Uganda  
*Bjorn Van Campenhout, Haruna Sekabira, and Fiona Nattembo*

Abstract

Uganda has seen impressive growth, coupled with substantial poverty reductions over the past few decades. However, recent research relying on non-monetary wealth indicators show much more modest progress. We argue that an outdated poverty line that does not take into consideration the spatial variation of diets in Uganda can explain much of the paradox. We estimate new poverty lines using the Uganda National Household Survey of 2012/13. When we use a single national poverty line, we come close to the official poverty estimates. However, if we estimate utility consistent poverty lines using six spatial domains, poverty levels and geographical poverty patterns are much closer to those suggested by studies that use non-monetary wealth indicators.

# Introduction

During the past few decades, Uganda has experienced substantial economic growth. Especially during the nineties, Uganda outperformed other economies in Southern and Eastern Africa. Part of this accelerated growth is likely to be a peace dividend after years of civil war during the Amin and Obote regimes. However, some of this growth is also attributed to the far-reaching economic reforms implemented by the new government, transforming Uganda in one of the most liberal economies in Sub-saharan Africa (World Bank, 1993). This growth has been accompanied by equally impressive social progress. Indeed, Uganda used to be considered a show-case when it comes to reducing poverty, fighting HIV/AIDS and promoting social development (Dijkstra and van Donge 2001). Official poverty fell from about 56 percent in 92/93 to around 20 percent in 2012/13 (UBOS 2006, Ssewanyana and Kasirye, 2014). These days, in terms of economic growth, Uganda has been overtaken by some of the neighboring countries, such as Tanzania and Ethiopia. While GDP growth shows a marked slowdown from 2005/06 onward (Duponchelle et al. 2014), official poverty statistic seem to persist their downward trend.

However, research has cautioned that the positive aggregate trends may hide less positive dynamics at a more disaggregate level. For instance, Emwanu et al 2006 find that poverty reductions in the North were much less pronounced, and today, poverty levels in for example Karamoja remain disturbingly high. More recent research on poverty dynamics using a recently constructed panel data survey also point out stagnation or even a reversal in some areas (Ssewanyana and Kasirye, 2004, Duponchelle et al 2014). More worrying is that as of late, some started to call the actual numbers into question. Levine 2012 points out significant diversions between the level and evaluation of poverty figures reported by the government of Uganda and those published by the World Bank. Both qualitative and quantitative research on asset accumulation and non-monetary poverty indicators also suggest much more modest progress. (Daniels and Minot 2015; Kakande, 2010). Some scholars argue that the use of a single national poverty line may bias estimates in certain areas (Appleton 2003; Jamal 1998).

In this chapter, we document our efforts to estimate poverty from scratch using PLEASe. We use the latest available household survey and construct our own welfare indicator, touching upon the various challenges we meet along the way. We estimate a new set of utility consistent poverty lines taking into account the spatial variation in the cost of basic needs within Uganda and compare this to results using official Ugandan poverty lines.

# 2 Poverty in Uganda: trends and controversies

During the 1990s, poverty in Uganda decreased substantially, falling by almost 40 per cent at the national level (Appleton 2003). However, there were significant spatial differences in both levels and changes in poverty. The urban areas and central region reduce poverty the fastest. The northern region, already starting from high levels of poverty, was relatively unsuccessful in bringing down the number of people living below the poverty line. In addition, studies that exploit the panel nature of the data find that in some regions, poverty is particularly persistent (Deininger et al. 2003). Also puzzling is a sudden drop between 1997/1998 and 1999/2000. Although it took five years for poverty to decrease by 20 per cent between 1992-97, it took only two years to decrease another 20 per cent at the turn of the century. This may be due to inconsistent underlying welfare indicator data that were obtained from different surveys.

One controversy we will also address in this chapter pertains to the fact that the official poverty estimates are based on poverty lines that are rooted in a single national food consumption bundle, derived from 1993/94 Monitoring Survey data. In particular, a single food basket was identified at the national level with 28 of the most frequently consumed food items by households with less than the median income. The items in this food basket were then converted into caloric equivalents and scaled to generate 3,000 calories per adult equivalent per day using the World Health Organization (WHO) estimates for an 18‐30-year-old male as a reference. Next, a non-food allowance was added. Non-food requirements were estimated as the average non-food expenditure of those households whose total expenditure was around the food poverty line. The non-food allowance does allow for spatial heterogeneity, as separate averages were calculated for urban and rural locations interacted with the four regions (central, eastern, northern, and western), using the method described in Ravallion and Bidani (1994). These poverty lines have since been updated by the official inflation figures each time a new household survey came out.

Appleton (2003) and Jamal (1998) argue that Uganda is unusual in its dietary diversity. Indeed, Uganda has five different staples, matooke, maize, sweet potatoes, cassava, and millet that are more or less important within the diet depending on the region. This may not matter very much if the diets are equally cost-effective in obtaining the same level of basic needs as defined in kilo-calories. However, the staple food of choice of a large part of the population, both in the western and the central regions, is matooke, a highly-localized staple.[[1]](#footnote-1) Appleton (2003) calculates that, at least in 1993-94, matooke appeared to be a very expensive source of calories, compared to what people in, for instance, the north consume. When Appleton (2003) and Jamal (1998) account for this in their analysis, they come to the conclusion that poverty is more pronounced in the western region than found in official statistics. Even after correcting for income difference, as regions that consume more expensive calories may do so simply because they have higher incomes, Appleton (2003) comes to the conclusion that the western region overtakes the northern region as the poorest.

