

SOMALILAND

Poverty Assessment

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Africa Region



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Currency Equivalents

Currency Unit = Somaliland Shilling

US\$1 = 7.2 Somaliland Shillings

(As of October 1, 2014)

Abbreviations and Acronyms

BIA	Benefit Incidence Analysis
GDP	Gross Domestic Product
GER	Gross Enrollment Rate
MICS	Multiple Indicator Cluster Survey
MDG	Millennium Development Goals
NER	Net Enrollment Rate
PCR	Primary Completion Rate
PCE	Per Capita Expenditure
RPCE	Real Per Capita Expenditure
SHS	Somaliland Household Survey
TFR	Total Fertility Rate
TVET	Technical Vocational Education and Training
UN	United Nations
WDI	World Development Indicators

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Executive Summary

Introduction and motivation

1. *For many years, Somaliland has had no survey-based measure of poverty or inequality.* As such, very little is known about whether Somaliland's development in recent years has resulted in broad-based gains or whether the benefits have been shared by a few. Providing accurate and robust data on poverty and the nature of the income distribution in Somaliland is important both for the Government of Somaliland to be able to set policy priorities and also for development partners as they seek the best way to engage in Somaliland.
2. *The Somaliland Poverty Assessment aims to address these important data and knowledge gaps.* First, the assessment uses the Somaliland Household Survey (SHS), conducted in 2013, to construct the first poverty estimates for Somaliland. International best practices were used in estimating household consumption and establishing a poverty line against which to measure deprivation. The method used is transparent and replicable allowing it to be repeated in future years to monitor progress. The SHS collected data on consumption, income and household characteristics for a sample of households that is representative of urban Somaliland and parts of rural Somaliland. Although the sample does not include nomadic households (which recent estimates suggest comprises 36% of the population), and omits households in areas affected by ongoing conflict, the sample provides a comprehensive and representative look at the rest of Somaliland. These estimates document the level and nature of poverty and inequality in urban Somaliland and settled parts of conflict-free rural Somaliland. Estimates are separately presented for urban Somaliland and the settled parts of rural Somaliland, hitherto referred to as rural Somaliland, and no combined estimates are calculated.
3. *Secondly the report comprehensively examines the economic and demographic characteristics of poor households in Somaliland.* The demographic characteristics of poverty and the economic livelihoods of poor households are detailed and the relationship between poverty and other dimensions of deprivation is analyzed. Gender disparities in welfare are also assessed.
4. *Finally, the report provides an in depth analysis on two areas revealed as being particularly important to current and future wellbeing of households in Somaliland: education and remittances.* Somaliland generally lags behind other parts of sub-Saharan Africa when it comes to access to education for children and youth, and education attainment of adults. Literacy rates are lower than other parts of the region and enrollment rates are low suggesting that without further action, Somaliland will lag further and further behind. In addition to being low, enrollment is also unequal with poorer households—particularly in rural areas—being much less likely to go to school. Understanding drivers of inequity in access is an important first step in reversing this trend and bring about equal opportunities to all children and youth in Somaliland.
5. *Conservative estimates indicate that Somali regions receive \$1.2 billion in remittances annually, outweighing international aid flows and foreign direct investment (FAO 2013).* The SHS estimates that remittances are received by 31% of urban households and 16% of rural households and that they are sizeable and regular. Given the relative size of the remittance flows it is important to understand the extent to which they impact work and household welfare. Does a strategy of migration pay off for sending households? Do the benefits of remittances outweigh the costs of losing an active member of the household at home? Which households are able to benefit from remittances? Do remittances help

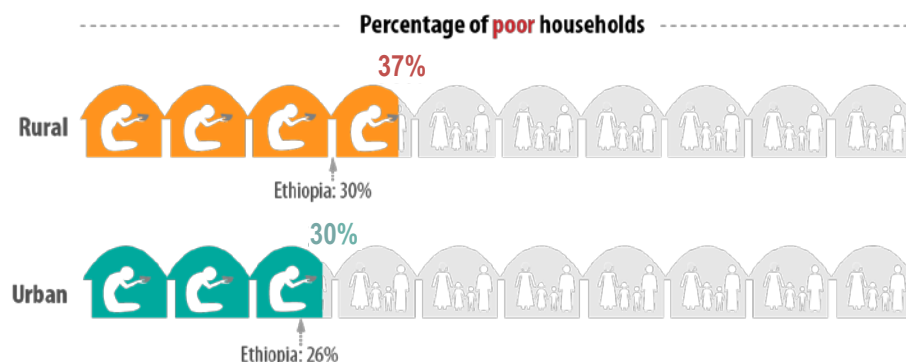
households engage in productive investments, such as education of household members, as well as increase consumption? A better understanding of the relationship among remittances, poverty, and labor market participation is needed to inform policies seeking to ensure that migration is an opportunity used to its fullest benefit for poverty reduction in Somaliland.

Assessing poverty and deprivation in Somaliland

Somaliland has comparatively high rates of poverty and inequality, particularly in rural areas.

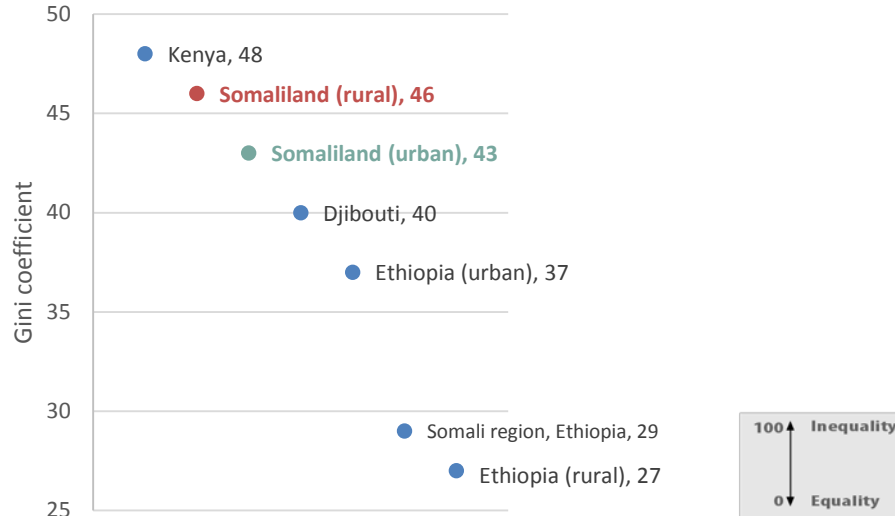
6. *More than 1 in 3 people in rural Somaliland and more than 1 in 4 people in urban Somaliland are living in poverty.* The amount of money required for a household to meet their basic needs is estimated at 207,300 Shillings per adult per month in urban Somaliland and 180,900 Shillings per adult per month in rural Somaliland. Households living on less than this are counted as poor, which results in a poverty headcount of 37.0% in rural Somaliland and 29.7% in urban Somaliland (Figure 1).
7. *Poverty rates appear to be higher than in neighboring economies.* In the absence of Purchasing Power Parity estimates for Somaliland it is difficult to compare the level of poverty with regional economies, but using a similar method of estimation Somaliland's poverty in rural and urban areas is higher than the urban and rural poverty rates in the Somali Region of Ethiopia, and in Ethiopia as a whole.

Figure 1: Poverty in Somaliland



8. *Rural poverty is both more prevalent and deeper than urban poverty.* On average, a transfer payment of 18,449 Shillings per person per month (8.9% of the urban poverty line) to an average urban poor would lift him or her out of poverty. In rural Somaliland an average poor person would need a transfer payment of 19,537 Shillings per person per month to bring them out of poverty (10.8% of the rural poverty line).
9. *Although rates of deprivation are high, some households have fared well in Somaliland in recent years and measures of inequality are high.* Inequality in Somaliland is among the highest in the region with relatively high rates of inequality recorded in the Gini index in both rural and urban Somaliland (Figure 2). Additionally, inequality in access to basic services such as maternal health care and education suggests that, without intervention, these levels of inequality are likely to be sustained in future generations.

Figure 2: Inequality in Somaliland



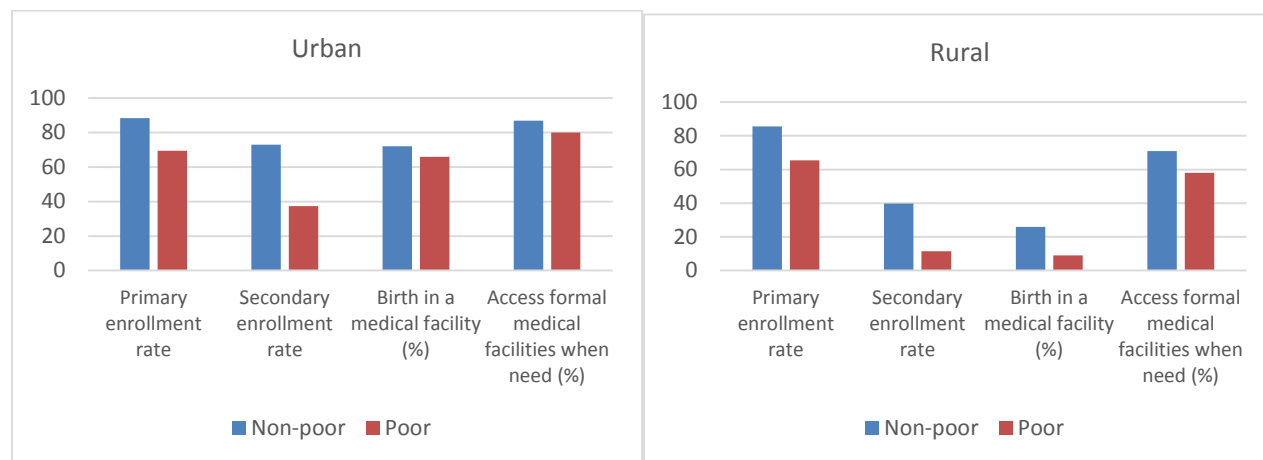
The nature of poverty and vulnerability in Somaliland

Households experience deprivations on many dimensions, and are vulnerable to economic risks—high food prices and lack of employment—not only conflict.

10. *Poverty is highly correlated with opportunities available to children in Somaliland.* Children born into poor household are less likely to receive medical care that may be required at birth and when they are sick, they are less likely to live in households with running water and good sanitation, and they are much less likely to attend school (Figure 3). These differences are particularly stark for children living in rural Somaliland. These findings suggest that the necessary focus of the government on peace building and development and limited donor support has resulted in inadequate delivery of basic services and very unequal access to services and wellbeing. Addressing this is the challenge facing Somaliland.
11. *Households in Somaliland face deprivations on many dimensions, particularly in rural areas, which points to the need for a comprehensive approach to addressing poverty.* Households in rural Somaliland are three times more likely to be deprived in multiple dimensions at once. The acute nature of rural poverty in combination with the existence of deprivation on a greater number of dimensions makes rural poverty harder to address. Addressing poverty will require investments in education and improved health care in addition to investments to improve productive opportunities for poor households.
12. *Gender is a critical determinant of poverty and access to services in Somaliland.* Female headed households are quite prevalent in Somaliland, particularly in urban areas, and households headed by women in urban areas are significantly more likely to be poor than households headed by men. Although this is not the case in rural areas, other aspects of deprivation are particularly concerning in rural areas. For example, poor women in rural areas are unlikely to have access to adequate health care during child birth: 29% of births in rural areas are attended by a skilled health attendant,

compared to 78% in urban Somaliland. Patterns of gender inequality are present in current school enrollment across rural and urban Somaliland, particularly for adolescent girls (Figure 4).

Figure 3: Poverty limits investments in health and education for children in Somaliland, particularly in rural areas



13. *In the majority of Somaliland, those areas surveyed, the primary risks reported by respondents from Somaliland in recent years were high food prices and inadequate employment rather than conflict.* Data collection was not undertaken in areas which were insecure during the time of the survey and in these areas this would not be the case. In surveyed areas, high food prices and inadequate employment were mentioned as major sources of risk to welfare by 27 and 17 percent of households in rural Somaliland and 29 and 37 percent of households in urban Somaliland respectively. Very few households report being victims of conflict in the last 12 months, suggesting that the focus of the government on security has allowed many Somaliland households to live lives uninterrupted by conflict. A few households – 6% in rural areas and 4% in urban areas – report knowing someone who faced harassment or threats. The threats were generally limited to petty thefts and street crimes. There were no significant reports of displacement or loss of assets due to conflict situations (Figure 5).

Figure 4: A persistent gender gap in school enrollment, particularly for adolescent girls

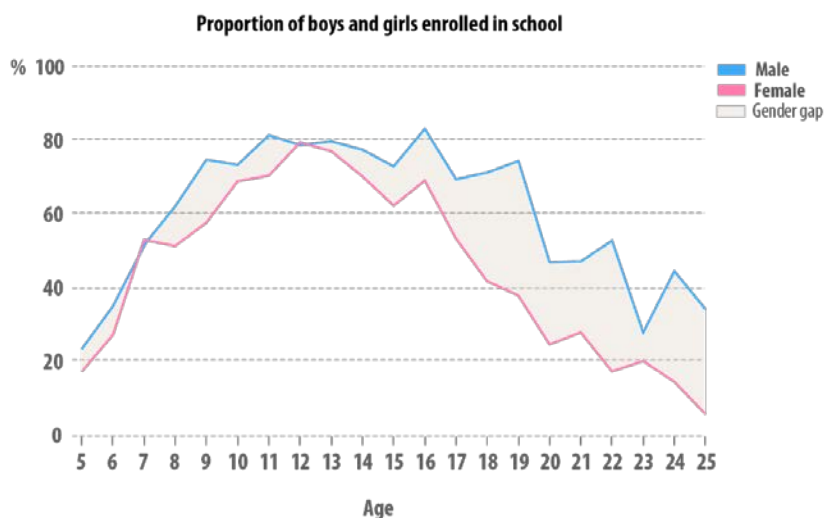
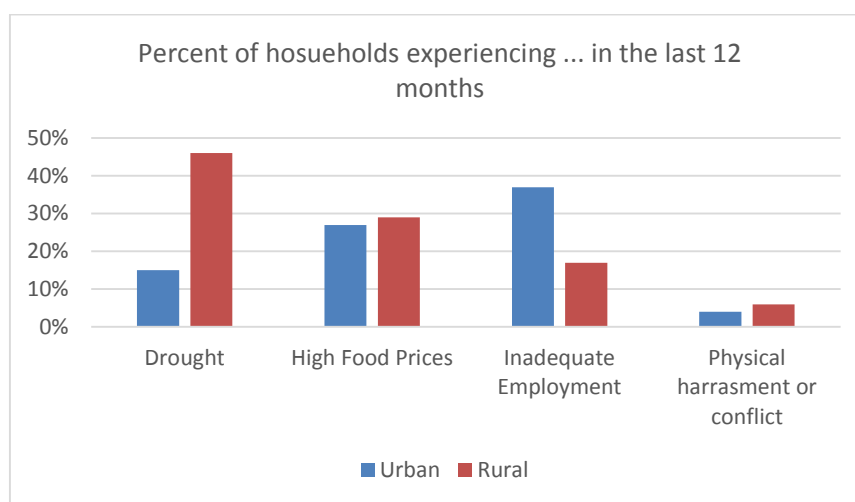


Figure 5: Economic shocks predominate



Economic activities and poverty in Somaliland

Remittances are a dominant source of income in Somaliland and rates of labor force participation are low.

14. *Employment rates among resident household members are low in urban and rural Somaliland, particularly among poor households, and many out of work individuals are too discouraged to look for work. Only 26 percent and 32.7 percent of 15 to 55 year olds in rural and urban Somaliland are in wage- or self-employment. A surprisingly large share of households have no employed adult living in the household. A significant proportion of those out of work were too discouraged to look for work as they did not think any work was available: 16 percent in urban Somaliland and 13.7 percent in rural Somaliland. These individuals are particularly poor.*
15. *Migration to work and send remittances is a common livelihood strategy in contexts where limited employment is available or where conflict is present. In Somaliland one in five urban households and one in ten rural households report that a household member has migrated, most often to work, and usually out of Somaliland to the UK, Middle East or North America. Migrants are young, about 35 years on average, and educated. More than 85% of migrants from urban Somaliland are working or looking for work. The nature of migration is somewhat different for rural households. Migrants from rural areas are more likely to have migrated to study (20%), many of these migrants also stay in Somaliland (42% are in Hargeisa) and they are less likely to send remittances.*
16. *Remittances from working migrants are an important source of income for households: 31% of urban households and 16% of rural households report receiving remittance income. Receipt of remittances is strongly correlated with lack of employment: 54% of households in urban areas without an economically active adult receive remittances, compared to 16% of households with economically active adults. Receiving remittances is strongly associated with lower poverty rates despite the negative relationship between receiving remittances and economic activity.*
17. *Unlike other economies in the region, few households—and particularly few poor households—are engaged in agricultural activities. In urban Somaliland the services sector is the primary sector for*

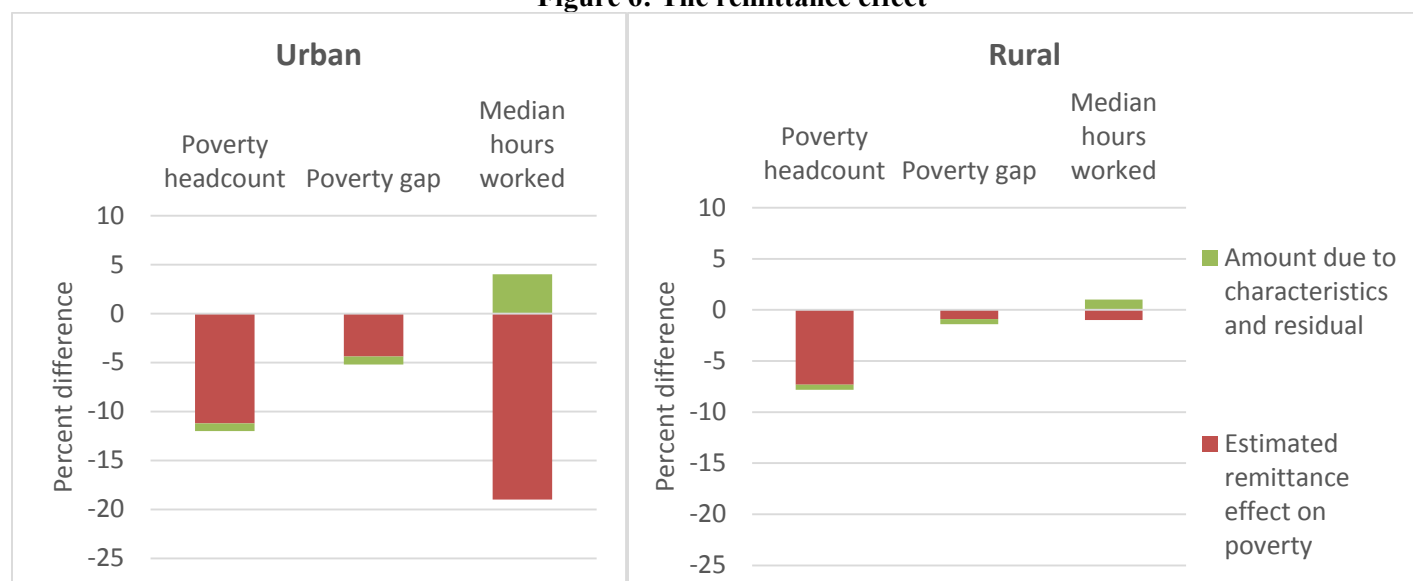
76% of the working population, and in rural Somaliland the services sector is the primary sector for 49% of the working population, with livestock and agriculture engaging 40%. In the settled parts of rural Somaliland covered in the household survey, crop farming engages less than 1 in 5 households and even fewer poor households, highlighting that few poor households benefit from higher food crop prices.

A closer look at the relationship between remittances, work and poverty

Remittances reduce poverty and encourage investments in education. Increasing the availability of work in Somaliland needs to be a priority alongside encouraging remittance flows.

18. *Households that receive remittances are found to work fewer hours and to consume more than households that do not receive remittances, particularly in urban Somaliland.* A key question is whether households that receive remittances work less and consume more as a result of remittances or whether other factors drive both remittance receipt and the observed differences in work and welfare. For example, households with well-educated members may be better able to send a member to migrate and have higher welfare unrelated to the receipt of remittances. To examine whether remittances are indeed having an impact on work and welfare we examine how much of the observed differences can be explained by the characteristics of households that receive remittances and those that do not, and quantifies the part of the difference that remains. In the absence of unobserved differences between remittance recipients and non-recipients this difference is the impact of remittances.
19. *Although there are observed differences in the characteristics of households that receive remittances and those that do not; these differences do not account for the lower numbers of hours worked and the higher household welfare of households with remittances in Somaliland.* The impact of remittances on reducing hours worked and increasing household consumption remains particularly strong in urban areas (Figure 6). In rural areas, remittances increase consumption and work hours for those in the poorest half of the distribution, whilst reducing consumption and hours worked for those in the top 50 percent.

Figure 6: The remittance effect



20. *The receipt of remittances has a positive impact on household welfare reducing poverty by 11 percentage points in urban Somaliland and 7 percentage points in rural Somaliland.* However, a key question is whether or not households will remain reliant on the receipt of remittances for their good fortune or whether they are able to invest remittance income in assets, education or livelihoods. Detailed data on household asset purchases suggests that households with remittances do acquire more durable assets than households without.
21. *Remittances have a positive impact on school enrollment in urban areas, but not in rural areas.* Urban households that receive remittances increase the percent of their children in school by 11 percent. This encourages greater economic growth and wellbeing of remittance recipients over time.
22. *The high rates of out-migration and remittances received by households in Somaliland may be one of the reasons for the low rates of labor force participation documented in World Bank (2015) and ILO (2013).* Households that receive remittances work fewer hours than households that do not receive remittances. This is partly driven by the fact that remittances enable higher levels of investment in education. Remittance recipients report being more likely to not work in order to engage in further study. However, remittance recipients are also more likely to state that they are not working because they quit their job. This creates increased dependency on the future receipt of remittances by these households and does not bode well for their future wellbeing. Policies that encourage remittances to be used for productive investments may help curb this tendency.
23. *The importance of remittance income for urban household welfare makes protecting remittance flows a high priority of the Somaliland government.* The productivity of migrants could be encouraged by providing networking services for migrants to migrants that have been successful in their new destination. Policies that reduce any transaction costs around sending remittances should also be pursued. In addition, measures to help households save remittance income or use it to invest in productive assets will help ensure that current remittance flows can be used to increase the resilience of households to potential interruptions to remittance income in the future. Policies that provide households with opportunities to use remittance income for income-generation and to complement remittances with the necessary infrastructure and skills to generate self-employment may be able to counter the negative relationship between remittances and labor supply observed for some households.
24. *However, perhaps most fundamentally, this analysis points to the positive welfare benefits that result when household members are able to work.* In the case of Somaliland this has often entailed members migrating but this is a costly strategy and results in the loss of many young, educated members of society and results in households being split, often across continents. Increasing the availability of economic opportunities at home is essential to allow these benefits to be achieved without households undertaking the cost, risk and separation of migration.

Increasing access and equity of access to education in Somaliland

Educational attainment is low and too closely related to a household's ability to pay for education, addressing this inequality is important for improving wellbeing and reducing inequity in Somaliland.

25. *Educational attainment of the working population is low, although it has been improving over the last two decades.* Almost 50% of the urban working age population and 60% of the settled rural working age population report having no formal education. Educational attainment of the working-age population reflects investments in education over many years, and in the case of Somaliland this

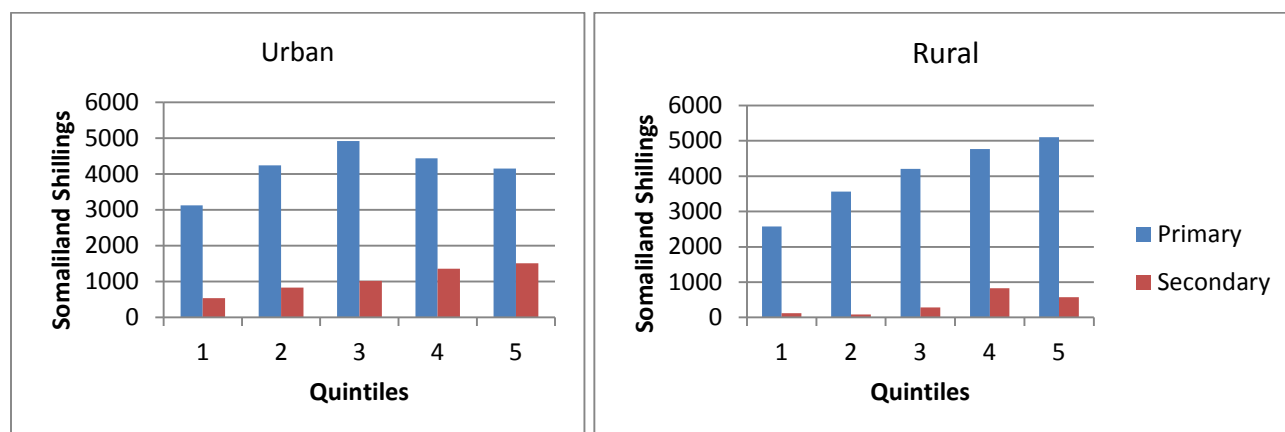
period encompasses periods of substantial instability. Educational attainment has been improving over the last 10-20 years and is much higher among the youth, but not for all youth equally: location of residence, gender, and poverty are all strongly predictive of educational attainment among those between the ages of 20 and 30.

26. *Across educational indicators, households in rural Somaliland routinely suffer from inferior educational access and attainment relative to urban Somaliland.* Primary completion rates are the most dramatic example, with rates in rural Somaliland lower than in all but two economies in Sub-Saharan Africa. Out-of-school rates are also high overall – among children ages 6 to 13, 31% of those in urban areas and 40% of those in rural areas are out of school.
27. *Poor households invest less in education and have lower levels of educational attainment, particularly in rural areas.* Lower access is particularly pronounced for poor households in rural areas. For example, out-of-school rates are similar for the urban poor and non-poor as well as the rural non-poor, at all levels of education. However, they are dramatically higher for the rural poor, and rise further for each higher level of education. At the primary school level, 60% of children from poor rural households are out of school. Increasing access to education for poor children in rural areas is therefore a key element of developing an improved education sector in Somaliland.
28. *Financial constraints appear to be a key barrier to enrollment, explaining why receiving remittances can have such a large beneficial effect on enrollment.* Household expenditure was more strongly related to a child being in school than any other household characteristic. In addition, the main reason cited for dropping out of school was financial constraints. This may be in part due to out of pocket costs, but may also be a result of the high opportunity cost of children being at school and not participating in family work in poor households. Increasing the ability of households who do not receive remittances to send their children to school is essential to increasing enrollment rates and reducing the inequalities currently observed in access to education. Conditional cash transfer (CCT) programs, in which families are provided with small cash incentives in exchange for sending their children to school, have been proven to be successful in increasing enrollment rates for children in developing countries (Rawlings & Rubio, 2005). Another common educational incentive is a school feeding program, providing children with meals during school hours. However, if the enrollment rates are low due to a lack of quality supply, incentive programs will not resolve the existing issues.
29. *Gender plays a crucial role in determining educational access in Somaliland, and its impact is heightened when linked with poverty, in both urban and rural areas.* Poor girls in both urban and rural Somaliland have significantly lower enrollment rates than boys, and these rates drop down to a complete lack of enrollment at secondary and tertiary school levels. Regression analysis finds that girls are 7% more likely to be out of school than boys at the primary school level, and 11% more likely at the secondary school level. Ensuring that girls have equal opportunity to attend primary school, and retaining equal levels of enrollment through secondary and tertiary school is crucial to empowering women and improving the overall development of Somaliland. Gender-targeted programs are needed in order to increase the educational attainment of women in Somaliland. Interventions that enable girls to feel safe attending school, such as increasing the supply of female teachers, could help both girls and their parents to feel more comfortable with continuing their education, particularly beyond primary levels could be helpful.
30. *Although distances to schools in Somaliland are relatively small (more than 85% of individuals in urban and more than 88% of individual in rural areas live less than 2 kilometers away from a primary school) they still do dissuade attendance.* Enrollment falls quite rapidly as the distance from the household to the nearest school increases. This may indicate concerns around the safety of

children during travel to and from school, and it is notable that the impact of distance on enrollment is larger for girls than for boys. A transportation program could help address this.

31. *It is also possible that poor quality may also discourage attendance.* Given that the numbers of over age children are extremely high for both urban/rural areas--86% of primary school children in both urban and rural areas are over age—it may be that overcrowding and problems related to mixed age groups on the same grade level are issues, particularly at the primary school level. Ways of improving education quality and the overall quality of the school experience could also be explored.
32. *Somaliland has devoted considerable resources to the education sector in recent years.* Ministry of Education expenditures more than tripled between 2010 and 2012, bringing the percentage of public expenditures on education to approximately 3.3% of Somaliland GDP. While this is a move in the right direction; many governments in Sub-Saharan Africa devote a greater percentage of their GDP to public education expenditure. Their example can serve as a useful target for Somaliland in future years.
33. *However, policies that increase enrollment among poorer children are needed to ensure that the increased government spending is pro-poor.* In contrast to other economies, absolute spending on education is regressive in Somaliland (Figure 6), meaning that a larger share goes to richer households than to poorer households. This reflects the fact that enrollment rates are lower among poorer households and points to the need for policies aimed at increasing enrollment rates for the poorest.

Figure 7: Spending on education favors richer households



Source: Authors' calculations using SHS 2013 data

34. *Investing equitably in the education of children today can, in combination with other policies, lead to better labor market outcomes and higher incomes in the future.* Education is strongly correlated with being in employment and being in employment is correlated with lower poverty rates. Increasing education increases the employability of Somaliland's workforce for the future. The existing educational disparities between the rich and the poor lead to a poverty trap, in which poverty leads to low levels of education, resulting in a higher likelihood of future poverty. Addressing disparities in education helps to break this trap.

Introduction

1. Somaliland has no survey-based measure of poverty or inequality. As such, very little is known about whether Somaliland's development in recent years has resulted in broad-based gains or whether the benefits have been shared by a few. This report provides information on levels of poverty and inequality in Somaliland, discusses in more detail the nature of deprivation and the main characteristics of those that are poor. Providing accurate and robust data on poverty and the nature of the income distribution in Somaliland is important both for the Government of Somaliland to be able to set policy priorities and also for the World Bank and other development partners as they seek the best way to engage in Somaliland.
2. Between 2005 and 2012, a number of data collection exercises were done in Somaliland to document access to services and food insecurity. Two rounds of Multiple Indicator Cluster Survey (MICS) were completed by UNICEF in 2006 and 2012. The MICS reports provide representative statistics on access to education and health services, and indicators of maternal and child health. The United National Development Programme (UNDP) administered the Participatory Community Census for Poverty Assessment and Mapping in 2006-07. The Community Census was conducted at a regional level and collected qualitative data on the living characteristics and access to services in settlements throughout Somaliland. The community census data is settlement level and documents the availability and usage of various civic services (schools, health facilities, telephones, water) and on perception of poverty. The Food Security and Nutrition Analysis Unit (FSNAU) conducts periodic monitoring of food situation in the greater Somalia region. The FSNAU reports data on availability of food and prices faced by different regions in Somaliland. However, none of these statistical exercises in Somaliland have a monetary indicator of poverty. A monetary aggregate of poverty is necessary to identify the poor, and study the nature and extent of deprivations for the poor and the non-poor.
3. Following a request from the Ministry of Planning and Development, the World Bank carried out a Somaliland Household and Enterprise Survey 2013. The survey included (i) a Household Survey (SLHS) based largely upon the World Bank's Living Standard Measurement Study survey to enable construction of a monetary measure of poverty and poverty analysis to be conducted along multiple dimensions, and (ii) an Enterprise Survey to enable the characteristics of, and binding constraints upon, the private sector in Somaliland to be identified. The SHES 2013 was implemented by Kimetrica in close partnership with the Ministry of Planning and Development.
4. This report is prepared by the World Bank Poverty Global Practice based on the Somaliland Household Survey (SLHS), which was completed in 2013. The report uses the SHS 2013 to construct a consumption based measure of poverty and inequality, and provides a quantitative assessment of demographic and welfare characteristics of the poor. It also undertakes more in-depth analysis on two issues that initial analysis showed to be of prime importance to achieve poverty reduction and shared prosperity in Somaliland: the impact of remittances income on poverty and access to education. The objective of the report is to increase understanding of the multiple dimensions of poverty in Somaliland, and to understand the key characteristics of the poorest households and the economic activities from which they derive their living. A better understanding of the nature of poverty and the economic characteristics of those in poverty provides an insight into the nature of economic growth that is most likely to benefit poverty reduction.
5. The estimates of economic activity such as income and major sources of livelihood presented in this report are different from the findings of UNDP Community Census (UNDP 2007). The community census was based on perceptions of economic activity and living standards in a settlement. The community survey was done at a settlement level, and not individual / household level. Moreover, the

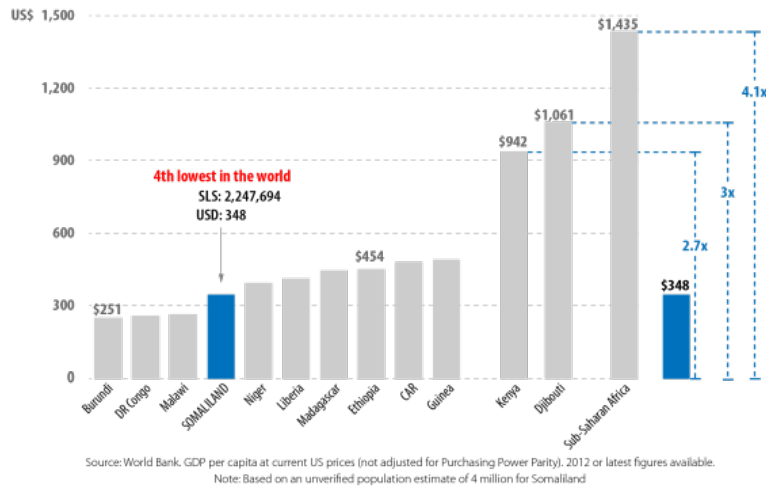
community census included survey of nomadic settlements, which were not included the SLHS. The different survey methodologies employed in the UNDP reports and SLHS are possible sources of difference in estimates. The advantage of SLHS is that it collects individual or household level information on living standard and economic activity, and quantifies information wherever possible. As such, the estimates of this note are generally consistent to MICS (2012), which was also based on a nationally representative household survey and conducted within one year of SLHS.

6. The report follows the following outline. In Chapter 1, we provide a summary of the poverty and inequality estimates of Somaliland, and an international comparison of key welfare indicators of Somaliland relative to the neighboring economies. An annex to Chapter 1 describes in detail the methodology used in constructing the aggregates. Chapter 2 focuses on the demographic characteristics of poverty followed by a discussion of the economic livelihoods of poor households. It also examines other dimensions of deprivation and correlates of poverty, and gender disparity. Chapter 3 examines the role of remittances in improving household wellbeing in Somaliland. Chapter 4 provides an education profile of Somaliland and examines what the household survey data indicates about how increased access and equity of education outcomes can be achieved.

Chapter 1 Poverty and Inequality in Somaliland

1. *Somaliland is a low income economy with a Gross Domestic Product per capita of USD348 (not adjusted for Purchasing Power Parity) in 2013. If one were to compare the GDP of Somaliland to the GDP of countries in the region, it would rank fourth lowest, ahead of Burundi, DR Congo, and Malawi (Figure 1).*

Figure 1: GDP of Somaliland, regional comparison



2. *Poverty in Somaliland was estimated for the first time using the Somaliland Household Survey 2013. Using the approach outlined in Deaton and Zaidi a poverty line was constructed which reflects the cost of fulfilling basic needs. Households with consumption levels lower than this line are counted as poor. Full details of the construction of poverty and the poverty line are provided in Amendola et al (2014).¹*
3. *Owing to the sampling design of the SLHS 2013, all analysis is conducted separately for urban Somaliland and the settled parts of rural Somaliland. The SLHS is representative of the settled Somaliland population in urban and rural areas. Pastoralist/nomadic households and Internally Displaced Person (IDP) settlements were not included, due to sampling difficulties. UNFPA estimates from 2013-2014 suggest that settled people in urban areas of Somaliland account for 50% of the population, settled rural people account for 11%, and 34% of the population is nomadic. Internally displaced persons (IDPs) make up a very small percentage of the population: approximately 2.4%. Two separate sampling frames were used for urban areas and settled rural areas (hitherto referred to as rural); thus, all estimates are calculated for urban and rural areas, and not for Somaliland in aggregate. All findings apply only to the settled Somaliland population and not the population as a whole.*
4. *More than 1 in 4 people in urban Somaliland and more than 1 in 3 people in rural Somaliland are living in poverty. The amount of money required for a household to meet their basic needs (the “upper bound poverty line”) is estimated at 207,300 Shillings per adult per month in urban Somaliland and 180,900 Shillings per adult per month in rural Somaliland. Households living on less than this are*

¹ Amendola, Vecchi, and Hill (2014), Poverty Measurement in Somaliland, World Bank PREM

counted as poor, which results in a poverty headcount of 37.0% in rural Somaliland and 29.7% in urban Somaliland (Table 1).

5. *Rural poverty is more prevalent and deeper than urban poverty.* The poverty gap index, which measures the average gap between the actual consumption of the poor and the poverty line as a percentage of poverty line, indicates that the consumption gap is not particularly deep in urban areas (Table 1). In theory, a transfer payment of 18,449 Shillings per person per month (8.9% of the poverty line) to an average urban poor would lift him or her out of poverty. However, poverty is both more widespread and deeper in rural areas and the average poor person in rural areas is further below the rural poverty line than the average poor in the urban areas. In rural Somaliland an average poor person would need a transfer payment of 19,537 Shillings per person per month to bring them out of poverty (10.8% of the poverty line). Moreover, the squared poverty index is also higher in rural areas at 4.7 compared to 3.9 in urban areas, indicating a greater inequality amongst the rural poor.
6. *In the absence of PPP estimates for Somaliland it is difficult to compare poverty rates with other economies, but a comparison of similarly constructed numbers for regional comparators suggests urban poverty is similar in Somaliland to other urban poverty rates. Rural poverty in Somaliland is much higher than poverty on average in rural Ethiopia, although comparable to rural poverty in the Somali region in Ethiopia and lower than poverty in rural states of South Sudan.* Poverty is typically compared across economies using a poverty line of USD 1.25 in 2005 Purchasing Power Parity (PPP); no PPP estimates exist for Somaliland making it difficult to compare the level of poverty in Somaliland to other economies in the region. However, the urban poverty rate in Somaliland of 30% is similar to the 26% poverty rate recorded in urban areas in Ethiopia in 2010/11 using a similar methodology, the 23% poverty rate recorded in the urban areas of the Somali region in Ethiopia, and the 24% poverty rate recorded in urban areas in South Sudan in 2011. The headcount rural poverty rate in Somaliland of 37% is quite similar to the rural poverty rate of 35% recorded in the Somali region in Ethiopia. It is higher as compared to poverty rate of 30% in rural Ethiopia but lower than the rate recorded in many of the rural states in South Sudan. Recent poverty estimates for Djibouti and Kenya are not available.

Table 1: Poverty head count and poverty gap (poverty line, regional comparison)

	Headcount poverty rate (%)	Poverty gap (%)	Poverty severity (%)
Somaliland			
Urban	29.7	8.9	3.9
Rural	37.0	10.8	4.7
Ethiopia			
Urban	25.7	6.9	2.7
Rural	30.4	8.0	3.2
Somali region, Ethiopia			
Urban	23.1	5.4	1.8
Rural	35.1	9.9	3.8
South Sudan			
Urban	24.4	8.8	4.6
Rural	55.4	26.5	16.1
Jonglei state, South Sudan	48.3	22.2	13.1
Warap state, South Sudan	64.2	34.1	22.2
Central Equatoria state, South Sudan	43.5	22.5	15.4
Upper Nile state, South Sudan	25.7	9.8	5.0

Source: SLHS (2013); Ethiopia MOFPED (2013), World Bank (2011)

7. *Extreme poverty—defined as consuming less than the cost of meeting basic food needs—is also very high in rural Somaliland.* Using the food poverty line, the average cost of consuming 2,100 kilocalories per person per day, we estimate the incidence of extreme poverty in Somaliland. The households with per capita consumption below food poverty line are categorized as *extreme poor*. In rural areas, 21.0% of the population is living under extreme poverty. Similar to overall poverty headcount, the extent of extreme poverty in urban areas is lower, at 9.5%, compared to rural Somaliland. Extreme poverty in rural areas is deeper than in urban areas, as measured by poverty gap for the extreme poverty line.

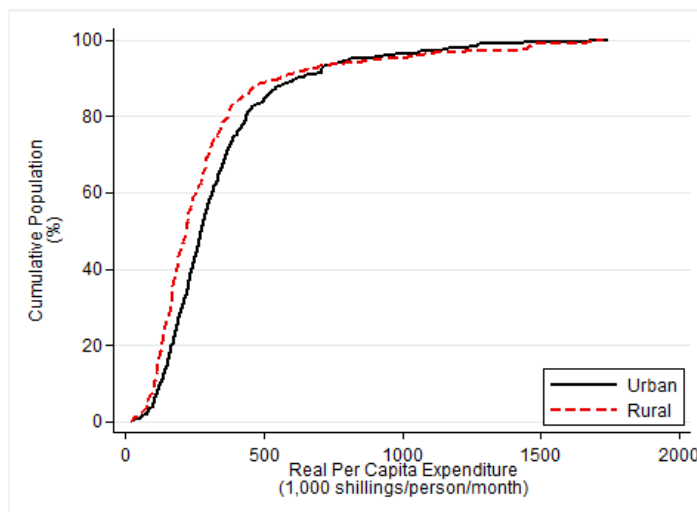
Table 2: Extreme poverty

	Poverty Headcount	Poverty Gap	Squared Poverty Gap
Urban	9.5	2.4	1.0
Rural	21.0	5.6	2.3

Source: SLHS (2013)

8. *At all points in the consumption distribution, rural households are poorer than urban households.* The consumption of the best-off households in rural areas lags behind their urban counterparts. Similarly, the poorest households in rural areas, on average, have lower consumption compared to the poorest households in urban areas (Figure 2). Lower consumption levels in rural areas highlight that everyone in rural areas is poorer compared to the urban areas, and thus both the magnitude and depth of rural poverty is higher.

Figure 2: Cumulative density functions by urban and rural areas

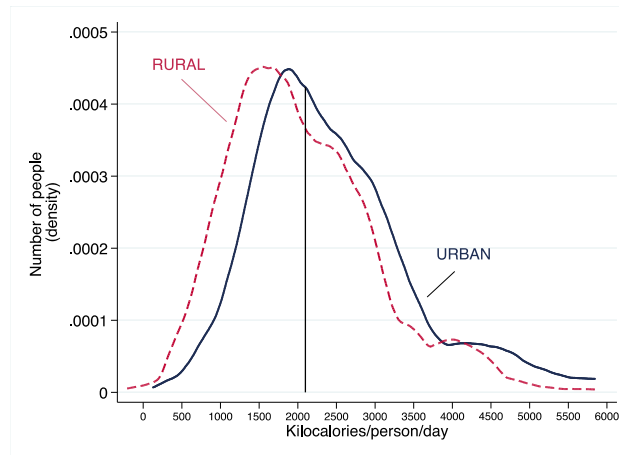


Source: SLHS (2013)

9. *Somaliland has a high prevalence of undernutrition.* If we assume 2,100 kilocalories/person/day as a cut-off point to mark the threshold of undernutrition, the incidence of undernutrition is larger in rural

areas (57.2%) than in urban areas (41.5%), Figure 3. Table 3 shows the incidence of *undernutrition* (percentage of people with calorie intake lower than 2,100 kcal/person/day) as well as the percentage of individuals with a diet poor in protein (less than 50 grams/person/day). This is interpreted as a measure of *malnutrition*.

Figure 3: Distribution of energy intake (Kcal/person/day)



Source: Authors' estimates based on SLHS (2013)

Table 3: Incidence of undernutrition and malnutrition

	Undernutrition	Malnutrition
Urban	41.5	44
s.e.	(2.20)	(2.20)
Rural	57.2	68.2
s.e.	(3.00)	(3.00)

Source: Authors' estimates based on SLHS (2013)

10. *The majority of food consumed is purchased rather than own-produced in both rural and urban Somaliland.* The proportion of food consumed that is purchased is 1% on average in urban Somaliland and 3% of average in rural Somaliland. The high rates of consumption of purchased food reflects limited engagement of households in agriculture and also indicates that keeping food inflation low and reducing transaction costs in food markets are key priorities for reducing poverty in Somaliland. The cost of one calorie is higher in rural areas (1.92 Shillings per calorie) than in urban areas (1.76 Shillings per calorie) as a consequence of the fact that only a small proportion of food consumed in Somaliland is produced locally, and farming and livestock is a source of income in a small proportion of households (25% in rural areas compared to 2% in urban areas). Much of the food consumed in rural areas is transported from elsewhere. The higher calorie cost that results may in part contributed to the higher undernutrition rates observed in rural areas.

