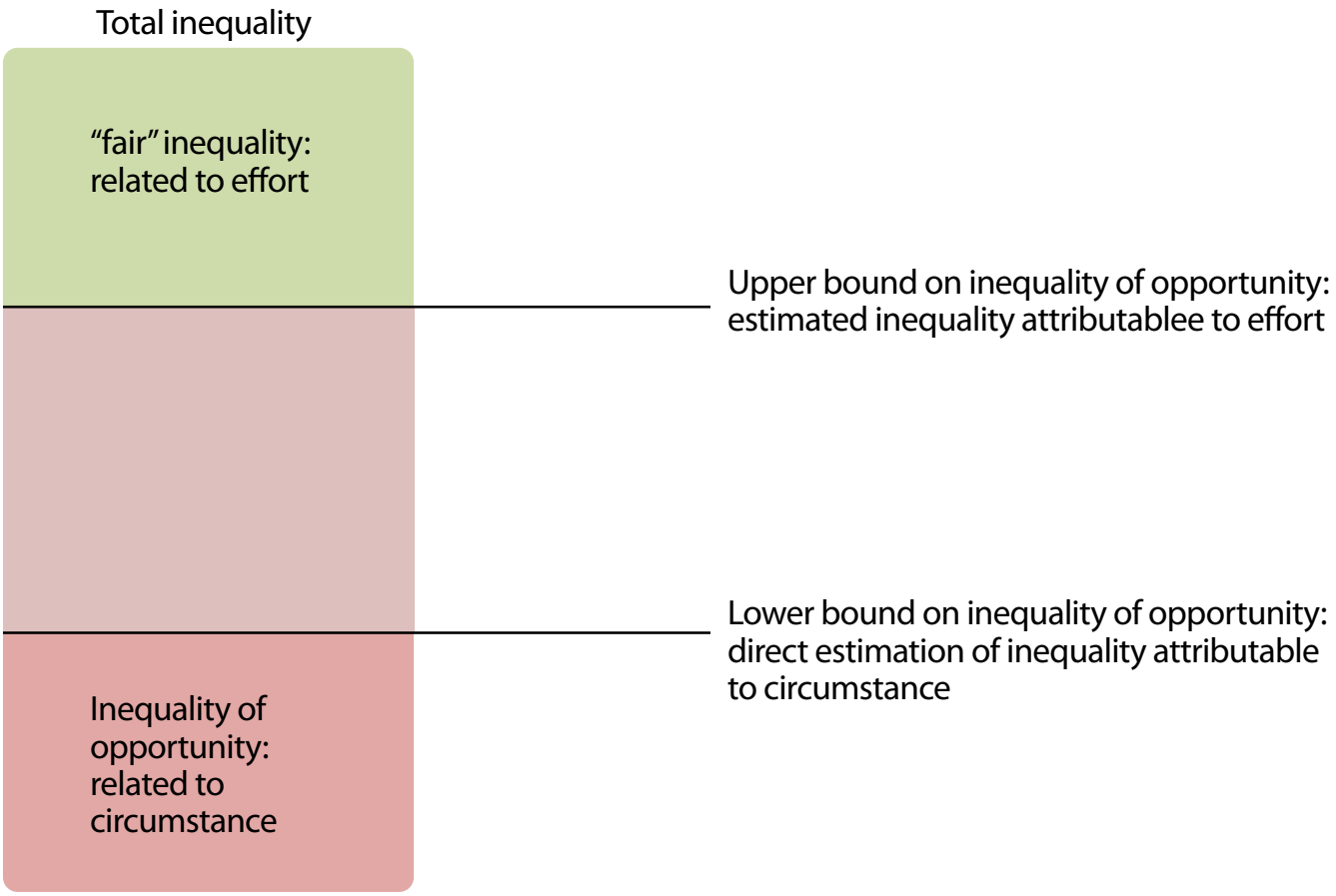
5.Estimate the lower bound of inequality of opportunity

This is simply done by dividing between-groups inequality by total inequality, which provides the share of total inequality that can be attributed to circumstance. This is only a lower bound, since it only accounts for those circumstances that have been included in the analysis; accounting for more circumstances would necessarily increase the estimated inequality of opportunity.

	min-max	0-1	st dev
age	0.4409		0.1583
Male child = true		-0.0211	
Female head = true		0.0923	
Head years of schooling	0.31		0.065
Reside with both parents = true		0.084	
ln_peqa			0.0843
Nchildren = 3/4		0.0557	
Nchildren = 5/6		0.0632	
Urban = true		0.1531	
Eastern		-0.1072	
Northern		-0.1241	
Western		-0.0925	

We can also estimate the changes in probability while holding the categorical variables constant. In doing this we see that there is a greater difference between girls and boys in the Central region and when there are 3 or more children in the household. Similarly, the gender of the head of the household makes more of a difference in the Central region, and it increases with the number of children. By contrast, the level of household consumption makes less of a difference in the Central region, while it has the greatest impact in the Western region.