Progress in fighting poverty reported by the government of Uganda and UBOS in the first decade of the new millennium is equally impressive. Table 1 shows that poverty at the national level kept falling during the first decade, shaving another 50 per cent off of headcount poverty. At the same time, differential progress in poverty reduction in different regions persists, too. For instance, by 2012/13, poverty is more than eight times higher in the northern region than in the central region. In 2002/2003, the north was only 2.7 times poorer than the central region. The more disaggregated the numbers, the starker the contrasts become. In the northeast, a semi-arid area with low rainfall inhabited by the Karamajong, an agro-pastoralist ethnic group, poverty remains stubbornly high, while in the central and western regions of the country, poverty is almost eradicated.

[insert table 1 about here]

The official poverty figures and its evolution over time has been questioned in recent years for being overly optimistic. Daniels and Minot (2015) use Demographic and Health Survey (DHS) data and methods related to poverty mapping and small area estimation to look at poverty trends across Uganda from 1995 to 2010. They use the 2005/06 UNHS survey to estimate regressions that correlate poverty to a range of household characteristics that also appear in the DHS (four such surveys have been carried out between 1995 and 2009/10). They then use the DHS surveys to predict poverty in each of the DHS survey years. They find that poverty indeed reduced over time, but much slower than official figures suggest. While their national estimate of headcount poverty in 2006 is 33 per cent and thus very close to the official estimate of 2005/06, the rate still stands as 30 per cent using the 2009 DHS, about 6 percentage points higher than the 2009/10 UNHS estimate.

This view is shared among many researchers and opinion makers in Uganda. Byekwaso (2010) calls officially reported poverty changes ‘a fiction’. Kakande (2010) admits that qualitative findings on poverty trends suggest there was a decrease in wellbeing despite the drop in poverty rates. Recently, an unpublished manuscript has been circulating that compares Uganda to other African countries on six non-monetary poverty indicators, such as literacy rates and access to piped water. This admittedly partial analysis also points to a much higher incidence of poverty than officially reported.

# 3 Utility-consistent poverty lines using revealed preferences

From the above, we learn that one of the main weaknesses of the official poverty measures is that they are based on a poverty line that is constructed using a single food commodity bundle for the entire country. In addition, this food basket was constructed in 1993 and has not been updated since, apart from accounting for inflation using the consumer price index. However, it is well known that in many instances - for example, if relative prices of basic commodities vary by region (or through time) and preferences permit substitution - the use of a single consumption bundle may yield inconsistent poverty comparisons (Tarp et al. 2002). While differences in prices in different locations are usually incorporated in poverty measurement by adjusting the welfare indicator to reflect prices used in the construction of the poverty lines (or by adjusting the poverty lines to reflect prices used in the construction of the welfare indicator), it is becoming more and more common to also account for spatial heterogeneity in consumption bundles in an effort to increase the specificity of poverty lines (e.g. Ravallion and Lokshin 2006; Mukherjee and Benson 2003).

While differences in consumption baskets are interesting in their own right, they become relevant only in the context of poverty measurement and analysis, as we relate a welfare indicator to the cost of these basic needs. Indeed, different diets may provide the same basic needs (usually a given amount of kilo-calories per day) at significantly different costs, which complicates poverty comparisons between units (regions, households, individuals, and so forth) with different diets. It is especially in this regard that Uganda provides an interesting case. Matooke, the main ingredient in the diet of households in the west, may be more or less expensive per energy unit than, for example, sorghum, the main staple in the north. As such, it would be misleading to compare the west with the north on the basis of a single food poverty line, even after allowing for spatial price heterogeneity.

But how can we be sure that two different consumption bundles provide the same basic needs? Or, in the language of Ravallion and Bidani (1994), how do we ensure *consistency*?*[[2]](#footnote-2)* The theory underlying absolute poverty lines is grounded in welfare economics and constrained utility maximization. In this context, the fixed standard of living represented by the poverty line is viewed as a level of utility associated with the minimally acceptable standard of living. In other words, two bundles of goods are consistent if they yield the same utility.

We follow Ravallion and Lokshin (2006), who argue that the theory of revealed preferences provides a suitable framework for answering these questions. The idea uses the rationality assumption that economic agents that derive utility from consumption always prefer consuming more to less. A representative consumer in a particular spatial domain will choose only that bundle that minimizes expenditure. Thus, any other bundle that yields the same level of utility should be equally expensive as or more expensive than the chosen bundle. No bundle can cost less than the chosen one yet yield that same utility, because then the rational consumer should have chosen that one. Or, as in Gibson and Rozelle (2003), if the cost of a bundle from another domain would be cheaper if bought in a specific domain, this means it must have lower utility than the bundle in that specific domain, as otherwise the rational consumer would have picked the bundle from the other domain. We use a minimum cross-entropy approach to adjust expenditure shares such that they meet revealed preference conditions (Arndt and Simler 2010). More information on the rationale behind utility consistent poverty lines and the estimation using minimum cross-entropy can be found in Van Campenhout et al. (2014).

# 4 A reassessment of poverty and its evolution in Uganda

Poverty measurement involves generally three steps. The first two steps are often referred to as the **identification** and the last step involves **aggregation**. It involves the construction of 1) a welfare measure and 2) agreeing on a poverty line. The welfare measure is used to rank units (most of the time these are households, but this can also be individuals or countries) according to well-being. Ideally, this should be measure that reflects the multi-dimensional nature of well-being, but in general, a money metric measure that is correlated with well-being is chosen. In practice, preference is given to consumption expenditure above income, as the first tends to be less susceptible to fluctuations over time.