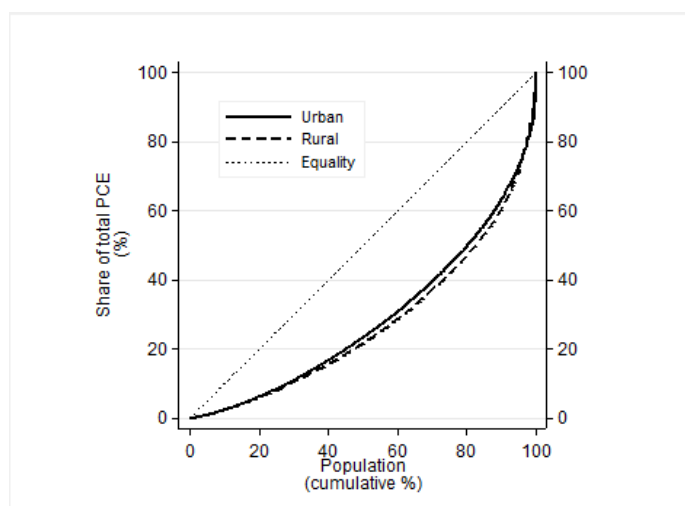
11. *Rural and urban areas in Somaliland have high rates of inequality.* The Gini coefficient is 43.0 in urban Somaliland and 46.0 in rural Somaliland (Table 4). The difference in coefficients is *not* statistically significant at the 95% confidence level which means that inequality is similar in both parts of Somaliland. Figure 4 shows that the Lorenz curves are also very similar for rural and urban areas. The ratio of the consumption of the richest 10% and poorest 10% of the population, depicted by the ninety-ten ratio, is 5.1 in urban Somaliland and 5.4 in rural Somaliland. In other words, an average person in the top decile of per capita consumption (PCE) of urban population consumes 5.1 times more than the average person in the bottom decile. The comparable number for rural Somaliland is 5.4, thus implying that inequality is marginally higher between the very rich and the rest of the population in rural Somaliland.
12. *Inequality in Somaliland is amongst the highest in the region.* The Gini coefficient can be compared across economies. The latest Gini estimates for Ethiopia from 2010/11 are an urban Gini of 37% and a rural Gini of 27%, both lower than in Somaliland, but particularly in rural areas. The rural Somaliland Gini is closer to the 48% Gini recorded in the last household survey in Kenya (in 2005).

Table 4: Inequality measures

Sector	Gini Coefficient	Theil Index	Quintile Ratios		
			Ninety-Ten	Seventy Five-Twenty Five	Ninety-fifty
Urban	43.0	53.8	5.1	2.1	2.4
Rural	46.0	49.7	5.4	2.3	2.6

Source: SLHS (2013)

Figure 4: Lorenz curves



Source: SLHS (2013)

Chapter 2 A Poverty Profile for Somaliland

1. Demographic and welfare characteristics of poor households

13. *The basic demographics of poverty are presented in this section. As in other economies, poverty is strongly correlated with household size and the number of dependents in the household. As a result, children are more likely to be poor than adults in both rural and urban Somaliland. Poor households are more likely to be headed by individuals that are less educated, and in urban areas, women.*
14. *Poor households are larger than non-poor households.* In many economies poverty increases with household size, as an increasing household size is usually indicative of a higher number of dependent household members. In Somaliland urban households are on average larger than rural households—a household in urban Somaliland has on average 6.7 members while the rural households have on average 6.1 members—but in both urban and rural areas poor households have more members on average. A poor household in urban Somaliland has 7.9 members compared to 6.3 members in a non-poor household (Figure 5 and Figure 6). Similarly, a rural poor household has 7.1 members as compared to 5.7 members in a non-poor household. The difference between poor and non-poor households is statistically significant at 95% confidence interval. In fact, 60% of all urban poor and 79% of all rural poor have six or more members in the household.

Figure 5: Average household size by poverty incidence

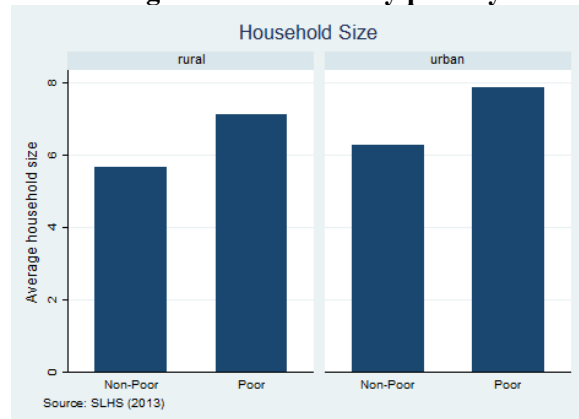
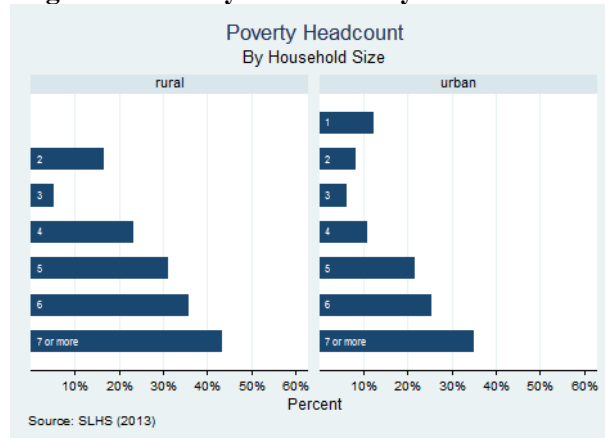


Figure 6: Poverty headcount by household size



15. *Poor households have on average more dependents.* The dependency ratio, defined as the ratio of children and old age dependents to working age population, is higher in poor households in both urban and rural areas.² The difference in the dependency ratio is statistically significant. Poor households have more infants (age 0-5 years) and children (age 6-15 years). Households with 3 or more children have a poverty rate of 37% in urban areas and 51% in rural areas. Moreover, a poor household in urban Somaliland has fewer adults (age 25-55). There is no significant difference in the proportion of adults in poor and non-poor households in rural Somaliland (Table 5 and Figure 7).³

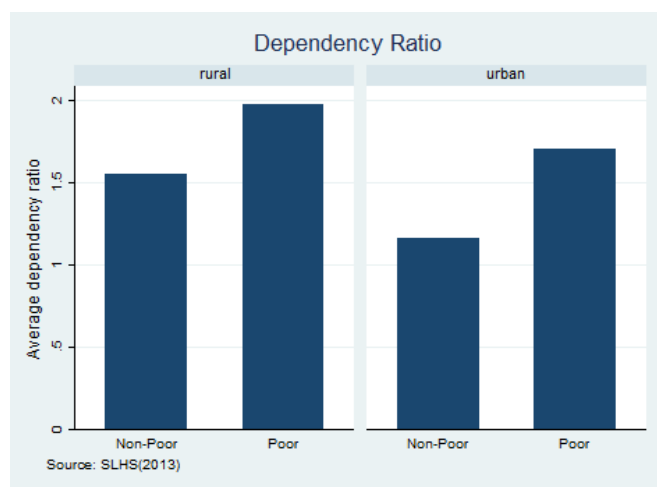
Table 5: Summary of household demographic attributes for poor and non-poor

Household Demographics	Urban			Rural		
	Non-Poor	Poor		Non-Poor	Poor	
Household Head Age	43	44.7		44.5	46.2	
Household Size	6.28	7.86	***	5.65	7.10	***
Dependency Ratio	1.16	1.70	***	1.55	1.97	***
Spouse Present in House	65%	63%		63%	75%	***
Children 0-5 years	1.11	1.47	***	1.07	1.66	***
Children 6-15 years	1.69	2.68	***	1.92	2.57	***
Youth 16-25	1.49	1.56		0.89	1.03	*
Adults 26-64	1.79	1.94		1.52	1.67	**
Adults 65 and older	0.18	0.19		0.22	0.16	**

The significance of difference between the means of non-poor and poor is captured through asterisk. *** significant at 1%; ** significant at 5%; * significant at 10%

Source: Authors' estimates based on SLHS (2013)

Figure 7: Dependency Ratio by region

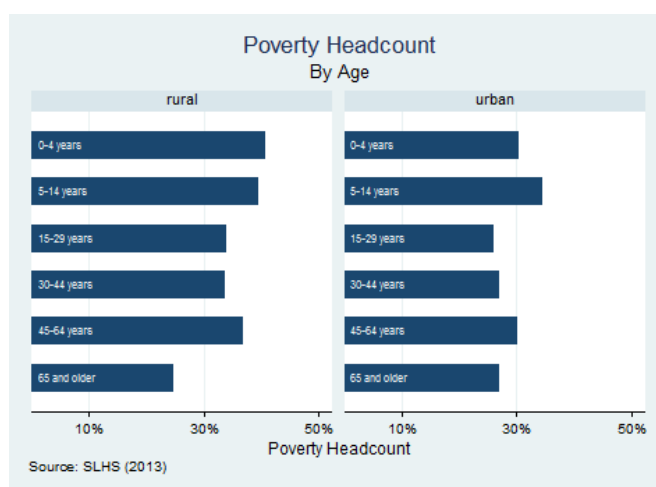


² The majority of individuals in settled parts of Somaliland live with their nuclear family, 87% of individuals in rural Somaliland are nuclear family members (head of the household, spouse or child of the head) and 79.6% of individuals in urban Somaliland.

³ We note that as a per capita rather than a per adult equivalent consumption aggregate was used, the difference may seem particularly large. However, it is difficult to properly account for the different consumption requirements and economies of scale from living in larger households and the differences in poverty rates based on a per capita measure of consumption are informative.

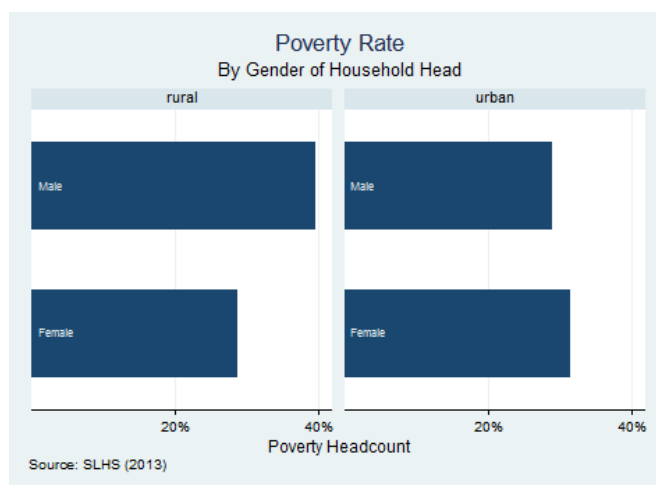
16. *Poverty is more prevalent among children and young adults.* The age composition of poverty is tilted towards younger population. Children below 5 years have a poverty headcount of 29.2% and 43.6% urban and rural areas respectively (Figure 8). Persons below age of 15 constitute 44% of the population in urban areas, but make up half of the poor. The number is higher in rural areas where 56.4% of the poor are children of age younger than 15. The age demographics of poverty highlight the younger population of Somaliland bears a disproportionate burden of poverty and that the young are more likely to be in poverty than the old.

Figure 8: Poverty headcount by age



17. *In urban Somaliland female-headed households are poorer than households headed by a male whilst in rural Somaliland this is not the case.* A little over one-third (31.6%) of the households in urban areas are headed by women. Of these households, 31.6% are poor, compared to 29% of male headed households (Figure 9). In rural areas, male headed households have a higher poverty rate (39.5%) as compared to female headed households (28.7%). Women head 23.5% of households in rural areas. This pattern of higher poverty among female headed households in urban areas but not in rural areas is also found in other economies in the region (such as Ethiopia).

Figure 9: Poverty head count by gender of household head



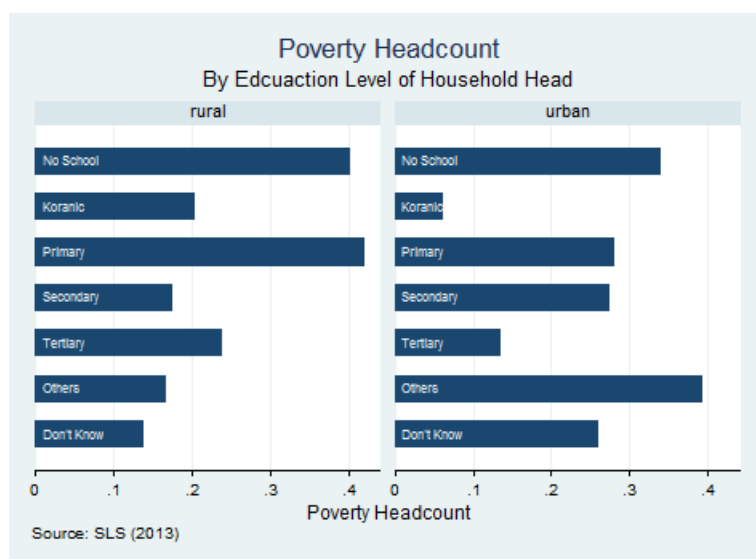
18. *The education of household head is highly correlated with the incidence of poverty.* Households where the head has no education have the highest poverty rates. Poverty rates among these households are 4-5 percentage points higher than the average (Table 6 and Figure 10). In urban Somaliland, 68% of the poor are living in households where the head has no schooling; the comparable number for rural Somaliland is 73%. Although the proportion of poor people living in households with uneducated heads in rural and urban areas is similar; fewer poor people live in households headed by those who completed higher levels of education in rural areas. Poverty rates in rural areas are higher for all levels of education, except secondary, perhaps reflecting lower returns to education in rural Somaliland.

Table 6: Poverty headcount by household head's education

Education Level	Urban			Rural		
	Poverty Headcount Rate	Distribution of the Poor	Distribution of Population	Poverty Headcount Rate	Distribution of the Poor	Distribution of Population
No School	33.7	68	58.1	42.1	72.7	65.9
Koranic	6.2	0.2	0.8	31.2	1.5	1.8
Primary	23.8	11.2	13.6	40.3	18.2	17.2
Secondary	30	11.2	10.8	17.7	4.5	9.7
Tertiary	9.4	4.2	12.5	21.8	2.4	4.1
Others	39.3	3.4	2.5	16.6	0.3	0.6
Don't Know	26	1.8	1.7	29.5	0.5	0.6
Total	28.7	100	100	38.1	100	100

Source: SLHS (2013)

Figure 10: Poverty headcount by education level of household head



2. Economic Activities of Poor Households

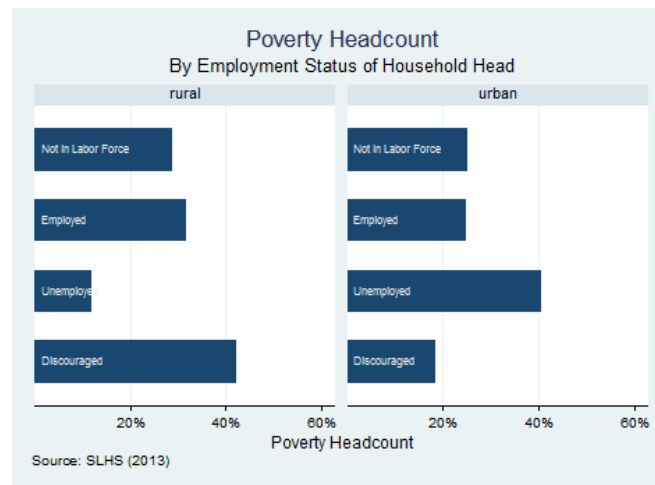
19. *Understanding the economic activities of the poor is an essential starting point for designing programs to improve their livelihoods and lift households out of poverty. This section shows that wage employment and remittances are important sources of income for poor and non-poor households in urban and rural Somaliland. In both urban and the settled parts of rural Somaliland covered in the household survey, the services sector is main sector for working adults, with livestock and farming also an important sector in rural Somaliland. In the settled parts of rural Somaliland covered in the household survey, less than 1 in 5 households were engaged in crop farming, and even fewer poor households, highlighting that few poor households benefit from higher food crop prices. Employment rates among resident household members are low in urban and rural Somaliland, particularly among poor households, and many out of work individuals are too discouraged to look for work. Indeed high food prices and inadequate employment were mentioned as major sources of risk to welfare by households in rural and urban Somaliland. Very few households report being victims of conflict in the last 12 months.*
20. *Three quarters of household heads are labor force participants, but only 60% have work. About one fifth of poor households in rural areas are headed by an individual that does not have work and is not actively looking for work because they believe they will not find it. Labor force participation is defined as the proportion of individuals who are of working age (age 15-64) and are currently self-employed, employed or looking for work. As such, three-fourths of household heads report active participation in the labor force (Table 7 and Figure 11). Individuals are considered employed or self-employed if they worked (with or without pay) in the last 12 months in domestic work, farm work, a family business or another enterprise. Overall, 60% of the household heads in urban areas and 62% in rural areas are employed or self-employed. An individual is unemployed if they looked for a job in the last 7 days but are currently out of work. Very few household heads are unemployed, but many are discouraged: a labor force participant that is out of work but did not actively look for work in the last 7 days because of inadequate employment opportunities. Rates of discouragement are particularly high in rural areas.*

Table 7: Economic Status of household head

Economic Status of head of household	Urban		Rural	
	Non-Poor	Poor	Non-Poor	Poor
Not in Labor Force	29%	30%	25%	22%
Employed or self-employed	59%	60%	62%	61%
Unemployed	1%	3%	1%	0% *
Discouraged	10%	7%	12%	18% **

Source: SLHS (2013). * Significant difference between poor and non-poor at 10%, **Significant difference between poor and non-poor at 5%.

Figure 11: Poverty headcount economic status of household head



21. Rates of labor force participation are lower when considering all members of the household as some household members are in education or engaged in full-time childcare, however rates of discouragement are 14-16% and in rural areas poverty rates are particularly high among those who are discouraged. Table 8 indicates that the majority of the working age population is not in the labor force. Half of those counted as inactive in both rural and urban Somaliland are between the ages of 15 and 24, in part because they are still pursuing schooling. The poverty rate among those not in the labor force is very similar to the poverty rate for those who report they are employed or self-employed. The poverty rate for employed or self-employed individuals is 24% in urban and 33% in rural Somaliland, which is not very different from the poverty rate for those not in labor force. In contrast those who are unemployed or discouraged have much higher poverty rates, particularly in rural Somaliland where the poverty rate is twenty percentage points higher among those who are unemployed or discouraged.

Table 8: Poverty headcount by economic status

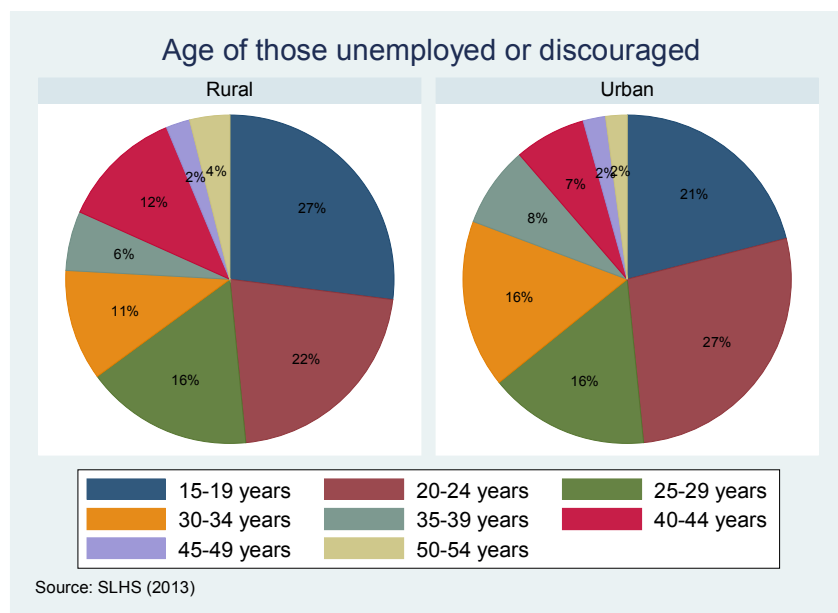
Economic Status of individual	Urban			Rural		
	Percentage of population	Percentage of poor	Poverty headcount rate (%)	Percentage of population	Percentage of poor	Poverty headcount rate (%)
Not in Labor Force	57.9	57.1	25.5	53.4	49.3	33.0
Employed and self-employed	26.0	24.5	24.0	32.7	30.0	32.8
Unemployed or discouraged	16.0	18.4	29.7	13.9	20.7	53.4
Total	100	100	28.7	100	100	38.1

Source: SLHS (2013)

22. The large disparity between the labor force participation of household heads and other members of the household reflects the fact that household heads are often supporting household members that are not in the labor force. Higher unemployment rates among youth also contribute to the differences in employment rates reported in Table 7 and 8. Figure 12 shows the age distribution of those unemployed and shows that 65 percent and 64 percent of those unemployed are between ages 15 and 29 in rural and urban Somaliland respectively. The dominance of youth in the unemployed or

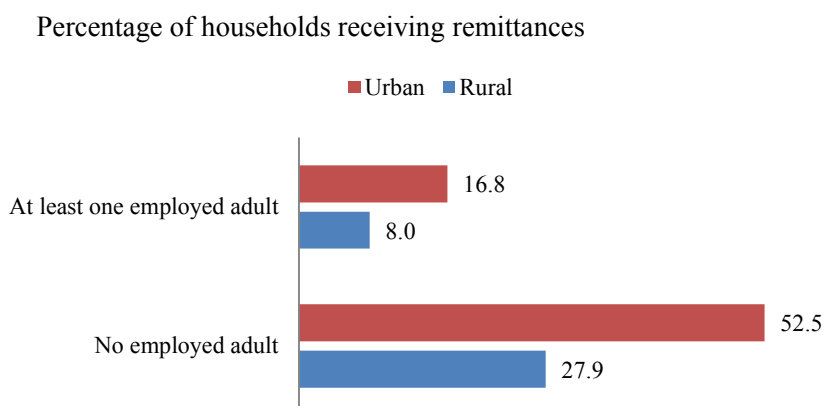
discouraged in Somaliland reflects higher unemployment rates. Unemployment rates among urban youth aged between 20 and 24 years reached 22 percent in rural Somaliland and 27 percent in urban Somaliland.

Figure 12: Age distribution of those unemployed or discouraged



23. However, a sizable proportion of households in Somaliland do not report any active members of the household. 37% of urban households and 40% of rural households report having no economically active adults in the 15 to 54 age range. Whilst this may indicate some under-reporting it is also likely reflective of the high level of remittance income in Somaliland as discussed further below. Households that do not have resident members who are economically active are much more likely to receive remittances (Figure 13). In urban areas over half (53%) of households without economically active members receive remittances in comparison to 16% among other households. This may indicate that remittances reduce incentives for seeking employment, but alternately, limited employment opportunities may encourage migration of family members (and thus remittances). This relationship merits further investigation.

Figure 13: Remittance income among households with no employed adults



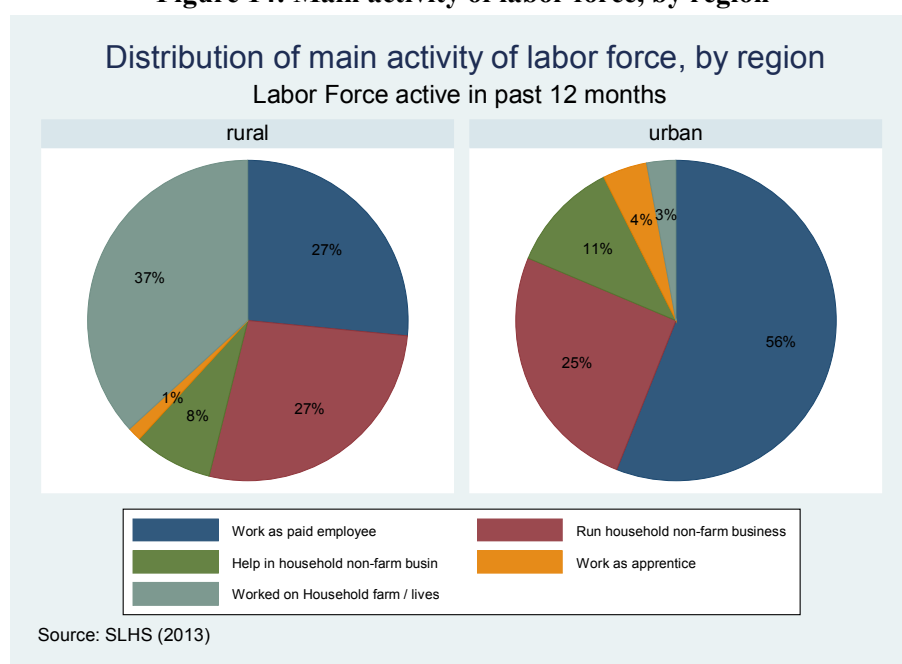
24. *In both rural and urban Somaliland, the main sector of employment for working adults is the services sector, with agricultural and livestock an important second in rural Somaliland. In this respect settled areas of rural Somaliland are quite different from other economies in the region in which agricultural activities are more dominant.* Table 9 shows the primary sector of all those employed or self-employed and shows that 49% of rural and 68% of urban Somaliland is engaged in the services sector. Within the services sector, labor employment is concentrated in retail services in both rural and urban areas. Although services is the primary sector of engagement for those in rural areas, agriculture and livestock is also an important sector in rural areas with 40% of those that work engaged in crop farming or livestock. Livestock dominates out of these two.

Table 9: Primary sector of work

	Proportion of all adults		Proportion of wage employees	
	Rural	Urban	Rural	Urban
Agriculture and Livestock	40.4%	5.4%	5.1%	3.7%
Mining and Extraction	0.5%	0.2%	0.4%	0.2%
Manufacturing	1.4%	4.7%	1.4%	4.3%
Construction	2.8%	8.4%	8.0%	11.6%
Services	48.9%	67.8%	67.3%	71.4%

25. *More than half of the urban labor force is engaged in wage employment, wage employment is also prevalent in rural Somaliland (in contrast to rural areas of other economies in the region) but working on household farms and in livestock rearing is more common.* A little over half (56%) of the urban labor force is employed in wage employment (Figure 14). In rural Somaliland, wage employment is less common, but still quite prevalent as 27% of labor force works for wage employment. Wage employment is concentrated in the services sector with 67% of rural and 71% of urban wage employees in services. Wage employment in the agricultural sector is limited, even in rural areas Table 9). In both rural and urban Somaliland 35-36% of the labor force runs or works in a non-farm business (Figure 14). In rural areas 37% works on household farms and in livestock rearing. This is uncommon in urban areas.

Figure 14: Main activity of labor force, by region



26. *The economic activities of poor and non-poor households are very similar in urban areas, but in rural areas poor households are much more likely to work on farms and less-likely to work in a non-farm enterprise than the non-poor.* Figure 15 shows the distribution of urban labor by the main activity and shows that the poor and non-poor have very similar activities. In rural areas, non-farm self-employment is dominant activity for the non-poor, employing 34% of the labor force and another 10% of household members that work in these enterprises. In contrast only 14% of the rural poor are self-employed (see Figure 16). Working on household farms and livestock is the major activity for poor individuals (46%). Wage labor is also more widely prevalent amongst the rural poor. In essence, employment in agricultural sector is a defining characteristic of rural poor.

Figure 15: Main activity of urban labor force, by poverty status

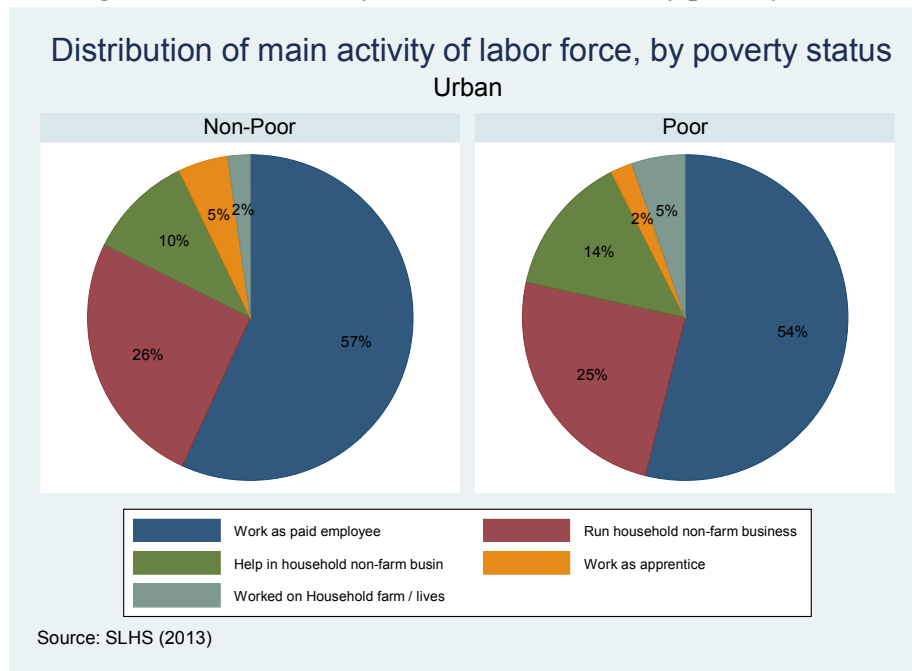
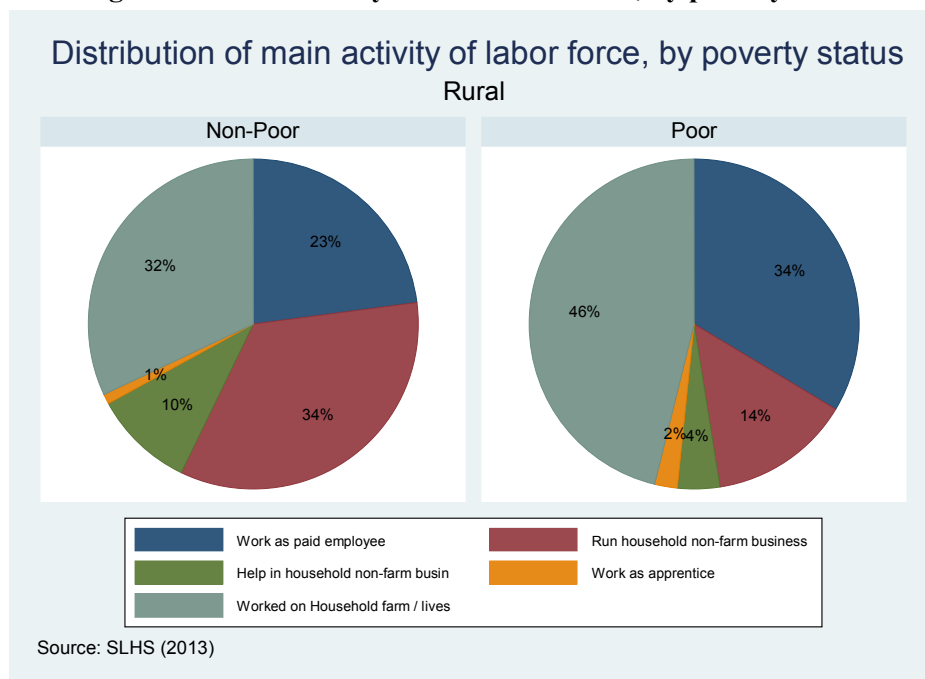


Figure 16: Main activity of rural labor force, by poverty status



27. *Wage and remittance income are the predominant sources of income in urban Somaliland and are also important in rural Somaliland, in addition to non-agricultural self-employment. Wage income and remittances are the predominant sources of income in urban Somaliland, 38% and 31% of households report income from these two sources respectively (Table 10). Additionally 14% of urban*

households earn income from non-agricultural self-employment. In rural Somaliland, the main source of income is non-agricultural self-employment and more households report income from wages and remittances than from farming and livestock. Income from farming and livestock was reported by only 11% and 14% of households respectively, indicating that many for many agricultural households, crop farming and livestock are subsistence activities.

Table 10: Sources of income

	Proportion of households engaged in ...		Proportion of households reporting income from...					
	Crop farming	Owning livestock	Farming	Livestock	Non-ag self-employment	Wages	Remittance ⁴	Other Transfers ⁵
Urban								
Non-Poor	4%	14%	1%	2%	15%	37%	36%	6%
Poor	7%	12%	2%	0%	13%	41%	18%	5%
Total	5%	13%	1%	1%	14%	38%	31%	6%
Rural								
Non-Poor	19%	54%	12%	13%	25%	16%	17%	10%
Poor	17%	67%	8%	16%	13%	18%	14%	6%
Total	19%	59%	11%	14%	21%	16%	16%	9%

Note: Differences between the means of the non-poor and poor that are significant at 10% or less are indicated in bold. The percentages in the urban Remittance column are bold, but the significance in differences between the means refers only to the cash remittance from family members living outside of the household.

Source: SLHS (2013)

28. *Unlike other economies in the region, crop farming as a source of income in rural Somaliland is limited, and is less prevalent among poor households compared to better off households.* The limited prevalence of crop-farming as a source of income in rural Somaliland is surprising. Households were also asked if they had land that they used for farming. However, even by this measure very few households are engaged in crop production with only 19% of rural households cultivating land (Table 10). This is despite 32% of rural households owning land. Those that are engaged in crop-farming tend to be slightly better off. Over a quarter (27%) of the rural poor own land as compared to 34% of non-poor households and more non-poor households report income from crop farming. The limited role of crop farming in the livelihoods of rural households in Somaliland, and in particular in the livelihood of poor households in rural Somaliland underscores the importance of keeping food prices low for combatting poverty: few poor households earn income from farming so will not benefit from high food prices. Instead many poor households purchase a large proportion of the food they consume and low food prices improve their purchasing power.

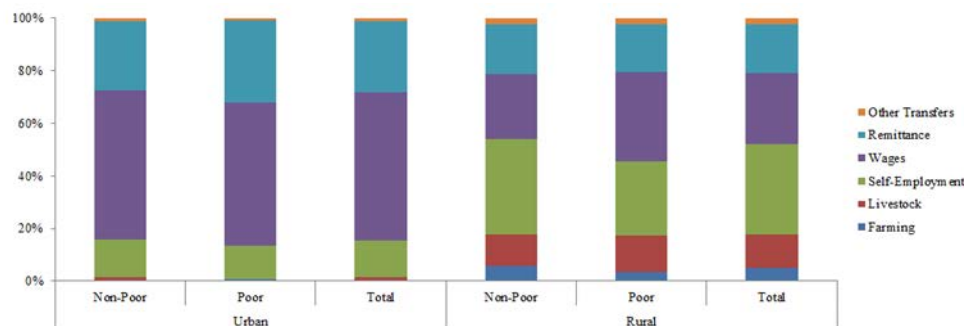
29. *In contrast, livestock ownership and rearing is widely prevalent in rural areas, but a source of income for only a few households.* 59% of rural households rear livestock and it is more common among poorer households (Table 10). However, only 14% of rural households report income derived from livestock rearing, suggesting that for many it is a subsistence activity. Figure 17 details the share

⁴ Remittances include cash, food, and non-food in-kind transfers from family members, relatives and friends.

⁵ Other transfers include transfers from Alimony and Zakat.

of income coming from each type of income⁶. This shows that the share of income from livestock production is similarly low.

Figure 17: Proportion of income from each source, by region and poverty status



Source: SLHS (2013)

30. *Wage employment is the major source of income in urban Somaliland and also an important source of income for rural households, second only to income from self-employment.* Poor and non-poor households are equally likely to obtain income from wage employment and non-agriculture self-employment (Table 10). But the relative significance of each of these sources of income differs significantly amongst rural poor and non-poor households. Figure 17 shows a breakdown of the shares of income from each source. Poor households in rural areas are more reliant on wage income and less reliant on self-employment income than non-poor households.
31. *Remittances are a major source of income for households, especially in urban Somaliland and for non-poor households.* 31% of urban and 16% of rural households report remittances as a source of income (Table 11). While cash remittances are more common in urban households, a higher proportion of rural households receive food and in-kind remittances. However, in both urban and rural areas, poor households are less likely to receive remittances. Non-poor urban households (36%) are twice as likely to receive remittance income compared to their poor counterparts (18%). In rural areas the difference is less pronounced as 14% of poor households receive remittances compared to 17% of non-poor households (Table 10).
32. *Migration has significant bearing on income and livelihoods of households.* In urban areas, 19% of households have one or more household members residing in another city or abroad (Table 11). In rural areas, 10% of households have migrant members. In urban areas, migrant household members are more often reported in better off households. Households in the highest quintile are twice as likely to have a migrant household member as households in the bottom quintile. In rural Somaliland the probability of migration is lower and it increases and then decreases with consumption. In urban areas, 14% of households report receiving remittances from these migrant members compared to 5% in rural areas. The incidence of remittances increases with consumption which could suggest that migration is one way by which households increase their consumption in Somaliland. However more analysis is needed to ascertain whether wealthier households are more likely to have a migrant member, or whether having a migrant member enables a household to become less poor and this is undertaken in a subsequent chapter. Both mechanisms may be at work. The data presented thus far

⁶ Sources of income include cash income earned from engaging in an economic activity, and in the case of remittances, the monetary value of non-cash transfers. It does not include the monetary value of household production for self-consumption. For instance, own produced food that is consumed by household is not included as a source of income.

underscores that remittance income is important for households in both rural and urban Somaliland, but particularly in urban Somaliland.

Table 11: Migration and remittances

Quintile of RPCE	Households with migrant members		Households who receive remittance from migrant		All types of remittances ⁷	
	Urban	Rural	Urban	Rural	Urban	Rural
Lowest quintile	12%	7%	8%	2%	19%	14%
2	15%	8%	14%	5%	28%	14%
3	23%	16%	15%	10%	33%	19%
4	21%	10%	17%	4%	36%	18%
Highest quintile	24%	7%	18%	2%	39%	16%
Total	19%	10%	14%	5%	31%	16%

Source: SLHS (2013)

33. *Migrants are predominately male, particularly those from rural areas, and migrate to work.* 55% of migrants from urban areas are male and 63% of migrants from rural areas are male. Migrating members of rural households tend to move to other locations within Somaliland (42% of rural migrants moved to Hargeisa compared to 12% from urban centers outside of Hargeisa) and if they do migrate internationally the main destination is Saudi Arabia. In contrast, migrants from urban households tend to move internationally and most often to the United Kingdom, followed by the United Arab Emirates, Canada, Saudi Arabia and the United States. Migrants from rural areas are more likely to migrate for educational reasons (20%) than migrants from urban areas (about 5% of urban migrants are students) but the majority of migrants are working or looking for work.
34. *A significant proportion of households, 5% in urban and 9% in rural Somaliland, draw income from alimony and Zakat (alms).* The transfer payments are more common for non-poor households than poor households in both urban and rural areas which could indicate that transfer payments are keeping some recipients from falling into poverty. However, this difference is not significant.
35. *Inadequate employment, droughts, and high food prices are major shocks for household consumption.* Table 12 provides a summary of incidence of shocks in urban and rural Somaliland. Inadequate employment is a major concern for households in urban Somaliland. In combination with the finding that wage employment is a major source of income for poor and non-poor households this suggests that industrial policy to support job creation will be key for poverty reduction in urban Somaliland. There are no major differences in the shocks reported by the poor and non-poor. Although drought is reported as a major shock to household in rural areas, this is not as a result of it causing insufficient water for farming. The shock to consumption may come as a result of longer distances to fetch water for household consumption or lack of water for livestock.

⁷ This includes remittances from immediate family members, from relatives and friends, and cash, food, and in-kind remittances.

Table 12: Shocks to household consumption

	Drought	High Food Prices	Inadequate Employment	Insufficient water for farming
Urban				
Non-Poor	16%	28%	35%	4%
Poor	12%	24%	42%	6%
Total	15%	27%	37%	4%
Rural				
Non-Poor	44%	30%	16%	13%
Poor	50%	27%	19%	11%
Total	46%	29%	17%	12%

Source: SLHS (2013)

36. *The evidence is also consistent with death being a major financial shock to households in urban Somaliland.* In urban areas recent deaths of a household member are much more prevalent among the lowest quintile of households, 20% of households experienced the death of a household member in last 2 years, compared to 11% households in the highest quintile (Table 13). This could reflect the fact that the loss of a household member occurs comes with significant costs (health costs or funeral costs) or that the loss of a household members results in a loss of income. This relationship is not observed in rural Somaliland, perhaps because informal forms of support are stronger in rural areas. Illness is the major cause of death (Table 13) followed by old age, accidents and childbirth complications.
37. *Conflict and displacement is a not a major source of disruption for households in surveyed areas.* A few households – 6% in rural areas and 4% in urban areas – report knowing anyone who faced harassment or threats. The threats were generally limited to petty thefts and street crimes. There are no significant reports of displacement or loss of assets due to conflict situations. Overall, this suggests conflict was not a major challenge for households in survey areas, although it is worth noting that the most insecure areas could not be surveyed. Conflict was not listed as a possible source of death in the survey instrument, but may have contributed to “other causes” listed. One in ten reported deaths listed “other” as the cause suggesting this as an upper bound on conflict related deaths, although the number is likely much smaller than this as many other causes of death could be captured in this category.

Table 13: Percentage of households that had a death in last 5 years

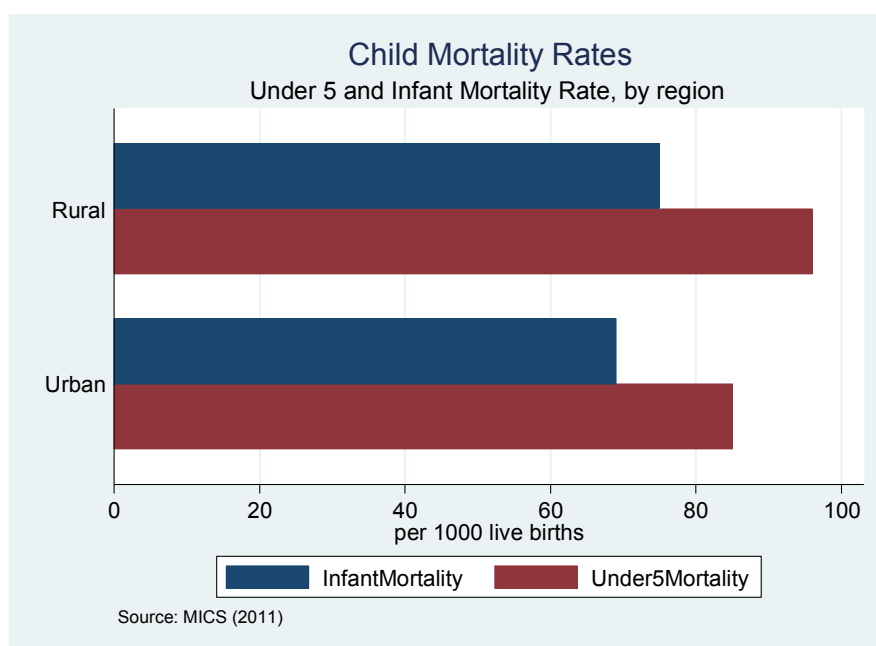
Quintiles of RPCE	Death in Household in last 5 years	Death by Illness	Deaths in Last 2 years	Deaths in 2-5 years
Urban				
Lowest quintile	28.8	19.9	20.0	7.6
2	22.4	15.7	15.1	7.3
3	25.3	18.2	15.1	9.5
4	24.9	18.7	15.7	8.7
Highest quintile	19.3	17.2	11.1	8.3
Rural				
Lowest quintile	18.3	9.4	11.2	6.7
2	18.9	14.6	12.1	6.8
3	27.2	17.8	14.8	12.4
4	27.2	18.8	11.2	16.1
Highest quintile	30	20.1	14.4	15.6

Source: SLHS (2013)

3. Poverty and other dimensions of deprivation in Somaliland

38. *Households in Somaliland face deprivations on many dimensions, particularly in rural areas, which points to the need for a comprehensive approach to addressing poverty. More than two-thirds of poor households in urban areas have a child who is not in school, or do not have access to an improved water source, or do not have access to external sources of information. However, households in rural Somaliland are three times more likely to be deprived in multiple dimensions at once. The acute nature of rural poverty in combination with the existence of deprivation on a greater number of dimensions makes rural poverty harder to address. Addressing poverty will require investments in education and improved health care in addition to investments to improve productive opportunities for poor households.*
39. *Children born into poor household are less likely to receive medical care that may be required at birth, they are less likely to live in households with running water and good sanitation, and they are much less likely to attend school. This report shows that the poverty of one's parents is highly correlated with the opportunities available to a child in Somaliland. Poverty is strongly negatively correlated with access to child health and education. These findings suggest that the necessary focus of the government on peace building and nation development and limited donor support has resulted in inadequate delivery of basic services and very unequal access to services and wellbeing. Addressing this is the challenge facing Somaliland.*
40. *In this section the Somaliland Household Survey is used to present information on other measures of well-being and deprivation in rural and urban Somaliland. Findings are presented on access to water and sanitation, access to education and access to health care, particularly for women during child-birth. Childbirth is one of the major risks to women and children's health in Somaliland. The infant mortality rate of 72 per thousand is particularly high (MICS 2012). Comparing this rate to the infant mortality rates estimated for countries in the region, underscores how high it is. Ethiopia has an infant mortality rate of 47, 49 in Kenya and 45 in Uganda. Mortality rates are higher in rural areas, whereas Under 5 mortality rate is higher than Infant mortality rate (Figure 18).*
41. *For each dimension of deprivation considered, the degree to which this dimension of deprivation overlaps with monetary poverty is assessed. In rural Somaliland deprivations in non-monetary dimensions of wellbeing are found to be strongly correlated with monetary poverty. The coincidence of non-monetary dimensions and poverty is still present in urban Somaliland, but more poor households experience greater well-being on non-monetary dimensions.*
42. *In addition to examining the overlap between monetary poverty and deprivation on other dimensions of well-being, this section also examines how multiple dimensions of deprivation overlap. The approach outlined in Atkinson and Lugo (2010) and Lugo and Ferreira (2012) is applied to assess the degree to which poverty is multi-dimensional in urban and rural Somaliland. This matters for two reasons. First, poverty has many dimensions that cannot be fully captured by looking at the amount a household consumes alone, and taking a multi-dimensional approach allows for a more holistic representation of poverty. Second, work in other economies suggests that when people are deprived in multiple dimensions of poverty at once, poverty is more intransigent and proves more difficult to address.*

Figure 18: Child mortality rate, by region



Education and information

43. *Somaliland has low levels of literacy compared to the region, and literacy rates are lower among poor households.* The literacy rate of 59% in urban Somaliland and 47% in rural Somaliland is the second lowest in the region, ahead of Ethiopia (39%, Table 15). The adult literacy rate among poor households is 11-12 percentage points lower compared to non-poor households (Figure 19 and Table 16).
44. *Levels of educational enrolment, particularly for primary education, are very low—the lowest in the region and one of the lowest in the world—suggesting that unless action is taken otherwise the literacy rate in Somaliland will continue to be very low.* Only one in two primary school aged children is enrolled in primary school (Table 15).⁸ While the secondary school enrollment in urban areas fares on par with the regional average, rural areas have 12 percentage points lower attendance compared to urban Somaliland.