Figure A 1: Estimating inequality of opportunity



6. Estimate the upper bound of inequality of opportunity

In theory, the calculation of the upper bound of inequality of opportunity should be straightforward. Although it is not possible to estimate inequality attributable to effort directly, it is possible to estimate it somewhat indirectly. As described above, we can assume that inequality within each type is related only to effort, and that at each similar point in the distribution (25th percentile, 50th percentile, etc) effort is the same across types[31] .

31 This is what Checci and Perignane refer to as the 'tranches' approach

Annex F Further tables and figures

Table A.6 Distribution of School Attendance for persons 6-12 years by Consumption Decile, Residence and type of School Management (%)

2005/06

Urban					
Deciles	Government	Private	NGO/		
Religious	Total	Numbers			
1	89.8	6.0	4.1	100.0	23,367
2	85.8	9.3	4.9	100.0	37,343
3	87.0	7.9	5.2	100.0	33,224
4	79.0	14.2	6.8	100.0	47,854
5	75.4	20.8	3.9	100.0	54,012
6	78.3	16.0	5.7	100.0	60,799
7	58.4	41.2	0.4	100.0	67,804
8	47.7	51.2	1.1	100.0	102,804
9	32.1	64.7	3.3	100.0	135,244
10	31.6	67.6	0.7	100.0	203,267
Total	52.8	44.5	2.7	100.0	765,717

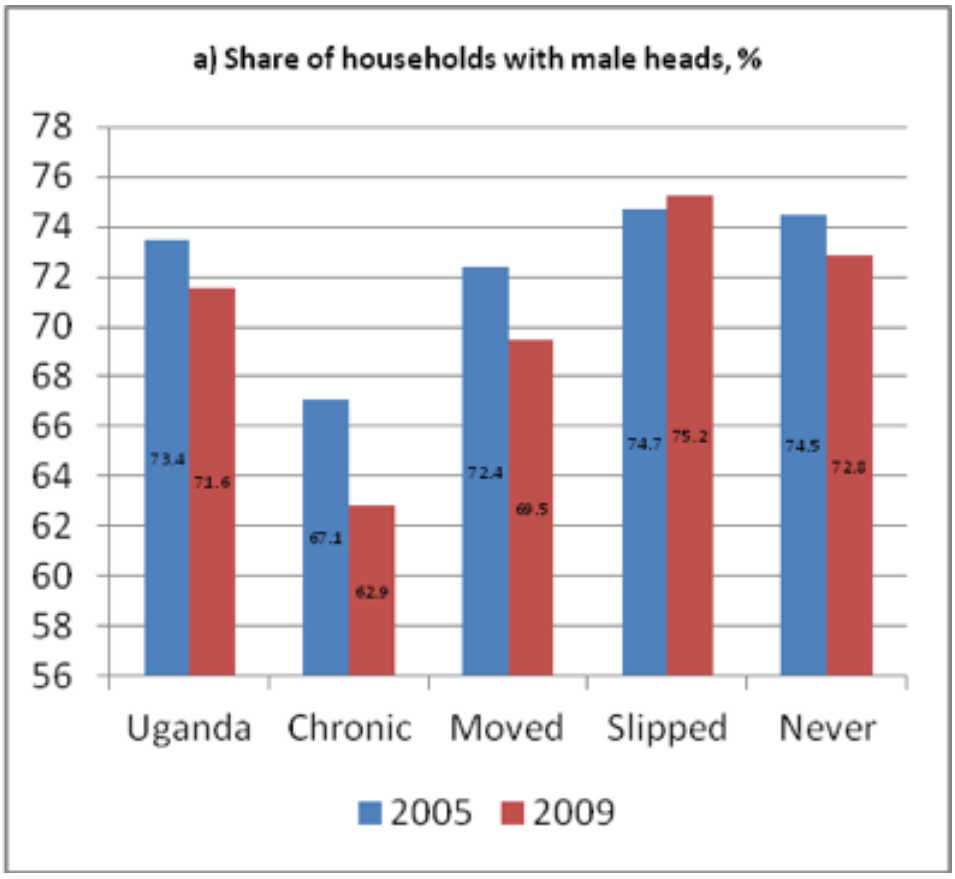
Rural				
Government	Private	NGO/		
Religious	Total	Numbers		
93.4	3.3	3.3	100.0	488,645
90.0	8.5	1.4	100.0	512,862
88.8	10.2	0.9	100.0	524,829
85.4	12.1	2.5	100.0	517,011
84.0	14.3	1.6	100.0	485,242
83.1	14.9	2.1	100.0	508,493
77.4	18.8	3.8	100.0	456,206
75.9	21.0	3.1	100.0	396,612
65.6	32.4	2.0	100.0	372,277
54.6	43.8	1.6	100.0	219,265
82.0	15.8	2.2	100.0	4,481,440