The poverty line is then used to delineate the poor from the rest of the population. There are two common ways to fix poverty lines. The cost of basic needs (CBN) method assembles a basket of goods typically consumed by the poor that generates a minimum necessary energy level (eg 2200 kcal per adult) that is deemed sufficient, and a non-food allowance is added. Alternatively, the food energy intake method is derived from a regression of food expenditure on caloric intake at the individual level, which is then used to predict expenditure needed to yield a particular minimum necessary energy level. The advantage of this method is that a non-food allowance is automatically included in the predicted expenditure, but the disadvantage is that one needs detailed data on food energy intake to estimate the regression.

In the aggregation step, the information pertaining the position of the units in terms of welfare with respect to the poverty line is summarized at a particular level of aggregation. For instance, can simply count the number of households that fall below the poverty line and express this as a proportion of the total number of households at a national level. This would be the poverty headcount, and this is usually what people refer to when they talk about the level of poverty in a particular country. An often used poverty measure, that encompasses the poverty headcount, is the Foster-Greere-Thorbecke (FGT) indicator.

## The data

Uganda has been lauded for its efforts to monitor poverty and wellbeing. At the basis of this is a fairly well functioning statistics agency that collects information on socio-economic characteristics at the household and community levels for monitoring development performance. As such, researchers that want to work on poverty measurement and comparisons have a range of data they can work with. The first household budget survey since the end of the civil war was done in 1989/89 and smaller surveys have been done at varying time intervals. From 2000 onward, the format of the survey was adapted. The survey was modeled conform the Living Standard Measurement Survey (LSMS) and was held every three years. This first survey is popularly known as the Uganda National Household Survey 2000/09 or UNHS-1. The latest available UNHS that was publically available at the time of writing was the one from 2012/13.

The UNHS consists of some core modules, such as a socio-economic, a labour, a community and a price module. In some rounds, some modules are added to collect information on some specific areas. For example, the UNHS 2009/10 had an extra module on the informal sector. In this regard, the UNHS 2005/06 was particularly interesting, as it had an extended module on smallholder agriculture, which is the main stray of the majority of the population in Uganda, especially the poor. The UNHS generally surveys about 6,000 to 8,000 households.

The UNHS 2005/06 is also noteworthy because it is part of the LSMS-ISA, a project managed by the LSMS team at the World Bank with the aim of making high quality panel data with a strong focus on agriculture available in a selection of African countries. In principle, the analysis that is described in this chapter can readily be replicated using one of the UNPS rounds, although the sample size is likely to be too small to estimate poverty lines in many different spatial domains.

While it is difficult to assess the quality of the data without a proper benchmark, internal inconsistencies within the data signal that there are at least some issue with the quality. For example, in the UNHS wave of 2010/11, there is a gigantic unexplained drop in the number of people reporting to consume sweet potatoes (and to a lesser extent cassava). While in all other rounds of the UNPS about 1500 households report non-zero consumption of sweet potatoes, this is less than 300 households in the 2010/11.

In this study, we will present results based on the UNHS 2012/13. This is the latest UNHS available. In addition, it covers about 6888 households, a sufficient numbers of observations available to allow us to estimate poverty lines at a sufficiently disaggregated level. We will use six spatial domains (Kampala, Rural central, Rural East, Rural North, Rural West, and Other Urban).

## Constructing the welfare indicator

The datasets that are disseminated by the UBOS normally have an extra file that can be used to replicate the official poverty numbers. For instance, for the UNHS 2012/13 has a file called Poverty2012.dta. In this file, one will find a variable called welfare, which is essentially the welfare indicator[[3]](#footnote-3). You also need the poverty lines (called spline) and the weights called hmult. Poverty can then simply be calculated by

. gen poor = welfare < spline

. mean poor [fweight = hmult]

The consumption aggregate is convenient to replicate official estimates. However, often, one would like to rerun the analysis with slight modifications to check robustness. For instance, one may want to check if scaling household consumption by household size or the number of adult equivalent units within the household would make a difference. This is impossible to do with the UNHS, as there is no detailed information available on how the consumption aggregate has been constructed and the code that is used to generated welfare variable is not in the public domain. Furthermore, while some datasets have a range of seemingly intermediate variables, such as the Poverty2012.dta referred to above, others have only a few intermediate variables[[4]](#footnote-4).

The toolkit contains modules to construct a consumption aggregate. Although it would be possible to use the consumption aggregated supplied by UBOS to rank households and compare them to poverty lines, the construction of the poverty lines itself requires more detailed consumption information than just the welfare indicator. Therefore, we decided to reconstruct our own welfare indicator from the raw consumption data.

One of the first things we do is merge in household size from the household roster in section 2 to the identifying information in section 1 which we will use to classify households into different spatial domains. To determine household size, we only incorporate usual of regular members present or absent, which leads to an average household size of about 5 members. Already, due to undocumented data cleaning or a different definition of what constitutes a household, our household size differs slightly from the one reported in the Poverty2012.dta dataset.

To calculate the welfare indicator at the household level, we start in section 6B and we simply sum all quantities consumed out of purchases at home, consumed out or purchases away from home, consumed out of home production and quantities received in kind or for free. These sums are divided by seven to get daily consumption for each consumption item at household level. We also sum corresponding values to come to daily value of total consumption of each item at the household level.