⁸ Net Enrollment Ratio (Primary) is defined as the proportion of primary age children who attend primary school

Figure 19: Adult literacy rate, by poor and region

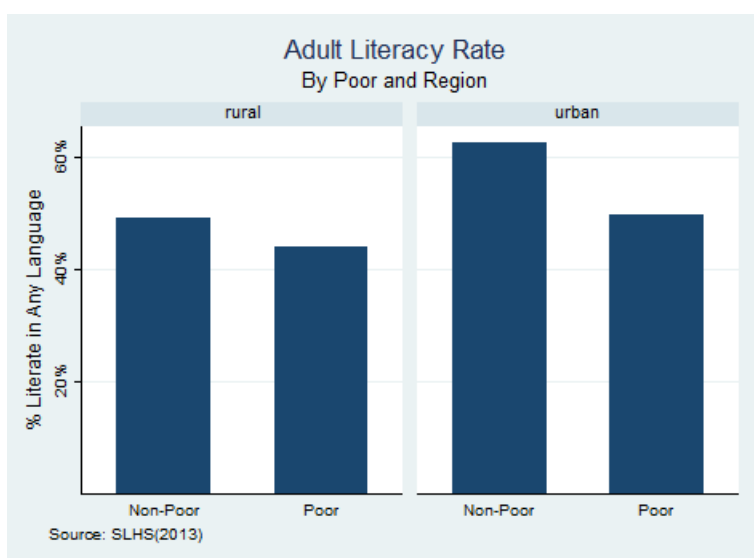


Table 14: Literacy and education, regional comparison

Indicator	Somaliland		Djibouti	Ethiopia	Kenya	Tanzania	Uganda
	Urban	Rural					
Literacy Rate	59%	47%	-	39%	87%	68%	73%
Net Primary Attendance (% of Primary aged children in Primary School)	52%	53%	62%	80%	83%	98%	91%
Net Secondary Attendance ¹ (% of Secondary aged children in Secondary School)	21%	9%	24%	16%	50%	25%	17%

Source: SLHS (2013), WDI

45. If current trends continue, the education gap between the poor and non-poor will persist because poor children are much less likely to attend school. In poor households in urban Somaliland, 51% of household members age 5-25 are attending any school, compared to 59.5% of non-poor households. In rural Somaliland, the gap between poor and non-poor is even larger with 57% of non-poor children going to school compared 42% of poor children (Table 16). The disparity in school attainment is also large at the secondary level. In rural Somaliland for instance, age appropriate enrollment in secondary schools for the bottom quintile is 8.2%, lagging behind the 20% net enrollment in secondary for the top quintile. Understanding the barriers that prevent children from poor households attending school, and helping these barriers be overcome is essential to reversing this trend. A separate paper takes up this issue in more detail.

Table 15: Education indicators, by poverty

Education	Urban		Rural	
	Non-Poor	Poor	Non-Poor	Poor
Adult Literacy	62.50%	49.68%***	49.08%	43.91%
NER Primary	56.97%	42.10%***	58.87%	43.47%***
GER Primary	88.37%	69.43%***	85.61%	65.38%***
NER Secondary	23.50%	17.02%	12.69%	1.59%**
GER Secondary	72.97%	37.40%***	39.71%	11.46%***
In School (5-25)	59.51%	51.03%***	57.12%	42.26%***

Notes: The significance of difference between the means of non-poor and poor is captured through asterisk. *** significant at 1%; ** significant at 5%; * significant at 10% Source: SLHS (2013)

46. *Overall in Somaliland, access to external sources of information – such as a radio, television, newspaper, or internet – is not high. Only one in three households (31%) in rural Somaliland has access to an external source of information compared to over half (54%) of the households in urban Somaliland. Poor households are even less likely to use these sources, see Figure 20. Whilst 61% of non-poor households in urban areas list one of these sources (radio, television, newspaper or internet) as a source of information this falls to 34% of poor households. A poor household in urban Somaliland is however just as likely to have access to one of these sources as a non-poor household in rural Somaliland. There is the same disadvantage in this regard from being rural as from being poor. One in four poor households in rural areas uses these sources of information. The lack of use of modern sources of information depicts the generally low penetration of information technology infrastructure.*
47. *Mobile phone ownership rates are much higher than access to external sources of information would suggest, even among poor households. Almost two thirds (62%) of urban households and about half (49%) of rural households own a mobile phone. Even 48% of poor households in rural Somaliland and 41% of poor households in urban Somaliland own a mobile phone (Figure 21). The information deficit is thus likely to improve as more households embrace cell phone services.*

Figure 20: Sources of Information, by poverty status

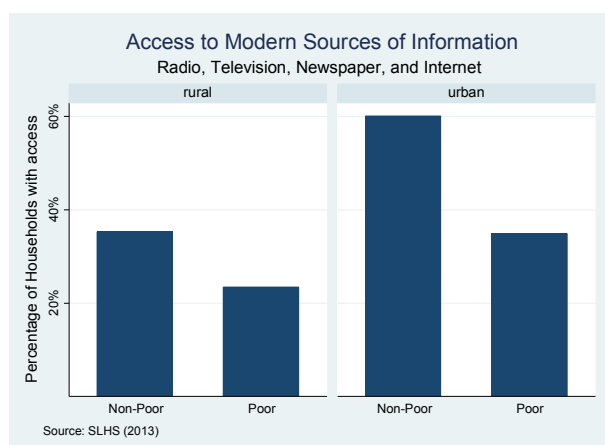
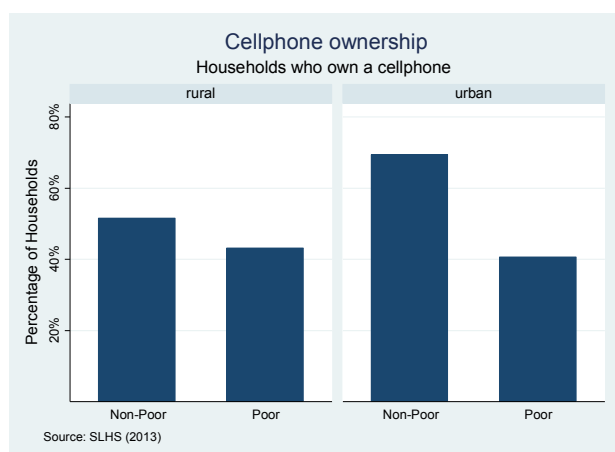


Figure 21: Cellphone ownership, by region



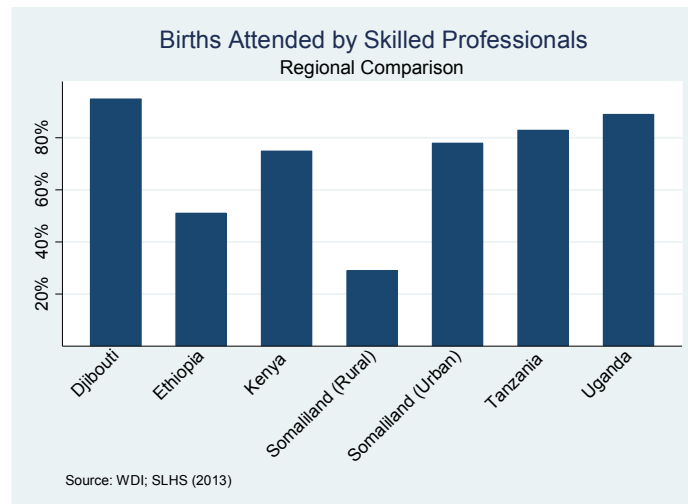
Health

48. *Health indicators in Somaliland are low compared to regional benchmarks, especially in rural areas.*

The proportion of births attended by skilled health workers provides a good indication of the availability of health services for mothers. Less than one in three births (29%) in rural Somaliland is attended by a skilled health worker and one in five births (20%) are in a medical facility (Table 17). On this dimension of wellbeing, Somaliland fares poorly compared to the neighboring economies as indicated in Figure 22. The proportion of births attended by skilled health workers in rural Somaliland is lowest in the region, trailing behind Ethiopia (51%). Access to formal facilities for mothers varies a great deal between rural and urban Somaliland. In urban areas, 77.5% of births are attended by a skilled attended and 71% of the births are in urban Somaliland in a proper medical facility.⁹

⁹ Birth in a proper medical facility includes births recorded in public or private healthcare facilities such as hospitals, clinics, and mother and child centers.

Figure 22: Births attended by skilled attendants, regional comparison



49. *Access to maternal health care is very strongly correlated with poverty in rural areas with birth to mothers in poor households much less likely to be attended by a skilled attendant.* In rural Somaliland, 4% of births are in a proper medical facility for the lowest quintile as compared to 39% for the top quintile (Table 17). The gap between poor and non-poor in urban areas is narrower. For the bottom quintile, 66% births are in medical facilities as compared to 82.6% for the top quintile.
50. *In general, access to health care is constrained in rural Somaliland.* For urban Somaliland, 85% of the people who report a health problem seek health services from a formal medical facility. The comparable estimate for rural Somaliland is 65%. However, use of public health facilities is similar in rural areas (40%) and urban areas (37%).
51. *Poor households are less likely to obtain formal health care, but differences between poor and non-poor households in health care usage are not as high as the differences between poor and non-poor in skilled birth attendants or in school enrollment.* The poor and non-poor are equally likely to report health needs, but fewer poor households receive health care. In rural areas, 58% of poor households access formal medical facilities in time of healthcare need compared to 71% for non-poor (Figure 23). In urban areas the disparity between poor and non-poor is again smaller than in rural areas: 80% of poor and 87% of non-poor have access to formal healthcare facility. In both urban and rural areas, the poor are more likely not to seek treatment as a result of lack of finances. One in five poor people do not seek treatment because of lack of finances. Poor people are less likely to seek treatment from private health facilities in urban Somaliland. However, poor and non-poor have similar trends in seeking treatment from private healthcare providers in rural areas, perhaps indicating the lack of availability of private health facilities in rural Somaliland.

Figure 23: Health needs and use of health services in time of need (access), by region

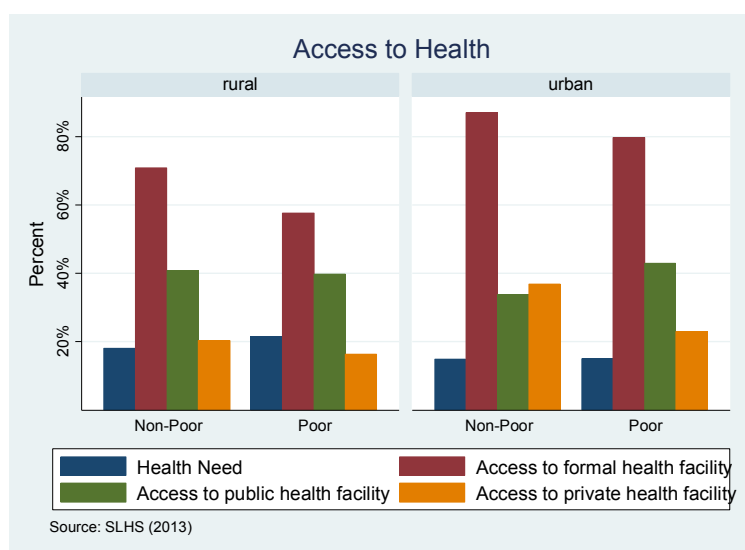


Table 16: Access to healthcare, by quintile of RPCE

Quintile of Real per capita expenditure	Health Problem or Birth Last Year	Birth in a proper medical facility (Women Age 15-49)	Birth attended by Skilled Health Staff (Women Age 15-49)	Formal Medical Access for Health Problem	Sought Treatment at Public Medical Facility	Sought Treatment at Private Medical Facility
Urban						
Lowest quintile	15.9%	65.8%	74.9%	83.5%	41.7%	21.2%
2	15.9%	67.2%	76.0%	71.9%	29.3%	28.2%
3	13.2%	64.6%	71.1%	84.1%	43.6%	24.9%
4	14.9%	75.4%	73.7%	96.0%	42.2%	47.2%
Highest quintile	14.9%	82.6%	91.3%	91.2%	28.4%	43.6%
Total	15.0%	71.3%	77.5%	84.9%	36.8%	32.6%
Rural						
Lowest quintile	21.3%	4.3%	9.0%	58.1%	47.4%	19.9%
2	22.0%	14.0%	25.6%	59.0%	29.0%	18.8%
3	16.6%	27.4%	33.2%	58.8%	49.4%	19.9%
4	19.0%	15.4%	35.6%	59.1%	25.7%	20.2%
Highest quintile	17.9%	38.8%	42.1%	91.2%	52.3%	14.0%
Total	19.4%	19.6%	29.2%	64.8%	40.4%	18.6%

Source: SLHS (2013)

52. Although only 15-19% of those living in Somaliland experience health problems, and an even lower proportion seek treatment, spending on health does have an impoverishing effect for some

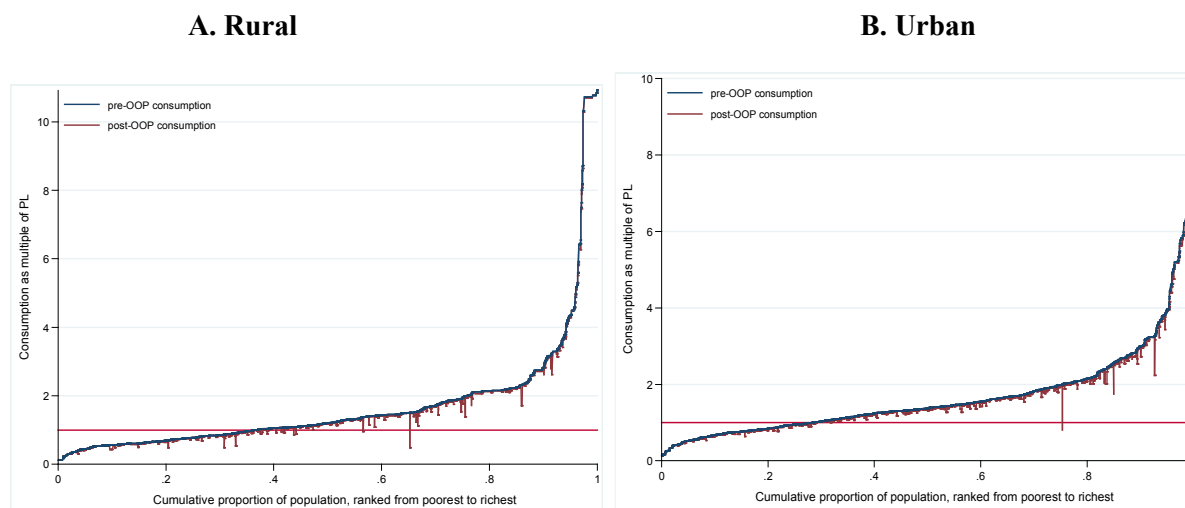
households. The consumption aggregate used to assess the poverty status of a household does not include spending on health in line with common practice. Data on health expenditures was collected and so it is possible to assess whether some households that were counted as poor would not be poor had they been able to use health expenditures for food or other consumption instead. This is assessed in Table 18. The poverty headcount in rural areas would fall by 1.5% and in urban areas it would fall by 0.6% if poor households did not have to pay for health expenses. The poverty gap would also fall, indicating that some poor households are pushed further into poverty as a result of health expenditures. Figure 24 shows the impoverishing effects of health payments in rural and urban Somaliland respectively via a Pen's Parade diagram. A Pen's Parade is useful to identify and study the households who fall below the poverty line due to health payments. In each figure, the households are ranked in ascending order of consumption aggregate. The blue line shows the pre-health payments consumption level of each household. The red "drip" shows the drop in household consumption due to out-of-pocket health expenditures. The horizontal red line is the poverty line. If a drip is long enough to cross the poverty line, a household is considered to be impoverished net of health payments. The effects of health payments are smaller but more recurrent for the households at the bottom of the consumption distribution. Table 18 also shows that health expenditures are a higher share of consumption for poor households and as a result the Gini would also fall a little if expenditure on health was diverted to other goods.

Table 17: Effect of health expenditure on poverty and inequality

	Poverty rate	Poverty rate if spending on health were spent on other goods	Percentage point change	Percent Change
Rural				
Poverty headcount	37.0	35.5	1.5	4%
Poverty gap	10.8	10.2	0.6	5%
Gini Coefficient	46.0	45.6	0.4	1%
Urban				
Poverty headcount	29.7	29.1	0.6	2%
Poverty gap	8.9	8.5	0.4	5%
Gini Coefficient	43.0	42.8	0.2	0%

Source: SLHS (2013)

Figure 24: Effect of health payments on Pen's parade



Water, sanitation and housing

53. *Access to improved sources of water in Somaliland lags behind the neighboring economies* (Figure 25). Households obtaining water from improved sources are lowest in the region. In rural Somaliland, only 3% of households obtain water from improved sources.¹⁰ On the other hand, Somaliland has the highest rates of improved sanitation¹¹ in the region. In Somaliland, 88% of urban and 60% of rural households have access to improved sanitation, compared to 12% in Tanzania and 21% in Ethiopia.
54. *There are significant disparities in access to basic services and dwelling conditions between poor and non-poor households.* The availability of utilities such as tap water, sanitation, and improved/durable features of housing is fairly limited across Somaliland. Less than half (46%) of non-poor urban households have access to improved water supply¹² compared to 39% of poor urban households (Figure 26). The difference is even more pronounced in rural areas where a mere 3.8% non-poor and 1.3% of poor households have access to improved water. The access to improved sanitation facilities, while better than other services, is still fairly low, especially for rural households. Amongst the rural poor, only 54% access improved sanitation versus 63% of the non-poor. We note that our estimates of access to improved sanitation in rural Somaliland are higher compared to others. MICS (2012) finds that 26% of rural and 87% of urban households have access to improved sanitation. The difference may result from differences in the way the questions on sanitation were asked: in SLHS (2013) households were asked to identify the type of sanitation facility used. The list of responses included

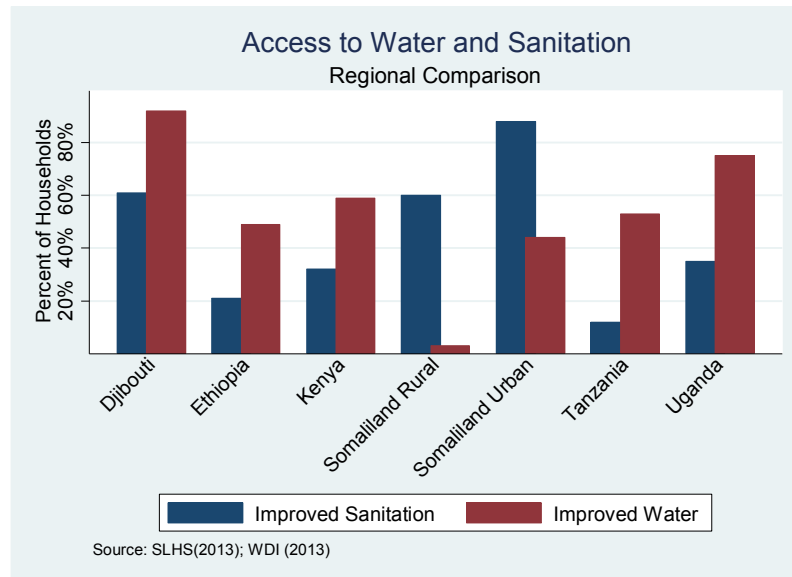
¹⁰ Improved water sources include water from public water pipe, running water available inside the dwelling, or public water plumbing.

¹¹ Improved sanitation is defined as availability of water closet or pit latrine in the household.

¹² The improved drinking water source includes piped water on premises (piped household water connection located inside the user's dwelling, plot or yard), and other improved drinking water sources (public taps or standpipes, tube wells or boreholes, protected dug wells, protected springs, and rainwater collection). (WDI)

only one option that cannot be characterized as improved sanitation – which may have resulted in an overestimation. This issue requires further investigation.

Figure 25: Access to water and sanitation, regional comparison



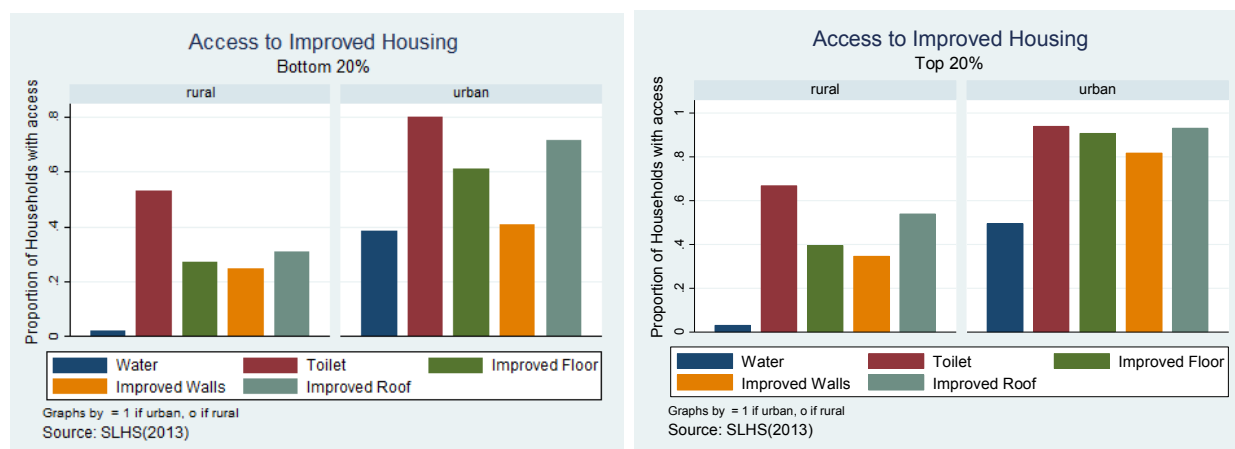
55. *Rural housing is less equipped, on average, than urban housing, and housing conditions are quite basic for those living in poverty in rural areas.* Amongst the poorest quintile, 71% of urban households and 28% of rural households have a permanent roof made of metal sheet or tiles in their house. In the richest quintile, 93% of urban and 54% of rural households live in houses with improved roofs (Table 18 and Figure 26). Lower quality of housing may be a consequence of low income and consumption in rural areas.

Table 18: Access to water, sanitation, and housing

Attributes of Dwelling Conditions	Urban		Rural		
	Non-Poor	Poor	Non-Poor	Poor	
Improved Water (Rainy Season)	45.8%	39.0%	3.8%	1.3%	*
Improved Sanitation	90.0%	81.3%	63.3%	54.1%	**
Improved Floors	85.5%	62.9%	38.1%	24.5%	***
Improved Walls	74.0%	44.1%	37.1%	23.2%	***
Improved Roofs	89.8%	71.5%	50.3%	30.5%	**

Notes: *** significant at 1%; ** significant at 5%; * significant at 10%. Source: SLHS (2013)

Figure 26: Access to improved housing, by percentile of RPCE



Multi-dimensional poverty

56. *This section presents findings on the degree to which different dimensions of poverty overlap in rural and urban Somaliland.* This is done to better understand the multidimensional nature of poverty in Somaliland, and to ascertain the extent to which individuals are deprived on many dimensions. Work in other contexts has shown that those who are deprived on many dimensions at once may, other things equal, find it harder to escape poverty than households deprived on only one dimension. For example, it is difficult for a poor individual to access productive opportunities and see income growth if he/she is not educated, and if he/she is not able to access health care should he/she fall ill. Deprivations in four dimensions are considered: education (enrollment of primary age children), health (access to healthcare facilities), water and sanitation, and access to information. The indicators and their definitions are summarized in Table 19.
57. *Venn diagrams are used to depict the size of interaction between three indicators of deprivations.* As suggested in Lugo and Ferreira (2012), the Venn diagrams allow a depiction of both the size of one deprivation relative to another and how the different dimensions of deprivation overlap. The Venn diagrams below are proportionally sized for each set of three deprivation indicators: each circle area represents the approximate proportion of the households that experiences the deprivation; each intersection area represents the approximate proportion of households that experience two, or all three, deprivations.
58. *A clear picture of disparity between rural and urban Somaliland emerges from considering the multidimensional nature of poverty.* Table 20 summarizes the multiple dimensionality of poverty in Somaliland and this is depicted in Figure 27. In urban Somaliland, monetary poverty has a much lower coincidence with other deprivation of poverty than in rural Somaliland. In urban Somaliland very few households (2%) are deprived in poverty, health and education; but in rural Somaliland 6% of households are deprived in all three dimensions. This is also seen in access to information, education and poverty, and access to healthcare, sanitation and poverty.

Table 19: Selected Indicators of Deprivation in Somaliland

Deprivation Indicator	A household is deprived when...
Education	At least one child of primary age (6-13 years) is not in school
Health	At least one household member cannot access health facility when sick for diagnosis or treatment
Sanitation*	Household does not have access to improved sanitation such as flush toilet or pit latrine in the dwelling
Water**	Household does not have access to improved water source – privately accessible or publicly provided piped water.
Information	Household does not use radio, television, newspaper, or internet to access information
Income	Household's real total consumption expenditure per capita is lower than the poverty line

* Only for rural households ** Only for urban households

59. *However, although urban households are less likely to be deprived in multiple dimensions, many households in urban areas are deprived on more than one dimension.* More than two-thirds of poor households in urban areas have a child who is not in school, or do not have access to an improved water source, or do not have access to external sources of information. However, few households are deprived in three dimensions.
60. *Households in rural areas are not only more likely to suffer from consumption based poverty; they are also more likely to be deprived in access to education, healthcare, and living conditions (see Figure 27).* Consider the incidence of monetary poverty, education and health deprivations. In rural Somaliland, 85% of the households are deprived in at least one dimension whereas the households deprived in all three dimensions are also higher in rural areas (6% compared to 2% in urban areas). Deprivations in access to health are particularly acute in rural areas, and have a high overlap with other deprivations. The acute nature of rural poverty along with deprivations which are intertwined and exist on a greater number of dimensions make rural poverty harder to address.

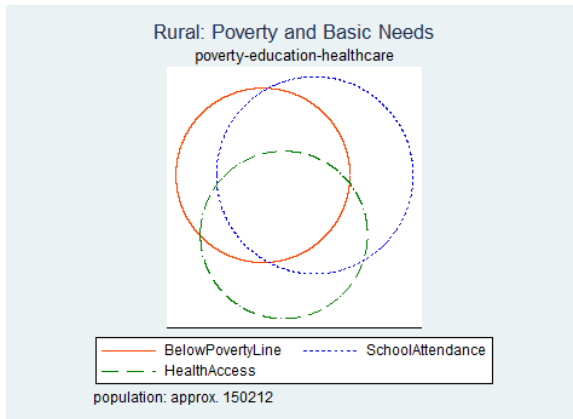
Table 20: Incidence of multiple deprivations in Somaliland, by region

	Urban	Rural
Household deprived in one dimension		
Income	29.7%	37.0%
Education	47.7%	63.1%
Health	14.8%	29.0%
Sanitation/Water	55.9%	22.5%
Information	43.6%	41.7%
Households deprived in two dimensions		
Income and education	19.9%	27.7%
Income and health	7.3%	22.9%
Income and sanitation/water	19.0%	18.4%
Income and information	17.6%	28.5%
Education and health	9.5%	29.0%
Education and information	20.9%	41.7%
Health and water / sanitation	8.7%	20.9%
Households deprived in three dimensions		
Income, health and education	2.0%	6.0%
Income, information and education	9.0%	15.8%
Income, health and water / sanitation	2.2%	7.1%

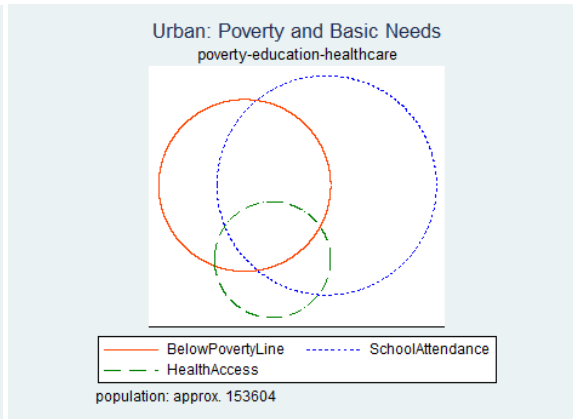
Source: SLHS (2013)

Figure 27: Multiple Deprivations in Somaliland

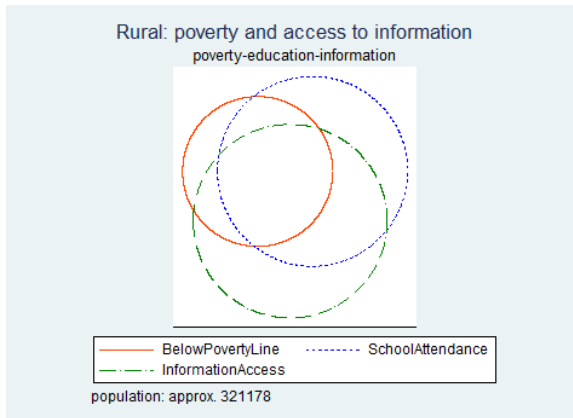
A: Poverty and Basic Needs (Rural)



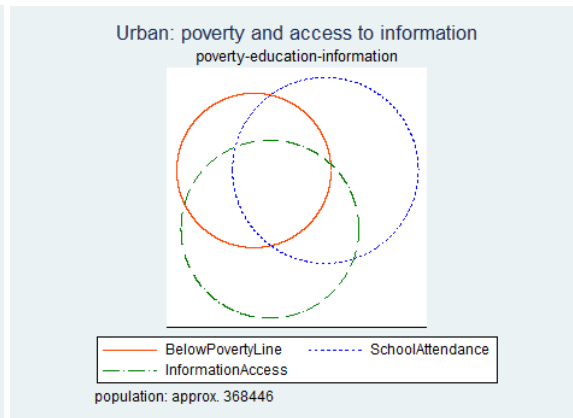
B: Poverty and Basic Needs (Urban)



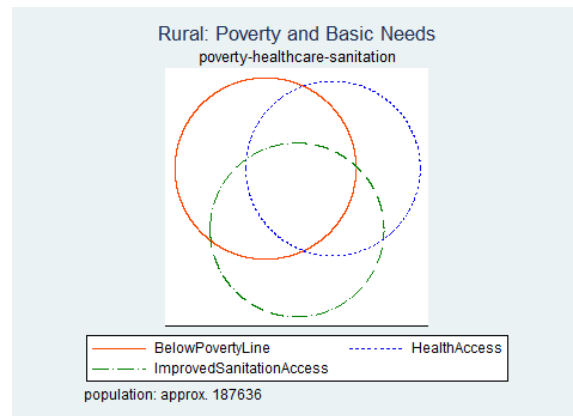
C: Poverty and Access to Information (Rural)



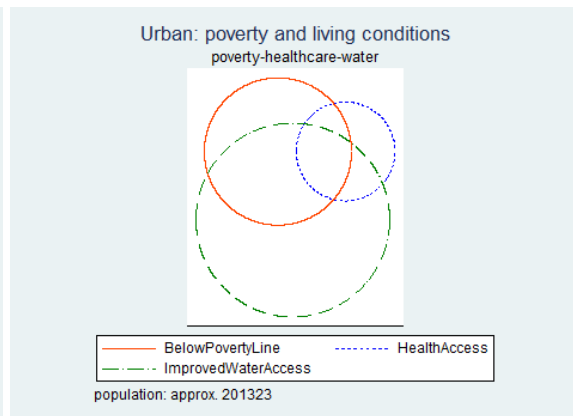
D: Poverty and Access to Information (Urban)



E: Poverty and Improved Sanitation (Rural)



F: Poverty and Improved Water (Urban)



4. Gender and Poverty

62. *Gender is a critical determinant of poverty and access to services in Somaliland.* The previous sections highlighted that female headed households are quite prevalent in Somaliland, particularly in urban areas, and that household headed by women in urban areas are significantly more likely to be poor than households headed by men. Although this was not the case in rural areas, other aspects of deprivation were highlighted to be particularly concerning in rural areas. For example, poor women in rural areas are very unlikely to face adequate health care during child birth. This section presents additional findings on gender and poverty.
63. *Literacy rates and rates of labor force participation are lower among female headed households.* Female headed households are more likely to be smaller with a higher ratio of dependents to working adults, see Table 21. Literacy rates are considerably lower among female household heads in both urban and rural areas, as is labor force participation (particularly in urban areas). The employment pyramid in Figure 28 shows that lower rates of labor force participation are present for all women, not just household heads. The employment rates of women are much lower than men in both rural areas; and rates of employment are particularly low in urban areas. The employment pyramid also shows the high rate of women to men in the working age population, likely reflecting the effects of recent conflict and migration.

Table 21: Characteristics of households, by poverty and gender of household head

	Male			Female		
	All	Non-Poor	Poor	All	Non-Poor	Poor
Urban						
Household Size	7.1	6.6	8.4	5.8	5.4	6.8
Dependency Ratio	1.3	1.2	1.7	1.3	1.1	1.8
Literacy Rate	67%	70%	58%	26%	28%	22%
Self-employed or employed	65%	64%	68%	27%	29%	22%
Rural						
Household Size	6.7	6.2	7.5	4.8	4.5	5.7
Dependency Ratio	1.6	1.5	1.9	1.9	1.7	2.3
Literacy Rate	62%	63%	59%	16%	18%	10%
Self-employed or employed	59%	61%	56%	40%	39	42%

Source: SLHS (2013)

64. *Patterns of gender inequality are also present in current school enrollment across rural and urban Somaliland, particularly for adolescent girls.* Girls of school going age are less likely to be in school than boys. Girls are less likely to attend their age-appropriate grade, and the situations worsens with the age of the girl. Figure 29 depicts how gender inequality increases with the age of the girl and statistics are presented in Table 22. The difference between male and female enrollment widens after the age of 13 – the age for primary school completion. In urban areas, 64% of boys of primary age (6-13 years) attend school, compared to 58% of girls of the same age (Table 22). For the age group 14-17 years, the difference between male and female enrollment more than doubles to 13 percentage points in urban areas and 8 percentage points in rural areas. By the age of 17-19 years, 76% of urban boys are in school compared to only 48% of urban girls.

Figure 28: Employment pyramid by gender and working age population

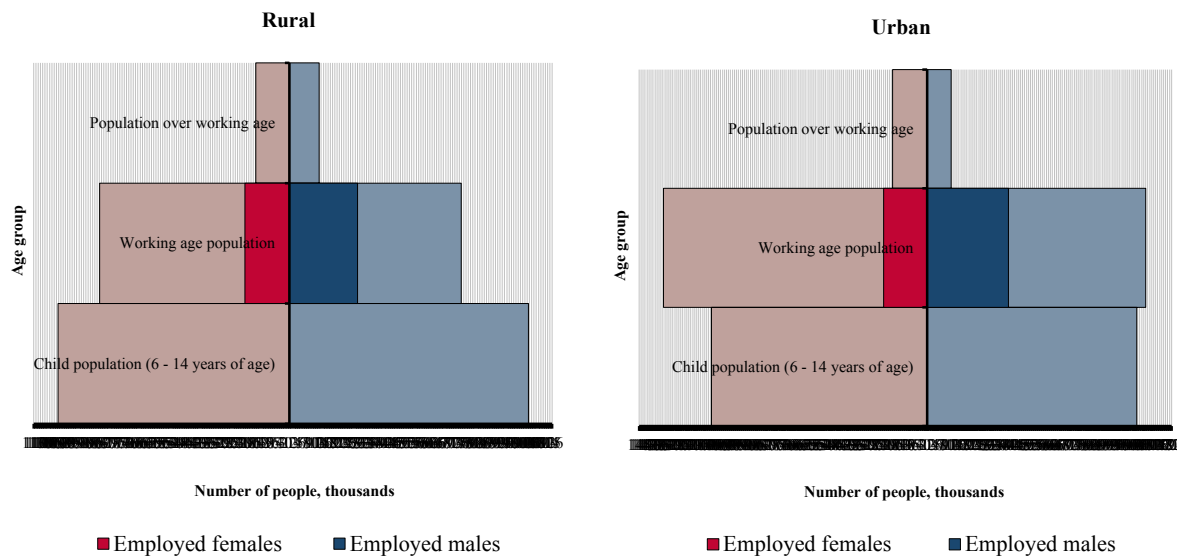


Figure 29: Proportion of boys and girls in school, rural and urban

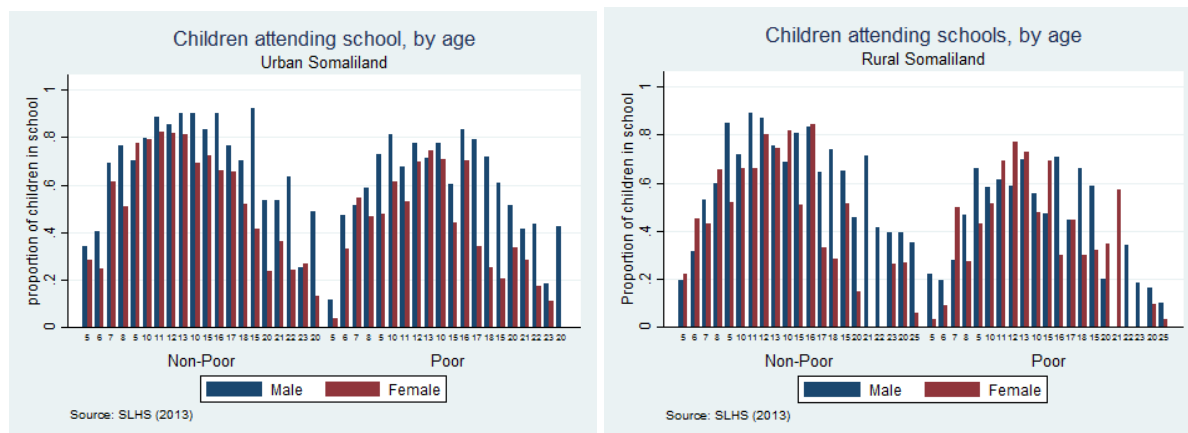


Table 22: Gender disparity in children attending school

Age Group	Urban			Rural	
	Male	Female		Male	Female
6-13 years	64%	58%	**	55%	52%
14-17 years	63%	50%	***	51%	43%
18-24 years	49%	26%	***	39%	15%

The significance of difference between the means of male and female is captured through asterisk. *** significant at 1%; ** significant at 5%; * significant at 10%

Source: SLHS (2013)

65. *Gender differences in enrollment are larger among poorer households.* However, the impact of poverty on gender differences in enrollment rates depends on the age of the child and whether they

reside in a rural or urban area. Table 23 shows the female to male attendance ratio, i.e. the number of girls attending for every boy in school. For example the table shows that this ratio is 0.88 among urban non-poor households. That means there are 88 females attending school for every 100 boys attending school in urban non-poor households. The closer the ratio to 1 the more gender-equal are enrollment rates, the lower the ratio the more disadvantaged are girls compared to boys. The ratios show what was shown in the tables and graphs above: gender disparities in enrollment increase for children of secondary school age and above. The table also shows that gender disparities are usually higher among poor households, showing that girls in poorer households are more disadvantaged than girls in non-poor households. The impact of poverty on gender disadvantage increases with age of the girl in urban areas, but decreases with age in rural areas.

Table 23: Female to male ratio of school attendance, by poverty

Age	Urban		Rural	
	Non-Poor	Poor	Non-Poor	Poor
6-13 years	0.89	0.82	0.90	0.92
14-17 years	0.80	0.78	0.89	0.94
18-24 years	0.57	0.44	0.34	0.51

Source: SLHS (2013)

5. Correlates of Poverty

66. Using a simple OLS regression, we can explore the relationship between a set of key household characteristics and household welfare and poverty. Household welfare is measured by log of per capita consumption, which means that the coefficients of the regression can be interpreted as the marginal effect measured in percentage terms. We check the relationship between demographic attributes of household (size, proportion of children, age profile of household members) and characteristics of household head (gender, age, education, labor market status) and consumption of household. Table 24 presents the regression results. To interpret the results of the table, it would be helpful to consider the reference case (i.e. the excluded / base categories of the dummy variables), which is a household with a male head of household who has no education and is not in the labor force. The results for urban and rural households are presented in separate columns.
67. *Household demographics are significant covariates of household welfare.* A 10% increase in household size is associated with 5% decrease in per capita consumption in rural Somaliland and 4% decrease in urban Somaliland, on average (Table 24). Households with younger children and fewer adults have lower per capita consumption in both rural and urban areas, keeping all else constant. As the proportion of male adults in a household increases, the per capita consumption increases by 49% and 43% in rural and urban Somaliland respectively. Interestingly, the effects of the age and the gender of household head on household welfare are not significant.

Table 24: Covariates of consumption

Variable	Rural		Urban	
Household characteristics				
Log of household size	-0.509	***	-0.425	*
Log of household size squared	-0.004		0.014	
Share of children 7-16	0.467	***	0.018	
Share of male adults	0.486	***	0.427	***
Share of female adults	0.492	***	0.578	***
Share of Elderly (>=60)	1.310	***	1.192	***
Individual characteristics				
Log of household head's age	0.012		0.015	
Gender of the household head				
Male	(base)		(base)	
Female	0.022		-0.050	
Education of the household head				
No School	(base)		(base)	
Koranic	0.339	**	0.191	
Primary	0.138	**	0.267	***
Secondary	0.445	***	0.287	***
Tertiary	0.470	***	0.549	***
Others	0.313		0.021	
Don't Know	0.022		0.106	
Employment status of the household head				
Not in Labor Force	(base)		(base)	
Employed	0.007		-0.028	
Unemployed	0.110		-0.071	
Discouraged	-0.141	**	-0.040	
Intercept	5.756		5.919	
Number of observations	721		740	
Adjusted R2	0.19		0.20	

Source: SLHS (2013)

68. *Education of household head is an important factor in explaining the welfare level of household.*

After controlling for other factors, households where the head has no education, have significantly lower per capita consumption in both rural and urban areas. Having said that, the marginal effect of education is higher in urban areas. Households with a head having completed primary education have 13% (28%) higher per capita consumption in rural (urban) Somaliland compared to a household with a head with no schooling. The difference between consumption levels owing to education level of household head rises with the level of education. The association between education and poverty may

not be interpreted as causal, as a number of other observed and unobserved factors may contribute to both lower education and lower consumption level in the household.