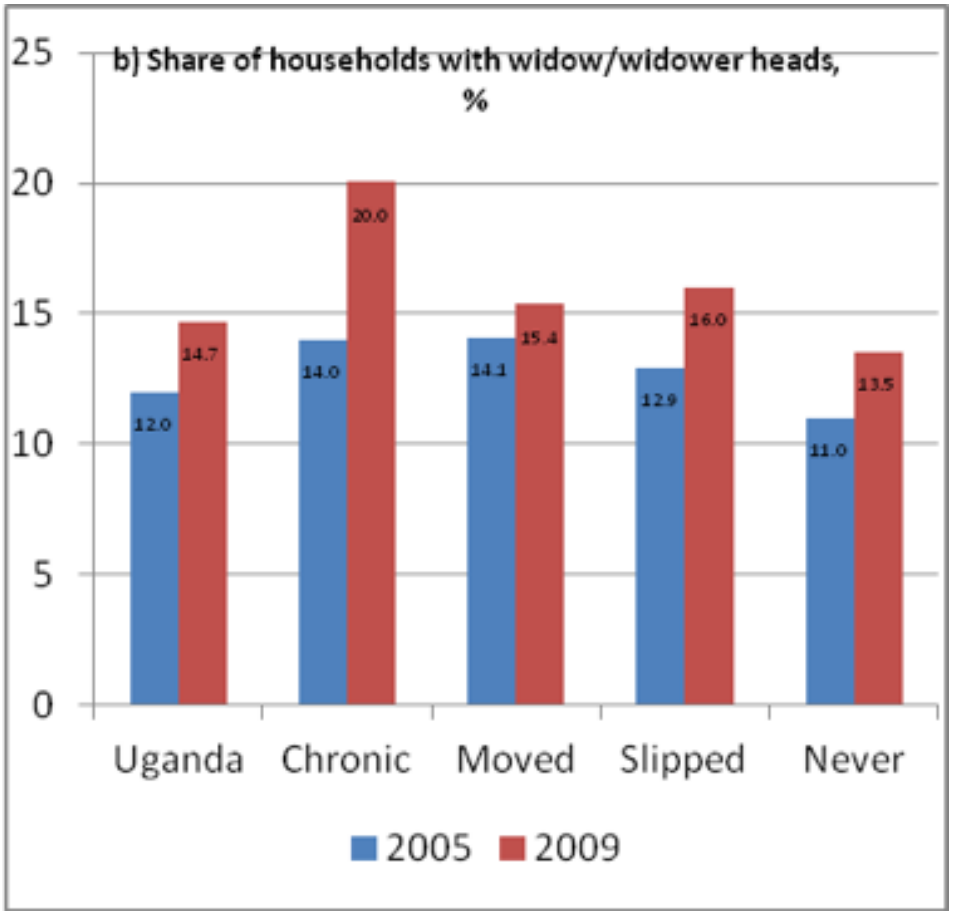
2009/10

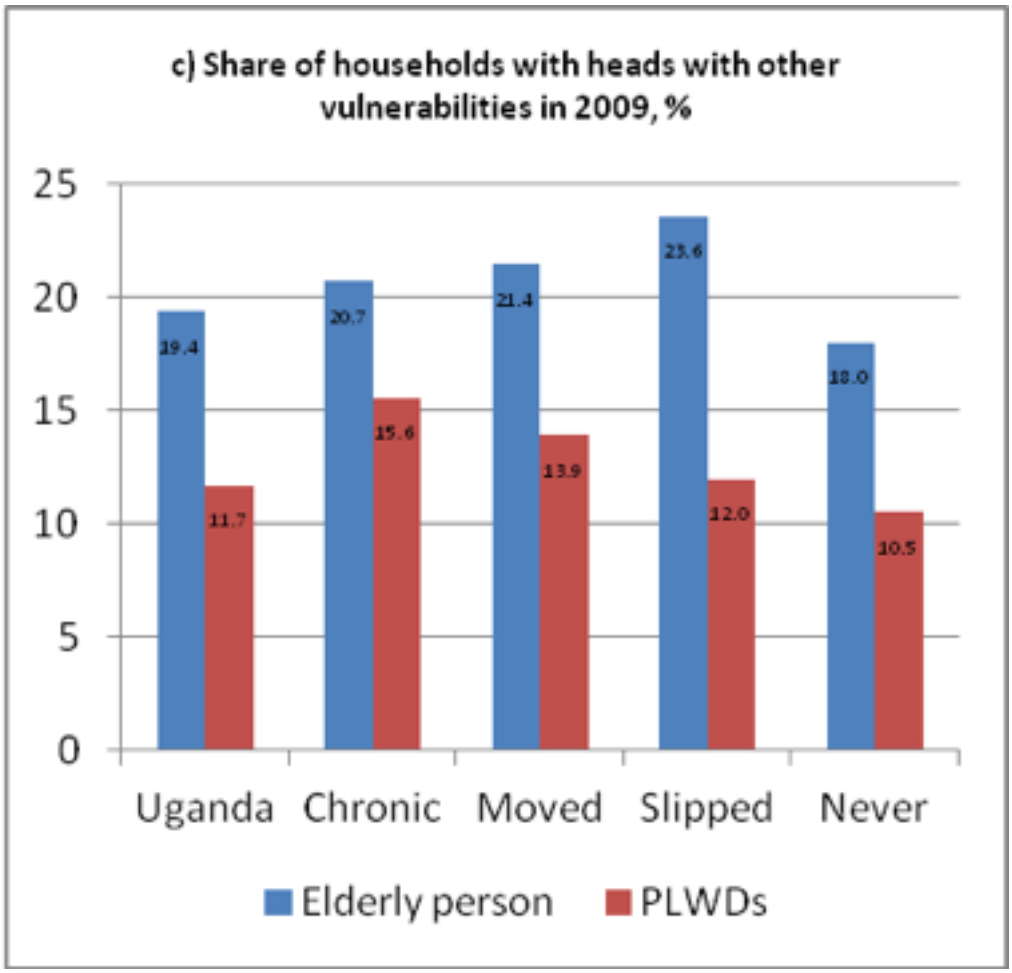
Urban					
Deciles	Government	Private	NGO/		
Religious		Numbers			
1	38.2	12.6	49.3	100.0	13,423
2	93.4	2.9	3.8	100.0	18,527
3	47.4	52.0	0.6	100.0	65,886
4	83.2	14.6	2.3	100.0	66,677
5	65.6	28.2	6.2	100.0	41,500
6	59.7	40.3	0.0	100.0	32,592
7	46.3	40.3	13.4	100.0	55,768
8	48.4	51.6	0.0	100.0	107,953
9	29.9	66.8	3.3	100.0	133,294
10	20.5	75.4	4.2	100.0	175,197
Total	43.5	52.1	4.4	100.0	710,816

Rural				
Government	Private	NGO		
/Religious		Numbers		
95.9	3.1	1.1	100.0	436,190
88.3	9.7	2.1	100.0	568,770
87.9	10.6	1.5	100.0	584,198
82.4	14.7	2.9	100.0	612,723
79.5	15.6	4.9	100.0	627,853
79.4	18.7	1.9	100.0	593,902
73.9	22.5	3.5	100.0	572,403
71.6	24.3	4.0	100.0	514,356
58.3	37.4	4.3	100.0	435,523
33.0	63.7	3.3	100.0	230,976
77.9	19.2	3.0	100.0	5,176,892

Figure A.2 Share of households by headship based on selected vulnerabilities






c) Share of households with heads with other vulnerabilities in 2009, %
25
20
15
10
5
0
19.4
11.7
20.7
15.6
21.4
13.9
23.6
12.0
18.0
10.5
Uganda
Chronic
Moved
Slipped
Never
Elderly person
PLWDs

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