A typical issue encountered in household budget surveys is that food consumption is often recorded in non-standard units. Some may be straightforward to convert to kilograms, such as one kimbo of maize grains, where kimbo is a well-known type of cooking oil that comes in 1 kg plastic pots. Others are less precisely defined, such as a bunch of bananas or a bundle of fish. We convert these units using a set of conversion factors that UBOS assembled during the Uganda Census of Agriculture. But even then, about 7 percent of the household – item level observations can not be converted into kilograms because of missing conversion factors. In most cases, these are foodstuff that are not well defined, such as “other fruits”.

Section 5 provides a section on health, with a single question on the cost of consultation. However, section 6 C, on expenditures on Non-durable Goods and Frequently Purchased services also asks about health and medical care expenses. This is done in a much more detailed way than in section 5, explicitly probing for traditional doctor’s fees and in-kind or received for free services. We therefore include medical expenditures as non-durable goods and frequently purchased services. on also . Other categories under this heading are (imputed) rent and fuel such as charcoal; non-durable and personal goods such as soap; transport and communication such as air time; and other services such as barber. As this was recorded during the last 30 days we converted to daily averages and aggregated to total household expenditures.

Section 4 records education for household members above the age of 5 and has a question on expenditures. However, section 6D on expenditures on semi-durable and durable goods and services that were purchased during the last year also includes questions on expenditure for education. Other semi-durable and durable goods include clothing and footwear; furniture; household appliances and equipment; utensils and others. Finally, there is a separate section for non-consumption expenditure, which collects tax payments, interests, funerals and other functions,…

Poverty line

Official poverty

For the poverty line, we constructed a dataset at the individual level based on the household roster in section 2 and merged in an indicator from section 3 indicating if the mother is living in the household.

Calorie content of consumed food items

## Prices

## Number of spatial domains

[insert Table 2 about here]

More specifically, following \citet{RePEc:ucp:ecdecc:v:58:y:2010:i:3:p:449-474},

we start by constructing food bundles in each spatial domain. In each

domain, a basket of food products that satisfies basic calorie needs

is identified using information on the age and sex composition of

the households and the recorded consumption patterns of poorer households.%

\footnote{The demographic structure of each region is mapped to an average basic

calorie requirement in each region using \citet{WHO1985}. The mapping

from these basic caloric needs into basic needs consumption bundles

is based on \citet{FAO1968}. %

} The cost of this basket, valued at prices prevailing within each

spatial domain, results in a set of food poverty lines, one in each

spatial domain. non-food poverty lines are obtained by calculating

the share of food expenditures for households whose total food and

non-food consumption per capita is near the food poverty line. Total

poverty lines are obtained as the sum of the food and the non-food

poverty lines. These poverty lines are then compared, to make sure

that they are utility-consistent. In particular, we compare the cost

of a bundle in one spatial domain to the bundles in the other spatial

domains, but evaluated at the price in this spatial domain. As stated

above, revealed preferences states that the cost of the bundle in

the spatial domain should be smaller or equal to the bundles chosen

in any other spatial domain. If this condition is violated, we use

a minimum cross-entropy framework to adjust consumption shares in

such a way that revealed preference conditions are satisfied.

It can be instructive to have a closer look at the poverty lines.

After all, poverty lines are not only useful to separate the rich

from the poor, but also serve as deflators for cost-of-living differences,

permitting interpersonal welfare comparisons when the cost of acquiring

basic needs varies over time or space (\citealt{RePEc:fth:wobali:133}).

Table \ref{tab:Utility-consist} reports the utility-consistent poverty

lines we estimate using the 2012/13 UNHS based on the six different

spatial domains.%

\footnote{The poverty lines in Table \ref{tab:Utility-consist} are aggregated

to different spatial domains for the sake of comparison to official

statistics. The underlying poverty lines for the six spatial domains,

in addition to a poverty line using only one (national) spatial domain

for comparison, are presented in Table \ref{tab:Utility-Consistent-Poverty}

in the appendix. It is not possible to directly compare the utility-consistent

poverty lines we estimate to the official poverty lines, since spatial

price differences are not reflected in the poverty lines. Instead,

the official poverty measures incorporate spatial price difference

by adjusting the welfare indicator.%

} The cost of living seems to be highest in the central region. The

Western region comes in second. This is consistent with the findings

of \citet{RePEc:oup:jafrec:v:12:y:2003:i:4:p:598-624} and \citet{New1}

and is caused by the low energy content and relatively high price

of matooke, a staple grown and consumed mostly in the western and

central regions. Households in the eastern region, on the other hand,

consume a lot of cassava, mostly in dried or flour form, which is

only three times as costly but more than eight times as nutritious.

While the 2012/13 poverty lines are directly derived from the 2012/13

UNHS, the poverty lines for the other years are simply deflated using

the Consumer Price Index. Poverty lines are expressed in Ugandan shillings

per person per day.

\begin{table}

\protect\caption{Utility-consistent poverty lines based on UNHS 2012/13\label{tab:Utility-consist}}

\begin{centering}

\begin{tabular}{lccccc}

\hline

& \multicolumn{1}{c}{2005/06} & \multicolumn{1}{c}{2009/10} & 2010/11 & 2011/12 & 2012/13\tabularnewline