69. *Labor market status of household head has weak correlation with welfare of household.* After controlling for other factors, households where the head is employed, unemployed, discouraged, or even out of labor force, have similar consumption levels on average.
70. *Household composition and education of household head have significant bearing on the poverty status of the household.* Table 25 presents the results for a hypothetical household that experiences changes in the probability of being in poverty based on changes in household and household head characteristics. If household composition changes from having no children of age 0-6 to two children of the age, the probability of being poor goes up by 59% in rural and 39% in urban areas. If the gender of household head changes from male to female, there is no significant change in poverty. Education has a significant effect on the probability of being poor in both rural and urban Somaliland. If a household head goes from no education to completing primary, the household's probability of being poor decreases by 16% in rural and 35% in urban areas. The effect is higher for tertiary level, as expected. Labor market participation status of the household head has a trivial effect on the probability of being poor.

Table 25: Change in probability of being in poverty

Event	Rural	Urban
Demographics		
Change from having no children 0-6 years old to having 1 child	31.5	20.6
Change from having no children 0-6 years old to having 2 children	58.9	38.8
Education: Change in Household Head's Education		
Change from having "no education" to "Primary Education"	-15.9	-34.9
Change from having "no education" to "Secondary Education"	-48.1	-37.3
Change from having "no education" to "Tertiary Education"	-50.5	-63.5
Labor: Economic Status of Household Head		
Change from being "not in labor force" to "Employed"	-1.0	4.5

Source: SLHS (2013)

6. Conclusion

71. This chapter has documented the nature of poverty and inequality in urban and settled rural Somaliland, providing a closer look at the nature of deprivation and the economic characteristics of poor households than previous analyses have allowed.
72. The analysis depicts a conflict-free environment for many households in survey areas in Somaliland. Very few households, poor or otherwise, report that conflict or violence negatively affected them in the year prior to the survey. It is worth noting, however, that the most insecure areas were not surveyed. Although the data suggests that government investments have assured stability, limited investment in basic services such as water, health and education has resulted in low enrollment rates, limited use of improved water sources and few births being assisted by trained personnel or taking place in clinical facilities.
73. Households face deprivations on many dimensions and large inequalities in access to education and health care are evident. As a result the opportunities facing children are largely determined by the poverty status of their parents. Children born into poor households are much less likely to receive medical care that may be required at birth, they are less likely to live in households with running water and good sanitation, and they are much less likely to attend school. In the absence of interventions to address these disparities, children born in poverty will likely be poor as adults. Increased investment in basic service provision—particularly in rural areas—is essential to break this cycle, end extreme poverty and ensure shared prosperity.
74. The analysis also points to the importance of interventions to increase the availability of jobs and combat high food prices. In contrast to other economies in the region such as Ethiopia, Kenya, Uganda and Tanzania, the poorest do not derive much income from crop production. A large share of food consumed is purchased. As such, interventions that help combat high food prices may help poor households. Given the coastal nature of Somaliland and the low numbers of households engaged in agricultural production, low food prices may be better assured by reducing transaction costs in importing and marketing food rather than increasing agricultural productivity. However, increases in productivity in livestock and livestock products for which Somaliland has a comparative advantage will help many households that derive income from this sector. In addition, increases in productivity and job creation in manufacturing and service sectors are needed.
75. Unemployment is widely present and many cite limited access to jobs as a major constraint to economic wellbeing. Employment rates among resident household members are low in urban and rural Somaliland, particularly among poor households, and many out of work individuals are too discouraged to look for work. However, remittances from working migrants are high and non-poor households are more likely to receive remittances than poor households. Migration of working-age adults may be an effective livelihood strategy for some households in Somaliland, but receiving remittances may also reduce incentives for seeking employment. A better understanding of the relationship between remittances, poverty and labor market participation is needed to inform policies that ensure migration is an opportunity used to its fullest benefit for poverty reduction in Somaliland.

1. Introduction

76. *Somaliland has made significant strides toward stability and a functional democratic government, nonetheless, it is a low-income economy with a per capita gross domestic product (GDP) of only \$348 a year in 2013.* If one were to compare the GDP of Somaliland with the GDP of countries in the region, it would rank fourth lowest, ahead only of Burundi, the Democratic Republic of Congo, and Malawi. More than one person in four in urban Somaliland is living in poverty. In rural Somaliland, the corresponding share is more than one person in three. At all points of the consumption distribution, rural households are poorer than urban households.
77. *Migration of a family member out of Somaliland to work and send remittances is a common coping strategy for many households.* One in five urban households have one household member or more residing in another city or abroad. In rural areas, 10 percent of households have migrant members. Migrants are often young, male, and educated.
78. This report examines whether this strategy pays off for sending households. Do the benefits of remittances outweigh the costs of losing an active member of the household at home? Which households are able to benefit from remittances? Do remittances help households engage in productive investments, such as education of household members, as well as increase consumption?
79. Remittances are estimated to reduce poverty by 11 percentage points among urban households and 7 percentage points among rural households, underscoring that increasing the productivity of work both abroad and at home has to be a key focus to reducing extreme poverty in this largely forgotten corner of the world. Remittances reduce poverty suggesting that increasing the productivity of migrants and reducing the cost of sending remittances can have considerable beneficial effects for Somaliland households. It also points to the need for increased economic opportunities at home which may reduce the need to migrate internationally for work.
80. The next section describes migrants, the work hours and incomes of remittance-recipient and nonrecipient households. The following section then explores whether differences observed between households with and without remittances, can be attributed to observable differences in characteristics, or whether some of the difference may indeed result from the receipt of remittances. By controlling for observable differences between households, the effect of remittances on hours worked, household consumption, poverty and educational investments is explored. Not all migrants are able to work as much as they would like, and some are not able to send remittances. We thus then explore whether migration, as a strategy, pays off and whether the positive effects of remittances are seen more broadly among households with migrants, some of whom are unable to remit). The annex provides more in-depth data, including technical information on the empirical methods used in the analysis.

2. The Household and Labor Context of Remittances

The profile of migrants

81. The 2013 Somaliland Household Survey (SHS) includes a section on household members who reside elsewhere either domestically or internationally. Table 1 enumerates households in Somaliland by the number of domestic and international migrant members.
82. Migrating members of rural households tend to move to other locations within Somaliland. Among rural migrants, 42 percent moved to Hargeisa, the capital of Somaliland, and 12 percent moved to urban centers other than Hargeisa (World Bank 2015). Among rural households, 5.3 percent have members who have migrated internationally. The main destination is Saudi Arabia.
83. In contrast, migrants from urban households tend to move internationally. As many as 16.4 percent of urban households have members residing in foreign countries, most often in the United Kingdom, followed by the United Arab Emirates, Canada, Saudi Arabia, and the United States.
84. Migrants from rural areas are more likely to migrate for educational reasons (20 percent) than migrants from urban areas; about 5 percent of urban migrants are students. However, the majority of migrants are working or looking for work. Among migrants, 55 percent from urban areas and 63 percent from rural areas are men.

Table 1: Households, by Migrant Members and Urban or Rural Location, Somaliland, 2013

<i>Number per household</i>	<i>Rural</i>			<i>Urban</i>			<i>Total</i>		
	<i>No.</i>	<i>Col %</i>	<i>Cum %</i>	<i>No.</i>	<i>Col %</i>	<i>Cum %</i>	<i>No.</i>	<i>Col %</i>	<i>Cum %</i>
<i>Domestic migrants</i>									
0	776	95.6	95.6	890	97.4	97.4	1,666	96.6	96.6
1	23	2.8	98.4	23	2.5	99.9	45	2.6	99.2
2	7	0.9	99.3	1	0.1	100.0	8	0.5	99.7
3	2	0.2	99.5	0	0.0	100.0	2	0.1	99.8
4	3	0.4	99.9	0	0.0	100.0	3	0.2	100.0
5	1	0.1	100.0	0	0.0	100.0	1	0.0	100.0
Total	811	100.0	n.a.	914	100.0	n.a.	1,725	100.0	n.a.
<i>International migrants</i>									
0	768	94.7	94.7	764	83.6	83.6	1,532	88.8	88.8
1	39	4.8	99.5	124	13.6	97.2	163	9.4	98.3
2	3	0.4	99.9	18	2.0	99.2	21	1.2	99.5
3	0	0.0	99.9	3	0.3	99.5	3	0.2	99.7
4	1	0.1	100.0	1	0.1	99.6	2	0.1	99.8
5	0	0.0	100.0	1	0.1	99.7	1	0.0	99.9
6	0	0.0	100.0	2	0.2	99.9	2	0.1	99.9
7	0	0.0	100.0	1	0.1	100.0	1	0.1	100.0
Total	811	100.0	n.a.	914	100.0	n.a.	1,725	100.0	n.a.

Source: Somaliland Household Survey 2013.

Note: Col % = column percentage, the cell's percentage of the total frequency in the respective column. Cum % = cumulative column percentage. n.a. = not applicable.

Household remittance income

85. The SHS also includes a section on remittance income received by households from migrant members, friends, or relatives. If household members have emigrated, this does not automatically result in remittances (see table 3), about 30 percent of households with migrants do not. On the other hand, some households with no migrant members (about 15 percent of these households) receive remittances. Among all households, 16 and 31 percent receive remittances in, respectively, rural and urban areas.
86. The paucity of data makes it difficult to analyze international and domestic remittances separately. The analysis here therefore does not distinguish between the two types of remittances. In earlier research on remittances in Somaliland, Lindley (2007) finds evidence that, in some cases, domestic remittances are made possible by the receipt of international remittances. The dependence relationship between domestic and international remittances helps make a case for the joint analysis. Remittances to urban areas are considerably larger than those to rural areas.
87. Wage income and remittances from migrant members are the predominant sources of income in urban areas: 38 and 31 percent of households report income from these two sources, respectively (table 2). Additionally, 14 percent of households earn income from nonagricultural self-employment. Earlier findings show that most remittances in Somaliland are received in urban areas and that remittances represent the largest fraction of total household income in urban areas (FAO 2013; Lindley 2007). The data of the SHS are consistent with this pattern.

Table 2: Sources of Income (percent of household receiving each type of income)

Group	<i>Household economic activity</i>				<i>Household income sources</i>			
	<i>Crop-farming</i>	<i>Owning livestock</i>	<i>Farming</i>	<i>Livestock</i>	<i>Nonagricultural self-employment</i>	<i>Wages</i>	<i>Remittances^a</i>	<i>Other transfers^b</i>
Urban								
Nonpoor	4	13	1	2*	14	38	35*	6
Poor	7	15	2	0*	14	38	20*	5
Total	5	13	1	1	14	38	31	5
Rural								
Nonpoor	21	54*	13*	13	25*	15	18	10
Poor	15	67*	7*	16	13*	19	14	6
Total	19	59	11	14	21	16	16	9

Source: Somaliland Household Survey 2013

a. Remittances include cash, food, and nonfood in-kind transfers from family members, relatives and friends.

b. Other transfers include transfers from alimony and *Zakat* (alms).

* = Differences between the means of the nonpoor and poor are significant at 10 percent or less.

88. In rural Somaliland, the main source of income is nonagricultural self-employment, and more households report income from wages and remittances than from farming and livestock. Income from farming and livestock was reported by only 11 and 14 percent of households, respectively, indicating that, for many agricultural households, crop-farming and livestock are subsistence activities.
89. While cash remittances are more common in urban households, a higher proportion of rural households receive food and in-kind remittances. Among rural households, 16 percent report remittances of all sorts as a source of income, while 5 percent report cash remittances as a source of

income (table 3). In urban areas, 14 percent of households report receiving cash remittances from migrant members, while 31 percent report receiving remittances of all sorts.

Table 3: Proportion of households receiving remittances (percent)

Quintile ^a	Households with migrant members		Households receiving cash remittances from migrants		All types of remittances ^b	
	Urban	Rural	Urban	Rural	Urban	Rural
Lowest quintile	12	7	8	2	19	14
2 quintile	15	8	14	5	28	14
3 quintile	23	16	15	10	33	19
4 quintile	21	10	17	4	36	18
Highest quintile	24	7	18	2	39	16
Total	19	10	14	5	31	16

Source: Somaliland Household Survey 2013.

a. Quintiles are based on real per capita household consumption expenditure.

b. Includes cash, food, and in-kind remittances from immediate family members, relatives, and friends.

90. In addition to being pervasive, remittance income is regular and sizeable. In nearly all cases, remittances are sent regularly—every month or even every two weeks. There is a lot of variation in the amount of remittances that are reported to be sent but the data indicates that it is very high, with urban households receiving about 0.5 million Somaliland Shillings in remittances every month (0.4 million for rural households) which can be compared to the urban poverty line of about 1.3 million Somaliland Shillings for the average urban household that received remittances. In the absence of a functioning banking system, well-established money transfer operators are used, with Dahabshil being the largest operator serving Somaliland.

Work hours and remittances

91. Migration is an important livelihood strategy in contexts where limited employment is available or where there is conflict. A large share of households report having no employed adults living in the household, and lack of employment is strongly correlated with receipt of remittances: 54 percent of households in urban areas without an economically active adult receive remittances, compared with 16 percent of households with economically active adults (World Bank 2015). This may indicate that remittances reduce incentives for seeking employment. However, it may also be that members of households with inadequate access to good labor opportunities are migrating to provide remittances as a source of income for the household.
92. The receipt of remittances is associated with lower labor force participation. Individuals between the ages of 16 and 65 in remittance-receiving households show a labor force participation rate of around 15 percent. The corresponding individuals in households without remittances show a participation rate of 32 percent. These differences are persistent in urban and rural locations.
93. However, a more nuanced picture emerges when looking at the number of hours worked. In urban locations individuals in remittance-receiving households work fewer hours in a year but in rural areas, individuals in remittance-receiving households work more in a year than individuals in households that do not receive remittances.
94. These averages, however, hide differences across the distribution, particularly in the case of rural areas. Table 4 reports the difference in the log of hours worked per individual among those receiving remittances and those not receiving remittances at specific points of the distribution. The results can be interpreted as the percentage increase (or decrease if negative) in hours worked per individual for

households that receive remittances compared to those that do not. Figure 1 compares the distribution of hours worked between these two groups. On average, the differences in hours worked are opposite in rural and urban areas. In rural locations and among individuals working fewer than 20 hours a week, individuals in remittance-receiving households work more. However, full-time workers in remittance-receiving households work fewer hours. In rural areas, in addition to lower levels of labor force participation, individuals in remittance-receiving households may be shifting from full-time to part-time work. Across all quantiles in urban areas, workers in remittance-receiving households work fewer hours, though the differences are much larger in the lower quantiles among individuals that work part time.¹³

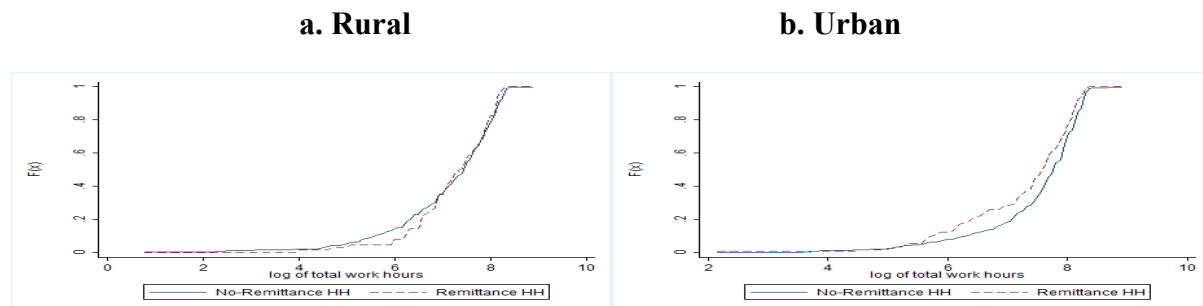
Table 4: Additional hours worked by individuals in households with remittances (log of hours)

Location	Mean	10th	25th	50 th	75th	90th
Rural	0.12	0.80	0.07	-0.00	-0.07	-0.07
Urban	-0.24	-0.45	-0.52	-0.15	-0.12	-0.13

Source: Somaliland Household Survey 2013

Note: these numbers are calculated by subtracting the log of work hours of individuals with remittances from the log of work hours of individuals without remittances. They can thus be understood as the percentage increase (decrease if negative) in individual hours worked in households that receive remittances.

Figure 1: Hours worked among households with and without remittances



95. These findings are not surprising given that remittances may enable households to enjoy the same standard of living by working fewer hours. It is also insightful to analyze the various reasons why individuals do not participate in the labor force. Taking care of the household and the family is the reason most often cited for nonparticipation across remittance-recipient and nonrecipient households. There are, however, a few noteworthy differences. In remittance-receiving households, more individuals said school attendance or quitting their jobs was the reason for their lack of labor force participation. Given that remittances lower the cost of both these activities, nonparticipation and fewer work hours appear consistent with these results.

Poverty and remittances

96. In urban areas, migrant members are more often reported in more well off households (World Bank 2015). Households in the highest consumption quintile are twice as likely (24 percent) to have a migrant household member than households in the bottom quintile (12 percent). In rural Somaliland,

¹³ See annex A for a brief analysis of two counterfactuals that highlight these differences between remittance-recipient and nonrecipient households.

the probability of migration is lower, and it increases and then decreases with consumption. The Somaliland poverty profile (World Bank 2015) found that the incidence of remittances rises with consumption.

97. In both urban and rural areas, poor households are less likely to receive remittances. Nonpoor urban households (34 percent) are twice as likely to receive remittance income compared with their poor counterparts (18 percent) (see table 2). In rural areas, the difference is less pronounced: 10 percent of poor households receive remittances, compared with 13 percent of nonpoor households.
98. The consumption means reveal that rural households receiving remittances have a marginally lower consumption aggregate than households without remittances (see table 6). Actual differences in log consumption aggregates and the components of the aggregates between remittance-recipient and nonrecipient households are reported in table 5. The results can be interpreted as the percentage increase (or decrease if negative) in consumption per capita for households that receive remittances compared to those that do not. In rural areas, the mean consumption aggregate is about 2% higher in households that do not receive remittances than in households that receive remittances. However, figure 2, chart a, indicates that the mean difference is not representative of the entire distribution. In fact, wealthy nonrecipient households are driving the result. At all other parts of the consumption distribution, rural remittance-receiving households are likely to consume more than rural nonrecipient households. In the case of urban households, the consumption pattern is much clearer. Urban households receiving remittances show, on average, a 21% higher consumption aggregate than urban nonrecipient households. Across the entire consumption distribution, urban remittance-receiving households consume more.

Table 5: Increase in per capita consumption for households with remittances (log of consumption)

<i>Variable</i>	<i>Mean</i>	<i>10th</i>	<i>25th</i>	<i>50th</i>	<i>75th</i>	<i>90th</i>
<i>Consumption aggregate</i>						
Rural	0.03	0.15	0.18	0.11	0.05	−0.37
Urban	0.23	0.30	0.25	0.22	0.17	0.14
<i>Food consumption</i>						
Rural	−0.03	0.04	−0.04	−0.04	−0.02	0.08
Urban	0.19	0.23	0.20	0.22	0.18	0.14
<i>Nonfood consumption</i>						
Rural	−0.06	−0.03	−0.05	−0.06	−0.07	−0.13
Urban	0.17	0.28	0.19	0.16	0.09	0.06
<i>Flow of durables</i>						
Rural	0.04	0.09	0.06	0.02	0.53	0.14
Urban	0.43	0.29	0.55	0.56	0.41	0.37

Source: Somaliland Household Survey 2013

Note: these numbers are calculated by subtracting the log of consumption per capita of households with remittances from the log of consumption per capita of households without remittances. They can thus be understood as the percentage increase (decrease if negative) in consumption for households that receive remittances.

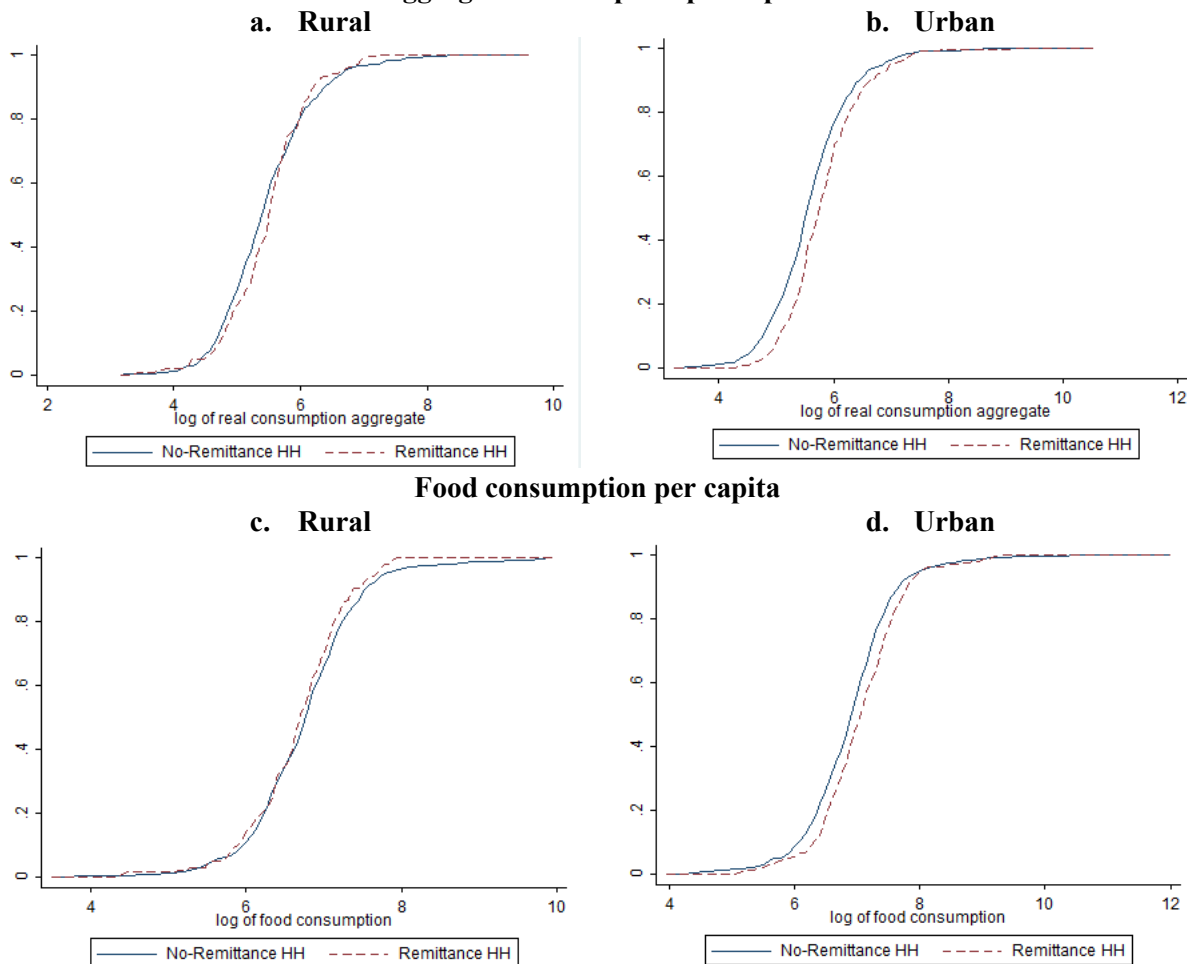
99. The real consumption aggregate analyzed is a composite of household expenditure on food and nonfood items and the value of consumption flows from durable goods adjusted for local prices and household size. The method for constructing the consumption aggregate is detailed in Amendola, Hill, and Vecchi (2014). A disaggregation of household consumption demonstrates that, among rural households, remittances are positively associated with the consumption flow of durables, but

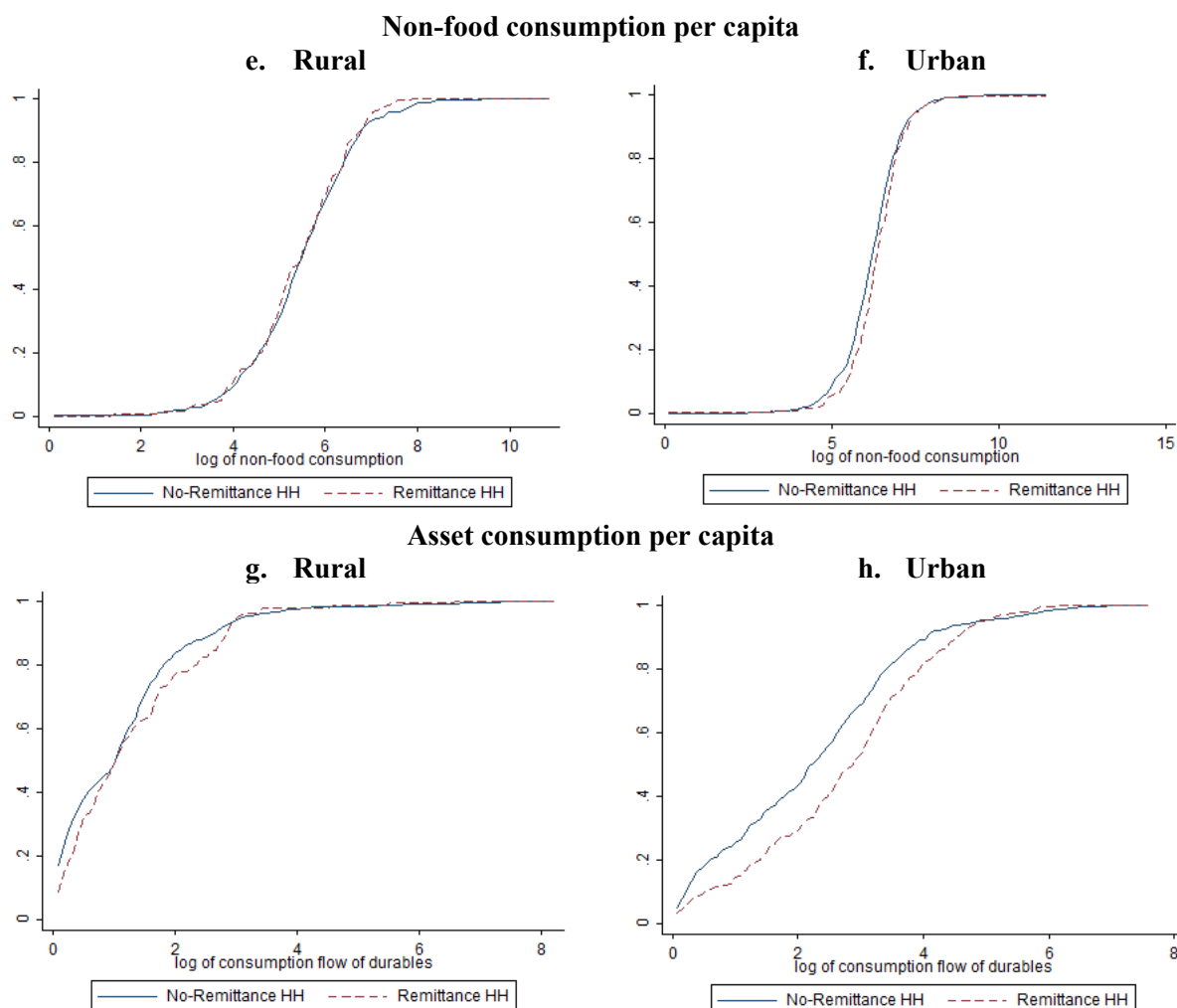
negatively associated with food and nonfood items. In urban areas, meanwhile, the positive effects associated with remittances are consistent across the consumption of durables, food, and nonfood items.

100. Differentials for the three components of the consumption aggregate are also reported in table 5, and their respective plots can be found in figure 2. For rural households, food consumption and the consumption flow of durables do not show any readily visible patterns. The direction of the differentials vary at several points of the distribution. Nonfood consumption in rural areas, however, is anywhere from 7% to 27% larger among households without remittances. In urban areas, all three components of the consumption aggregate are unequivocally larger among remittance-receiving households.

101. This data underscores that remittance income is important for households in both rural and urban Somaliland, but particularly in urban Somaliland. More analysis is needed to understand the relationship between remittances, labor market participation and poverty and to ascertain whether wealthier households are more likely to have a migrant member, or whether having a migrant member enables a household to become less poor. Both mechanisms may be at work.

Figure 2: The distribution of consumption among remittance recipients and non-recipients
Aggregate consumption per capita





Source: Somaliland Household Survey 2013

3. The Composition Effect and the Remittance Effect

102. We would like to know the origins of the differences in the distribution of hours worked and consumption among households with and without remittances. More specifically, can the differences be attributed to the receipt of remittances or are households that receive remittances different in other ways that may also influence hours worked and consumption? For instance, if well-educated households are more likely to have both greater consumption and migrant household members sending remittances, then the observed differences in consumption between households with and without remittances cannot be attributed to remittances alone.¹⁴
103. The list of variables summarized in table 6 suggest that the demarcation among households based on receipt of remittances is not arbitrary. There are observable differences between remittance-recipient and nonrecipient households in both rural and urban settings.

¹⁴ Annex B provides a detailed description of the more technical aspects of the analysis.

Table 6: Households, by Status as Remittance Recipients, Somaliland, 2013*%, unless otherwise indicated*

Characteristic	Rural				Urban			
	Nonrecipient		Recipient		Nonrecipient		Recipient	
	Mean	SD	M	SD	M	SD	M	SD
<i>Migrants, number</i>								
Domestic	0.06	0.34	0.16	0.65	0.01	0.10	0.07	0.26
International	0.02	0.15	0.27	0.58	0.07	0.42	0.55	0.78
Remittance income, So. Sh.	n.a.	n.a.	4,952.77	5,771.84	n.a.	n.a.	10,864.73	21,586.42
<i>Real consumption, log</i>								
Aggregate	5.50	0.77	5.49	0.65	5.58	0.73	5.79	0.62
Durables	1.33	1.29	1.36	1.16	2.26	1.53	2.67	1.38
Food	6.82	0.81	6.76	0.69	6.89	0.74	7.06	0.67
Nonfood	5.56	1.40	5.46	1.13	6.20	0.90	6.35	0.83
<i>Size, number</i>	6.19	2.82	5.69	2.76	6.71	3.03	6.59	3.27
Male children	1.90	1.64	1.65	1.46	1.75	1.59	1.54	1.57
Female children	1.83	1.52	1.50	1.29	1.77	1.47	1.77	1.55
Owns land	0.32	0.47	0.28	0.45	0.16	0.37	0.19	0.39
<i>Negative shock</i>								
One	0.19	0.39	0.23	0.42	0.24	0.42	0.29	0.46
Two	0.34	0.47	0.41	0.49	0.23	0.42	0.21	0.41
Three	0.16	0.37	0.18	0.38	0.15	0.36	0.15	0.36
<i>Household head</i>								
Woman	0.48	0.50	0.58	0.50	0.40	0.49	0.65	0.48
Attended school	0.26	0.44	0.18	0.38	0.37	0.48	0.38	0.49
Age, years	44.85	15.57	45.95	14.89	43.14	13.46	43.71	16.14
Health issues	0.15	0.36	0.25	0.43	0.16	0.36	0.25	0.43
Married	0.85	0.35	0.82	0.39	0.83	0.38	0.72	0.45
Migrant	0.19	0.39	0.22	0.42	0.21	0.41	0.24	0.43
Observations, number	738	n.a.	135	n.a.	614	n.a.	238	n.a.

Note: SD = standard deviation. n.a. = not applicable.

Source: Somaliland Household Survey 2013

104. An analysis of the variable that proxies for household financial well-being reveals that rural households without remittances are marginally more well off in terms of land ownership. In urban areas, remittance-recipient households are clearly better off relative to those without remittances in terms of land ownership.
105. Households receiving remittances are more likely to have faced negative shocks; the remittances may even be intended to mitigate these negative shocks. Remittance-recipient households are found to have easier access to the local main road and are more likely to be headed by women. Household heads who are themselves migrants in their current location are more likely to be in households with other migrant members and, hence, are more likely to receive remittances.
106. These differences are meaningful in suggesting that the raw variation in the consumption aggregate between remittance-recipient and nonrecipient households cannot be readily attributed to the receipt of remittances and that there are other confounding factors such as financial well-being that should also be taken into account.
107. The analysis here thus involves decomposing the observed differences in labor market outcomes and overall household consumption into two parts: (1) the part that arises from the observable differences between remittance-recipient households and nonrecipient households (the composition effect) and (2) the part that appears to derive from the reception of remittances alone (the remittance effect). The methods used to estimate these effects are detailed in the Annex.

108. When estimating the composition effect, only observable differences between remittance recipients and non-recipients can be taken into account. However, remittance-recipient and nonrecipient households may also differ in unobservable characteristics. Such differences will not be accounted for in the composition effect and may impact the remittance effect that is estimated. If unobservable characteristics drive remittances and are correlated with consumption, then the task of estimating the causal impact of remittances without valid instruments or controlled experiments is complicated.

Are remittance-recipient households innately different? The composition effect

109. Do the observable differences highlighted in table 6 play a role in variations in consumption and labor market outcomes? How would the consumption distribution among remittance-receiving households look if these households had the same observable characteristics as households that do not receive remittances?
110. If differences largely arise because of the receipt of remittances, then the distribution of hours worked and consumption among remittance recipients should not change significantly if the observable characteristics of remittance-receiving households were changed to the observable characteristics of nonrecipient households. This first counterfactual is considered in the following figures.
111. There is little difference in the distribution of hours worked among recipient households and the counterfactual distribution. The charts in figure 3 do not yield a clear pattern, it appears that the two distributions in each of the charts overlap. This would mean it is unlikely that the original difference in work hours between remittance-recipient and nonrecipient households results from differences in observable characteristics. The point estimates for rural households in table 7 indicate that the differences in work hours would be minimal if individuals in remittance-receiving households had the observable characteristics of individuals in nonrecipient households. In urban households, however, there is some evidence that the systematic differences in observed characteristics between remittance-recipient and nonrecipient households also contribute to the differences in total work hours.
112. A similar finding is observed for rural welfare. Figure 4a suggests that the compositional effect is not strong. The figure compares the consumption of remittance-receiving households with a counterfactual consumption, namely, the consumption of recipient households if they were to have the characteristics of non-remittance households. The distribution of the consumption of remittance-receiving households is below the counterfactual distribution, but only in certain parts of the distribution. The difference in means is not statistically significant, and the two distributions cannot be ranked (see Annex). The counterfactual analysis of specific components of the consumption aggregate are also not entirely illuminating, but suggest that compositional effects are not significant in statistical or economic terms.

Figure 3: The composition effect: hours worked

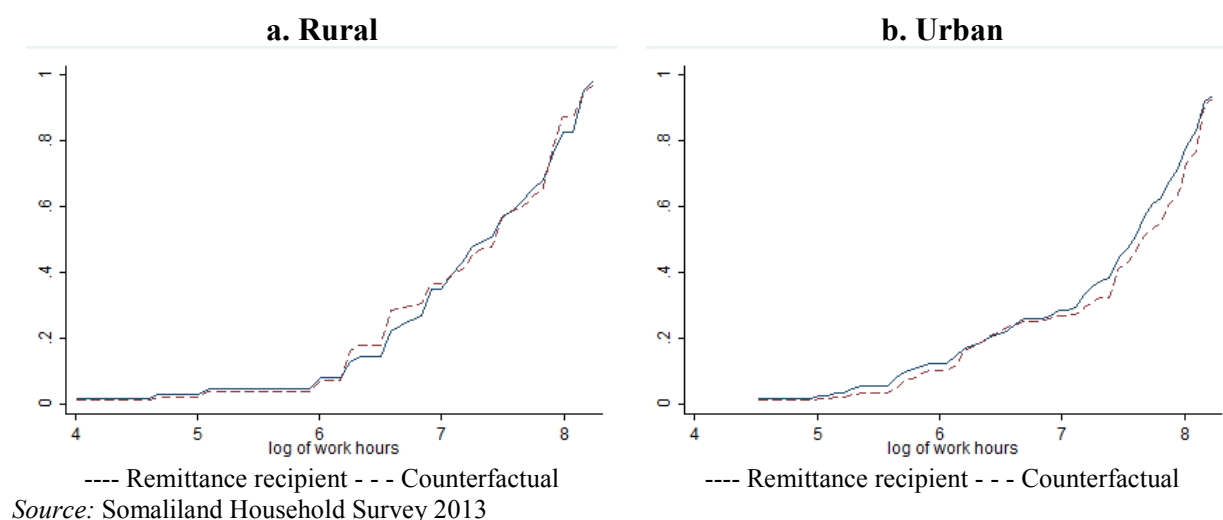
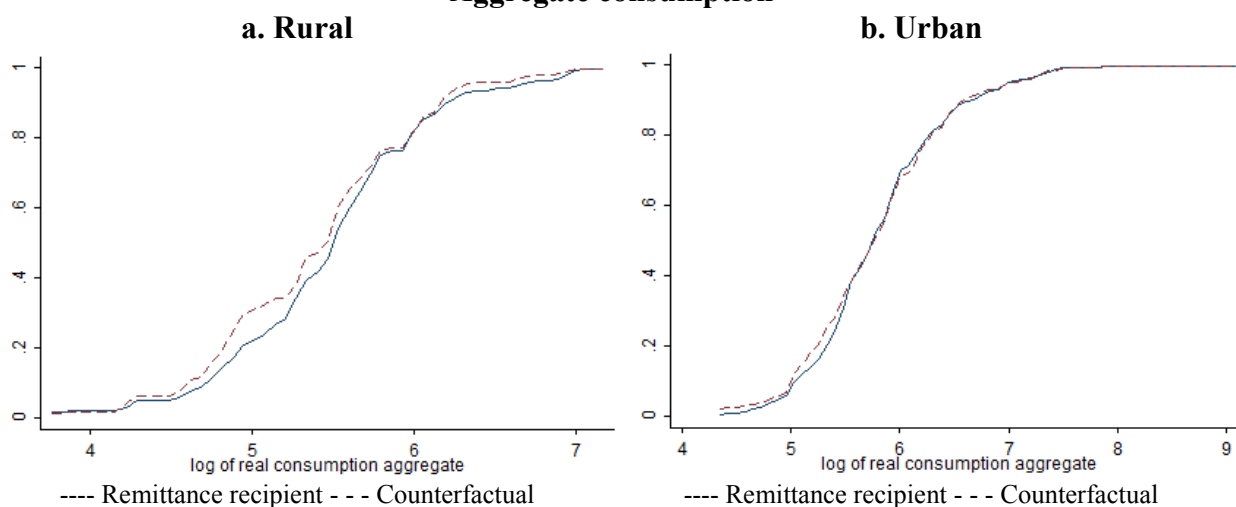


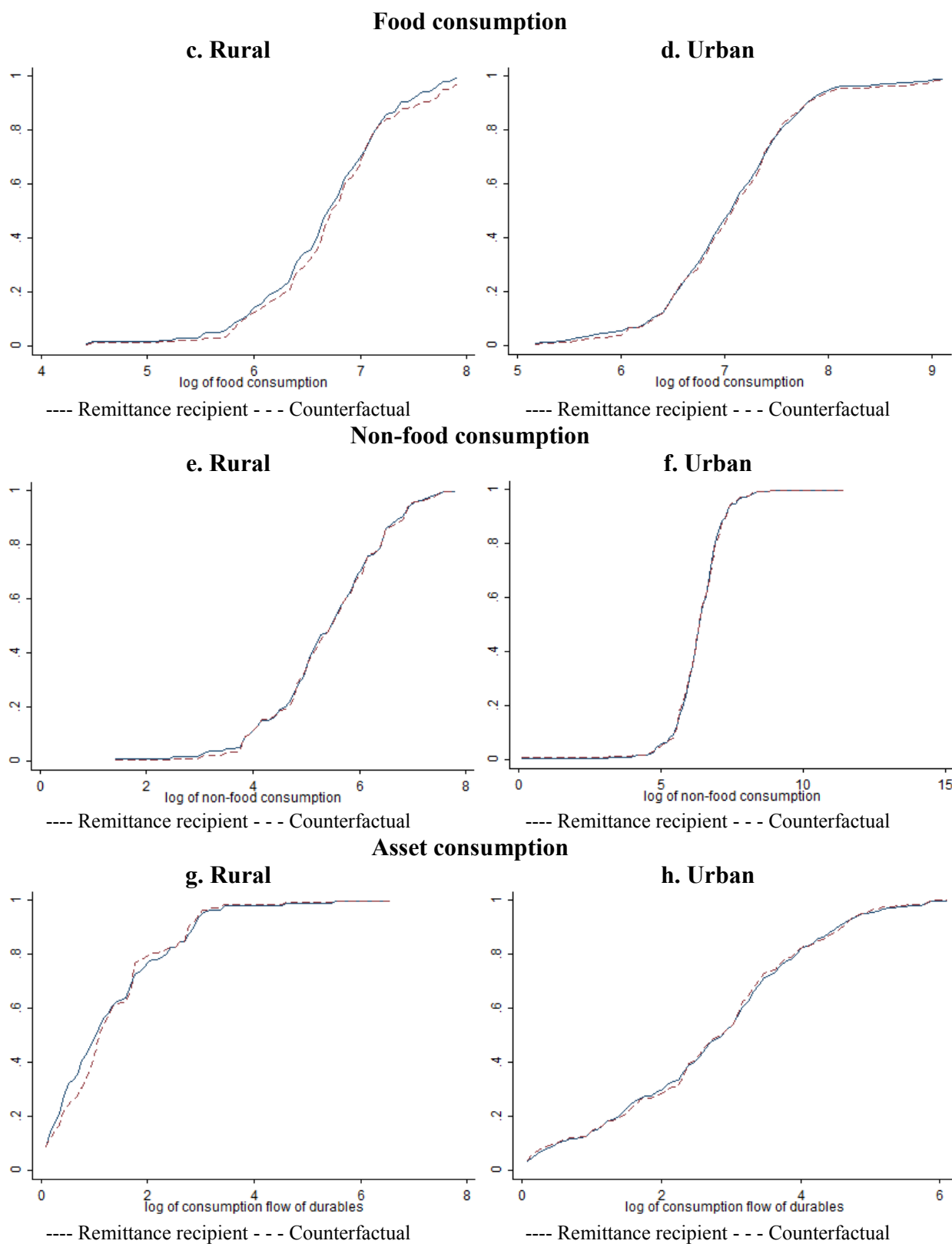
Table 7: Average Composition Effects, Households with and without Remittances

Location	Mean	10th	25th	50th	75th	90th
Rural	0.01	0.00	0.22	-0.06	0.00	0.00
Urban	-0.09	-0.12	-0.02	-0.04	-0.07	0.00

Source: Somaliland Household Survey 2013

Figure 4: The composition effect: household consumption
Aggregate consumption





Source: Somaliland Household Survey 2013

113. The results among urban households indicate more strongly that differences in consumption between remittance-recipient and nonrecipient households cannot be attributed to variations in observable characteristics. The consumption distribution of remittance-receiving households is almost identical to the counterfactual consumption distribution that would result if households receiving remittances had the same observable characteristics as households that do not receive remittances. The charts on the right-hand column of figure 4 show that the original consumption distributions of households receiving remittances is almost identical to the counterfactual distributions. They suggest that, if urban households receiving remittances had the characteristics of urban households not receiving remittances, there would be a negligible effect on the consumption welfare of the former.

Do remittances generate improvements in welfare? The remittance effect

114. What would work hours and consumption of remittance-recipient households be if these households had not received any remittances? The second counterfactual scenario, compares the consumption (or work hours) of remittance-receiving households with the consumption (or work hours) of non-recipient households if they had the characteristics of remittance-receiving households. This counterfactual distribution of consumption (or work hours) is then plotted alongside the true consumption distribution. The difference in distributions can be understood as the effect of remittances on the remittance recipients.
115. The two charts in figure 4 are comparisons of the work hours for individuals in remittance-receiving households and the counterfactual distribution of work hours. The charts in figure 5 closely resemble the original difference in the distributions plotted in figure 1. This suggests that the original differences between the remittance-recipient and nonrecipient households is almost entirely the result of the receipt of remittances. The effects are present across rural and urban locations. Table 8 provides point estimates for the counterfactual analysis. The estimates for rural areas indicate that the receipt of remittances is associated with a significant increase only in part-time work. In urban areas, the receipt of remittances is associated with an overall decline in the number of work hours. The decline is considerably greater among individuals working part time.

Figure 5: The remittance effect: hours worked

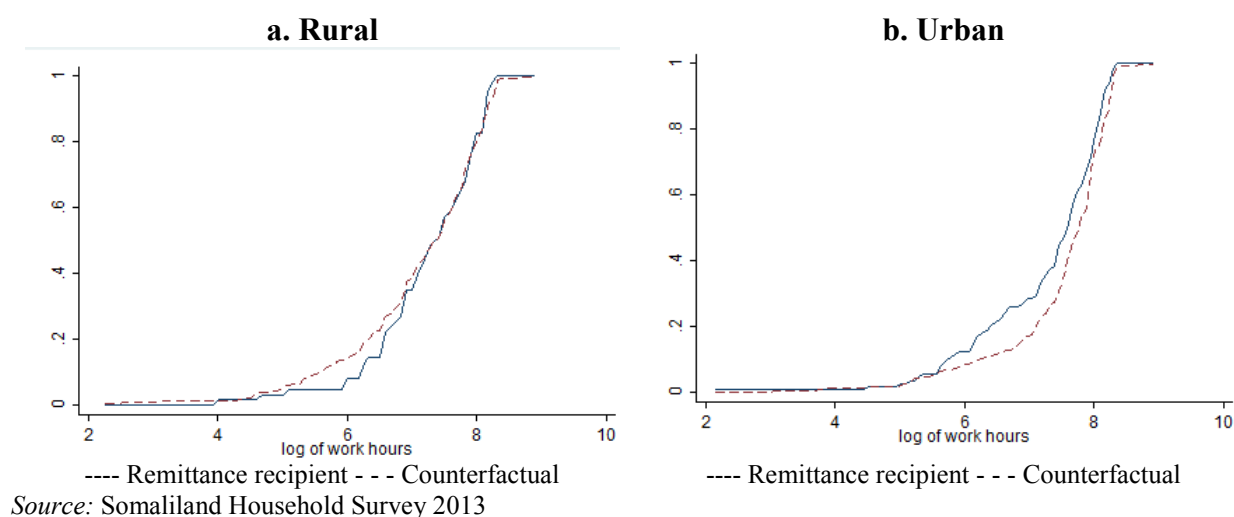


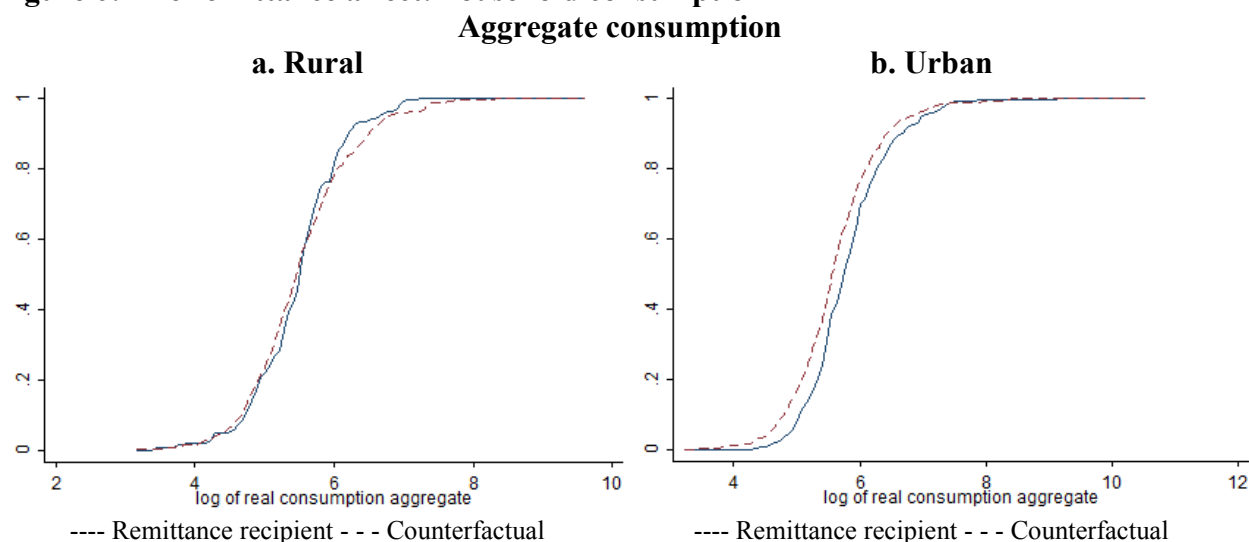
Table 8: Average remittance effect: hours worked

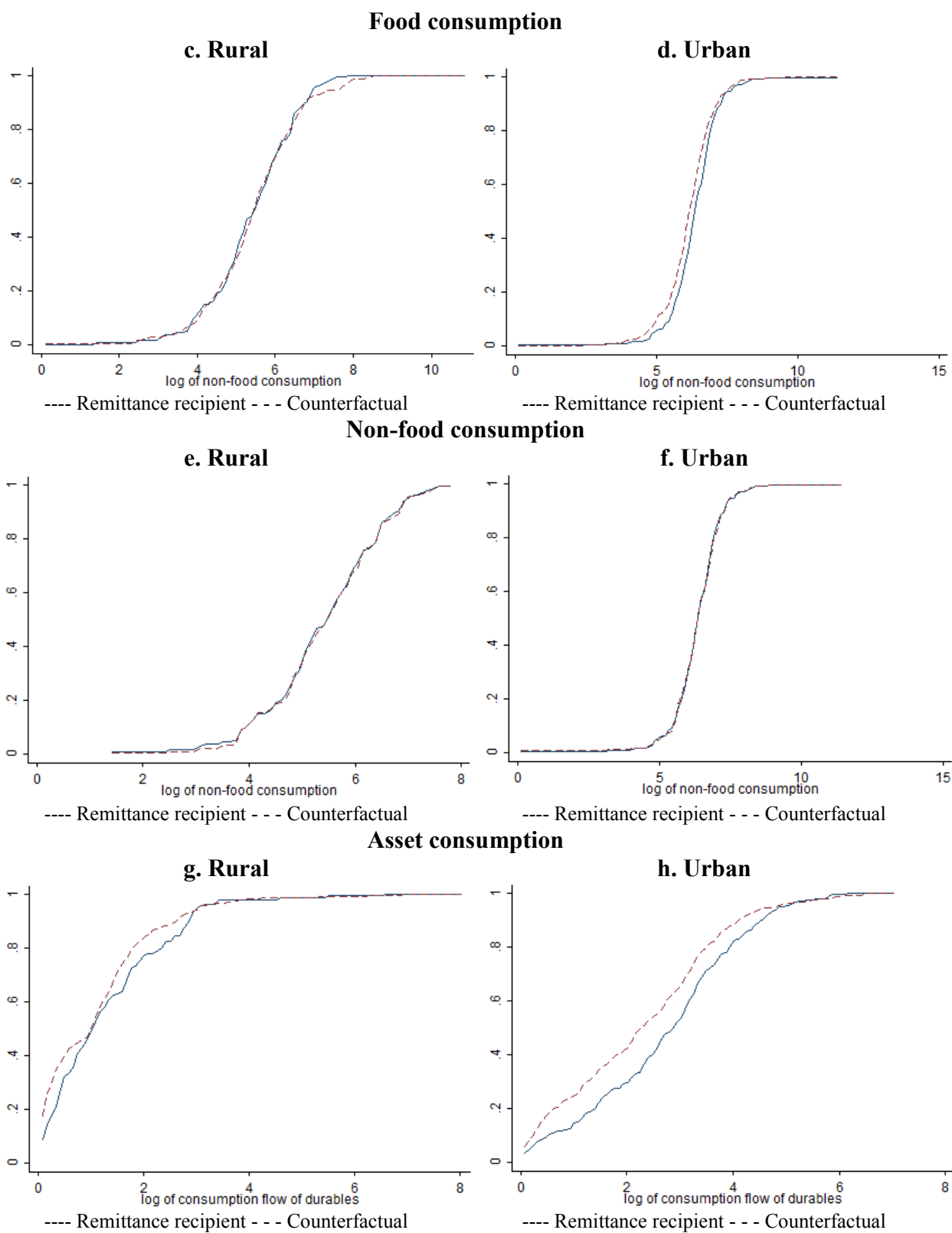
<i>Location</i>	<i>Mean</i>	<i>10th</i>	<i>25th</i>	<i>50th</i>	<i>75th</i>	<i>90th</i>
Rural	0.12	0.60	0.18	-0.01	0.00	-0.01
Urban	-0.25	-0.45	-0.61	-0.19	-0.08	-0.13

Source: Somaliland Household Survey 2013

116. Turning to welfare, in rural areas remittances have a negligible effect for the poorest households and a negative impact for richer households. In rural areas, the two distributions in Figure 6 almost exactly mirror one another among the poorest 50 percent of households. Table 9 indicates that, on average, remittances increase consumption by 7% for most households in the bottom 50 percent of households. Among the top 50 percent of rural households, however, the treatment effects are negative, suggesting that, at least in rural areas, households receiving remittances would have been better off without the receipt of remittances. These estimated effects may be driven by the potential migration of remittance-receiving households from rural to urban areas. If this is the case, it would be incorrect to conclude that remittances have no impact on rural households. Identical results are found in the distribution of treatment effects for food and nonfood consumption in rural areas. However, the consumption of durables is greater among remittance-receiving rural households.

117. The findings on urban households stand in stark contrast to the findings on rural households and indicate a positive impact of remittances in urban areas. In urban areas, the counterfactual distribution lies below the true distribution everywhere (right-hand charts in figure 6). This suggests that all households would have fared much less well without remittances. Stochastic dominance tests show the distributions are statistically significant for aggregates, durables, and food consumption (see Annex). The size of the impact seems to be quite large: on average, households have about 19% to 23% higher aggregate consumption because of remittances, and they enjoy a 44% higher consumption flow of durables, 15% higher food consumption, and 20% higher nonfood consumption (table 9). These effects are persistent for households at all consumption levels.

Figure 6: The remittance affect: household consumption



Source: Somaliland Household Survey 2013

Table 9: Average remittance effects: household consumption

	Mean	10 th	25th	50th	75th	90th
Consumption aggregate						
Rural	-0.04	0.03	0.07	0.07	-0.04	-0.30
Urban	0.20	0.23	0.19	0.19	0.20	0.21
Food consumption						
Rural	-0.05	0.11	0.00	-0.01	-0.07	-0.16
Urban	0.15	0.20	0.16	0.16	0.13	0.09
Non-food consumption						
Rural	-0.04	-0.05	-0.02	0.11	0.05	-0.17
Urban	0.20	0.41	0.23	0.18	0.16	0.10
Asset consumption						
Rural	0.19	0.11	0.22	0.04	0.30	0.17
Urban	0.45	0.29	0.59	0.59	0.37	0.40

Source: Somaliland Household Survey 2013

Summary and impact on poverty

118. The results in the preceding two subsections suggest that differences in work hours and consumption between households that receive remittances and those that do not, cannot be explained by differences in characteristics between these two groups. Rather the results suggest that lower work hours and higher consumption arises as a result of the receipt of remittances or the migration that led to the remittances being sent. The impact of remittances on household work, consumption and poverty in urban areas of Somaliland are significant. The effect in rural areas is smaller.
119. Table 10 documents the resulting impact of remittances on poverty and the degree of deprivation of those living beneath the poverty line. Corroborating the distributional findings, the poverty analysis indicates that the actual receipt of remittances contributes to lower levels and less depth in poverty outcomes (table 10). It is estimated that the remittances reduce poverty by 11.2 percentage points in urban areas and 7.8 percentage points in rural areas. Observed compositional effects suggest that poverty would be lower if remittance-recipient households had the observed characteristics of households without remittances. However, observed differences between the two urban household types—remittance-recipient households and nonrecipient households—explain only about a third of the difference in poverty rates between the two groups.

Table 10: Summarizing the results, the impact on poverty

	Poverty headcount	Poverty gap
Urban		
Remittance households	15.5%	3.5%
Non-remittance households	27.5%	8.7%
Difference between remittance and non-remittance households	-12.0 pp	-5.2 pp
Amount due to characteristics (%)	34%	23%
Estimated remittance effect on poverty	-11.2 pp	-4.4 pp
Rural		
Remittance households	27.2%	10.0%
Non-remittance households	35.0%	11.4%
Difference between remittance and non-remittance households	-7.8 pp	-1.4 pp
Estimated remittance effect on poverty	-7.3 pp	-0.9 pp

Source: Somaliland Household Survey 2013. Note: pp stands for percentage points

The impact of remittances on investments in education

120. Does the reduction in work hours for some remittance-receiving households result from the fact that households that receive remittances have more money to invest in education of household members? Households in urban areas reported educational expenses as the second most important use of remittance money after spending on consumption. This was less often the case for rural households.
121. To answer this question we repeat the same analysis undertaken above for the proportion of household children in school between households that receive remittances and those that do not. The results are presented in Table 11.
122. The proportion of children in school is 5 percentage points higher among households that receive remittances in urban areas. This is not as a result of observable differences between remittance and non-remittance households. In fact, taking these differences into account would suggest that remittance receiving households would send a lower proportion of their children to school. As a result it appears as though receiving remittances results in an increase in the percent of children in school by 6 percentage points, an 11 percent increase over households that do not receive remittances.
123. This positive effect of remittances on attending school in urban Somaliland is not found in rural areas. In fact if anything, receiving remittances marginally reduces the likelihood of attending school for children in rural areas.

Table 11: Differences in Schooling for Non-recipients and Recipients of Remittance

	Household Children in School
Urban	
Remittance households	58.0%
Non-remittance households	53.0%
Difference between remittance and non-remittance households	5.0 pp
Estimated effect due to characteristics	-1.0 pp
Estimated remittance effect on schooling	+6.0 pp
Rural	
Remittance households	49.0%
Non-remittance households	45.0%
Difference between remittance and non-remittance households	4.0 pp
Estimated effect due to characteristics	-1.0 pp
Estimated remittance effect on schooling	-2.0 pp

Notes: Estimates above pertain to the proportion of youths in the household that are currently attending school.

4. Caveats

124. How do we interpret our findings from the previous section? Do remittances reduce work hours and increase poverty in Somaliland? Are remittances effective in urban areas and less so in rural areas? While our results do point in that direction, the results should not be taken as pure causal effects. They should be considered cautiously.
125. Although the attempt has been made to control for relevant observable characteristics, households with and without migrants and, hence, with and without remittances may differ in other, unobserved ways or along additional variables not controlled for in the analysis that may also be correlated with remittances and consumption.
126. If more highly skilled household members are more likely to migrate, then not controlling for ability—the case here—may result in underestimating the composition effect and overestimating the remittance effect. Even if high ability members had not migrated and sent remittances, they would have been able to earn higher incomes in their original places of residence given their greater ability. If we had information on ability we may find there is a large difference in the characteristics of households who have remittances and those that do not thereby increasing the “composition effect”. Less of the difference would then be considered the remittance effect. These concerns were mitigated by the use in this analysis of an extensive set of relevant observable characteristics, some of which are also meant to proxy for unobserved variables, but the concern still remains.
127. The analysis uses non-parametric distributional analysis in order to be able to examine the distributional impact of remittances. This was deemed more appropriate, even though more data intensive, than decomposition analyses that focus solely on the mean. The size of bins chosen for the non-parametric analysis was appropriate for the ample size, but the small number of households (particularly in rural areas) should be borne in mind. In addition because the sample size is limited and this has limited the degree to which we can disaggregate numbers and has meant that we have not been able to examine the distributional impact of remittances differently for different groups of households.
128. In addition, a large share of the people living in rural Somaliland are pastoralists, a group that is not included in the SHS sample. Nomads comprise about 36 percent of the population (World Bank 2015). In addition to remittances from abroad, Lindley (2007) states that pastoralist populations in rural Somaliland are known recipients of domestic remittances from urban areas. Consequently, both the level and pervasiveness of remittances in the rural SHS sample may be representative only of the settled rural population, not all rural dwellers. A more complete sample, including pastoralists and nomadic (and potentially remittance-recipient) population groups could therefore yield a story that is different from the one told here.
129. There are additional concerns with the rural sample. It is likely the receipt of remittances may enable households to migrate to urban areas. Moreover, the probability of migration likely increases with the size of remittances. In fact, the data suggest that household heads in remittance-receiving households are generally more likely to be migrants themselves. This means our sample of remittance-recipient households in rural areas may be negatively selected.

5. Is migration a poverty-reducing strategy?

130. As discussed in Section 2.2, not all households sending migrants receive remittances. Migration is thus a risky strategy for households. Households invest in sending members abroad to work with no certain return. The journey itself may be costly and dangerous, and even on safe arrival, work cannot be guaranteed. And if work is obtained, migrants may be unable or unwilling to remit.
131. By examining the welfare of households that receive remittances we have focused on households for whom migration has proved to be successful. We might not expect to see such strong welfare gains across all households with migrating members, those that receive remittances and those that do not. If sample size allowed we would look at the welfare of households that have a migrant but do not receive remittances. This group contains only 73 households across rural and urban Somaliland which is not enough to use the methods employed. However, in this section we employ the same method as that employed in Section 3 in order to test whether, on average, households with migrants do better, regardless of whether or not they remit.
132. Results are presented in Table 12 and suggest that migration is on average a beneficial strategy for households in Somaliland. The positive impact of remittances is also found for sending a household member to migrate. Consumption gains are observed for urban households and for rural households from the 10th to the 50th percentile.

Table 12. Consumption differences for households with migrants, compared to non-migrant households

	mean	10th	25th	50th	75th	90th
Total difference						
Rural	0.10	0.20	0.29	0.13	0.02	-0.19
Urban	0.21	0.26	0.28	0.23	0.18	0.25
Difference due to differences in observed characteristics of migrants and non-migrants						
Rural	0.18	0.06	0.25	0.20	0.19	0.13
Urban	-0.05	0.07	-0.02	-0.12	-0.06	-0.12
Impact of migration						
Rural	-0.04	0.07	0.14	0.07	-0.12	-0.41
Urban	0.22	0.22	0.23	0.22	0.23	0.21

Notes: Migrant households are defined as households that have at least one member that has migrated within the country or internationally. Non-migrant households are those with all members residing in the household. The estimates can be understood as approximate percentage differences in consumption between households with and without migrant-members.

6. Conclusions

133. This report has underscored the importance of remittances as a source of income in urban areas of Somaliland, corroborating earlier studies on this topic. The findings of this report show that remittances are also an important source of household well-being in Somaliland. The effects are considerably greater in urban areas. The positive effects are consistent for all components of the consumption aggregate as well as for overall poverty measures. An important finding of the paper relates to the pervasiveness of the effects of remittances. The positive effects of remittances are found across consumption types, for entire distributions, and not only at specific moments. This underscores

the importance of remittances as a means to reduce poverty and inequality and improve shared prosperity in Somaliland.

134. Remittances are a less important source of income in rural Somaliland and they have a more muted impact on household welfare. Remittances only increases consumption for households in the bottom half of the distribution, and their consumption increases by only 3-7% compared to the 19-23% increase observed for the poorest urban households. However, this small increase in consumption is enough to reduce poverty in rural Somaliland.
135. The importance of remittance income for urban household welfare makes protecting remittance flows a high priority of the Somaliland government. The productivity of migrants could be encouraged by providing networking services for migrants to migrants that have been successful in their new destination. Policies that reduce any transaction costs around sending remittances should also be pursued.
136. In addition, measures to help households save remittance income or use it to invest in productive assets will help ensure that current remittance flows can be used to increase the resilience of households to potential interruptions to remittance income in the future. Remittance income is already increasing productive investments for some urban households. Receiving remittances increases the probability of a child being in school by 11% compared to urban households that do not receive remittances.
137. Although remittances have a beneficial impact on consumption it may be the case that they are reducing labor market participation and the hours worked by active household members in urban areas. This pattern is not found in rural Somaliland. Some of the reduction in hours worked in urban areas is positive, reflecting the ability of households to invest more in education of their youth when remittances are received. However, some of the reduction in hours worked in urban areas is negative, with recipients more likely to report quitting their job. Policies that provide households with opportunities to use remittance income for income-generation and to complement remittances with the necessary infrastructure and skills to generate self-employment may be able to counter this effect.
138. However, perhaps most fundamentally, this analysis points to the positive welfare benefits that result when household members are able to work. In the case of Somaliland this has often entailed members migrating but this is a costly strategy and results in the loss of many young, educated members of society and results in households being split, often across continents. Increasing the availability of economic opportunities at home is essential to allow these benefits to be achieved without households undertaking the cost, risk and separation of migration.

Chapter 4 An Education Profile for Somaliland

1. Introduction

139. **This education profile is based on data from the most recent Somaliland Household Survey (SHS), conducted in 2013.** Following a request from the Ministry of Planning and Development, the World Bank carried out a Somaliland Household and Enterprise Survey 2013, implemented by Kimetrica in close partnership with the Ministry of Planning and Development. The survey was implemented between January and March 2013, and is representative of the settled Somaliland population in urban and rural areas; pastoralist/nomadic households and Internally Displaced Person (IDP) settlements were not included, due to sampling difficulties. The sample included three strata – the capital (Hargeisa), other urban areas, and rural areas – and the total sample size comprised 1,728 households. Other data sources that were used to support the analysis include information on public expenditures from the Somaliland Ministry of Finance, and information from the Somaliland National Development Plan (2012-2016), prepared in 2011 by the Ministry of National Planning and Development (MoNP&D).
140. **Somaliland is located in the horn of Africa, bounded by the gulf of Aden in the North, Puntland in the east, Ethiopia in the south-west, and Djibouti in the north-west.** Settled people in urban areas of Somaliland account for 50% of the population, settled rural people account for 11%, and 34% of the population is nomadic. Internally displaced persons (IDPs) make up a very small percentage of the population: approximately 2.4%.
141. **Livestock serves as the backbone for Somaliland's economy.** However, in the settled areas of Somaliland that are covered in this survey, few households – and particularly few poor households – are engaged in agricultural activities. Instead, wage employment and remittances are important sources of income for households. In urban Somaliland, the services sector is the primary sector for 76% of the working population, and in rural Somaliland, the services sector is the primary sector for 49% of the working population, with livestock and agriculture engaging 40%.
142. **Two separate sampling frames were used for urban and rural areas in Somaliland; thus, all estimates in this profile are provided by urban and rural areas, and not for Somaliland in aggregate.** In addition, it should be kept in mind that all findings apply only to the settled areas of Somaliland.
143. **This profile offers a snapshot of education indicators as captured by the available household and administrative data.** This includes indicators related to school attendance, school access, educational attainment, and out-of-school populations, as well as analysis of the determinants of educational enrollment and the variation of enrollment over time in Somaliland. The profile is organized as follows. Section 2 offers a description of education levels among the working age population, which represents the cumulative effect of educational policies and investments over past decades. Section 3 focuses on investments in education today, examining enrollment rates and assessing the factors affecting enrollment decisions such as poverty, gender, and distance to school. Section 4 examines the incidence of private and public investments in education by documenting households' out-of-pocket costs and the incidence of government spending on education. Finally, section 5 offers a brief description of the relationship between education and labor force participation among working-age adults in Somaliland, underscoring the relationship between investments in the education of children today and the labor force outcomes and wellbeing they experience in the future. Section 6 concludes. An appendix includes regression results and a series of tables with detailed statistics.

144. **Several studies on education have positively linked investments in education and educational attainment to improved development outcomes.** Investments in education have been found to be linked to lower risks of conflict, improved health outcomes, lower fertility rates, and higher overall lifetime income. Given the general significance of education to development writ large, this profile considers the situation of education in Somaliland from a number of perspectives. It is not the role of this profile to offer detailed policy advice on education; however, the policy implications of the results are discussed in the concluding section.
145. **The school age categories used in this chapter reflect the standard ages for primary and secondary school in Somaliland.** Primary school covers 8 years in Somaliland and includes children between the ages of 6 and 13. Secondary school covers four years and is separated into two groups: lower secondary includes children between 14 and 15, and upper secondary includes children 16 and 17. The full range of school-age children thus runs from 6 years old at primary education commencement to 17 years old at secondary school graduation. The report uses the Somaliland definitions for school age categories, as opposed to the UNESCO standards, so as to ensure that the results of the report are meaningful in the local context.
146. **The rates of Koranic school attendance are relatively low in Somaliland.** Only approximately 10% of children in school reported attending Koranic school, and less than 9% of survey respondents who had ever attended school reported their highest level of educational attainment at a Koranic school. Given that nearly the entire population of Somaliland identify as Muslim, it is possible that the low level of Koranic school attendance reported may be a result of children attending both types of schools, and reporting non-religious school for the purposes of the survey. As the data do not distinguish between grade levels in Koranic school, this report focuses on the majority of the Somaliland population that attend non-religious schools.

2. Education levels among the working-age population and youth

Working-age population (ages 15-64)

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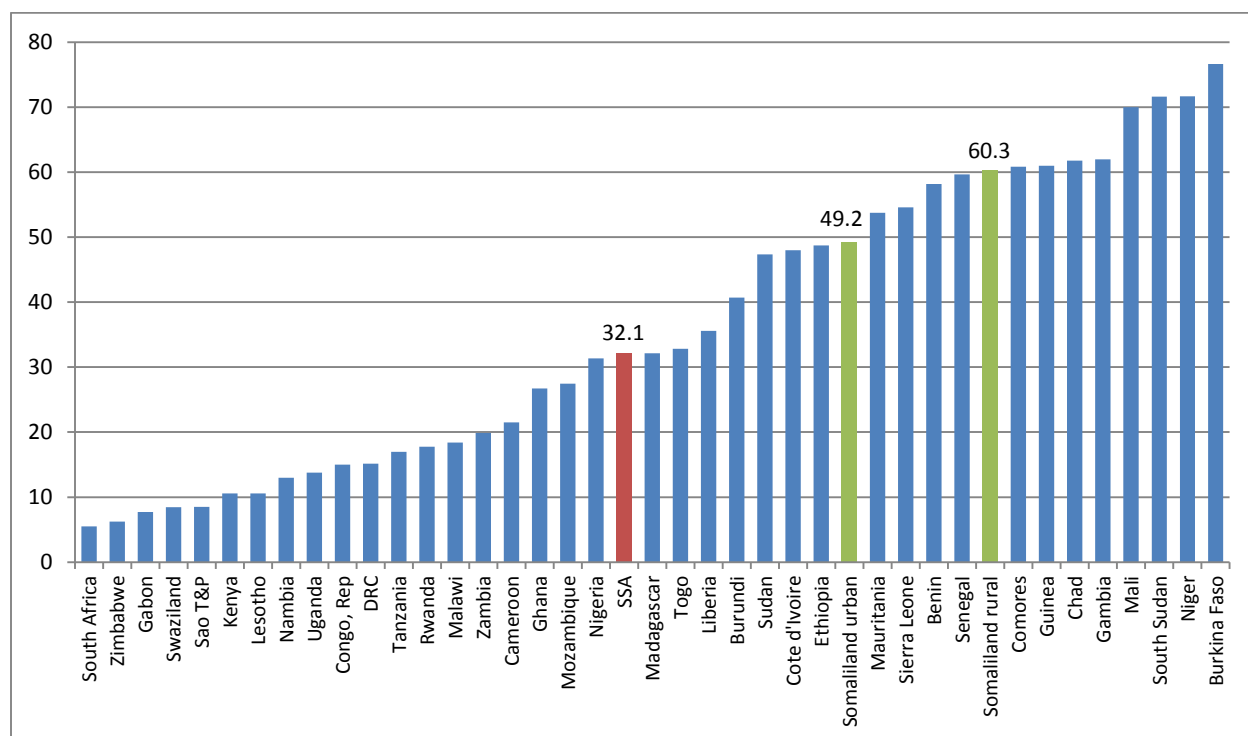
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147. **Almost 50% of the urban working-age settled population and 60% of the rural working-age settled population in Somaliland reported having no formal education, compared with less than a third of the population in sub-Saharan Africa (SSA) as a whole.** Figure 1 below shows a regional comparison of 38 sub-Saharan African countries, ranging from South Africa reporting only 5.5% of its working-age population lacking any formal education, compared to more than 76.6% of the working age population lacking formal education in Burkina Faso. Just 8 countries reported higher percentages than Somaliland's rural settled population, including Mali, South Sudan, and Niger.

148. **Literacy rates are an alternate measure of educational attainment reflecting education outcomes of investments in schooling.** 60% of the urban population and 51% of the rural population in Somaliland reported being able to read and write in Somali.

Figure 30: Regional comparison of working age population (ages 15-64) with no formal education (%)

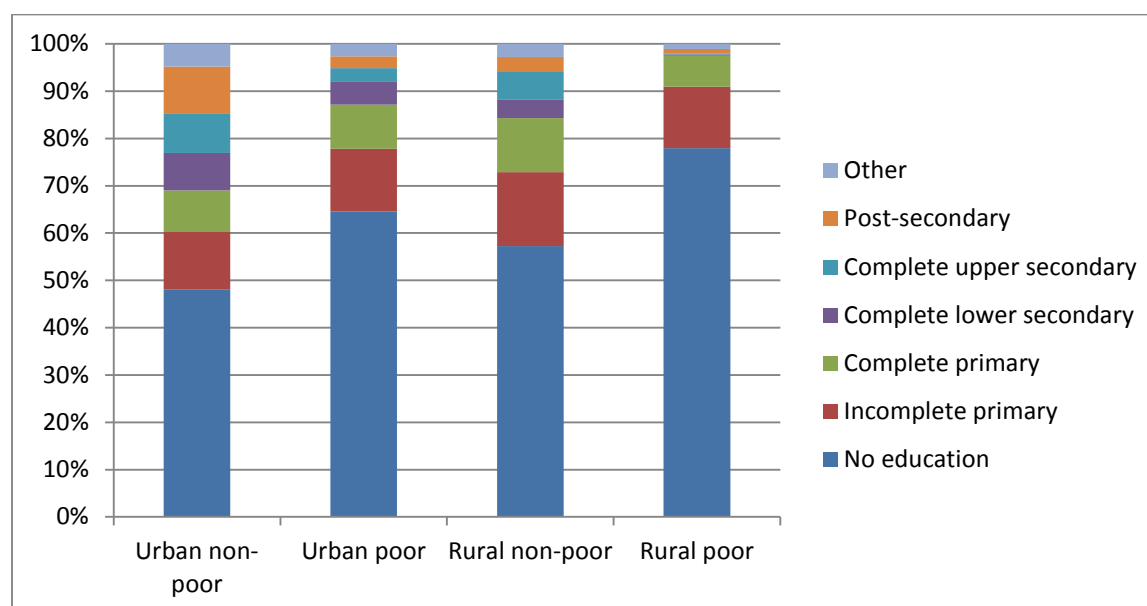


Source: WB 2014 Sierra Leone Poverty Assessment using household survey data from: Benin (2010), Burkina Faso (2010), Burundi (2010), Cameroon (2011), Chad (2011), Cote d'Ivoire (2011), Comoros (2004), Congo, Rep. (2011), DRC (2010), Ethiopia (2011), Gabon (2011), Gambia (2010), Ghana (2010), Guinea (2012), Kenya (2008), Lesotho (2011), Liberia (2010), Madagascar (2010), Malawi (2010), Mali (2010), Mauritania (2008), Mozambique (2009), Namibia (2010), Niger (2011), Nigeria (2010), Rwanda (2010), Sao T&P (2010), Senegal (2011), Sierra Leone (2011), South Africa (2012), South Sudan (2009), Sudan (2009), Swaziland (2010), Tanzania (2010), Togo (2011), Uganda (2010), and Zambia (2010), and Zimbabwe (2011)

149. **Gaps in educational attainment in Somaliland appear to be closely tied to poverty status.** Less than a quarter of the working-age population living below the poverty line in rural areas reported any formal education. This is in comparison to 43% of the rural non-poor reporting some formal education. More than half of the non-poor in urban areas reported some formal education, compared to only just over 35% of the urban poor (Figure 2). In terms of the percentage of working-age population reporting complete education, 8.24% of the non-poor in urban areas report completion of upper secondary, relative to 5.9% of the non-poor in rural areas. Meanwhile, less than 3% of the urban poor and only 0.14% of the rural poor report having completed their education through upper secondary. Figure 2 and Table 1 in the appendix provides further details.

150. **However, as these numbers suggest, residence in urban or rural areas is also a strong determinant of educational attainment.** Figure 2 shows that education levels among rural households are substantially lower than educational attainment among urban households. Meanwhile, the rural non-poor have education levels remarkably similar to educational attainment among the urban poor. These discrepancies may be attributable to issues of access, tied to limited school availability in rural areas in Somaliland. This issue is explored further in the analysis of factors associated with education investments in children today.

Figure 31: Educational attainment of working age population



Source: Authors' calculations using SHS 2013 data

151. **Gender is also an important determinant of educational attainment: the average number of years of education for the working-age population in Somaliland is low, and is even lower among women.** The working-age population in urban areas had only 4.9 years of education on average, relative to 3.1 years of education in rural areas. The gender gap in education is even more dramatic. In urban areas, working-age males had more than twice the average years of education of working-age females, at 6.8 years on average relative to 3.3 years on average. A similar gender discrepancy exists in rural areas, where the gender gap is exacerbated, despite average male attainment being lower. Rural working-age males had on average 4.5 years of education, relative to only 1.7 years of education for rural working-age females.

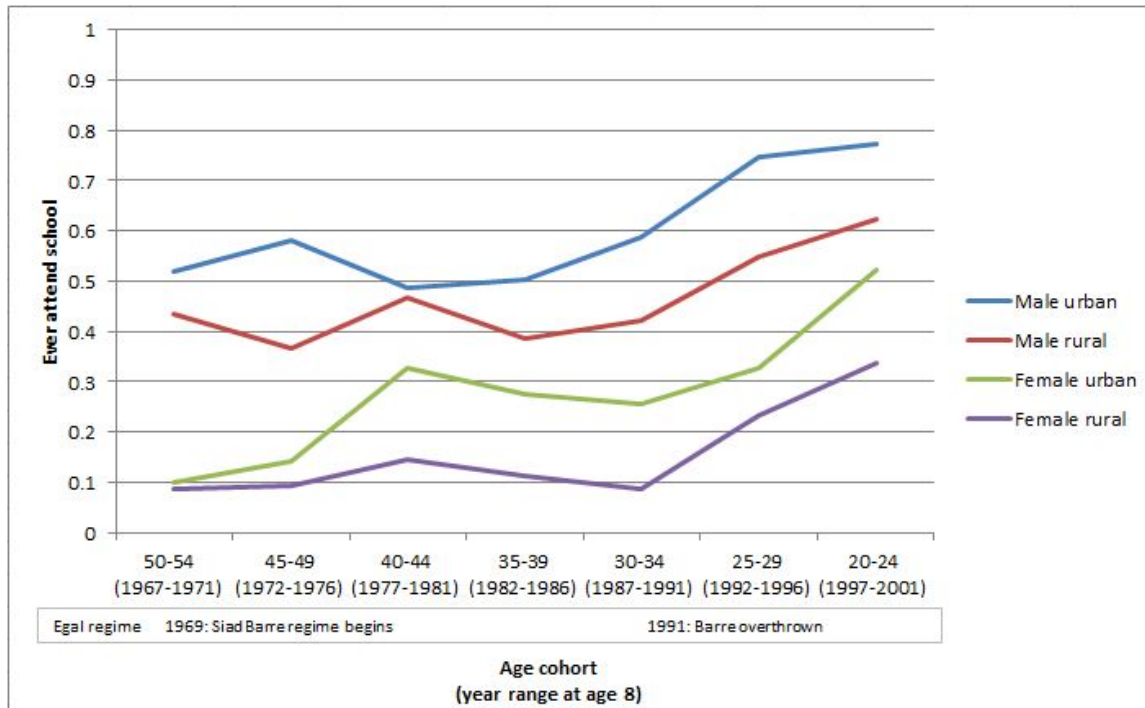
Educational attainment across cohorts: the cost of conflict and the gender gap

152. **Educational attainment of the working-age population reflects investments in education over many decades; in the case of Somaliland, this encompasses periods of substantial instability.** The impact of investments over time in Somaliland can be examined by looking at attainment by cohort. In terms of school attendance, Figure 3 below depicts the proportion of men and women in each age cohort (beginning with ages 50 to 54) who had ever attended school.

153. **Educational attainment has been improving in recent years, but the cost of conflict on the education levels of Somaliland's working-age population is evident.** Over a thirty-year timeframe, the proportion of individuals who reported at least some schooling increased significantly for both men and women, regardless of whether they live in urban or rural areas. Younger age cohorts, both male and female, are much more likely to have attended school than older cohorts, indicating that overall educational access has improved in Somaliland during the past several decades. Although progress has been made in school attendance, Figure 3 also shows that progress stalled and investments in education worsened when those who are now 30-39 were in school. For men in rural areas, this dip appears 5 years earlier (that is, among those now between 35 and 44 years of age), likely on account of the fact that investments in schooling are likely to occur at younger ages for men in urban areas. The dip seen

for the 30-44 cohorts may be linked to the policies of the Siad Barre regime and the political unrest surrounding his overthrow. Figure 3 depicts the cost of past regimes on the levels of human capital of Somaliland's working-age population.

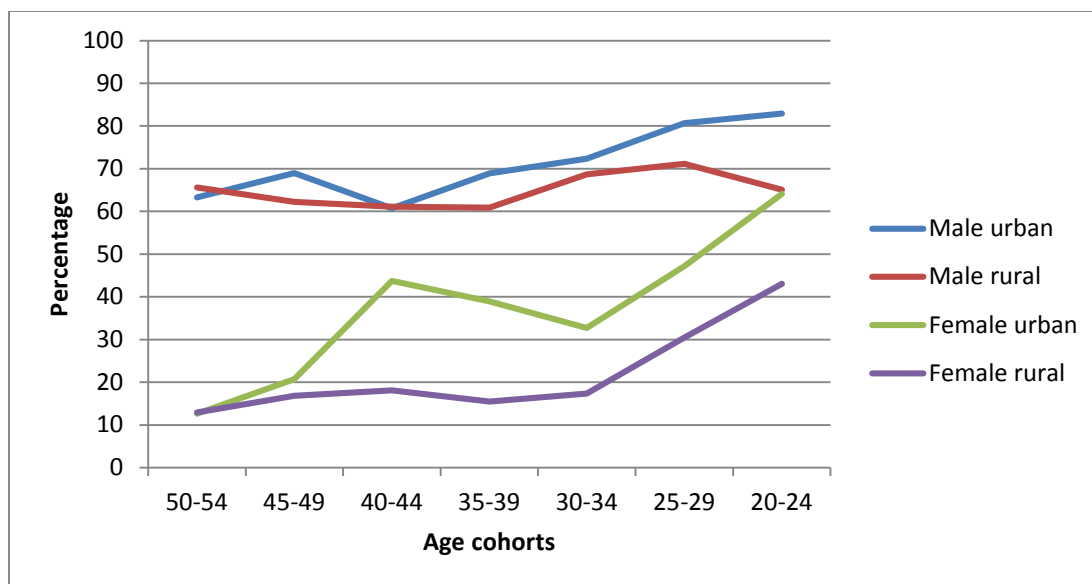
Figure 32: Proportion ever having attended school by age cohort and gender



Source: Authors' calculations using SHS 2013 data

154. **Examining literacy rates over time confirms that it is only among younger cohorts (35 and under) that literacy has improved.** Figure 4 shows literacy rates reported by different age cohorts. Again, overall progress is observed: whereas people between the age of 50 and 54 report literacy rates of 39% (urban) and 36% (rural), the younger population between the age of 20 and 24 report rates of 73% (urban) and 53% (rural). However, the cost of instability is also evident. Despite an upward trend in literacy over time in urban areas, literacy rates fell for men in the 40-44 cohort and for women in the 30-39 cohorts. In rural areas, literacy rates stalled during this time.

Figure 33: Literacy rates across gender and age cohorts (%)



Source: Authors' calculations using SHS 2013 data

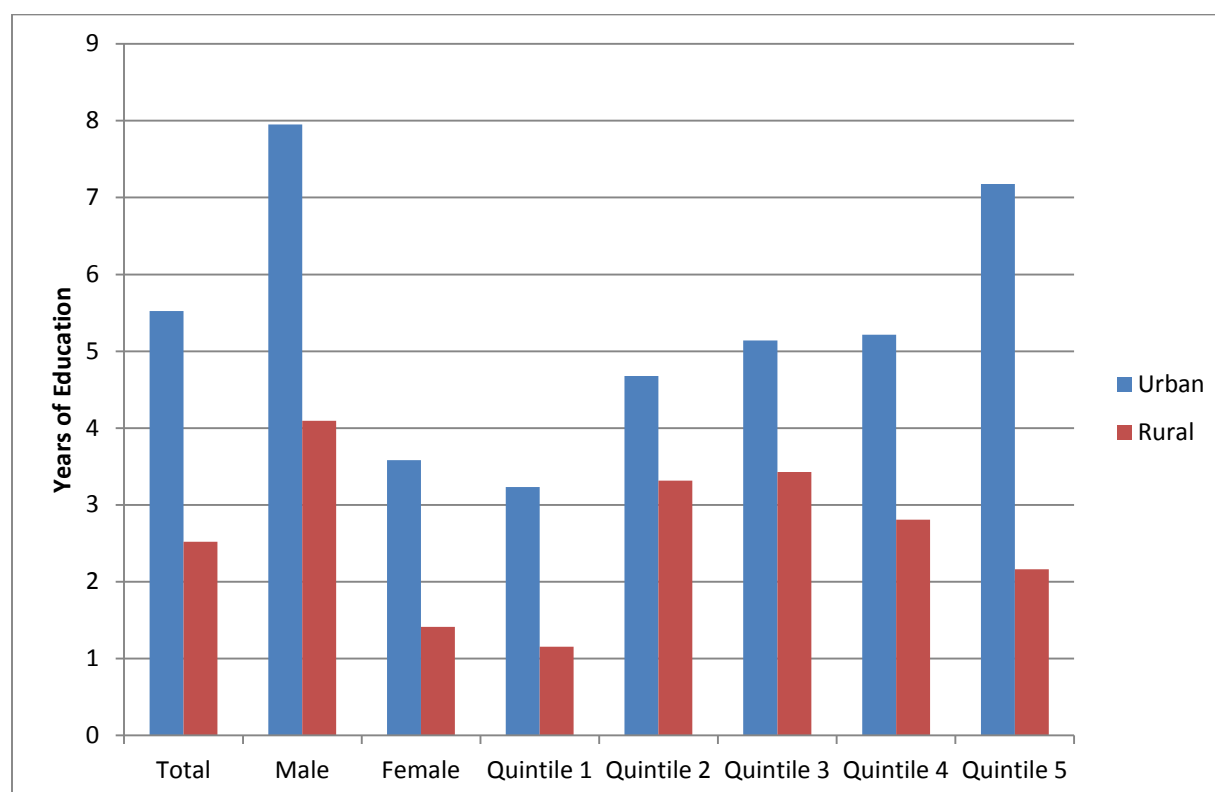
155. **Gender is a significant determinant of educational attainment, but the gender gap does appear to be falling over time.** Gender appears to be a more significant obstacle than location in terms of school attendance: over the 30-year period, men in rural areas were consistently more likely to have attended school than women in urban areas. However, while men had consistently greater probabilities of school attendance throughout the period, the gap between male and female school attendance decreased significantly over the years. In both urban and rural areas, less than 10% of women aged 50-54 attended school, relative to 44% of their male counterparts in rural areas and 52% in urban areas. Meanwhile, among 20-24-year-olds, the respective school attendance percentages were 52% of urban women and 34% of rural women, relative to 77% of urban men and 62% of rural men.

156. **Literacy rates are lower among women, but as with educational attainment, the gender gap is falling over time.** Urban and rural men in Somaliland have literacy rates of 72% and 63% respectively, while urban and rural women report literacy rates of 50% and 40% respectively. Figure 4 shows the trajectory of these rates across age cohorts, which offers some room for optimism; while both urban and rural women aged 50 to 54 report literacy rates of only 13%, women aged 20 to 24 report much higher rates (64% for urban women and 43% for rural women).

Educational attainment among youth

157. **Educational attainment is much higher among the youth, but not for all youth equally: location of residence, gender, and poverty are all strongly predictive of educational attainment among those between the ages of 20 and 30.** For urban areas, youth between 20 and 30 years of age had on average 5.5 years of education: 2.2 times the average for rural areas, at 2.5 years of education on average (Figure 5). The significant differences between urban and rural areas hold across all categories. In terms of gender, 20-30 year-old females living in urban areas had only 3.6 years of education on average, relative to 8 years of education for the average 20-30 year-old urban male. Differences were even starker for youth in rural areas: men had on average 4.1 years of education, relative to only 1.4 years for their female counterparts.

Figure 34: Average number of years of education for youth aged 20-30, by socioeconomic characteristics



Source: Authors' calculations using SHS 2013 data

158. **The difference between the poorest and the richest quintiles is more dramatic in urban areas.** Youth from quintile 1 barely have 3.2 years of education on average, relative to more than 7 years of education on average for youth from the richest quintile. Interestingly, in rural areas, youth in the 3rd quintile have the highest levels of education, at 3.4 years, with the average number of years of education steadily decreasing for the 4th and 5th quintiles, at 2.8 years and 2.2 years, respectively.