\cline{2-6}

Uganda & 929.34 & 1338.13 & 1425.52 & 1760.93 & 1860.54\tabularnewline

& & & & & \tabularnewline

Rural & 901.93 & 1298.66 & 1383.47 & 1708.99 & 1805.66\tabularnewline

Urban & 1024.69 & 1475.43 & 1571.78 & 1941.61 & 2051.44\tabularnewline

& & & & & \tabularnewline

Central & 1048.57 & 1509.80 & 1608.40 & 1986.84 & 2099.23\tabularnewline

Eastern & 798.40 & 1149.59 & 1224.66 & 1512.81 & 1598.39\tabularnewline

Northern & 914.35 & 1316.54 & 1402.52 & 1732.52 & 1830.52\tabularnewline

Western & 975.27 & 1404.26 & 1495.96 & 1847.95 & 1952.49\tabularnewline

& & & & & \tabularnewline

Kampala & 1262.39 & 1817.68 & 1936.38 & 2392.00 & 2527.30\tabularnewline

Central 1 & 1013.24 & 1458.94 & 1554.21 & 1919.91 & 2028.51\tabularnewline

Central 2 & 1020.24 & 1469.02 & 1564.95 & 1933.17 & 2042.53\tabularnewline

East Central & 803.39 & 1156.78 & 1232.33 & 1522.28 & 1608.39\tabularnewline

Eastern & 794.83 & 1144.45 & 1219.19 & 1506.05 & 1591.25\tabularnewline

Mid-northern & 917.31 & 1320.81 & 1407.07 & 1738.14 & 1836.46\tabularnewline

Northeastern & 911.04 & 1311.78 & 1397.45 & 1726.26 & 1823.91\tabularnewline

West Nile & 910.74 & 1311.34 & 1396.98 & 1725.68 & 1823.30\tabularnewline

Mid-western & 975.58 & 1404.72 & 1496.45 & 1848.55 & 1953.12\tabularnewline

Southwestern & 974.96 & 1403.82 & 1495.50 & 1847.38 & 1951.88\tabularnewline

\hline

\end{tabular}

\par\end{centering}

\centering{}Source: Figures are calculated from the respective UNHS

2012/13.

\end{table}

Let us now look at the evolution of poverty during the recent past.

We will present two sets of results. The first set of results, reported

in Table \ref{tab:Poverty-headcounts-1spdomain}, uses only one spatial

domain. In other words, we estimate a single national poverty line

based on a single national food basket.%

\footnote{This national poverty line was estimated to be 1233.42, see first

row in Table \ref{tab:Utility-Consistent-Poverty} in the appendix.

One may be surprised that the poverty line based on a single spatial

domain is so low, and below all of the other poverty lines estimated

in the six regions, instead of somewhere in between. This is because,

using only one spatial domain essentially means that a single poverty

line is constructed based on the lowest cost and lowest consuming

rural zones. This leads to a low poverty line, closer to the lowest

poverty line using different spatial domains (eastern region) than

to the highest poverty line (Kampala). The fact that the poverty line

using one spatial domain is actually below the lowest poverty line

when different spatial domains are used is due to the utility consistency

adjustments. Poverty lines for the central and eastern regions are

significantly adjusted upward, lifting them above the poverty line

using a single spatial domain. %

} We do this because, in a way, this would be the closest to simply

updating the official poverty line, that is based on one single national

consumption basket. Second, we will present results for an analysis

that uses the six spatial domains mentioned above (Kampala, Rural

Central, Rural East, Rural North, Rural West, and Other Urban). The

results are reported in Table \ref{tab:Poverty-headcounts-6spdomains}.

\begin{table}

\protect\caption{Poverty headcounts 2002-2012 using one spatial domain\label{tab:Poverty-headcounts-1spdomain}}

\begin{centering}

\begin{tabular}{lcccccccccc}

\hline

& \multicolumn{2}{c}{2005/06} & \multicolumn{2}{c}{2009/10} & \multicolumn{2}{c}{2010/11} & \multicolumn{2}{c}{2011/12} & \multicolumn{2}{c}{2012/13}\tabularnewline

& P0 & contr & P0 & contr & P0 & contr & P0 & contr & P0 & contr\tabularnewline

\hline

\hline

Uganda & 0.216 & 1.000 & 0.200 & 1.000 & 0.207 & 1.000 & 0.157 & 1.000 & 0.136 & 1.000\tabularnewline

& & & & & & & & & & \tabularnewline

Rural & 0.250 & 0.965 & 0.229 & 0.963 & 0.232 & 0.962 & 0.179 & 0.951 & 0.159 & 0.900\tabularnewline

Urban & 0.046 & 0.035 & 0.047 & 0.037 & 0.056 & 0.038 & 0.045 & 0.049 & 0.060 & 0.100\tabularnewline

& & & & & & & & & & \tabularnewline

Central & 0.103 & 0.148 & 0.082 & 0.127 & 0.048 & 0.059 & 0.022 & 0.031 & 0.024 & 0.046\tabularnewline

Eastern & 0.223 & 0.257 & 0.200 & 0.244 & 0.248 & 0.321 & 0.186 & 0.379 & 0.165 & 0.352\tabularnewline

Northern & 0.488 & 0.390 & 0.385 & 0.346 & 0.300 & 0.335 & 0.286 & 0.382 & 0.336 & 0.512\tabularnewline

Western & 0.164 & 0.205 & 0.212 & 0.283 & 0.240 & 0.285 & 0.129 & 0.207 & 0.051 & 0.090\tabularnewline

\hline

\end{tabular}

\par\end{centering}

\begin{centering}

Source: Figures are calculated from the respective UNHS and UNPS waves.

\par\end{centering}

\centering{}Note: P0 means headcount poverty, contr means contribution

to national poverty.

\end{table}

Poverty headcounts using one spatial domain as reported in Table \ref{tab:Poverty-headcounts-1spdomain}

are much lower than the official headcounts reported in Table \ref{tab:Official-poverty-headcount00s}.