3. Investments in the education of children: attendance and access

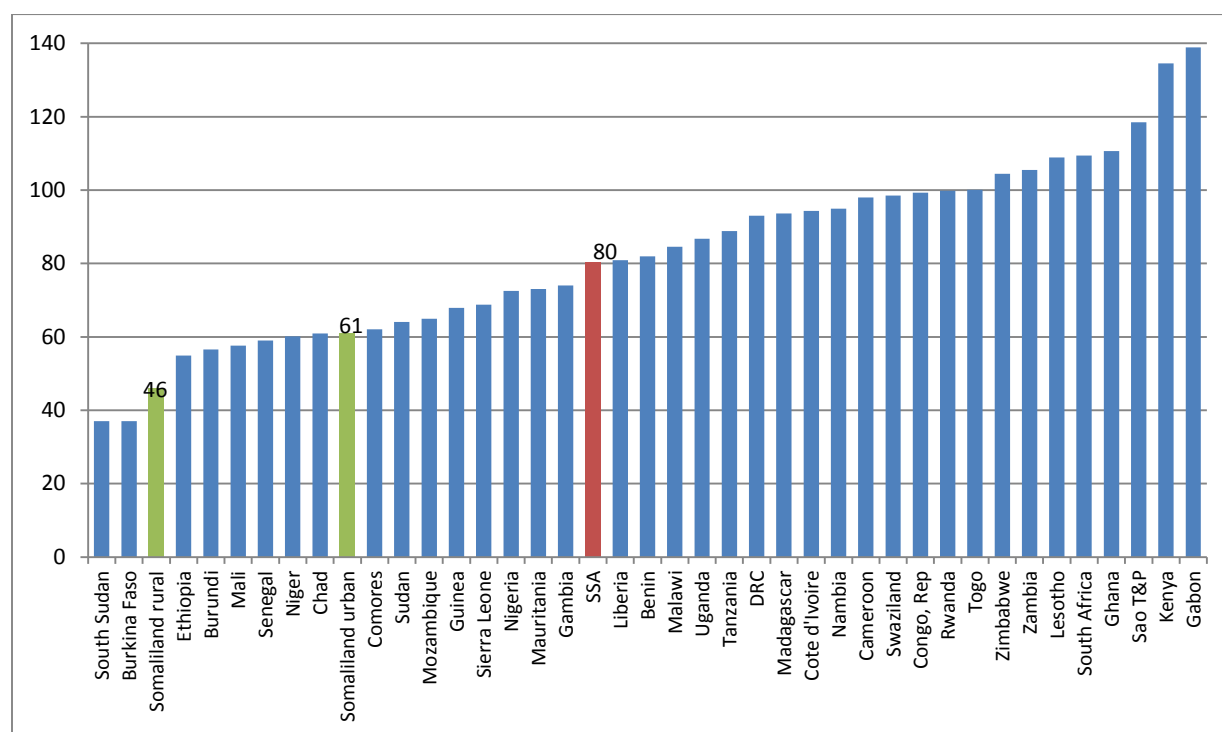
Current investments in education

159. **The focus of this section is on current investments in education in Somaliland.** Section 2 highlighted that educational attainment – which reflects investments in education in previous years – is very low in Somaliland compared to the region, and this section explores investments in education in Somaliland today.
160. **Current investments in education in Somaliland are very low and Somaliland compares very poorly to the region.** This is a cause of considerable concern, as if this remains unaddressed, future attainment will worsen relative to regional averages. The urban and rural primary completion rates (PCRs)¹⁵ for Somaliland are lower than the PCRs for the majority of the countries in our regional

¹⁵ The primary completion rate is defined as the total number of new entrants in the last grade of primary education, regardless of age, expressed as a percentage of the total population of the theoretical entrance age to the last grade of primary.

comparison. Somaliland compared more favorably in terms of attainment than it does in terms of current investment. This reflects the challenges of providing basic services in a post-conflict environment, when significant public investments in security are still required. Somaliland's urban PCR is 61%, while the average PCR for sub-Saharan Africa as a whole is significantly higher, at 80%. For rural areas, the PCR in Somaliland is only 46%, which is lower than all countries in our regional comparison aside from South Sudan and Burkina Faso, who both have rates lower than 40% (Figure 6).

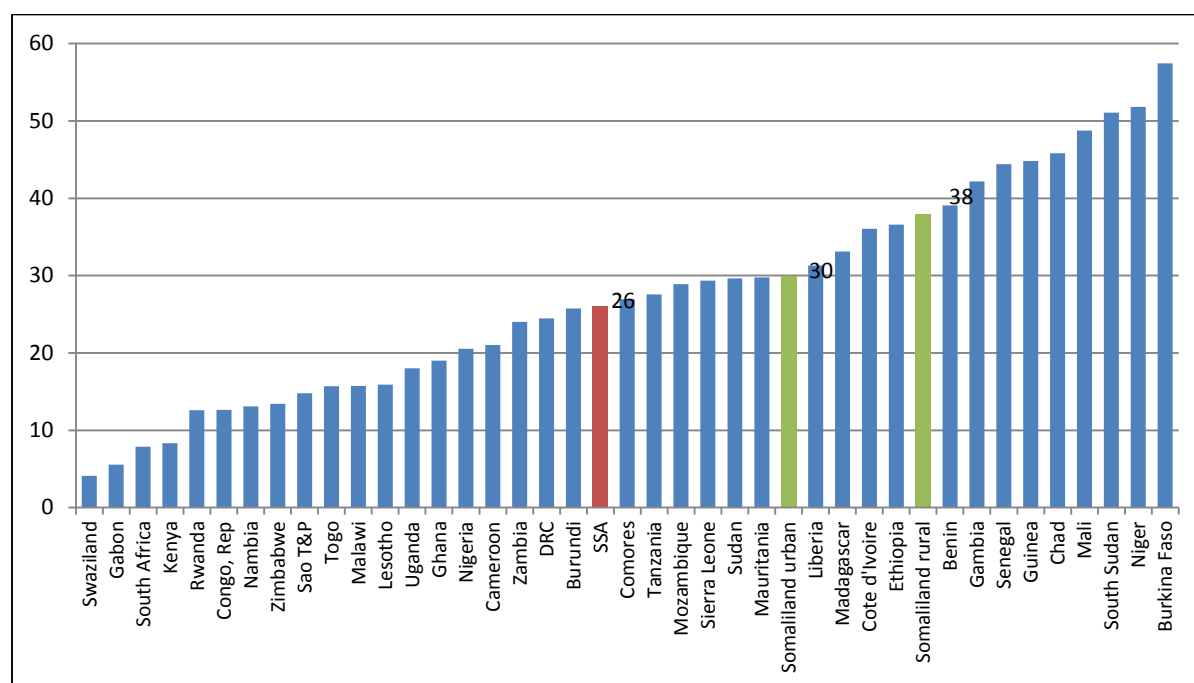
Figure 35: Regional comparison of primary completion rates



Source: See Figure 1

161. **Out of school rates tell a similar story: 30% of urban and 38% of rural school-age children (ages 6-17) in Somaliland are out of school.** This comprises children who have never attended school as well as those who stopped attending school before completing 12 years of education (primary and secondary school). Meanwhile, for sub-Saharan Africa at large, just over a quarter of school-age children were out-of-school. Somaliland has a higher percentage of out-of-school populations than other conflict-affected countries, such as Sierra Leone and the DRC, but compares favorably in this respect to a number of countries in West Africa (Figure 7).

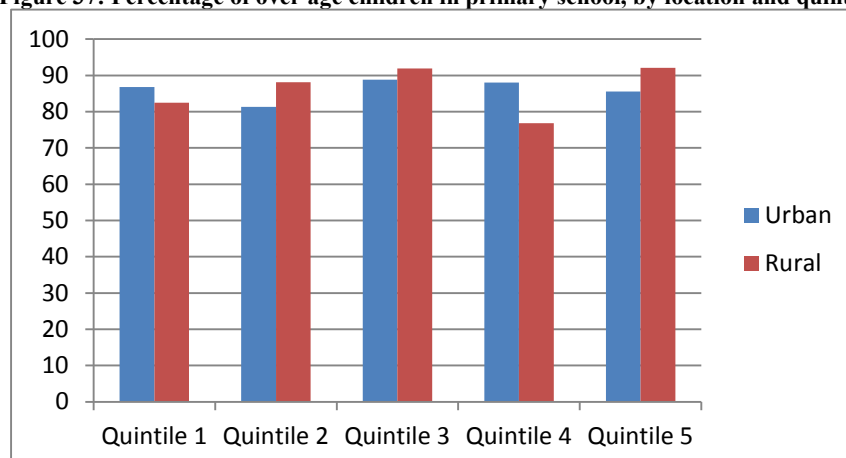
Figure 36: Regional comparison of out-of-school rates (ages 6-17)



Source: See Figure 1

162. **A very large proportion of children in primary school are over age¹⁶: 86% in both urban and rural areas are over age.** Only 8% of children in rural areas were on-time for primary school, relative to 7% of children in urban areas. The numbers are essentially equivalent for both boys and girls (87% of boys and 85% of girls in rural areas, and 86% of both boys and girls in urban areas) and also do not vary much by quintile (Figure 8). This could point to overcrowding in Somaliland schools, possibly indicating the need to find ways of moving over age children out of the system to create room for younger children.

Figure 37: Percentage of over age children in primary school, by location and quintile



Source: Authors' calculations using SHS 2013 data

¹⁶ A student is over age if they are one or more years older than the official age for that grade.

163. **The following subsections examine how investments in education vary depending on the characteristics of households (whether they are rich or poor, urban or rural), the characteristics of the child (male or female), and access to nearby schools.** First, we examine each of these separately and then consider them together in one framework to try and understand which factors play a larger role in whether or not a child is receiving investments in education, and how these factors interact.

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Investment in education and household characteristics

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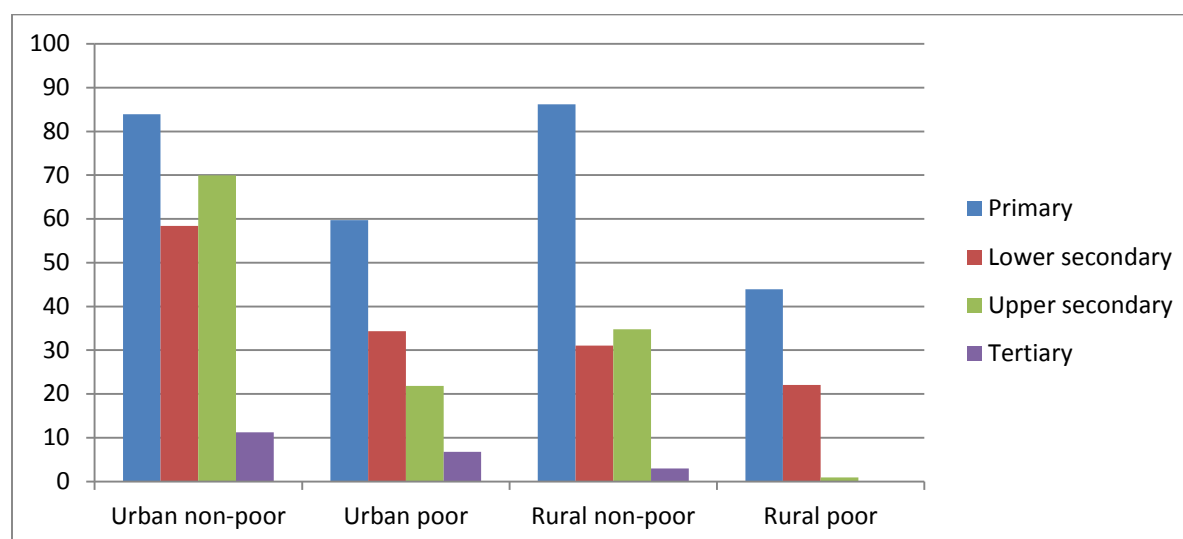
3.2.

164. **The primary gross enrollment rate (GER) was strikingly similar for the non-poor living in both urban and rural areas.**¹⁷ There was no statistically significant difference between the non-poor regardless of their location: in urban areas, the non-poor had a primary GER of 84%, and the rural non-poor GER was slightly higher, at 86%.

165. **The gap in educational investments between poor and non-poor households still remains, and this gap is much larger in rural areas.** Figure 9 below also shows that the gap in GER between poor and non-poor populations living in rural areas was larger than in urban areas. The primary GER is 44% among poor households in rural Somaliland compared to 86% among the rural non-poor. In urban Somaliland, the primary GER is 60% among the poor compared to 84% among the non-poor. The stark difference between enrollment rates among poor and non-poor households in Somaliland is explored in the rest of this section. Higher transport costs to schools in rural areas could place a higher burden on poor households than on non-poor households. It is also possible that household labor supply is an explanatory factor, with poor households needing their primary-age children to work, in contrast to non-poor households, who are able to send their primary-age children to school. This may be more of a factor in rural areas, where work in family-run businesses (in agriculture or non-agricultural activities) is more commonplace.

¹⁷ GER is defined as the number of children enrolled in a level, regardless of age, divided by the population of the age group that corresponds to that same level. NER is defined as the ratio of the number of children in a specific education level age group who are enrolled in that level to the total population of the same age.

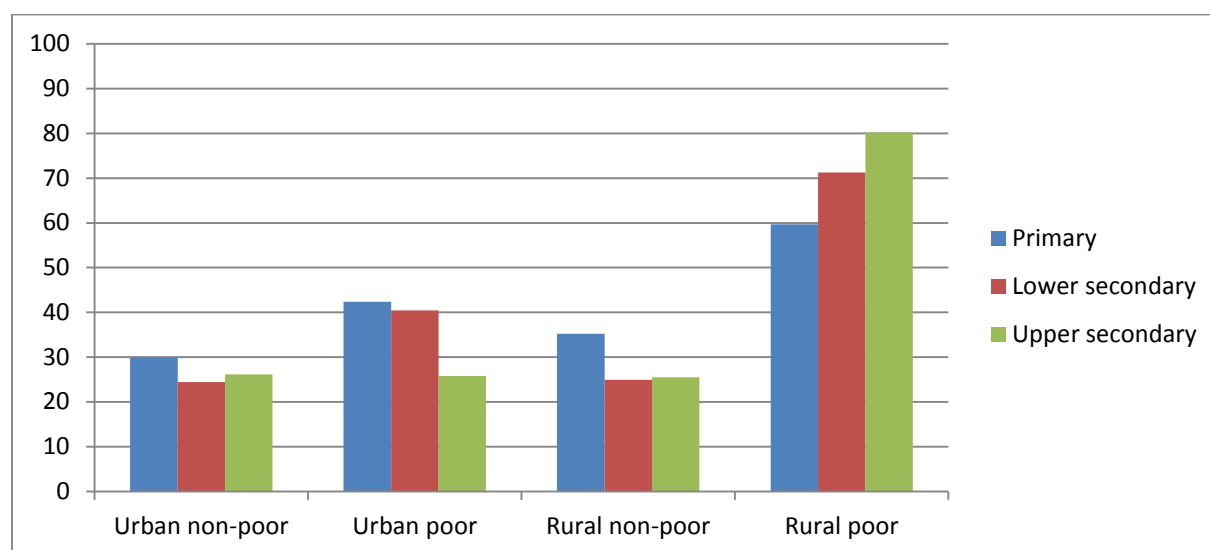
Figure 38: Gross enrollment rates by socioeconomic characteristic



Source: Authors' calculations using SHS 2013 data

166. **Gross enrollment rates for education above primary school are low for all but the urban non-poor.** The urban non-poor are the only group to have a GER of above 50% for both primary and secondary school, with gross enrollment rates hovering around 20 to 30% for lower secondary school for all other population groups. Meanwhile, tertiary education is relatively rare in Somaliland, with only the urban non-poor achieving even a 10% GER. Although upper secondary enrollment rates appear to be slightly higher than lower secondary enrollment rates for the urban and rural non-poor, this could simply be a result of the negligible difference in ages between the upper and lower secondary age categories (14-15 for lower secondary, 16-17 for upper secondary). See Table 2 in the appendix for further detail.
167. **Out-of-school rates are much higher among children in poor households.** Unsurprisingly, poor children living in rural areas have the highest out-of-school rates, with approximately 60% of primary school-age children out of school. The poor in urban areas have the next highest out-of-school rate, at 42%, followed by the rural non-poor, at 35%. Non-poor primary school-age children residing in urban areas fare the best, with less than a third (30%) out of school. See Figure 10 for further detail.

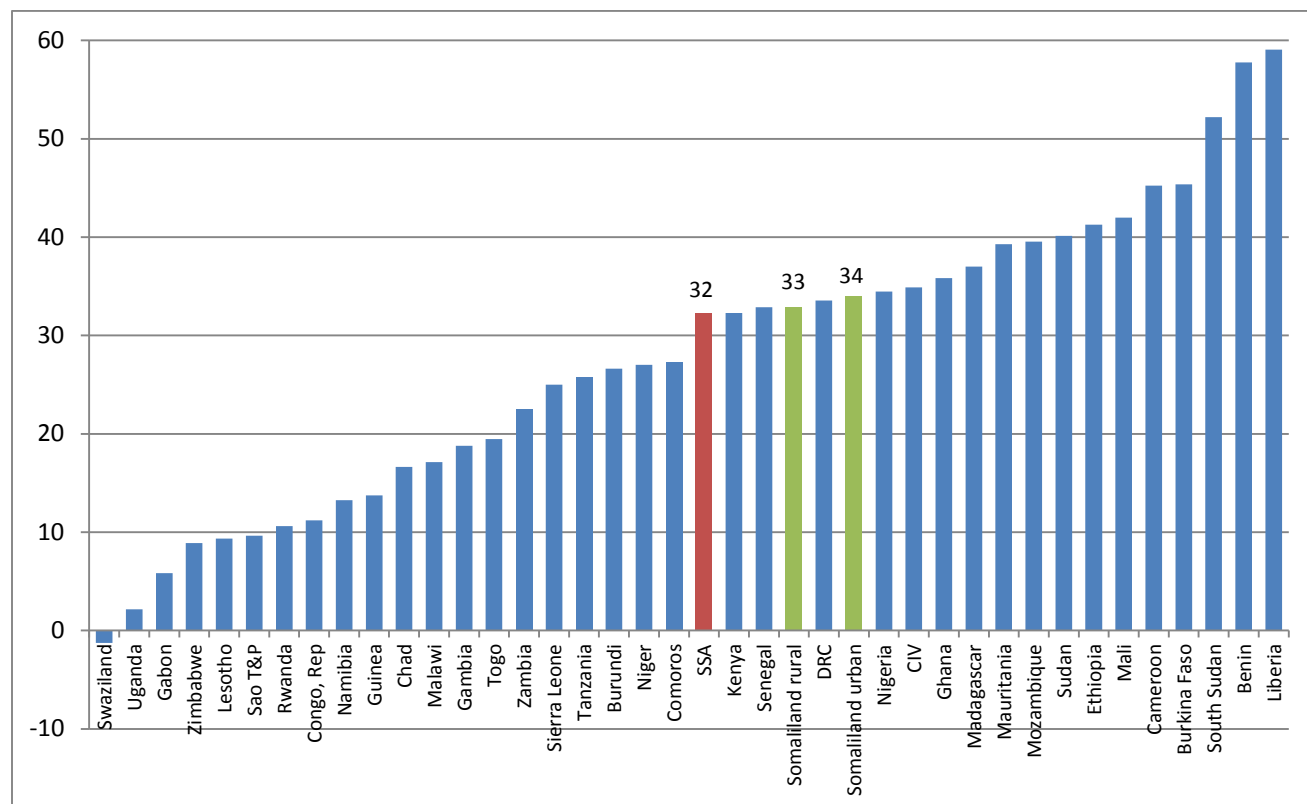
Figure 39: Out-of-school rates for school-age children (ages 6-17), by poverty status and location (%)



Source: Authors' calculations using SHS 2013 data

168. **The educational enrollment gap between the rich and the poor in Somaliland is almost exactly the same as in sub-Saharan Africa at large, for both urban and rural areas.** The educational enrollment gap was 32% in sub-Saharan Africa as a whole, while the gap in Somaliland was 33% in rural areas and 34% in urban areas. This indicates that across sub-Saharan Africa, for every 100 children of primary age enrolled in primary school from the richest quintile, 68 were enrolled from the poorest quintile, compared to 67 from rural areas in Somaliland, and 66 from urban areas in Somaliland. The size of the gap in Somaliland is on par with the DRC, and considerably lower than other parts of sub-Saharan Africa affected by conflict, such as Mali and South Sudan. See Figure 11 below for more detail. However, the smaller gap between quintiles may be partially explained by the lower overall educational enrollment rates in Somaliland.

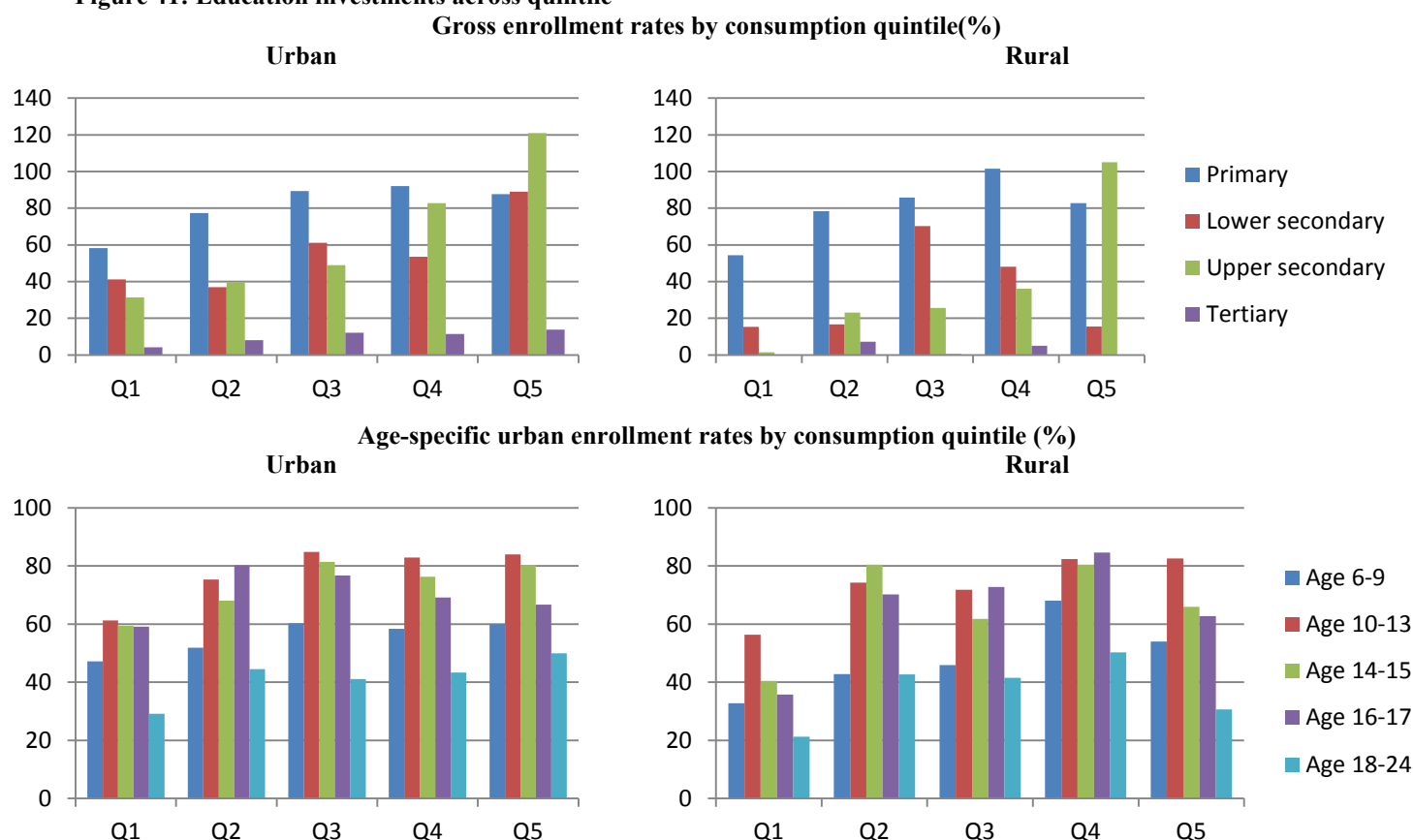
Figure 40: Regional comparison of gap between poorest and richest quintiles in terms of net primary enrollment rates (percentage)



Source: See Figure 1

169. **A general upward trend of enrollment rates is apparent across urban and rural consumption quintiles in Figure 12 below.** Both net and gross enrollment rates generally increased with consumption quintiles: from a 59% primary GER for the poorest urban quintile to a 88% primary GER for the richest urban quintile, and from 54% to 82% for the corresponding quintiles in rural areas. However, the highest primary GERs for urban and rural areas, both gross and net, were found in the 4th quintile. Meanwhile, tertiary enrollment rates look very different between urban and rural areas. In urban areas, gross tertiary enrollment rates increase from 4.2% in the poorest quintile to 13.7% in the richest quintile. However, in rural areas, the corresponding rates are 0% for both the poorest and richest quintiles, which points to the lack of opportunities for tertiary education in rural areas. With the exception of the poorest quintile, age-specific enrollment rates look fairly similar across consumption quintiles in urban areas. Although the poorest quintile exhibits lower enrollment rates for all age groups between 6 and 24, the remaining four quintiles are fairly similar in terms of enrollment based on age. Rural areas exhibit greater variation for all age groups, particularly for youth aged 16 to 17, for whom enrollment rates range from 36% in the poorest quintile to 85% in the 4th quintile.

Figure 41: Education investments across quintile



Source: Authors' calculations using SHS 2013 data

Gender and education

170. **Poverty coupled with gender differences greatly limits school enrollment for girls in Somaliland, with the ratio of male and female enrollment rates dropping to 0 for higher levels of schooling among poor households in both urban and rural areas.** Even at the level of primary enrollment, Somaliland has not yet reached gender parity, with girls attending primary school at roughly three quarters the rate of boys. In fact, girls have lower enrollment rates than boys for all categories except for the urban non-poor enrollment rate for lower secondary, where girls have a slightly greater enrollment rate than boys. Enrollment rate outcomes differ most significantly based on poverty status – whereas gender parity increases for non-poor girls in both urban and rural environments between primary and lower secondary school, it plummets for poor girls in both settings, dropping from 68 to 13 for poor girls living in urban areas, and from 71 to 0 for poor girls living in rural areas. By upper secondary, the Gender Parity Index is less than 20 for all girls except the urban non-poor, who actually approach gender parity at the tertiary level. See the table below for more details.

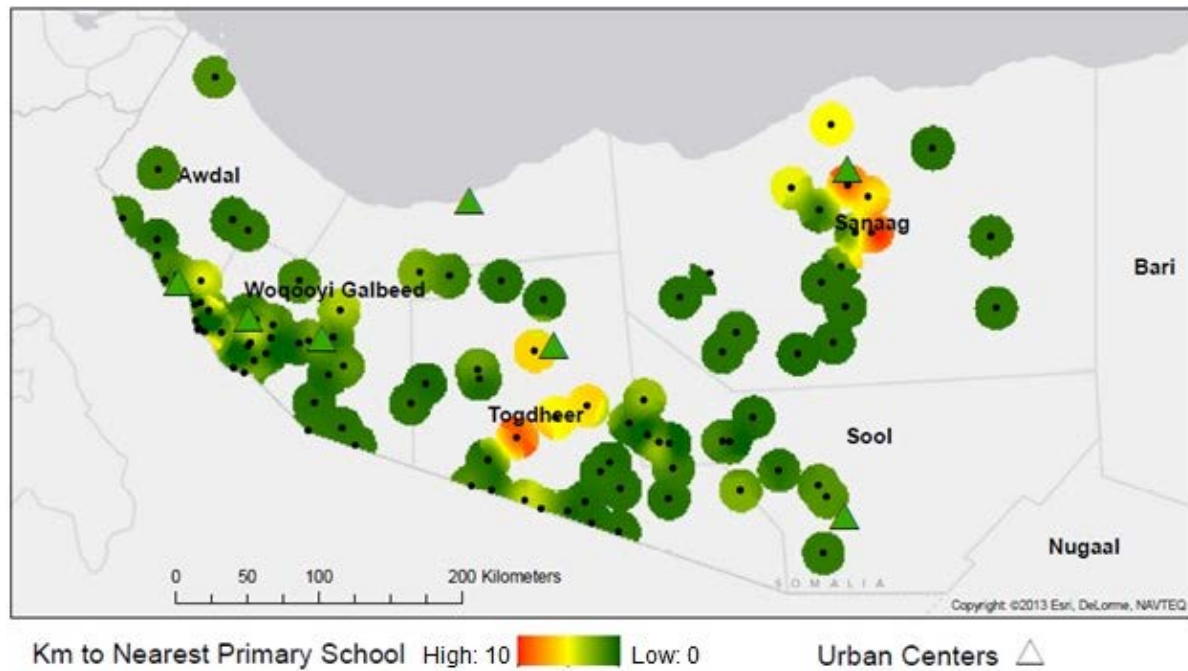
Table: Gender Parity Ratio (female gross enrollment divided by male gross enrollment)

	Urban		Rural	
	Non-poor	Poor	Non-poor	Poor
Primary	75.84 (0.05)	68.47 (0.20)	79.39 (0.07)	70.98 (0.13)
Lower secondary	111.63 (0.17)	16.86 (0.19)	92.60 (0.75)	4.17 (0.06)
Upper secondary	40.03 (0.09)	12.61 (0.11)	19.79 (0.12)	0.00 (omitted)
Tertiary	91.39 (0.21)	0.00 (omitted)	16.56 (0.17)	0.00 (omitted)

Access to education

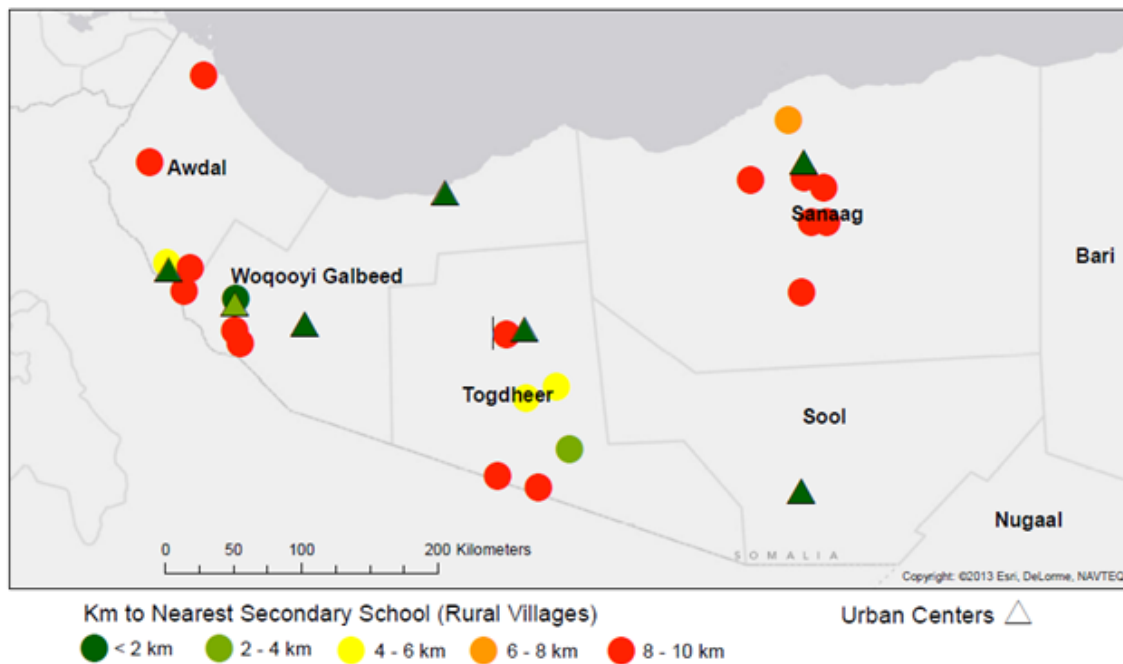
171. **More than 85% of individuals in urban Somaliland live less than 2 kilometers away from a primary school.** In rural areas, more than 88% of rural individuals live less than 2 kilometers away from a primary school (Map 1). In general, people living in urban areas had greater access to primary schools than those in rural areas, with 48% living within 0.5 kilometers of a primary school, relative to 36% of those in rural areas. Another 30% reported living within 1 kilometer of a primary school. However, distances to secondary schools in rural areas remain high (Map 2).
172. **Given the proximity of many children to school, it is surprising that enrollment rates are not higher, and that even small distances to school facilities appears to influence out-of-school outcomes for children of primary school age.** Distance from primary and secondary school remains a statistically significant predictor of the likelihood of being out-of-school. This can be seen visually in Map 3, in which lower enrollment rates are observed for those areas with lower access to schools. 37% of primary school-age children (ages 6-13) who lived between 1.1 and 2.5 kilometers away were out-of-school. Among primary-school age children who lived more than 2.5 kilometers away, the out-of-school rate was even higher, at 45%. Similarly, their primary gross enrollment ratio was somewhat lower, at 45%, relative to 53% for those less than 0.5 kilometers away. It is interesting that small distances seem to impact enrollment, perhaps indicating security concerns in the travel of children to and from school. However, very few individuals, only four across all schooling levels, cited “school too far away from home” as a reason for interrupting school. This issue deserves further investigation both to understand what constrains primary school enrollment given the apparent proximity of schools, and also why relatively small distances impact enrollment.

Map 1: Kilometers to nearest primary school



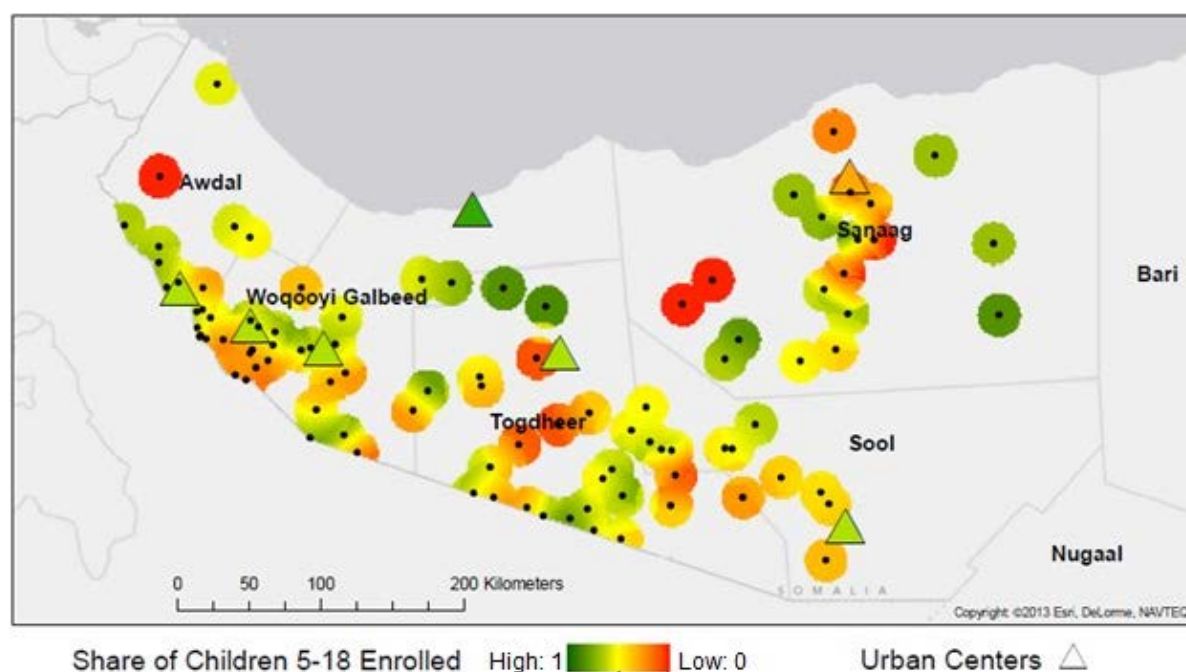
Source: Eubank 2014.

Map 2: Kilometers to nearest secondary school



Source: Eubank 2014.

Map 3: Share of children 5-18 enrolled



Source: Eubank 2014.

Drivers of schooling investments

173. **Econometric analysis on out-of-school status for primary school-age children (ages 6-13) finds that issues of gender, location, per capita expenditure, distance to primary school, dependency ratio, and shocks all play a significant role in determining the likelihood that children between the ages of 6 and 13 will be out of school.** Per capita expenditures have the largest correlation with the likelihood of being out of school, suggesting that poverty plays a large role in preventing children from attending primary school. Location is also important, with children from urban areas 8% less likely to be out of primary school than their rural counterparts, all else held equal. Gender dynamics are also at play, with girls 7% more likely to be out of primary school relative to boys. Distance to primary school significantly increases the likelihood of being out of school with all else equal, as do higher dependency ratios: a high dependency ratio indicates more children, which likely stretches the resources of parents further, reducing the opportunity for a given child to attend school. See Table 5 in the appendix for detailed regression results.
174. **For secondary school, gender, location, per capita expenditure, distance to school, wage work, the number of male children in the household, and the dependency ratio all played a significant role.** While female children of primary school age are 7% more likely to be out of school than their male counterparts, gender plays an even larger role for secondary school students, with girls 11% more likely to be out-of-school than boys between the ages of 14 and 17. Children from urban households are also less likely to be out of school than their rural counterparts at the secondary school level. Distance to secondary school is a significant issue in school attendance, even more so than at the primary school level. The impact of distance is further magnified by gender, with girls more likely to be out of school than boys when faced with distances of 2.5 kilometers or more, possibly pointing to issues of safety for girls on their way to school. Furthermore, children of secondary school age are deterred from school attendance by wage work. A higher number of male children decreased the

likelihood of being out of secondary school; however, the dependency ratio increased the likelihood of being out-of-school at the secondary school level. This is likely due to the additional costs (including opportunity costs) associated with attending secondary school.

175. **Among children and youth between the ages of 6 and 24 reporting interruptions to schooling, financial constraints and interest were reported as the primary reasons for having had to interrupt their schooling.** Only 11% of those out-of-school reported having had to interrupt their education before reaching the level desired. Among those, 27% reported the reason for interruption as financial constraints, while 30% stated either lack of interest or being too old as their reason for interruption. Other issues included marriage, work-related interruptions, conflict, and educational access/quality.
176. **After financial reasons and interest, marriage/pregnancy was the third most common reason reported for dropping out of school.** Marriage and/or pregnancy account for 22% of all reasons given for dropping out of school, or more specifically, interrupting schooling prior to reaching the level desired (as per the question phrasing in the Somaliland Household Survey). This is in keeping with the early age of marriage for women in the region – according to the 2011 MICS survey conducted by UNICEF, 31% of Somali women were married before the age of 18. This has fallen from an estimated 45% in 2006, but is still very high. Interestingly, while more of the individuals who reported interrupting their education for marriage/pregnancy were women, 45% were men, indicating that the demands of a family may propel men into the workplace and out of the educational system at an earlier age.

4. The incidence of private and public spending on education in Somaliland

4.

1.

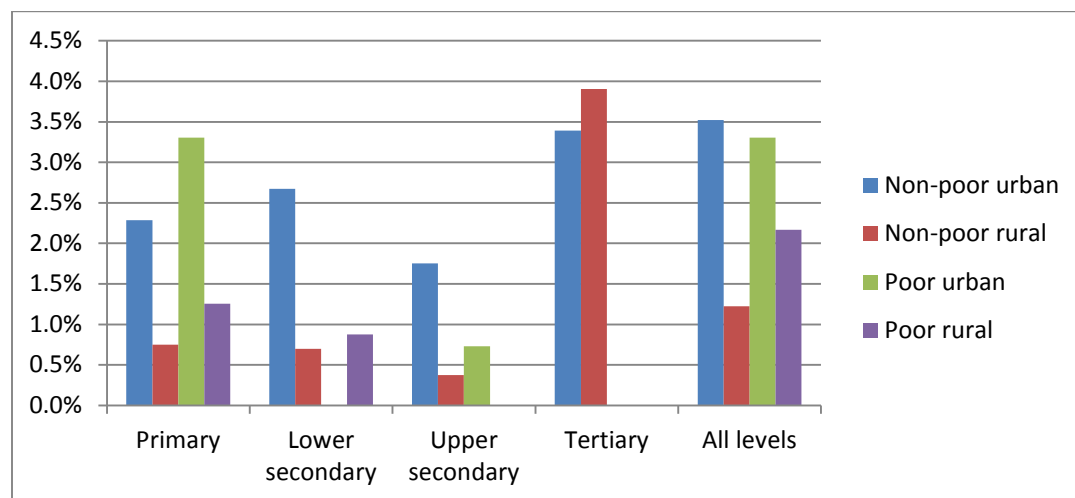
1.1.

177. **There is some evidence that financial constraints limit the amount households invest in the education of their children in Somaliland.** In this section, we examine spending on education by households and also by the state. We assess the out-of-pocket expenses of households on education and the incidence of government investments in education.

Household spending on education

178. **Educational expenses in general do not comprise a large share of average monthly non-food expenditures for households in Somaliland, both poor and non-poor.** Average monthly household spending on education as a percentage of monthly household non-food expenditures was slightly higher for households living in urban areas at the primary level, regardless of poverty status. However, for the lower secondary and tertiary levels of schooling, non-poor households report spending a greater percentage of their monthly non-food expenditures on educational expenses. This difference is most noticeable for the tertiary level, where poor households in both rural and urban areas spend 0% of their non-food expenditures on educational expenses, relative to 3.4% spent by non-poor households in urban areas, and 3.9% spent by non-poor households in rural areas. This may point to the inability of the poor to pay for tertiary education, regardless of whether they live in urban or rural Somaliland (Figure 13).

Figure 42: Average spending on education as a percentage of total non-food household expenditures

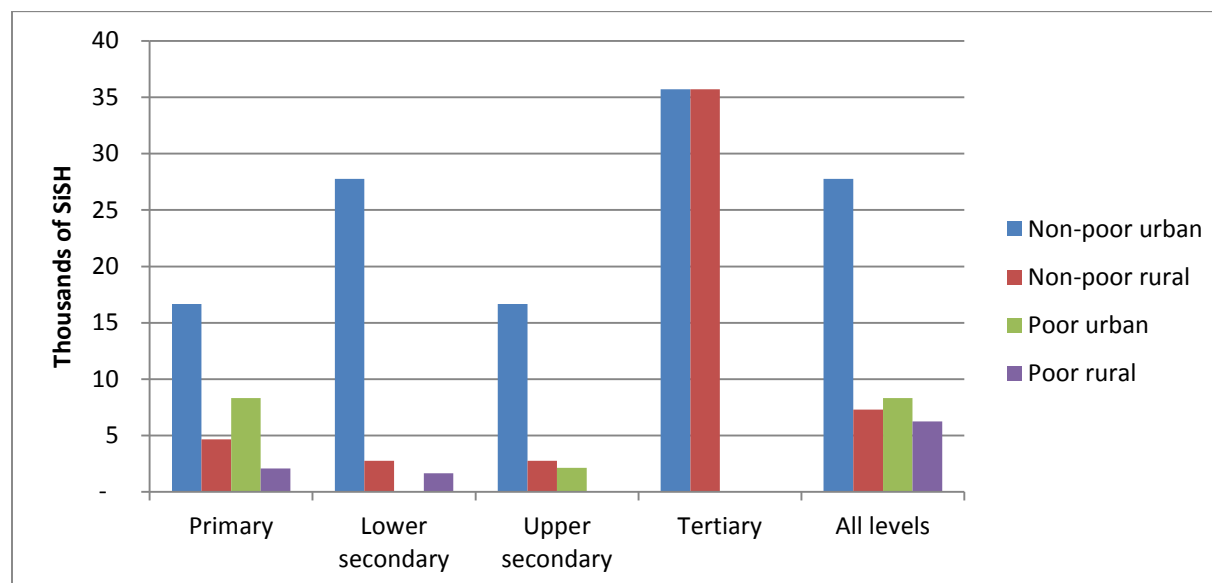


Source: Authors' calculations using SHS 2013 data

179. **Rural households have fewer educational expenses than urban households for primary school.** For primary school, the median poor urban household spent 8,000 Somaliland Shillings per month per student, compared to 5,000 Shillings per month per student for spent by the median non-poor urban household. However, for lower secondary and tertiary school levels, educational expenses for poor households in both rural and urban areas decreased significantly, likely due to a lack of access (Figure 14). Poor rural households did not have any monthly expenditures whatsoever for upper secondary and tertiary school levels, while poor urban households did not have any monthly

expenditures for lower secondary and tertiary school levels. In contrast, non-poor urban households spent a median of 28,000 Shillings per month per student on lower secondary, 17,000 on upper secondary, and 36,000 Shillings on tertiary schooling. This reflects the fact that non-poor households are much more likely to enroll their children in higher levels of schooling, but it may also reflect a higher propensity to enroll children in private schools.

Figure 43: Median household expenses per student per month (1,000 Somaliland Shillings)



Source: Authors' calculations using SHS 2013 data

Public spending on education

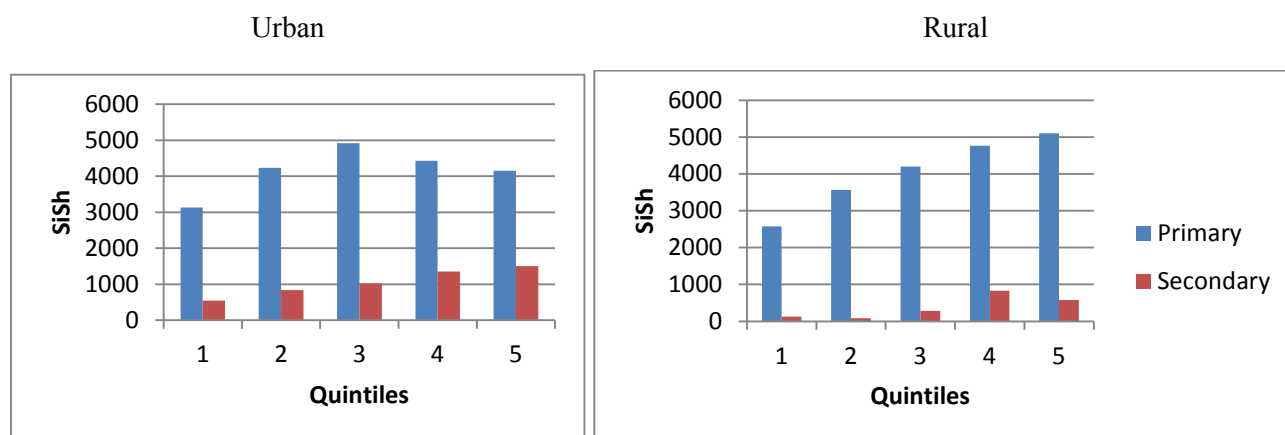
180. **Public expenditure on education as a share of Somaliland's GDP in 2012 was approximately 3.3 percent; relative to a GDP of USD \$1.4 billion, the Ministry of Education spent roughly USD \$46.6 million on education.** While this is lower than the share of education expenditure found in a number of sub-Saharan African countries, Ministry of Education expenditures have more than tripled since 2009, when public expenditure on education was roughly USD \$13.2 million. The Government of Somaliland predicts a similarly positive trend for future expenditures: their estimate for Ministry of Education expenditures for 2014 was approximately USD \$74 million. The following section examines enrollment across quintiles in order to identify the extent to which the poorest households were able to benefit from these increasing public expenditures on education.

181. **Based on the Somaliland National Development Plan (2012-2016), it is estimated that 204,250 students were enrolled in primary education and 41,365 students were enrolled in secondary education during the 2012-2013 academic year.** Meanwhile, expenditures reported by the Ministry of Education in 2010 come to 44,339,953,103 Somaliland Shillings. Public expenditure per student thus comes to 180,526 Somaliland Shillings, or approximately USD \$251 per student. Disaggregating public expenditures on education into expenditures for primary and secondary schooling, we find that public spending on primary school greatly exceeds spending for secondary school. In 2012, the Ministry of Education requested 6.35 times more funds for primary school relative to secondary school. We use the percentages from this budget request to calculate the average spending per student at each level, which

was 224,922 Somaliland Shillings per primary student, and 166,762 Somaliland Shillings per secondary student. Households in Somaliland have an average of 1.78 primary students, relative to .44 secondary students, or less than 1 secondary student in every 2 households.

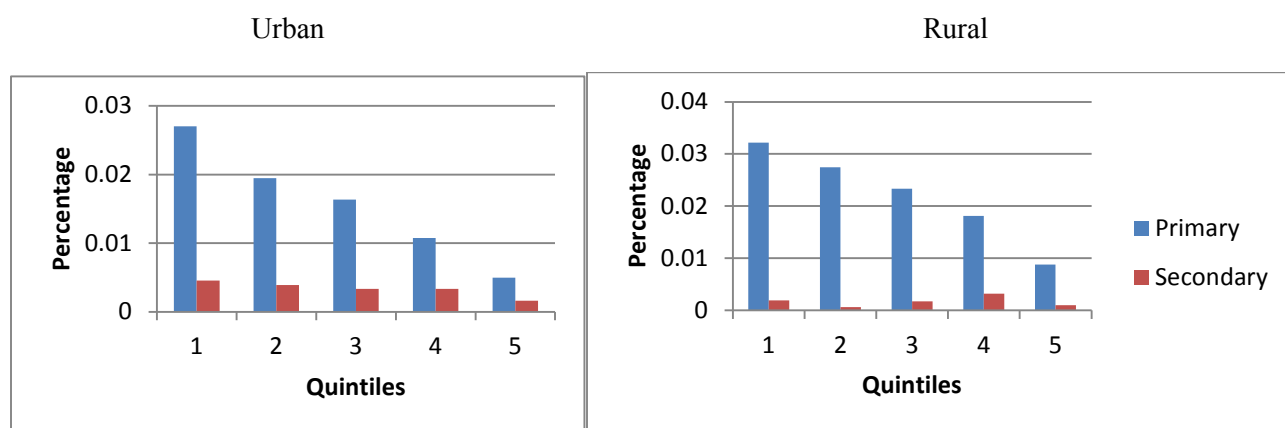
182. **The low rates of enrollment documented among children living in poor households in rural areas results in a pattern of education spending that is strongly regressive in absolute terms in rural areas and mildly regressive in absolute terms in urban areas.** Households in the top quintile in rural areas receive more than double the spending on primary and secondary education than do households in the bottom quintile (Figure 15). In urban areas, higher rates of enrollment among lower quintiles result in a pattern of spending that is less regressive, however overall spending is still regressive in absolute terms in urban areas.
183. **The regressivity of spending on education in absolute terms is in contrast to spending on education in many other countries and further underscores the need to improve enrollment rates among those in lower quintiles.** In Ethiopia, absolute spending on education is progressive in both rural and urban areas (World Bank 2014) on account of much higher enrollment rates in rural areas among lower quintiles. Addressing barriers to investments in schooling among poorer households, particularly in rural areas, is needed to ensure that spending becomes more equitable.
184. **Although absolute spending is regressive, the share of spending received by poor households is a higher proportion of consumption than spending received by rich households.** Relative public spending on primary school is progressive for both urban and rural areas, with the lowest quintiles receiving several times as much public spending as the highest quintiles (Figure 16). The trend is consistent across the quintiles in both urban and rural areas, with public spending decreasing steadily as one moves up the distribution.

Figure 44: Absolute public spending on primary and secondary school, by quintile



Source: Authors' calculations using SHS 2013 data

Figure 45: Relative public spending on primary and secondary school, by quintile



Source: Authors' calculations using SHS 2013 data

5. Education, labor market outcomes, and welfare

2.

185. **Many factors affect the occupation choice and income of households, and education is an important determinant of this choice.** This section examines the degree to which education is correlated with labor market outcomes and what we can infer from this about the relationship between education and poverty status. While it is not possible to assign causality to the relationship between education, labor market participation, and poverty from this description, it does provide an indication of the benefits of education, and conversely the cost of not investing in education.

186. **Labor force participation and employment increases as education increases in both urban and rural Somaliland.** Figure 17 shows that employment rates increase substantially when an individual has education. The largest increase in employment in rural areas is for those that have some secondary schooling, while in rural areas the largest increases is between having no education and some primary education. This suggests that the returns to primary education are higher in rural areas and the returns to secondary education are higher in urban areas. Rates of employment fall slightly for those with some secondary education in rural areas, but given the lower rates of individuals with secondary education, the estimate of the employment rate among this group is probably quite imprecise and may not be significantly lower than the employment rate among those with some primary education.

187. **The Somaliland Poverty Profile (World Bank 2014) found that poverty rates are lower among those with employment, particularly compared to those that are unemployed or discouraged, emphasizing the importance of increasing employment rates.** Poverty rates among the unemployed are 5 and 21 percentage points higher than poverty rates among the employed in urban and rural Somaliland respectively. Education alone is not enough to increase employment rates – policies to increase demand for labor are also needed – but Figure 17 underscores the important role that education can play in increasing labor income and the welfare of poor households.

Figure 46: Education and labor outcomes



6. Conclusions

3.

188. **For all of the educational indicators discussed in this report, Somaliland generally lags behind other parts of sub-Saharan Africa.** The percentage of working-age adults with no formal education is nearly double the average for sub-Saharan Africa, while out-of-school rates are higher than for many countries in sub-Saharan Africa. On the one hand, Somaliland has been able to achieve impressive access to education, given the ongoing conflict, fragility, and insecurity of life. On the other hand, in order to move forward, Somaliland will need to improve its education sector, particularly with regards to access and attainment for its more vulnerable and less advantaged populations.
189. **Across educational indicators, rural Somaliland routinely suffers from inferior educational access relative to urban Somaliland.** Primary completion rates are the most dramatic example, with rates in rural Somaliland lower than in all but two countries in sub-Saharan Africa. Lower access is particularly pronounced for poor households in rural areas. For example, the out-of-school rates shown in Figure 10 look relatively similar for the urban poor and non-poor as well as the rural non-poor, at all levels of education. However, they are dramatically higher for the rural poor, and rise further for each higher level of education. Increasing educational access for poor children in rural areas is therefore a key element of developing an improved education sector in Somaliland.
190. **Financial constraints appear to be key barrier to enrollment.** Household expenditure was more strongly related to a child being in school than any other household characteristic. In addition, the main reason cited for dropping out of school was financial constraints. This may be in part due to out-of-pocket costs, but may also be a result of the high opportunity cost for poor households of children being in school and thus not participating in family work. Conditional cash transfer (CCT) programs, in which families are provided with small cash incentives in exchange for sending their children to school, have been proven to be successful in increasing enrollment rates for children in developing countries (Rawlings & Rubio 2005). Another common educational incentive is a school feeding program, providing children with meals during school hours. However, if the enrollment rates are low due to a lack of quality supply, incentive programs will not resolve the existing issues.
191. **Gender plays a crucial role in determining educational access in Somaliland, and its impact is heightened when linked with poverty, in both urban and rural areas.** Ensuring that girls have equal opportunity to attend primary school, and retaining equal levels of enrollment through secondary and tertiary school is crucial to empowering women and improving the overall development of Somaliland. Gender-targeted programs are needed in order to increase the educational attainment of women in Somaliland. Interventions that enable girls to feel safe attending school, such as increasing the supply of female teachers, could help both girls and their parents to feel more comfortable with continuing their education, particularly beyond primary levels could be helpful.
192. **One of the striking findings of this study is that although enrollment rates are low, households report living in close proximity to primary schools. And although distances to schools are small, they still dissuade attendance.** Further work is needed to determine whether physical access is indeed as good as suggested, and what factors constrain investments in education in Somaliland given relatively good access to schools. Enrollment falls quite rapidly as the distance from the household to the nearest school increases. This may indicate concerns around safety of children during travel to and from school, and it is notable that the impact of distance on enrollment is larger for girls than for boys. A transportation program could help to address this issue. A recent impact evaluation of a program instituted in the state of Bihar in India that provided bicycles to girls who continued to secondary school found that the program increased girls' enrollment in secondary school by 30% (Muralidharan &

Prakash 2013). The program also reduced the gender gap by 40%, and was credited with improving the safety of girls during their school commute.

193. **Overcrowding and/or low quality may also constrain attendance in schools and would need to be taken care of.** Given that the numbers of over age children are extremely high for both urban/rural areas and for both boys and girls, overcrowding and problems related to different age groups attending classes on the same grade level, might be an issue, particularly at the primary school level. Ways of improving education quality and the overall quality of the school experience could also be explored.
194. **Somaliland has devoted considerable resources to the education sector in recent years; however, policies that increase enrollment among poorer children are needed to ensure that the increased government spending is pro-poor.** Ministry of Education expenditures more than tripled between 2010 and 2012, bringing the percentage of public expenditures on education to approximately 3.3% of Somaliland GDP. While this is a move in the right direction, many governments in sub-Saharan Africa devote a greater percentage of their GDP to public education expenditure. Their example can serve as a useful target for Somaliland in future years. In addition, in contrast to other economies, absolute spending on education is regressive in Somaliland, in that a larger share goes to richer households than to poorer households. This reflects the fact that enrollment rates are lower among poorer households and points to the need for policies to increase enrollment rates for the poorest.
195. **This profile has provided a first analysis of education in Somaliland, however it has been limited by lack of data. Education data for Somaliland is limited, both in the scope of survey questions as well as in terms of representativeness at higher levels of disaggregation (such as regional and district levels).** The data from the 2013 Somaliland Household Survey on which this profile is based is limited by a number of factors, particularly with regards to sampling and questionnaire design. A greater breadth of survey questions on education, including retention, grade repetition, types of schools (public/private/religious), and so on would be helpful. In addition, more information on schools themselves could be collected through a school survey. For example, high-quality data that could shed light on the role of private sector education providers would be useful in helping the government determine if and how public vs. private school leads to differing outcomes in educational attainment. Overall, improved data collection going forward, perhaps with technical assistance from international or regional experts in data collection processes, could go a long way towards providing the government of Somaliland with the detailed data needed in order to create better-informed policies on education.

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Annex 1: Poverty Measurement in Somaliland

Drawn from “Amendola, Vecchi, and Hill (2014), Poverty Measurement in Somaliland, World Bank PREM with additional input from Utz Pape (Economist, GPVDR)

1. Introduction

Estimating monetary poverty rates for the first time requires both the development of a methodology that can be used in future years (and also in constructing comparable poverty estimates for Puntland and South Central Somalia). Developing a methodology requires deciding how to construct the food and non-food consumption aggregates, how to create spatial price deflators, how to determine the consumption value derived from assets, and what process to use to construct the food and absolute poverty lines.

In this annex we set out a methodology for estimating poverty in Somaliland. Given this is the first time poverty has been estimated in recent years, we focus on providing a step by step description of how household survey consumption data can be handled and analyzed to provide an estimate of poverty. We apply this methodology to the SHS 2013 to construct a first estimate of poverty for rural and urban Somaliland.

The approach described in this methodological annex is a cost of basic needs approach that has been used in many other countries in establishing national poverty lines and poverty estimates. An individual I is classified as poor if

$$(1) \quad x_i = \frac{x_h}{(SPI_h)(n_h)} \leq z$$

where x_h is the nominal household expenditure, SPI_h denotes a spatial cost-of-living index, n_h is the household size, and z is the poverty line.

The methodology used in implementing this approach is in line with the methodology proposed in Deaton and Zaidi (2002). At each stage of the process the methodology has been developed in a transparent and logical manner that will allow poverty rates to be calculated in exactly the same manner when future survey data becomes available. By establishing a transparent method and related programming files, comparable poverty rates can also be readily constructed for Puntland and South-Central Somalia when data becomes available for these households.

The methodology pursued in the construction of the poverty line has kept rural and urban Somaliland separate. There is no recent census for Somaliland so sampling households for the household survey was challenging. Two separate sampling frames were used in urban and rural areas. The frames relied on identified settlements, which meant that tracking nomadic or pastoral families in the survey was not possible and our results are not representative of these populations.

In urban areas, the list of enumeration areas developed for the UNFPA census (ongoing at the time of the survey) was used to sample urban survey sites. This allowed accurate estimates of weights to be established in urban areas. In rural areas no such list existed and sampling of survey sites was based on the most recent voter registration database. As a result our estimates of rural weights are less accurate. In addition, without a clear idea of what share of Somaliland households live in rural areas it is not currently known how to aggregate the rural and urban samples to provide accurate statistics for Somaliland as a whole. While it is often desirable to define a single poverty line and draw a poverty profile based on it, this does not seem a viable option in the case of Somaliland due to the limitation in the sampling.

The rest of this annex is organized around equation (1). Section 3.1 describes the construction of the nominal consumption aggregate x_h . Section 3.2 deals with the spatial price index, while section 3.3

illustrates the transformation of household nominal expenditures into individual real expenditures. The nature of the consumption distribution is discussed in Section 4. The estimation of poverty is discussed in Section 5. First, we provide more information on the SHS.

2. Data: Somaliland Household Survey

Preparations for the first Somaliland Household Survey (SHS) began in October 2012. Somaliland does not have a census-based frame to use for designing a representative sample survey, and this presented a critical challenge to sample design. Many surveys rely on a UNDP population survey of villages from 1990 identifying clusters (primary sampling units, PSUs). This and several other sources were considered for identifying PSUs: a water point survey (see Figure 1), the most recent voter registration database, and the UNFPA cartographic and enumeration area definitions in urban areas that was being used for the census being completed at the same time. The final decision consisted in using the enumeration areas from the UNFPA list as the PSUs for the urban component of the survey, and the most recent voter registration database as the frame for the rural areas. In both urban and rural areas, a full household listing was conducted in the selected PSU, and households to be surveyed were sampled from this list. Given the boundaries of PSUs were not defined in the polling station data, a cartographic exercise was also conducted in rural areas to establish the PSU boundaries prior to listing. More details on the selection of the sampling frame and the listing methodology used can be found in Kimetrica (2013).

Neither the nomadic or pastoralist part of the population nor the Internally Displaced Persons (IDP) settlements were included in the survey, due to technical difficulties with sampling in the absence of a sampling frame. Any pastoral or IDP households that were listed and sampled during survey work were interviewed and their status recorded. However, very few pastoral or IDP households were surveyed, underscoring that the survey is not representative of these populations. The survey should thus be interpreted as representative of the settled Somaliland population in urban and rural areas, and the results from the survey interpreted accordingly.

Although the most appropriate sampling frames were selected in urban and rural areas, limitations posed by the sampling frame in rural areas, makes the calculation of weights in rural areas more problematic than in urban Somaliland. The use of UNFPA census enumeration areas in urban Somaliland allows accurate weights to be calculated for urban areas. There were apparent inaccuracies in some of the counts of eligible voters in the polling stations in the voter registration database. This causes the following problems for constructing rural and national weights:

1. Without a clear idea of the proportion of rural households covered in the voter registration database, it is not possible to aggregate the urban and rural samples.
2. Furthermore, if inaccuracies in the voter registration data are systematic across rural Somaliland, the rural weights may be biased towards certain types of areas or households.

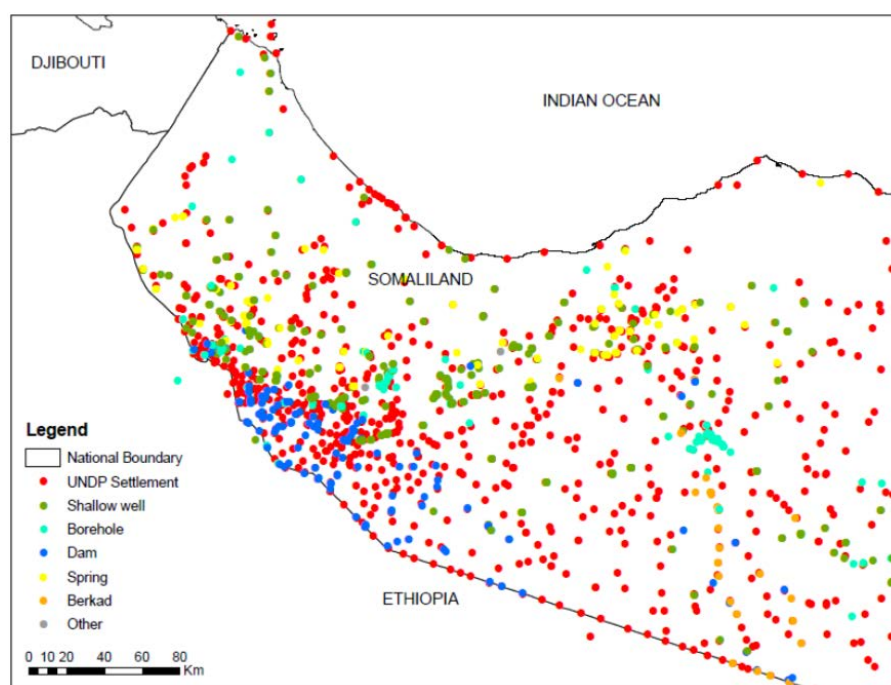
In addition security concerns in the Eastern parts of Sool, Sannag and Sahil zones prevented the survey from being conducted in these rural areas. Whenever a PSU had to be replaced, the nearest safe PSU from the same clan was selected. However, the security concerns were such that in some cases the replacement PSU also had to be replaced. In order to avoid the replacement of insecure PSUs becoming overly burdensome, the Field Coordinator reviewed the rural polling stations in these areas and indicated which ones had security problems. These were dropped from the. In the end, 68% of the polling stations in these zones were considered to be areas prone to security problems and the frame in these regions was narrowed to 82 polling stations. These adjustments have been accounted for in the weights but the sampled PSUs in these zones are unlikely to be representative of the average settlement in these areas. Figure 2 maps the survey sites.

Stratification was introduced by defining three *strata*: (1) Hargeisa, the capital, (2) “other urban” areas (comprising regional centers, Gabiley, Bakhi and Sheek), and (3) rural areas. A practical sample allocation was agreed upon by Kimetrica and the World Bank allowing for 50% rural and the remaining 50% to be allocated 33.3% to Hargeisa and 16.7% to the “other urban” stratum¹⁸. The allocation of sampling units to strata is always a choice variable and this allocation was chosen to maximize the power of urban-rural comparisons.

The sample size was set at 192 clusters, with 9 households, for a total of 1,728 households (secondary sample units, SSUs). In December 2012 a three-day pilot survey was carried out in Gobanimo (Hargeisa) and Xuushalay (Gabiley), as documented in Kimetrica (2013b). The survey went to the field at the end of January 2013.

The dual sampling mechanism, and concerns about the accuracy of rural weights and their comparability with urban weights, suggests that a more appropriate approach to poverty analysis is to produce results separately by urban and rural areas using the available weights (where the former is defined as the combination of two strata, namely Hargeisa and “other urban”), and to be cautious about the rural estimates. While it is often desirable to define a single aggregate poverty line and draw a poverty profile based on it, this does not seem a viable option in the case of Somaliland.

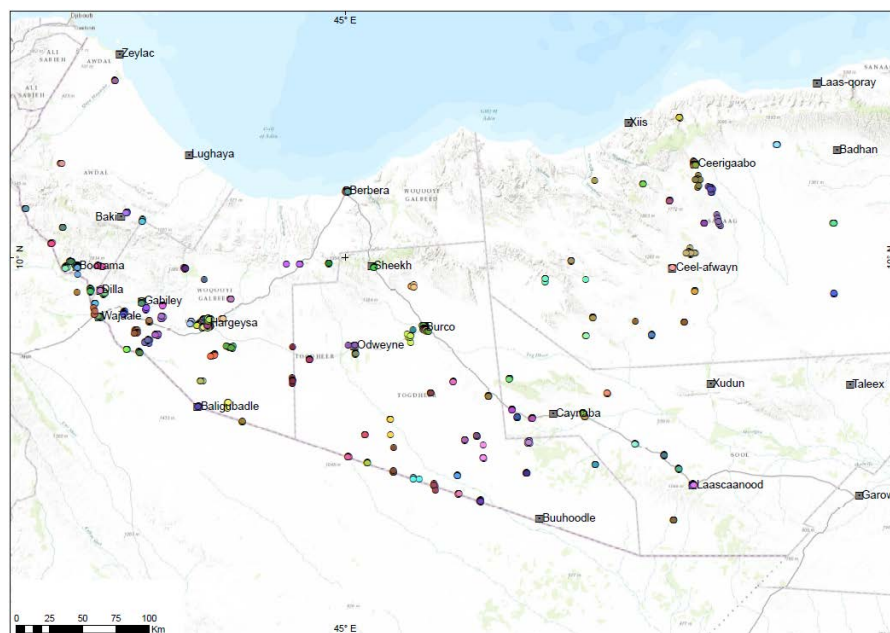
Figure 1 – UNDP settlements and watering points



Source: Kimetrica (2013): figure 1, p 9.

¹⁸ Kimetrica (2013) provides the details on how the sampling difficulties were surmounted.

Figure 2 – Location of households included in the Somaliland Household Survey 2013



Source: produced by Kimetrica.

3. The Consumption Aggregate

3.1 The nominal consumption aggregate

The *nominal* household consumption aggregate is the sum of three components, namely 1) expenditures on food items, 2) expenditures on non-food items, and 3) the value of the consumption flow from durable goods:

$$(2) \quad x_h = x_h^{food} + x_h^{non\ food} + cf_h$$

3.1.1 Food consumption

The 2013 SHS questionnaire provides information on household consumption for 110 food items. For each item, households are asked to report their expenditures during a typical week (7 days) [question B05] and the average quantity consumed during the same week [question B03]. The questionnaire also provides the breakdown of food consumption, by purchases, self-production, and transfers and gifts [questions B04, B06 and B07, respectively]. Figure 3 illustrates.

Figure 3. Module for food consumption in the 2013 SHS.

DATA ENTRY LINE NUMBER	In a typical week (7 days), do you or others in your household consume any [...]? INCLUDE FOOD BOTH EATEN COMMUNALLY IN THE HOUSEHOLD AND THAT EATEN SEPARATELY BY INDIVIDUAL HOUSEHOLD MEMBERS.	B01 1=Yes 2=No>>Next item	B02	B03 How much in total does your household consume in a typical week?	B04 How much comes from purchases?	B05 How much do you spend?	B06 How much comes from own-production?	B07 How much comes from gifts and other sources?	
		ITEM CODE	QUANTITY	UNIT	QUANTITY	UNIT	S15h	QUANTITY	UNIT
1	Cereals, Grains and Cereal Products								
2	Paddy		101						
3	Rice, husked		102						
4	Green maize cob		103						
5	Maize, grain		104						
6	Maize, flour		105						
7	Millet, grain		106						
8	Millet, flour		107						
9	Sorghum, grain		108						
10	Sorghum, flour		109						
11	Wheat, grain		110						
12	Wheat, flour		111						
13	Barley and other cereals		112						
14	Bread		113						

Source: 2013 SHS questionnaire.

Question B03 (“How much in total does your household consume in typical week”) is our starting point to estimate x_h^{food} in equation (2). Question B03 provides information on consumed quantities but not on the corresponding expenditures. As a consequence, we must estimate the market values corresponding to items in question B03. We do so by calculating the *unit value* uv_j^h for commodity j and household h :

$$(3) \quad uv_j^h = \frac{x_j}{q_j}$$

where the numerator is from question B05, and the denominator corresponds to question B04 (Figure 2). To make our estimates more robust to the presence of outlying values, we take the median unit values within each cluster¹⁹:

$$(4) \quad \widehat{uv}_j^h = Median(uv_j^h) = Median\left[\frac{x_j}{q_j} \middle| j \in cluster\right]$$

The value of the weekly consumption of commodity j for household h is then calculated by multiplying the quantity q_j reported in question B03 by \widehat{uv}_j^h in equation (4):

$$(5) \quad x_h^j = Median(uv_j^h) \times q_j$$

In the case of Somaliland, equation (5) cannot be directly estimated, due to the multiplicity of measurement units used to record consumed, produced and purchased quantities. The SHS questionnaire allows respondents to use 35 measurement units (Figure 3). A first set of units are standard *metric measures* (kilograms, grams, liters, etc.) that can be converted in kilograms by means of standard equivalences; a second set includes *non-metric* measurement units that include baskets, bunches, cups, “small” and “large” bags, “small” and “large” pieces, but also “animal shoulders” or “animal thighs” (Table 1). These units clearly require special treatment. In particular, they must be converted into metric measurement units for a

¹⁹ We use clusters with 3 or more households. If the median unit value for commodity j at the cluster level is missing, we adopted a hierarchical imputation algorithm that moves to larger geographical areas.

number of reasons. Firstly, if we want to price household consumption consistently we need to convert all reported quantities into a common measurement unit in order to apply the appropriate unit value. Otherwise, the risk is to price *kilograms* of bread with inconsistent unit values, e.g. the one for a *basket* of bread or vice-versa. Secondly, most methods for estimating the poverty line require the analyst to calculate the kilocalorie intake at the household level²⁰. This can be done only after consumed quantities have been expressed in terms of a common metric measurement unit. Thirdly, the assessment of the incidence of undernutrition and/or malnutrition requires knowledge of the distribution of calorie intake as well as of other macronutrients. For both purposes conversion to metric measurement units represents a necessary condition.

Figure 4. Units of measurements in the Somaliland Household Survey

<u>CODES FOR UNIT:</u>	
KILOGRAMME	1
GRAM	2
LITRE	3
MILLILITRE	4
1 Litre TIN. (about 1 KG)	5
500 ml TIN.	6
250 ml TIN.	7
BASKET	8
PAIL (LARGE)	9
PAIL (SMALL)	10
BUNCH (LARGE) . . .	11
BUNCH (MEDIUM)	12
BUNCH (SMALL) . . .	13
PIECE (LARGE)	14
PIECE (SMALL)	15
CUP	16
TIN	17
TEASPOON	18
Pile	19
Tomato paste can .	20
LARGE BAG (50KG)	21
SMALL BAG	22
HALF	23
QUARTER	24
ANIMAL BACK	30
ANIMAL SHOULDER	31
ANIMAL LEG	32
ANIMAL THIGH	33
ANIMAL RIBS	34
ANIMAL HEAD	35

Source: SHS 2013 questionnaire.

According to Table 1, the sample contains 26,739 transaction-level records: 64.1% are expressed in standard metric units, while the rest is measured in pieces (14.7%), bunches (10.2%), cups (4.3%), but also animal backs, shoulders, heads (these are the “other units”). How can we convert pieces, bunches and bags into kilograms?

²⁰ This holds true for the cost-of-basic need method, but also for the so-called food-energy-intake method. See Ravallion and Bidani (1994).

Table 1 – Types of measurement units for food items

Measurement Unit	Freq.	Percent
Metric units	17,142	64.1
Piece	3,929	14.7
Bunch	2,727	10.2
Other units	1,451	5.4
Cup	1,142	4.3
Bag	317	1.2
Pail	28	0.1
Basket	3	0.1
Total	26,739	100.0

Source: SHS 2013.

Does a bunch of rice equal a bunch of bread? Does a piece of bread weigh as much as a piece of meat? The same measurement unit, reported under the same name (e.g., “small basket”), may correspond to different weights, depending on the food item and/or on the respondents’ interpretation.

One solution to this problem is to rely on *a priori information*, often identified in consultation with local experts. Once it is decided, for instance, that a “cup” corresponds to 250 grams, this equivalence is then applied to all food items recorded in terms of cups. In some (relatively rare) circumstances, this solution is an inevitable step. In general, it is not clear, however, that a cup of rice and a cup of milk should be assigned the same value (in terms of kilograms) by the analyst. One can argue that unconventional unit measures are instead item specific. In the case of Somaliland the use of *a priori conversion factors* would put at risk the precision of the consumption aggregate, as it involves approximately one third of the expenditures sample (Table 1). A back-of-the-envelope calculation suggests that the size of the error might well be up to 20-25% of the total consumption aggregate.

In this annex we explore a different solution. We rely on a *set of estimated conversion factors* that can be calculated based on the expenditures reported by the households. The proposed methodology can be illustrated with an example.

Suppose that we observe – for the same food item – a certain number of household expenditures expressed in different units. For instance, we observe 220 expenditures for 1 (small) piece of onion and 783 expenditures for 1 kg of onion (Table 2). Let $uv_{kilo,h}^{onion}$ denote the *unit value* of 1 kg of onion based on purchases of households who bought onions in kilograms. Similarly, let $uv_{piece,h}^{onion}$ denote the unit value of onions based on purchases of households who bought onions in terms of small pieces. Let k_{onion}^{piece} denote the conversion factor between kilograms and (small) pieces of onion, *i.e.* 1 piece = k_{onion}^{piece} kilogram. Under the assumptions that (a) *pricing is linear*, (b) the *law of one price* holds true and (c) the quality of the onions consumed by the household are homogeneous, the market price of onions can be assumed to be randomly distributed around its mean, and independent of the measurement unit used by the respondents:

$$(6) \quad E_h[uv_{piece,h}^{onion}] = E_h[k_{onion}^{piece} \times uv_{kilo,h}^{onion}] = k_{onion}^{piece} \times E_h[uv_{kilo,h}^{onion}]$$

Equation (6) is key for solving the problem of converting non-metric units of measurement into metric units, as it provides a natural estimator for k_{onion}^{piece} .

$$\hat{k}_{onion}^{piece} = \frac{E_h[uv_{piece,h}^{onion}]}{E_h[uv_{kilo,h}^{onion}]}$$

In order to make the estimator less sensitive to outlier observations we use median values:

$$\hat{k}_{onion}^{piece} = \frac{Median_h[uv_{piece,h}^{onion}]}{Median_h[uv_{kilo,h}^{onion}]}$$

The above method can be generalized to deal with all non-metric measurement units found in Table 1:

$$(7) \quad \hat{k}_j^m = \frac{Median_h[uv_{m,h}^j]}{Median_h[uv_{kilo,h}^j]}$$

where j ($j = 101, 102, \dots, 917$) denotes the food item and m stands for the non-metric measurement unit under consideration ($m = 8, 9, \dots, 35$). Under the presumption that households have a good recollection of expenditures – we trust the unit values calculated in equation (5) – equation (7) estimates the pairwise equivalences between different measurement units. Note that equation (7) is *item specific*, that is, it allows the possibility that 1 cup of milk amounts to 0.3 liter, while 1 cup of tea equals 0.25 liter.

To clarify the method further, consider again the case of onions. According to the data, the median unit value for 1 “basket” of onions equals 0.5 (thousands of shillings), while the median unit value of 1 kg equals 5 (Table 2). Applying eq. (7), $\hat{k}_{onion}^{basket} = 0.1$, that is, we infer that for the households that reported the purchase of onions in terms of baskets, one basket was equivalent to 0.1 kg. Similarly, for the four households that purchased onions in terms of “medium bunches”, the conversion rate is $\hat{k}_{onion}^{bunch (medium)} = 0.250$, that is, one medium bunch equals a quarter of a kilogram.

Table 2 – Measurement units for onion

Measurement Unit	Median unit value	Obs.
	Eq. (4)	
Kilogram	5.000	783
Gram	0.008	321
Liter	3.500	2
1 liter tin	2.500	1
250 ml tin	3.786	2
Basket	0.500	1
Bunch (large)	0.571	1
Bunch (medium)	1.000	4
Bunch (small)	0.786	24
Piece (large)	0.714	74
Piece (small)	0.571	220
Tin	5.857	1
Total	4.000	1,434

Source: 2013 SHS.

Two major advantages are associated with the proposed method, namely 1) it lets the data decide the equivalences among units by a sort of revealed preference type of mechanism, and 2) it is easy to implement (the Stata code is available upon request from the Authors).

A reason for cautious application of the method comes from the fact that in the case of SHS metric units also show some inconsistencies. This is the case of one “gram” of onion: the empirical unit value of 0.008 implies, according to eq. (7), that $\hat{k}_{onion}^{gram} = 0.0016$, instead of the “true” value of 0.001. In these cases, we decided to follow the “true” metric conversion factors. More importantly, the practical implementation of the method is complicated by the fact that some items in the survey are *typically* purchased in non-standard units: for certain food items, we do not observe enough “metric” transactions to serve a basis for applying equation (7). For these items, the adoption of an a priori conversion factor is unavoidable.

We also note that an unavoidable side-effect of using this method is a reduction the variation in quantities of items produced that use unusual measurements, and in unit-value variation among goods reported in unusual units as a result.

Table 3 shows the distribution of the mean conversion factors among food items and its variance and provides evidence on the extent that measurement units depend on the specific food item it refers to: if the conversion factor was independent of the food item the standard deviation reported in column 3 would be 0. A conversion factor different from 0, indicates that the conversion factor is item-specific.

Table 3 – Distribution of the mean conversion factors for non-metric unit values

Measurement unit	Mean	Standard deviation	Obs.
Basket	0.48	0.59	175
Pail (large)	0.62	0.44	58
Pail (small)	0.75	0.38	26
Bunch (large)	0.55	0.40	26
Bunch (medium)	0.39	0.38	98
Bunch (small)	0.40	0.49	37
Piece (large)	0.37	0.40	695
Piece (small)	0.37	0.40	99
Cup	0.38	0.42	44
Tin	0.46	0.66	16
Teaspoon	0.28	0.40	35
Pile	0.12	0.08	4
Tomato paste can	0.36	0.39	261
Small bag	0.40	0.33	2
Half	0.36	0.53	5
Quarter	0.28	0.29	53
Animal back	0.25	0.43	132
Animal shoulder	0.10	0.07	5
Animal leg	0.20	0.32	14
Animal thigh	0.04	0.00	1
Animal ribs	0.22	0.06	3
Animal head	0.15	0.17	59

Source: our estimates on 2013 SHS.

3.1.2 Nonfood nondurable consumption

The 2013 SHS questionnaire collects information on consumption of 97 non-food and non-durable commodities and services. Module C includes non-food expenditures with a recall period of one week and one month, while modules D and E refer to expenditures on goods and services purchased in the last three- and twelve months respectively.

The computation of a non-food nominal consumption aggregate on a *monthly basis* is a straightforward task: we converted weekly expenditures into monthly expenditures by using the conversion factor 4.345 ($=365/(12 \times 7)$).

Not all non-food expenditures are welfare enhancing, nor do all household expenditures qualify as consumption expenditures. Consequently not all items collected in modules C, D and E have been included in the welfare aggregate. Following Hentschel and Lanjouw (1996) we excluded: (a) *taxes and levies*; (b) *expenditures on items/services purchased sporadically*, such as expenditures for marriages, funerals and other social ceremonies; (c) *gifts, charitable contributions, and remittances* to other households (their inclusion in the consumption aggregate would imply double-counting since these transfers show up in recipient households' expenditures); (d) *health expenditures*²¹.

3.1.3 Consumption flow of durable items

²¹ The exclusion of health expenditures from the consumption aggregate is more controversial [Deaton and Zaidi 2002]

The benefits from using consumer durables span beyond the survey year. It is then inappropriate to add to the consumption aggregate the market value of the durable goods owned and/or purchased by the household. Only a fraction of the market value reflects the value of the benefits delivered by the durable good during the survey year. In this section we illustrate the procedure used to estimate the *consumption flow* from durable goods for inclusion in the consumption aggregate.

The method that we use is based on the *user cost principle* (Diewert, Greenlees and Hulten 2009). The idea behind this principle can be summarized as follows. Consider a household that owns a durable good whose market value at the beginning of the survey year t is p_t . The household faces two options: 1) to sell the durable good and invest the revenue on the financial market. In this case, at the end of the year, the household receives $p_t(1 + i_t)$, where i_t is the market nominal interest rate; 2) to use the durable good and sell it at the end of the year. In this case the household obtains $p_t(1 + \pi_t)(1 - \delta)$, where π_t is the inflation rate during the year t and δ is the annual physical or technological deterioration rate, assumed to be constant²². The difference between the value of the two options at the end of the year is the cost that the household is willing to pay for using the durable good for one year, and measure the consumption flow $[C_f]$ from the durable good:

$$(8) \quad C_f = p_t(1 + i_t) - p_t(1 + \pi_t)(1 - \delta)$$

By assuming that $\delta \times \pi_t \cong 0$, equation (8) simplifies to:

$$(9) \quad C_f = p_t(i_t - \pi_t + \delta) = p_t(r_t + \delta)$$

where r_t is the real market interest rate in period t .

Equation (9) underlies the estimation of the consumption flow from durables for Somaliland households. Operationally, eq. (9) requires, for each durable good, knowledge of: 1) its *current* market value (p_t); 2) the current real interest rate (r_t), and 3) the deterioration rate δ . Module F of the 2013 SHS questionnaire provides information about 36 durable goods. For each item we know: a) how many goods the household owns; b) the purchasing year $[t-k]$ of the most recent durable; c) the paid price at the purchasing year $[p_{t-k}]$ and d) a subjective estimate of the current market value of the most recent durable owned by the household $[p_{t-k}^t]$.

Based on the above information we estimated the deterioration rate δ as follows. Given

$$p_{t-k}^t = p_{t-k} \prod_{i=t-k}^t (1 + \pi_i) (1 - \delta)^k$$

If π denotes the *average inflation rate*²³ between the years t and $t-k$ and we solve for δ , we obtain:

$$(10) \quad \delta = 1 - \left(\frac{p_{t-k}^t}{p_{t-k}(1 + \pi)} \right)^{\frac{1}{k}}$$

For each household h that reports non-zero consumption of the durable good j we calculated the deterioration rates $\delta_h(j)$ based on equation (10), and then took the median value:

$$(11) \quad \hat{\delta}(j) = \text{Median}[\delta_h(j)]$$

²² Assuming a constant deterioration rate is equivalent to assuming a “radioactive decay” of durable goods (see Deaton and Zaidi, 2002).

²³ In particular π solves the equation $\prod_{i=t-k}^t (1 + \pi_i) = (1 + \pi)^k$

Table 4 shows the estimates of the deterioration rates, based on equation (11), for all durables included in module F²⁴.

For households that own a durable j of vintage k and reported the current value of the durable $p_{h,t-k}^t$, the consumption flow from the durable j is calculated by applying equation (9):

$$(12) \quad \hat{C}_f^h(j) = p_{h,t-k}^t (r_t + \delta(j))$$

For all households h who own the durable j but did not report the current value of the durable, or who own more than one durable²⁵ j , we imputed the median consumption flow:

$$(13) \quad \hat{C}_f^{h'}(j) = \text{Median} [p_{h,t-k}^t (r_t + \delta(j))]$$

The monthly consumption flow from the durable goods owned or purchased by a household h is then given by:

$$(14) \quad \hat{C}_f^h = \frac{1}{12} \sum_j \hat{C}_f^h(j)$$

²⁴ The estimates in table 4 are obtained assuming $\pi \cong 0$ and $i = 2\%$

²⁵ The 2013 SHS questionnaire provides information on a) the vintage and b) the purchasing price only for the most recent durable owned by the household.

Table 4: Estimated deterioration rates for durable goods

Durable goods	Deterioration rate Eq. (11)	Households owning the good (%)
Mortar/pestle	0.114	78.1
Bed	0.088	39.2
Table	0.114	17.1
Chair	0.114	13.9
Fan	0.134	2.2
Air conditioner	0.145	1.4
Radio ('wireless')	0.134	20.4
Tape or CD/DVD player; HiFi	0.092	1.3
Television	0.099	23.4
VCR	0.092	0.3
Sewing machine	0.134	0.2
Kerosene/paraffin stove	0.210	0.6
Refrigerator	0.096	3.0
Washing machine	0.114	6.0
Stove for charcoal	0.188	69.4
Electric stove	0.138	0.3
Gas stove	0.333	0.1
Car	0.066	3.4
Mini-bus	0.039	0.1
Lorry	0.052	0.3
Upholstered chair, sofa set	0.101	6.1
Coffee table	0.114	0.5
Cupboard, drawers, bureau	0.098	4.1
Lantern (paraffin)	0.114	20.8
Desk	0.108	1.8
Clock	0.110	5.0
Iron (for pressing clothes)	0.110	15.9
Computer equipment & accessories	0.204	1.2
Satellite dish	0.097	12.1
Solar panel	0.110	0.2
Generator	0.127	0.1
Kitchen furniture	0.101	0.6
Cell phone	0.169	55.9
Photo camera	0.171	0.3

Source: SHS 2013, own estimates.

3.1.4 Housing

Module G of the 2013 SHS collects information on housing, but only limited to the characteristics of the dwelling: no information is available on rent nor on imputed rents, and not even on the value of the house owned and/or occupied by the household. The absence of data about actual rent also prevents the analyst from exploring the use of hedonic regression techniques. Expenditures on housing have been therefore excluded from the consumption aggregate.

3.2 Spatial Price Index

Geographical differences in the price level are of major concern for welfare comparisons. A higher level of the cost of living clearly decreases the real purchasing power of a given level of expenditure, thereby decreasing household's welfare. The nominal consumption aggregate needs to be adjusted for spatial price differences. In this section we estimate a survey-based district-level *spatial* CPI for Somaliland, disaggregated by urban, and rural areas.