For instance, the national estimate in 2005/06 is about 10 percentage

points lower than the official estimates. However, the reduction in

poverty between 2005/06 and 2009/10 (7.4 per cent) is much smaller

than in the official figures (more than 20 per cent). There is a slight

increase in poverty in 2010/11, but national headcount poverty falls

to about 16 per cent in 2011/12.%

\footnote{While part of the increase in 2010/11 is likely caused by the increase

in food prices, data problems provide an additional explanation. For

instance, simple counts of how many households report consuming a

particular commodity point to some severe problems. In 2010/11 only

about 300 household report consuming sweet potatoes, while this is

around 1,400 in the other rounds. For cassava, in 2010/11 only 562

household report consumption, versus again about 1,400 in all other

rounds of the UNPS.%

} Overall, the reduction in poverty between 2005/06 and 2012/13 was

about the same as in the official figures at around 37 per cent, most

of this coming about in the two last years of the panel. The spatial

patterns are the same, as both these and the official estimates are

based on a single poverty line.

The national poverty headcounts are much higher than the official

ones if we use six spatial domains (Table \ref{tab:Poverty-headcounts-6spdomains}).

While \citet{New10} argue that the original 1993 poverty lines may

have increased too little to keep pace with inflation and that differences

in the measurement of consumption may contribute to the underestimation

of poverty, we find that consumption bundle aggregation also seems

to depress poverty figures. The reductions in poverty also seem more

modest than the official ones, with an overall reduction in poverty

between 2005/06 and 2012/13 of about one quarter. We also see that

the largest reduction the number of people living below the poverty

line happened between 2011/12 and 2012/13. However, if we look at

the evolution of the poverty gap (as reported in Table \ref{tab:Poverty-gap-2002-2012}

in the Appendix), the largest reduction is between 2010/11 and 2011/12.

This suggests quite some mobility below the poverty line between 2010/11

and 2011/12.

If we disaggregate between rural and urban poverty, we see that most

of the poverty reduction has been happening in rural areas. Over the

years, poverty in rural areas has steadily fallen from almost 50 per

cent to 36 per cent. This is different from what has been happening

in urban areas. While between 2005/06 and 2010/11 urban poverty was

on the decline, it started rising again afterwards. A marked acceleration

in urban poverty between 2011/12 and 2012/13 together with a steady

decline in rural poverty reduced the contribution of rural poverty

to overall poverty from about 94 per cent to 88 per cent in 2012/13.

The evolution of official figures is in line with our findings, except

that we find a much stronger rebound of urban poverty.

Finally, we disaggregate poverty by region. We find that in the Northern

region, which is the poorest, poverty has decreased by 15 per cent

over the entire period. However, the evolution was far from linear.

Especially between 2009/10 and 2010/11, there was a strong reduction

in poverty. But since then, poverty in the northern region has been

rising again. The tables in the appendix show that, especially in

2012/13, not only headcount poverty but also the poverty gap and the

severity of poverty has been increasing. Official poverty figures

report a reduction of 28 per cent between 2005/06 and 2012/13 in headcount

poverty, very close to what we find using only one spatial domain

(figure \ref{tab:Poverty-headcounts-1spdomain}). The western region

is, just as in the official estimates, the second richest region.

However, it is now 55 per cent poorer than the richest region. This

gap between the western and central regions is significantly larger

than in the official statistics, where poverty rates in the western

region are 33 per cent higher than in the eastern region. Thus, while

we do not observe the changes in the rankings observed by \citet{RePEc:oup:jafrec:v:12:y:2003:i:4:p:598-624},

our results are consistent with the finding that the west is poorer

than official figures suggest.

The central region, already the least poor region at the start of

the panel, reduced headcount poverty by half between 2005/06 and 2012/13

according to our estimates using six spatial domains. Again, official

estimates record higher poverty reductions (almost 70 per cent), which

is again similar to what we find in our estimates using only one spatial

domain. Inequality in poverty headcount has also increased over time.

While the northern region initially contributed 27 per cent to overall

poverty, this has increased to 37 per cent in 2012/13. The contribution

of the eastern region also has increased substantially. And while

severity of poverty has reduced in the northern region, in 2012/13,

almost 60 per cent of the national severity of poverty measure was

contributed by the North. If we disaggregate the 2012/13 data further,

we find that most poverty is found in the northeast, where over 80

per cent of the individuals live in poverty. This is followed by West

Nile, a distant second with 60 per cent of the population living in

poverty.

\begin{table}

\protect\caption{Poverty headcounts 2002-2012 using six spatial domains\label{tab:Poverty-headcounts-6spdomains}}

\begin{centering}

\begin{tabular}{lcccccccccc}

\hline

& \multicolumn{2}{c}{2005/06} & \multicolumn{2}{c}{2009/10} & \multicolumn{2}{c}{2010/11} & \multicolumn{2}{c}{2011/12} & \multicolumn{2}{c}{2012/13}\tabularnewline

& P0 & contr & P0 & contr & P0 & contr & P0 & contr & P0 & contr\tabularnewline

\hline

\hline

Uganda & 0.423 & 1.000 & 0.381 & 1.000 & 0.370 & 1.000 & 0.359 & 1.000 & 0.315 & 1.000\tabularnewline

& & & & & & & & & & \tabularnewline

Rural & 0.476 & 0.938 & 0.431 & 0.951 & 0.413 & 0.959 & 0.408 & 0.943 & 0.360 & 0.879\tabularnewline

Urban & 0.158 & 0.062 & 0.117 & 0.049 & 0.108 & 0.041 & 0.121 & 0.057 & 0.167 & 0.121\tabularnewline

& & & & & & & & & & \tabularnewline

central & 0.291 & 0.213 & 0.231 & 0.187 & 0.143 & 0.098 & 0.146 & 0.089 & 0.149 & 0.123\tabularnewline

Eastern & 0.374 & 0.219 & 0.295 & 0.188 & 0.389 & 0.282 & 0.379 & 0.337 & 0.355 & 0.328\tabularnewline

Northern & 0.670 & 0.273 & 0.603 & 0.285 & 0.489 & 0.306 & 0.529 & 0.308 & 0.567 & 0.374\tabularnewline

Western & 0.463 & 0.295 & 0.485 & 0.340 & 0.473 & 0.314 & 0.379 & 0.266 & 0.231 & 0.175\tabularnewline

\hline

\end{tabular}

\par\end{centering}

\begin{centering}

Source: Figures are calculated from the respective UNHS and UNPS waves.

\par\end{centering}

\centering{}Note: P0 means headcount poverty, contr means contribution

to national poverty.

\end{table}

To summarize, we feel that the poverty measures and the evolution

of poverty over time are much more credible, both from a theoretical

and an empirical point of view. The continued use of outdated poverty

lines based on a single food basket is likely to lead to inconsistent

poverty estimates, especially in a country where different regions

have widely varying diets. Indeed, most of the staples in these diets

are effectively non-tradables, deriving their price from local demand

and supply conditions. The result is that the cost of basic needs,

even though anchored in a single caloric requirement, may vary significantly.

We also feel that the poverty levels, as well as the estimated reduction

in poverty, are closer to what other researchers have deemed more

realistic.

# 6. Conclusion

In this chapter, we reassess the evolution of poverty over the past ten years in Uganda. Official figures suggest substantial poverty reduction, but independent researchers note that the benefits of economic growth have been shared unequally. In addition, casual observation does not correspond to the rosy picture that official figures suggest. Other indicators that define wellbeing in a broader way, such as adult literacy and maternal health, also put Uganda at a much lower level than what would correspond to officially disseminated poverty levels.

One possible explanation for this divergence lies in the poverty line. The poverty line that is currently in use to estimate official poverty in Uganda was constructed more than a decade ago, using data from a 1993/1994 survey. In addition, this poverty line relies on a single food consumption basket for Uganda, despite the fact that Uganda consists of a diverse set of regions, each with their own diets. These diets are also exceptional in their difference in cost to obtain a certain level of kilo-calories. Lumping all regions together and assuming they require the same amounts of each commodity disregards the cultural and agro-climatic diversity that typifies Uganda. We therefore follow Arndt and Simler (2010), and construct poverty lines that better reflect local diets, which results in poverty estimates and patterns that are more realistic than the official ones. For instance, they are much more in line with the levels and evolution of other non-monetary poverty indicators. A case in point is the nutritional status of children in the west, a region highly dependent on the cost inefficient non-tradable food crop matooke. According to the Uganda Demographic Household Survey 2011, height-for-age scores are worst in the western region, except for the Karamoja district. Ssewanyana and Kasirye (2010) also find that the highest rates of stunting are in the southwestern sub-region. This at least indicates that the situation in terms of poverty is less rosy than official figures suggest.

# References

Appleton, S. (2003). ‘Regional or National Poverty Lines? The Case of Uganda in the 1990s’. *Journal of African Economies*, 12(4): 598-624.

Arndt, C. and K.R. Simler (2010). ‘Estimating Utility-Consistent Poverty Lines with Applications to Egypt and Mozambique’. *Economic Development and Cultural Change*, 58(3): 449-74.

Barrett, C.B., P.P. Marenya, J. McpPeak, B. Minten, F. Murithi and W. Oluoch-Kosura (2006). ‘Welfare dynamics in rural Kenya and Madagascar’. *Journal of Development Studies*, 42(2): 248-77.

Bird, K., A. McKay and I. Shinyekwa (2010). ‘Isolation and Poverty: The Relationship Between Spatially Differentiated Access to Goods and Services and Poverty’. ODI Working Paper 322. London: Overseas Development Institute.

Boateng, E.O., K. Ewusi, R. Kanbur and A. McKay (1992). ‘A Poverty Profile for Ghana, 1987-1988’. *Journal of African Economies*, 1(1): 25-58.

Byekwaso, N. (2010). ‘Poverty in Uganda’. *Review of African Political Economy*, 37(126): 517-25.

Carter, M.R. and C.B. Barrett (2006). ’The economics of poverty traps and persistent poverty: An asset-based approach’. *Journal of Development Studies*, 42(2): 178-99.

Daniels, L. and N. Minot (2015). ‘Is Poverty Reduction Over-Stated in Uganda? Evidence from Alternative Poverty Measures’, *Social Indicators Research*, 212(1): 115-33.

Deininger, K. and J. Okidi (2003). ‘Growth and Poverty Reduction in Uganda, 1999--2000: Panel Data Evidence’. *Development Policy Review*, 21(4): 481-509.

Dercon, S. (ed.) (2004). *Insurance Against Poverty*. Oxford: Oxford University Press.

Dercon, S., J. Hoddinott and T. Woldehanna (2012). ‘Growth and Chronic Poverty: Evidence from Rural Communities in Ethiopia’. *Journal of Development Studies*, 48(2): 238-53.

Dijkstra and van Donge 2001

Duponchelle, M., McKay, A. and Ssewanyana, S. (2014). ‘The dynamics of poverty in Uganda, 2005/6 to 2011/12: Has the progress stalled? Paper presented that the CSAE conference 2015.

# Emwanu, T., Hoogeveen, J and Okwi, P O, Updating Poverty Maps with Panel Data, World development [Volume 34, Issue 12](http://www.sciencedirect.com/science/journal/0305750X/34/12), December 2006, Pages 2076–2088

Foster, J., Greer, J. and Thorbecke, E. (1984) "A Class of Decomposable Poverty Measures", *Econometrica*, 52: 761-6.

Gibson, J. and S. Rozelle (2003). ‘Poverty and Access to Roads in Papua New Guinea’. *Economic Development and Cultural Change*, 52(1): 159-85.

Goodhand, J. (2003). ‘Enduring Disorder and Persistent Poverty: A Review of the Linkages between War and Chronic Poverty’. *World Development*, 31(3): 629-46.

Grant, U. (2005). ‘Health and Poverty Linkages: Perspectives of the chronically poor’. Background Paper for the Chronic Poverty Report 2008-09. Chronic Poverty Research Centre.

Harper, C., R. Marcus and K. Moore (2003). ‘Enduring Poverty and the Conditions of Childhood: Lifecourse and Intergenerational Poverty Transmissions’. *World Development*, 31(3): 535-54.

Jamal, V. (1998). ‘Changes in Poverty Patterns in Uganda’. In Hansen, H.B. and M. Twaddle (eds), *Developing Uganda*.Kampala: Fountain Publishers.

Kakande, M. (2010). ‘Poverty Monitoring’. In Kuteesa, F., E. Tumusiime-Mutebile, A. Withworth and T. Williamson (eds), *Uganda's Economic Reforms: Insider Accounts*. Oxford: Oxford University Press.

Lanjouw, P. and M. Ravallion (1995). ‘Poverty and Household Size’. *Economic Journal*, 105(433): 1415-34.

Lawson, D., A. Mckay and J. Okidi (2006). ‘Poverty Persistence and Transitions in Uganda: A Combined Qualitative and Quantitative Analysis’. *Journal of Development Studies*, 42(7): 1225-51.

Levine, S. (2010). ‘Exploring difference in national and international poverty estimates: Is Uganda on track to halve poverty by 2015.

Mukherjee, S. and T. Benson. (2003). ‘The Determinants of Poverty in Malawi, 1998’. *World Development*, 31(2): 339-58.

Quisumbing, A. R. and L. Pandolfelli (2010). ‘Promising Approaches to Address the Needs of Poor Female Farmers: Resources, Constraints, and Interventions’. *World Development*, 38(4), pp. 581-92.

Ravallion, M. (1998). ‘Poverty Lines in Theory and Practice". Washington DC: World Bank.

Ravallion, M. and B. Bidani (1994). ‘How Robust Is a Poverty Profile?’. *World Bank Economic Review*, 8(1): 75-102.

Ravallion, M. and M. Lokshin (2006). ‘Testing Poverty Lines’. *Review of Income and Wealth*, 52(3): 399-421.

Ssewanyana, S.N. and I. Kasirye (2010). ‘Food security in Uganda: a dilemma to achieving the millennium development goal’. Research Series 113614. Kampala: Economic Policy Research Centre.

Ssewanyana, S.N. and I. Kasirye (2014). ‘Uganda’s progress towards poverty reduction during the last decade 2002/3-2012/13: Is the gap between leading and lagging areas widening or narrowing? EPRC research series No. 118.

Stifel, D. and B. Minten (2008). ‘Isolation and agricultural productivity’. *Agricultural Economics*, 39(1): 1-15.

Tarp, F., K.R. Simler, C. Matusse, R. Heltberg and G. Dava (2002). ‘The Robustness of Poverty Profiles Reconsidered’. *Economic Development and Cultural Change*, 51(1): 77-108.

Udry, C., J. Hoddinott, H. Alderman, and L. Haddad (1995). ‘Gender differentials in farm productivity: implications for household efficiency and agricultural policy’. *Food Policy*, 20(5): 407-23.

Van Campenhout, B. (2014). ‘Fertility, agricultural labor supply, and production: Instrumental variable evidence from Uganda’. IFPRI discussion papers 1406, Washington DC: International Food Policy Research Institute.

Van Campenhout, B., H. Ssekabira and D. H. Aduayom (2014). ‘Consumption bundle aggregation in poverty measurement: Implications for poverty and its dynamics in Uganda’. WIDER working paper WP/2014/150. Helsinki: UNU-WIDER.

World Bank (1993). ‘Uganda: Growing out of Poverty’. World Bank Country Study 12029. Washington DC: World Bank.

van de Walle, Dominique (2013). ‘Lasting Welfare Effects of Widowhood in Mali’, *World Development*, 51: 1-19.

1. Matooke is a variety of starchy banana, commonly referred to as cooking bananas. [↑](#footnote-ref-1)
2. A poverty measure is consistent if two indiciduals at the same welfare level are considered equally poor. [↑](#footnote-ref-2)
3. The data should be requested in writing from the director of the Uganda Bureau of Statistics. However, a reference to the content of the file is available on the website of the international household survey network: http://catalog.ihsn.org/index.php/catalog/4620/datafile/F18 [↑](#footnote-ref-3)
4. Such as for instance the file kwelfare.dta that holds information to calculate poverty in the UNHS2009/10. The reference is http://catalog.ihsn.org/index.php/catalog/2119/data\_dictionary#page=F21&tab=data-dictionary [↑](#footnote-ref-4)