Spatial price deflation involves a number of analytical choices:

- 1) The choice of the index (e.g., Laspeyres, Paasche, Fisher, Törnquist, etc.);
- 2) The coverage of the index (e.g., only food items v. all items);
- 3) The aggregation level of the index (e.g., household-level versus district-level index).
- 4) The choice of the reference price vector

We calculated the spatial price index at the *district level, separately by urban and rural areas*²⁶. The decision to calculate the index separately is determined by the dual sampling scheme described in Section 2, and bears important consequences in the interpretation of the results in the rest of this paper, as discussed below. For better comparability over time and with other regions in Somalia, we opted for the *Laspeyres price index*:

$$(15) \quad SPI_{d,r} = \left[\sum_j w_j^0 \frac{p_j^{d,r}}{p_j^0} \right]^{-1}$$

where w_j^0 is the urban reference budget share of commodity j , $p_j^{d,r}$ is the median district market price for commodity j in the district d and area r , and p_j^0 is the median urban reference market price for commodity j . We also restricted the *coverage of the index* to food items only²⁷. The choice of the reference price

²⁶ From a theoretical point of view, in order to capture the spatial price variability it would be preferable to calculate the spatial indices at the household level. However, due to small sample size concerns and the difficulties encountered in defining an appropriate sample scheme for the 2013 SHS (see section 2), it seems more appropriate to calculate spatial price indices at the district level.

²⁷ This choice is consistent with the common practice. Expenditures on food items represent the more relevant expenditure share of low income households; food commodities are relatively homogeneous and unit values, as a proxy for market prices, are less affected by distortions induced by differences in the quality of the consumption good. However, if one expects much of the spatial variation in prices to come from nonfood items, the spatial index somewhat underestimates spatial differences in cost of living.

standard (whether urban or rural) is theoretically irrelevant; in the context of Somaliland we opted for urban reference prices as the sampling scheme for urban areas is more reliable than for rural (section 2). For the same reason, we chose to use an urban reference basket.²⁸

The interpretation of eq. (15) is straightforward: the new spatial deflator for rural areas gives the cost of a local consumption bundle relatively to the cost of the same bundle in *urban* areas (instead of the average national cost, as it is commonly defined).

Market prices were estimated using unit values \widehat{uv}_j^h as defined in equation (4) in section 3.1.1. Accordingly, the Laspeyres spatial price index for district d and area r is given by:

$$(16) \quad \widehat{SPI}_{d,r} = \left[\sum_j E_{urb}(w_j^h) \frac{Med(\widehat{uv}_j^h | h \subset d \text{ and } r)}{Med_{urb}(\widehat{uv}_j^h)} \right]^{-1}$$

where $E_{urb}(w_j^h)$ is the average urban budget share²⁹ of commodity j , $Med(\widehat{uv}_j^h | h \subset d \text{ and } r)$ is the median unit value for commodity j in the district d and area r and $Med_{urb}(\widehat{uv}_j^h)$ is the median unit value in urban areas. Table 5 shows the estimates of the Laspeyres index in eq. (16).

²⁸ A national reference basket affects poverty estimates only marginally.

²⁹ The average budget share has been calculated following the “democratic” formula instead of the “plutocratic formula”. A drawback of the plutocratic formula is that it gives rich households a weight greater than poor households (Prais, 1959)

Table 5 – Laspeyres index by district and sector

	Rural		Urban	
	Laspeyres	obs.	Laspeyres	obs.
	Eq. (16)		Eq. (16)	
Badhan	1.1444	338		0
Baki	1.2796	390		0
Balli-Gubadle	1.0646	345		0
Berbera	0.9872	381	1.0497	423
Boroma	0.9514	1,027	0.9512	1,151
Burco	0.8931	1,511	0.9544	2,064
Buuhoodle	0.8205	189		0
Ceel-Afwayne	0.8871	350		0
Cerigabo	0.9986	787	1.0473	387
Cynabo	1.0211	805		0
Gabiley	0.5578	1,495	0.8888	164
Garadag	0.9000	207		0
Hargaisa	0.9274	1,022	0.9879	10,769
Lascanood	0.9005	468	0.7941	456
Lughaya	1.1408	87		0
Oodweyne	0.8965	789		0
Salahley	1.0008	612		0
Saylac	0.9198	342		0
Sheek	1.0023	172		0
Average	0.9561	11,317	0.9987	15,414

Source: our estimates based on 2013 SHS.

Note: The fact that the average index for rural areas is larger than one depends on the fact that in eq. (16) the reference prices are urban and not national.

3.3 The real consumption aggregate

In order to calculate the welfare indicator to be used for poverty and inequality analysis in Somaliland we put together the building blocks constructed in the previous sections and apply equation (1). The last factor that needs to be determined is the factor n_h . In the following we have assumed that n_h = household size. By assuming this we assume that all individuals have similar consumption needs, regardless of age or gender, and we assume that economies of scale are negligible when two or more individuals share a household. This implies that the welfare indicator is given by the *per capita expenditure* (PCE):

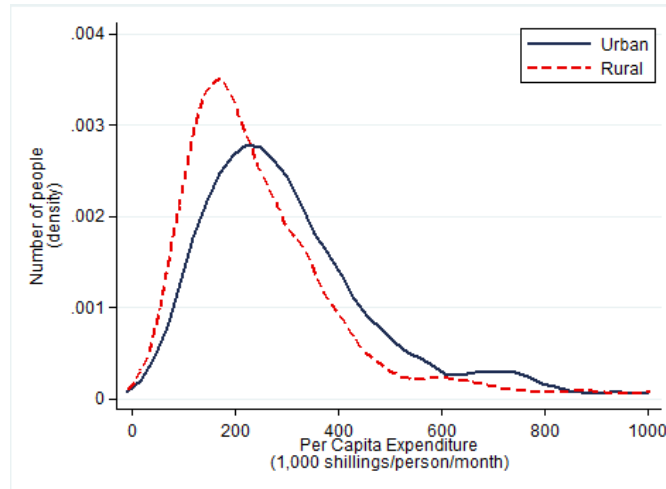
$$(17) \quad PCE_h = \frac{(x_h^{food} + x_h^{non-food} + \hat{C}_f^h)}{\widehat{SPI}_d^P(h) \times (hsize)}$$

where $\widehat{SPI}_d^P(h)$ is the spatial price index for the district d and $(hsize)$ is the number of household members³⁰.

Figure 5 shows the *real per capita expenditure* distribution for urban and rural households calculated as in equation (17). Both distributions are clearly unimodal and skewed to the right. Both features are common in most countries.

According to Figure 6, which shows the cumulative density functions of real PCE for urban and rural households, there is evidence of *restricted first order stochastic dominance* (Atkinson 1987). This means that for much of the distribution we observe urban households to be better off than rural households. For example the bottom quintile of urban households is richer than the bottom quintile of rural households and the median urban household is richer than the median rural household.

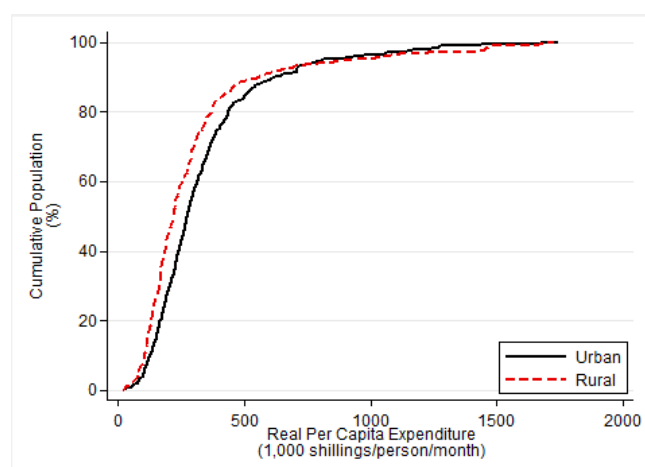
Figure 5 – Empirical probability distribution functions of real PCE by urban and rural areas



Source: our estimates based on 2013 SHS.

³⁰ Given the lack of information on monthly inflation, and given the survey was conducted within 3 months, we do not adjust the nominal expenditure for within-the-year monetary inflation.

Figure 6 – Empirical Cumulative Density Functions by urban and rural areas



Source: our estimates based on 2013 SHS.

Table 6 shows the distribution of average PCE by sector. The comparison between nominal and real aggregates gives a sense of the impact of the spatial deflation adjustment. Table 7 shows the structure of the real consumption aggregate based on its three main components: food expenditures, non-food expenditures and consumption flow from durable goods. Figure 7 shows the expenditure patterns separately by rural and urban areas.

Table 6 – Nominal versus real PCE by sector (1,000 Sh./person/month)

	RURAL				URBAN			
	median		mean		median		mean	
	nominal	real	nominal	real	nominal	real	nominal	real
Total	210	225	307	341	268	277	383	396

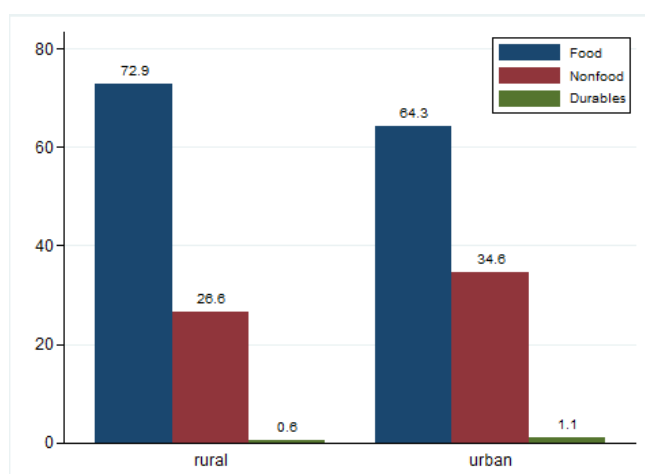
Source: our estimates based on 2013 SHS.

Table 7 – Main components of PCE by sector (1,000 Sh./person/month)

	RURAL				URBAN			
	food	nonfood	durables	total	food	nonfood	durables	total
Total	229.2	109.2	2.2	340.6	254.1	137.4	4.2	395.9

Source: our estimates based on 2013 SHS.

Figure 7 – Composition (%) of PCE



Source: our estimates based on 2013 SHS

4. Inequality

In this section we provide estimates on inequality. Table 8 shows the Gini coefficients separately by urban and rural areas, as well as selected quantile ratios. The Gini coefficient is 42.6 in urban Somaliland and 45.7 in rural Somaliland. As far as the difference in the Gini coefficients between urban and rural areas is concerned, they turn out *not* to be statistically significant at the 95% confidence level.

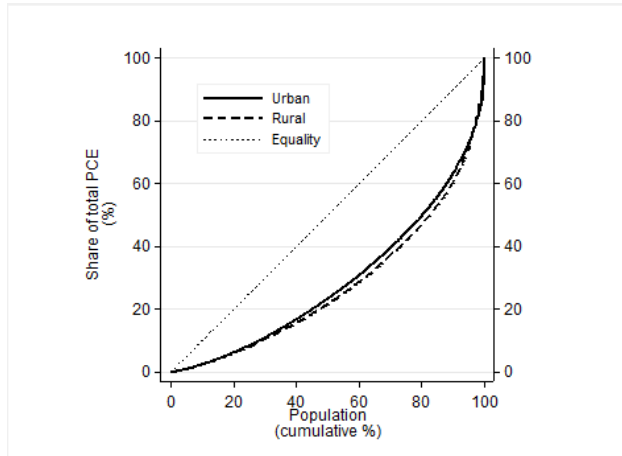
Inequality measures can be compared across countries. The latest Gini estimates for Ethiopia from 2010/11 are an urban Gini of 37% and a rural Gini of 27%, both lower than in Somaliland, but particularly in rural areas. The rural Somaliland Gini is closer to the 48% Gini recorded in the last household survey in Kenya.

Table 8 – Inequality measures by sector

Sector	Gini Coefficient	Quantile ratios	
		Ninety-Ten	Seventy five – Twenty five
Urban	43.0	5.1	2.1
Rural	46.0	5.4	2.3

Source: our estimates based on 2013 SHS.

Figure 8 – Lorenz curves by sector



Source: our estimates based on 2013 SHS.

5. Poverty

To estimate the poverty line we relied on the cost-of-basic-need method (CBN) (Ravallion 1994). According to this method, the poverty line is defined as the level of expenditure that allows households to spend just enough to meet a minimum required energy intake basic *nonfood* needs. More precisely, the CBN method defines the total poverty line (Z) as the sum of two components, namely a *food poverty line* (Z_F) and an *allowance for non-food consumption* (Z_{NF}):

$$(18) \quad Z = Z_F + Z_{NF}$$

The food poverty line, Z_F , represents the minimum cost of a food bundle which provides individuals with the nutritional *requirements* they need, while the second component, Z_{NF} , is an allowance for non-food commodities and services that are deemed “basic”, that is, absolutely essential for daily life.

In section 5.1 we discuss the calculation of Z_F and in section 5.2 we illustrate the method followed to estimate the non-food allowances Z_{NF} . Section 5.3 contains the poverty estimates.

5.1 The Food Poverty Line

The estimation of a food poverty line requires two ingredients: (i) a measure of the *average kilocalorie requirement* (AKR), defined as the average number of kilocalories (per person per day) needed to meet daily energy requirements, and (ii) an estimate of the minimum *cost of one kilocalorie* (c_{kcal}) for a reference group as close to the poor as possible. Once both (i) and (ii) are available, the food poverty line can be calculated as follows:

$$(19) \quad Z_F = c_{kcal} \times AKR$$

Regarding the estimation of AKR we set $AKR = 2,100$ kilocalories per person per day. This is the level of kilocalories often used in the construction of national poverty lines, and it is also the level of kilocalories used by international aid agencies when they plan to help a population hit by some calamity and/or in a

food-emergency situation. Although the choice is somewhat discretionary, it is reasonable and consistent with international practice.

5.1.1 Minimum cost of one calorie

The unit cost of kilocalories at the household level can be obtained by dividing the total expenditure on food [x_h^{food}] by the total calorie intake for each household in the sample. The calorie intake can be calculated after transforming the quantities consumed by households, that have all been previously converted into kilograms (see section 3.1), into kilocalories using the factors reported in Table A1 in the Annex.

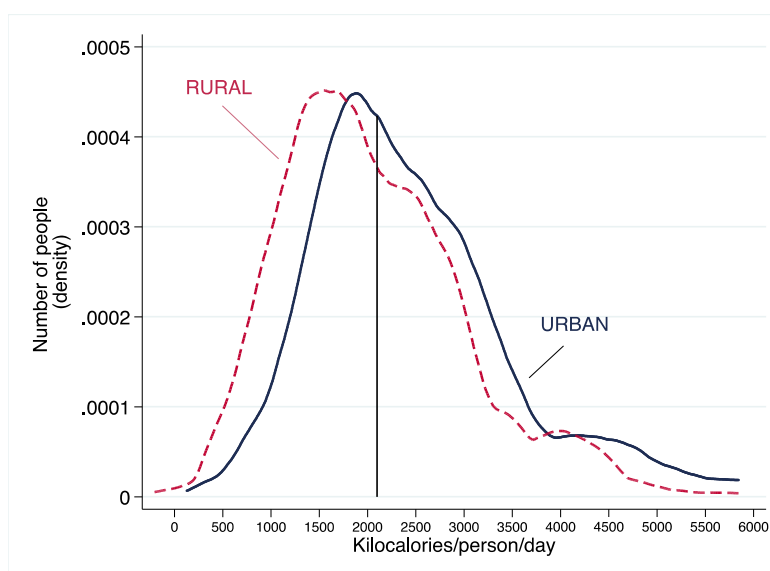
Table 9 shows the mean and median caloric intake by expenditures quintiles, separately by urban and rural areas. The trend is, as expected, increasing by quintiles.

Table 9 – Calorie intake by PCE quintile and sector

PCE quintiles	URBAN		RURAL	
	mean	median	mean	median
1	1,587	1,514	1,368	1,281
2	2,208	2,047	1,693	1,609
3	2,606	2,339	2,017	2,960
4	3,042	2,757	2,570	2,612
5	3,765	3,193	2,775	2,500
Total	2,640	2,296	2,083	1,934

Source: our estimates based on 2013 SHS Note: PCE quintiles are urban-rural specific.

Figure 8 – Distribution of energy intake (Kcal/person/day) by sector



Source: our estimates on 2013 SHS.

If we assume 2,100 kilocalories/person/day as a cut-off point to mark the threshold of undernutrition, it turns out that the incidence of undernutrition is larger in rural areas (57.2%) than in urban areas (41.5%). Table 10 shows the incidence of *undernutrition* (percentage of people with calorie intake lower than 2,100 kcal/person/day) as well as the percentage of individuals with a diet poor of proteins (less than 50 grams/person/day). We interpret this as a measure of *malnutrition*.

Table 10 – Incidence of undernutrition and malnutrition by sector

	Undernutrition	Malnutrition
Urban	41.5	44.0
s.e.	(2.2)	(2.2)
Rural	57.2	68.2
s.e.	(3.0)	(3.0)

Source: our estimates based on 2013 SHS. Linearized standard errors have been estimated taking into account the stratified sample design.

Table 11 shows the average cost of one kilocalorie by PCE quintiles and sectors. The increasing cost of kilocalories reflects the improvement in the quality of the food bundle that the richer Somaliland households consume to meet their caloric requirements.

Table 11 – Mean and median cost for 1,000 kilocalorie by PCE quintile

PCE quintiles	URBAN		RURAL	
	mean	median	mean	median
1	1.8	1.8	2.6	2.0
2	2.2	2.1	2.6	2.5
3	2.5	2.5	3.0	2.6
4	2.7	2.6	3.1	2.8
5	6.0	3.3	6.9	3.9
Total	3.2	2.4	3.9	2.7

Source: our estimates based on 2013 SHS.

To estimate the *minimum* cost of one kilocalorie c_{kcal} we need to define a *reference group* of households. To the extent to which we want to estimate the cost of a basic food bundle bought by the poor, the reference group should exclude non-poor households; by so doing we minimize the quality bias effect reflected in the increasing pattern of calorie cost across PCE deciles (Table 12). Clearly this is a key decision³¹. “Self-fulfilling prophecies”, as Pradhan, Suryahadi, Sumarto and Pritchett (2000) have put it, is the risk associated with the discretionary choice of a reference group made by the analyst: “Two researchers working on the same country with exactly the same data using exactly the same method but simply having different prior beliefs on headcount poverty will produce different poverty estimates. The one who believes poverty is high will choose a wealthier reference population. This richer reference group will consume a more luxurious food basket. Hence the calories per rupiah will be lower so the cost of obtaining a fixed amount of calories will be higher. (...) This researcher will most likely get a higher estimated headcount poverty compared to the researcher who started off with a low prior.” (p. 7) The implication of the above argument is that “the “standard” poverty methodology is incomplete and not well specified. Without a procedure for fixing the reference group, the “standard” method applied to the same country with the same data can produce different outcome” (p. 8).

In the case of Somaliland we defined the reference group as the set of households belonging to bottom four PCE deciles. Accordingly, we estimated the minimum cost of one calorie in urban areas $c_{kcal}^{urb} = 0.0017642$ Shillings and the corresponding minimum cost $c_{kcal}^{rur} = 0.0019208$ Shillings. It is quite surprising to find that the cost of one calorie is higher in rural areas than in urban areas. This may reflect the fact that only a small proportion of the food consumed in both urban and rural areas is produced in Somaliland. The food poverty lines for rural and urban areas are given by:

³¹ This is not, obviously, the only key decision. Many aspects of poverty measurement are also discretionary. The selection of price index, adult equivalence scale, imputation method, and estimation of non-food poverty lines, etc., are all somehow discretionary and crucial.

$$(20) \quad Z_F^{urb} = (0.0017642 \times 2,100) \times 365/12 = 112.69 \text{ (1,000 Sh./person/month)}$$

$$(21) \quad Z_F^{rur} = (0.0019208 \times 2,100) \times 365/12 = 122.69 \text{ (1,000 Sh./person/month)}$$

Once the food poverty lines are available, it is possible to estimate the *extreme poverty*, i.e. the incidence of households whose total expenditure is below Z_F (Table 12).

Table 12 – Extreme poverty

	Poverty Headcount Rate	Poverty Gap	Squared Poverty Gap
Poverty line = 126.1 (1,000 Sh./person/month)			
Urban	9.5	2.4	1.0
Poverty line = 139.4 (1,000 Sh./person/month)			
Rural	21.0	5.6	2.3

Source: our estimates based on 2013 SHS.

5.2 The Non-food component of the Poverty Line

In order to estimate the *total* poverty line Z , we need to add Z_{NF} to the food poverty line Z_F (eq. 18). Ravallion (1994) and Ravallion and Bidani (1994) suggested to estimate *indirectly* Z_{NF} by exploiting the information available from the consumption pattern of households located around the poverty line.

Depending on the criterion used to define a household as “around the poverty line”, a common practice consists in identifying two different levels of non-food allowances and, accordingly, two different poverty lines: a) the *lower poverty line* [Z_L] and b) the *upper poverty line* [Z_U]. The lower poverty line is obtained by adding to Z_F the average total non-food expenditure of those households whose *total PCE* is (circa) equal to Z_F . The upper poverty line is obtained by adding to Z_F the average total non-food expenditure of those households whose *food PCE* is (circa) equal to Z_F :

$$(21) \quad Z_L = Z_F + E[PCE_h^{non-food} | PCE_h \cong Z_F]$$

$$(22) \quad Z_U = Z_F + E[PCE_h^{non-food} | PCE_h^{food} \cong Z_F]$$

The non-food allowances of the lower poverty line Z_L are calculated across very poor households (so poor that they cannot even afford the AKR). This is why Z_L provide a *lower bound* to the total poverty line. Equation (22) yields a more generous non-food allowance than equation (21), as the reference group here is the set households who *actually* spend on food what required by the food poverty line.

Operationally, the lines Z_L , Z_U and Z have been calculated following a non-parametric procedure:

$$(23) \quad \hat{Z}_L^{urb} = Z_F^{urb} + \text{median}[PCE_{h,urb}^{non-food} | PCE_{h,urb} = Z_F^{urb} \pm 10\%]$$

$$\hat{Z}_L^{rur} = Z_F^{rur} + \text{median}[PCE_{h,rur}^{non-food} | PCE_{h,rur}^{food} = Z_F^{rur} \pm 10\%]$$

$$\hat{Z}_U^{urb} = Z_F^{urb} + \text{median}[PCE_{h,urb}^{non-food} | PCE_{h,urb}^{food} = Z_F^{urb} \pm 10\%]$$

$$\hat{Z}_U^{rur} = Z_F^{rur} + \text{median}[PCE_{h,rur}^{non-food} | PCE_{h,rur}^{food} = Z_F^{rur} \pm 10\%]$$

The poverty lines for urban areas [Z_{urb}] and rural areas [Z_{rur}] have been calculated according to eq. (23). In equation (24) we take the set of households whose total per capita expenditure is 10% plus or minus the food poverty line and we calculate the median non food expenditure over this set. Equation (25) works in a similar way but it takes as a reference group all the households whose food per capita expenditure is 10% plus or minus the food poverty line. Table 14 shows the estimated poverty lines.

Table 13 – Poverty lines (1,000 Shillings/person/month)

	Food poverty line (Eq. 20)	Lower bound (Eq. 23)	Upper Bound (Eq. 24)
Urban	126.1	160.2	207.3
Rural	139.4	162.2	180.9

Source: our estimates based on 2013 SHS.

5.3. Poverty Estimates

Based on the real consumption aggregate (section 3) and the poverty lines (section 5), a selection of poverty estimates can be easily obtained. In Table 14 we detail the poverty headcount rate (which is the proportion of the population living below the poverty line), the poverty gap and the squared poverty gap for the upper and the lower poverty line. It is often standard practice to use the upper poverty line for poverty estimates. Taking this line we see that 29.7% of the population is poor in urban areas and 37.0% of the population is poor in rural areas.

Without a measure of PPP for Somaliland it is difficult to compare this poverty rate with other countries. The national poverty rate for Ethiopia is 25.7% in urban areas and 30.4% in rural areas, using a somewhat similar (although not identical) methodology. This would suggest similar poverty rates in urban areas, but higher poverty rates in Somaliland in rural areas.

Table 14 – Poverty rates (1,000 Shillings/person/month)

	Poverty Headcount	Poverty Gap	Squared Poverty Gap
Upper poverty line = 207.3 (1,000 Sh./person/month)			
Urban	29.7	8.9	3.9
s.e.	(2.00)	(0.78)	(0.48)
Upper poverty line = 180.9 (1,000 Sh./person/month)			
Rural	37.0	10.8	4.7
s.e.	(2.83)	(1.20)	(0.77)
Lower poverty line = 160.2 (1,000 Sh./person/month)			
Urban	17.1	4.6	1.9
s.e.	(1.63)	(0.60)	(0.36)
Lower poverty line = 162.2 (1,000 Sh./person/month)			
Rural	27.8	8.3	3.5
s.e.	(2.52)	(1.10)	(0.69)

Source: our estimates based on 2013 SHS. Linearized standard errors have been estimated taking into account the stratified sample design.

6. Conclusion

The completion of the first Somaliland household Survey in 2013 marked a considerable achievement for Somaliland. Although sampling challenges were present, a large part of Somaliland was sampled in a representative way allowing generation of statistics and analysis that informs government policy.

This methodological annex has detailed how this data can be used to examine household consumption in Somaliland. In particular the annex has set out how to construct a real per capita household consumption aggregate and how to define a poverty line. The focus has been on detailing a transparent and logical

procedure that can be refined and used as new data is collected both in Somaliland and in Puntland and South-Central Somalia. The SHS was not able to cover the IDP and pastoral population of Somaliland. The method set out in this annex can be applied to these populations once data is collected.

We apply this procedure to the Somaliland Household Survey 2013 to generate the first estimates of inequality and poverty urban Somaliland and large parts of settled rural Somaliland. The results are informative, suggesting that poverty in urban Somaliland is 29.7%, similar to urban poverty in Ethiopia. Rural poverty is higher at 37.0%, and inequality is much higher in rural Somaliland than in rural Ethiopia. Inequality is similar to levels recorded during the last household survey in Kenya in 2005.

These results suggest that a focus on how to address inequality in Somaliland will be important to ensure that Somaliland secures progress for its poorest households and achieves shared prosperity. Further work to understand the characteristics of the poorest households in Somaliland and inequalities in assets, access to services and markets will help inform these policies. This work will be carried out by the Ministry of Planning and the World Bank by using this data to construct a poverty profile and conduct further analysis.

Appendix

The procedure used to estimate the conversion factors required to convert quantities expressed in non-standard measurement units into kilograms can be described as follows.

Step 1 – Standard measurement units are converted into kilograms

Firstly, we convert all the standard measurement units into kilograms.³² This leaves us with 25 non-standard measurement units to be converted into kilograms.

Step 2 – Non-standard measurement units are converted into kilograms

Let us define $A = \{j | n_{kg,j} \geq 2\}$ where $n_{kg,j}$ is the total number of transactions expressed in kilograms for commodity j . The set A identifies the food items for which we observe at least two observations expressed in a standard-metric measurement unit. Let M denote the set of non standard measurement units m we have to deal with after step 1. We can now calculate the following set of *conversion factors*:

$$\hat{k}_{m,j} = \frac{Median_h[uv_{kg,j}^h]}{Median_h[uv_{m,j}^h]} \quad \forall j \in A, \forall m \in M$$

This procedure allows us to calculate X conversion factors. However, there are still some (food item specific) non-standard measurement units that must be converted into kilograms.

Step 3 – Non-standard measurement units are reduced to a common numeraire

Let us define $B = \{j | n_{kg,j} < 2\}$ as the set of food items for which the sample only has 1 observation expressed in a standard measurement unit. For each commodity included in B we identify the *modal* measurement unit, $mode(j)$, that correspond to the most frequently used standard of measurement for the reference food item.

$$\tilde{k}_{m,j} = \frac{ME_h[uv_{md(j),j}^h]}{ME_h[uv_{m,j}^h]} \quad \forall j \in B, \forall m \in M$$

Note that the conversion factors $\tilde{k}_{m,j}$ do not convert non-standard measurement units into kilograms, but, by converting all the non-standard measures into the most frequently used measurement standard $[md(j)]$, allows to reduce the number of measurements units that must be converted into kilograms.

Step 4 – Numeraires are converted into kilograms

The last step consists in dealing with the residual conversion factors. These are “educated guesses” formulated after consulting with local experts.

Table A1 – Kilocalorie conversion factors

code	Description	Calories	Protein	Edible
101	Paddy	349	6.85	0.90
102	Rice, husked	349	6.85	1.00

³² We also assume consistency among measurement units. According to the questionnaire a “large bag” (code X) corresponds (and independently of the specific food item) to 50 kg and there are other three kind of bags: small bag, half bag and quarter bag. The last three measures can be all converted into small bags.

code	Description	Calories	Protein	Edible
103	Green maize cob	353	9.04	1.00
104	Maize, grain	353	9.33	1.00
105	Maize, flour	353	9.33	1.00
106	Millet, grain	348	10.90	1.00
107	Millet, flour	355	7.40	1.00
108	Sorghum, grain	344	10.50	1.00
109	Sorghum, flour	347	10.40	1.00
110	Wheat, grain	326	12.35	1.00
111	Wheat, flour	351	10.36	1.00
112	Barley and other cereals	319	10.40	1.00
113	Bread	249	8.40	1.00
114	Baby foods excluding milk	446	6.90	1.00
115	Biscuits	446	6.90	1.00
116	Buns, cakes, small bread etc.	266	7.60	1.00
117	Cooking oats, corn flakes	404	0.42	1.00
118	Macaroni, spaghetti	352	12.47	1.00
119	Other (specify)	353	8.69	1.00
201	Potatoes	80	1.88	0.84
202	Cooking bananas, plantains	140	1.20	0.65
203	Other (specify)	110	1.54	0.75
301	Groundnuts in shell	578	22.40	0.85
302	Groundnuts shelled	578	22.40	1.00
303	Coconuts	389	3.60	0.70
304	Cashewnuts	585	17.70	1.00
305	Almonds and other nuts	578	22.40	0.85
306	Peas, dry	316	21.22	1.00
307	Beans, dry	300	26.10	1.00
308	Lentils and other pulse products	297	25.40	1.00
309	Pulse products	297	25.40	1.00
310	White beans	335	22.13	1.00
401	Carrots	35	0.95	0.89
402	Radhishes, beets, turnips	28	0.95	0.81

code	Description	Calories	Protein	Edible
403	Garlic	135	6.80	0.87
404	Onion	37	1.11	0.91
405	Leeks	66	1.50	0.89
406	Spinach	28	2.80	0.72
407	Lettuce	18	1.05	0.70
408	Cabbage	28	1.58	0.80
409	Other leafy vegetables	25	1.81	0.74
410	Tomatoes	20	1.00	1.00
411	Ladies finger/okra	40	2.70	0.80
412	Cucumber/pumpkins	15	0.70	0.81
413	Eggplant/Brinjal	30	1.11	0.81
414	Canned vegetables	20	1.00	1.00
415	Dried vegetables	306	18.98	1.00
416	Other vegetables (specify)	55	2.94	1.00
501	Goat/Sheep	165	17.50	0.74
502	Cattle meat, incl. Mince sausages	126	21.70	1.00
503	Other domesticated animals	146	19.60	0.74
504	Wild animals	146	19.60	0.74
505	Offal (liver, kidney)	131	20.18	1.00
506	Dried or salted meat	178	31.10	1.00
507	Canned meat	243	27.10	1.00
508	Chicken and other poultry	107	23.60	0.55
509	Wild birds and insects	97	14.10	0.85
510	Eggs	139	12.60	0.88
511	Fresh fish	69	15.69	0.54
512	Dried or salted fish/shellfish	203	28.90	1.00
513	Canned fish/shellfish	220	24.70	1.00
514	Bones souce	100	10.00	1.00
601	Sweet/ripe bananas	106	1.40	0.64
602	Oranges/tangerines	45	0.73	0.73
603	Grapefruits, lemons, guavas, limes	33	0.70	0.49
604	Mangoes, avocado pears	76	0.40	0.71

code	Description	Calories	Protein	Edible
605	Papaya	36	0.47	0.62
606	Pineapples	54	0.44	0.51
607	Melons	33	0.70	0.51
608	Sugar canes	54	0.60	0.50
609	Jack fruit	94	1.50	0.71
610	Apples, pears	53	0.26	0.90
611	Dried fruits	302	3.03	1.00
612	Canned fruits	72	0.40	1.00
701	Yoghurt	73	3.80	1.00
702	Cream	151	2.90	1.00
703	Cheese	447	30.52	1.00
704	Milk	65	3.40	1.00
705	Canned milk	328	7.90	1.00
706	Milk Powder	495	25.90	1.00
801	Breakfast	200	10.00	1.00
802	Lunch	250	10.00	1.00
803	Dinner	250	10.00	1.00
804	School meals	250	10.00	1.00
805	Tea, coffee, soft drinks	2	0.10	1.00
806	Other (specify)	170	10.00	1.00
807	Sugar	400	0.00	1.00
808	Honey	326	0.40	1.00
809	Syrup, jams, marmalade, jellies, chocolate, sweets	326	0.40	1.00
810	Sesame/Sunflower oil	900	0.00	1.00
811	Coconut cooking oil	900	0.00	1.00
812	Butter, Margarine	720	0.80	1.00
813	Other cooking oil	900	0.00	1.00
901	Tea	0	0.10	1.00
902	Coffee (beans, ground, instant)	354	15.40	1.00
903	Bottled Soft Drinks	43	0.00	1.00
904	Water bottles/container	0	0.00	1.00
905	Canned and bottled juices and squashes	48	0.10	1.00

code	Description	Calories	Protein	Edible
906	Fresh fruit juices, ice cream and other non-alcoholic drinks	53	0.10	1.00
907	Purchased/prepared tea/coffee consumed at home	2	0.10	1.00
908	Other (specify)	71	2.26	1.00
909	Salt	0	0.00	1.00
910	Red/Black Pepper	301	10.70	1.00
911	Other Spices	348	6.09	1.00
912	Curry Powder	325	12.70	1.00
913	Vinegar	5	0.40	1.00
914	Yeast, baking powder	315	35.60	1.00
915	Cocoa, cooking chocolate	363	18.50	1.00
916	Purchased/prepared meals consumed at home	250	10.00	1.00
917	Rock Salt	0	0.00	1.00

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Annex 2: The impact of remittances: data, Empirical Methods, and Results

The data for this analysis come from the 2013 SHS. The survey was conducted by the World Bank and is largely based upon the World Bank's Living Standards Measurement Study. The SHS represents one of the first and largest attempts at statistically reaching the relatively secure Somaliland, both rural and urban areas.³³ Owing to the lack of any census-based framework, the SHS relied on a dual sampling mechanism to identify equal numbers of sampling units in both rural and urban areas. Of the total 1,725 households interviewed during the SHS, 873 were in rural settings, while 852 were in urban settings. Because of the different sampling procedures, the analysis here is conducted separately for rural and for urban areas. The survey, which excludes pastoralists and internally displaced settlements, is representative of settled urban and rural populations in Somaliland.

The paper moves beyond differences in means to analyze the entire distribution of consumption and hours worked. The disadvantages of relying only on a single conditional moment (such as the mean) can be summarized as follows. If consumption differentials of the groups being analyzed are not consistent or are not even in the same direction throughout the distribution, then the conditional mean or median is not representative of the population. In the current data, for example, remittance-recipient households in rural Somaliland tend to have higher consumption aggregates in the lower and middle section of the distribution, whereas the upper tails of the distribution are dominated by nonrecipient households. Subsequently, the mean indicating that households without remittances exhibit approximately 2 percent higher consumption does not necessarily represent the average rural household. One alternative to focusing on the conditional mean is to analyze the differentials at various points of the distribution (conditional quantiles, for example), but different magnitudes and signs at various points of the distribution make a summary of the results difficult.

To overcome these shortcomings, the current analysis uses nonparametric kernel estimation to generate and compare entire distributions of consumption. To compare the social welfare associated with these different outcome distributions, stochastic dominance tests are used. Given the choice of specific welfare functions, these tests allow us to determine the more preferred consumption distribution overall.

Furthermore, the difference between the distribution of consumption in remittance-recipient households and the appropriate counterfactuals provides us with a distribution of remittance effects on aggregate and specific consumption types. The added benefit of estimating an entire distribution of effects is that point estimates of interest at specific moments of the distribution can also be readily reported. Specifics on the empirical methodology are elucidated in the following subsections, beginning with the stochastic dominance tests and then the method used to generate counterfactuals.

Stochastic dominance

Stochastic dominance tests are used to compare the social welfare associated with the two different outcome distributions for households receiving and not receiving remittances. The stochastic dominance test approach is contingent on the choice of social welfare functions. The first order stochastic dominance test corresponds to a class (denoted as U_1) of all (increasing) von Neumann-Morgenstern types of social welfare functions u , such that welfare is increasing in consumption (that is, $u' > 0$). The second order stochastic dominance test corresponds to the class of social welfare functions (U_2) in U , such that $u'' \leq 0$ (that is, concavity). Concavity implies an aversion to higher dispersion (or inequality) across households. The two related cases of stochastic dominance can be presented as:

³³ Another survey was conducted in 2012 by the Food and Agriculture Organization of the United Nations (see FAO 2013). That survey was the first to include the rural and urban areas of Somaliland. The household sample, however, was considerably smaller than the SHS sample.

Case 1. First order dominance: nonremittance household consumption first order stochastically dominates remittance-recipient household consumption (denoted as y^0 FSD y^1) if and only if

$$E[u(y^0)] \geq E[u(y^1)] \text{ for all } u \text{ in } U_1 \text{ with strict inequality for some } u; \text{ or}$$

$$F_0(y) \leq F_1(y) \text{ for all } y \text{ with strict inequality for some } y.$$

Case 2. Second order dominance: nonremittance household consumption second order stochastically dominates remittance-recipient household consumption (denoted as y^0 SSD y^1) if and only if

$$E[u(y^0)] \geq E[u(y^1)] \text{ for all } u \text{ in } U_2 \text{ with strict inequality for some } u; \text{ or}$$

$$\int_{-\infty}^y F_1(t) dt \leq \int_{-\infty}^y F_0(t) dt \text{ for all } y \text{ with strict inequality for some } y.$$

In this paper, a generalized Kolmogorov-Smirnov test is used to detect stochastic dominance relations as discussed by Linton, Maasoumi, and Whang (2005). The test statistics for first order stochastic dominance and second order stochastic dominance are given, respectively, by

$$d = \sqrt{\frac{N_0 N_1}{N_0 + N_1}} \min\{\sup[F_1(y) - F_0(y)], \sup[F_0(y) - F_1(y)]\}$$

$$s = \sqrt{\frac{N_0 N_1}{N_0 + N_1}} \min\{\sup \int_{-\infty}^y [F_1(t) - F_0(t)] dt, \sup \int_{-\infty}^y [F_0(t) - F_1(t)] dt\}$$

In the estimation of the test statistics, the cumulative distributions are replaced with empirical cumulative distribution functions, which are given by

$$\widehat{F_d(y)} = \frac{1}{N_d} \sum_{i=1}^{N_d} I(y_i^d \leq y), \quad d = 0, 1,$$

where $I(\bullet)$ is an indicator function. The underlying distributions of the test statistics are generally unknown and are dependent on the data. Following the method of Maasoumi and Heshmati (2000), we use a simple bootstrap technique based on 199 replications to obtain confidence intervals of the test statistics.

The decomposition problem

To decompose the consumption differential across households at specific conditional moments, use of the Blinder-Oaxaca method or variants of the method is common in the literature.³⁴ These methods attempt to trace the raw differences to variations in both the distribution of covariates and the estimated coefficients. These methods, however, are not well-suited to analyzing entire distributions (DiNardo 2002). This paper therefore uses the propensity score reweighting estimator proposed by DiNardo, Fortin, and Lemieux (1996) and further explained in DiNardo (2002) to generate counterfactual distributions.

The outcome of interest y is the log of a real consumption aggregate, which we believe to be a function of some covariate x . Let $T = 1$ if a household receives remittances and 0 otherwise. We can now write the two relevant outcome distributions as:

³⁴ For example, Melly (2006) introduces a version of the decomposition to handle estimates from quantile regressions.

$$\begin{aligned}\int f^{T=1}(y) dy &= \int f^1(y|x) h(x|T=1) dx ; \\ \int f^{T=0}(y) dy &= \int f^0(y|x) h(x|T=0) dx .\end{aligned}$$

The difference $f^1 - f^0$ does not represent the effect of remittances on consumption if households that receive remittances are self-selected and therefore systematically different from households that do not receive remittances. Ideally, we would like to know the counterfactual consumption of households with remittances had they not received these remittances. Also of interest is the counterfactual consumption distribution of households without remittances had they actually received remittances. The effect of remittances on households receiving remittances (the treatment effect on the treated) can then be given by

$$\int y f^1(y|x) h(x|T=1) dx - \int y f^0(y|x) h(x|T=1) dx .$$

For obvious reasons, these counterfactuals are not observed. Households either receive remittances or they do not. Given that the outcome (receipt of remittances) may be a function of observable characteristics, the DiNardo, Fortin, and Lemieux (1996) estimator allows us to approximate these very counterfactuals. Following the propensity score reweighting method, the first counterfactual distribution is estimated by

$$\int w_{c1} y f^0(y|x) h(x|T=0) dx ,$$

where

$$w_{c1} = \left(\frac{p_1(x)}{1 - p_1(x)} \right) \left(\frac{P_0}{P_1} \right) ,$$

in which the term

$$\left(\frac{P_0}{P_1} \right)$$

is a ratio of the proportion of control and the proportion of treated, respectively. The propensity score for receiving remittances is denoted as $p_1(x)$. Empirically, the propensity score is estimated using a logit regression with an identifier for households receiving remittances as the dependent variable and a list of covariates.³⁵

Similarly, consumption differences arising from variations in observable characteristics between remittance-recipient and nonrecipient households (compositional effect) can be written as:

$$\int y f^1(y|x) h(x|T=1) dx - \int y f^1(y|x) h(x|T=0) dx .$$

³⁵ The covariates include five region dummies, household size, total number of male children, total number of female children, indicator for land ownership, three dummies for household exposure to one, two, or more negative shocks in the past year, and six household head characteristics, including gender, schooling, age, health problems, marital status, and whether or not the head is a migrant in the current location of residence.

The approach is similar for the second counterfactual distribution. The second counterfactual is a weighted version of the treated distribution and can be written as:

$$\int w_{c2} y f^1(y|x) h(x|T = 1) dx ,$$

where the weights w_{c2} have the same form as w_{c1} , but utilize an identifier for households without remittances to generate propensity scores.

Stochastic dominance tests can then be used to compare the original consumption distribution of remittance-receiving households to the two counterfactual distributions. Finally, point estimates of interest can be calculated by simply taking the averages of the differences between the original and counterfactual distributions.

The estimation of the two aforementioned counterfactual consumption distributions also readily lends itself to some interesting poverty decompositions. The methods for estimating real aggregate consumption-based poverty lines are detailed in Amendola, Vargas Hill, and Vecchi (2014). Using any one of these poverty lines, the usual Foster-Greer-Thorbecke measures of poverty can be easily estimated with the original distributions for households with and without remittances and then again for the counterfactual distributions. These alternate and more familiar measures of poverty headcount, the poverty gap, and the square of the poverty gap under the original and counterfactual distributions can then be used to decompose the observed differences in poverty between households with and households without remittances. Similar to the distributional analysis, the differences in observed poverty can be decomposed to differences arising from the receipt of remittances and differences arising from variations in the observed characteristics of remittance-recipient and nonrecipient households (see table 10 in the main text).

APPENDIX TABLES

Table 1: Youth activity and education profile of working age population by group

<i>Youth Activity (15-24)</i>	Urban			Rural		
	Non-poor	Poor	Total	Non-poor	Poor	Total
School only	51.56 (0.02)	41.99 (0.08)	50.88 (0.02)	50.48 (0.06)	22.69 (0.07)	46.62 (0.06)
Work only	3.2 (0.01)	0 (0.00)	2.97 (0.00)	6.49 (0.02)	11.57 (0.04)	7.2 (0.02)
Both	1.54 (0.00)	1 (0.01)	1.5 (0.00)	1.76 (0.01)	0.23 (0.00)	1.55 (0.01)
Inactive	43.24 (0.02)	57.01 (0.08)	44.22 (0.02)	40.77 (0.05)	63.6 (0.08)	43.94 (0.05)
Unemployed	0.46 (0.00)	0 (0.00)	0.43 (0.00)	0.5 (0.00)	1.91 (0.02)	0.69 (0.00)

<i>Educational Attainment of Labor Force (15-64)</i>	Urban			Rural		
	Non-poor	Poor	Total	Non-poor	Poor	Total
No education	48.13 (0.02)	64.54 (0.06)	49.21 (0.02)	57.26 (0.04)	77.95 (0.03)	60.33 (0.04)
Incomplete primary	12.13 (0.01)	13.26 (0.05)	12.2 (0.01)	15.65 (0.02)	13 (0.02)	15.26 (0.02)
Complete primary	8.76 (0.01)	9.33 (0.03)	8.8 (0.01)	11.41 (0.02)	6.57 (0.03)	10.69 (0.02)
Complete lower secondary	7.92 (0.01)	4.86 (0.02)	7.72 (0.01)	3.87 (0.01)	0.27 (0.00)	3.33 (0.01)
Complete upper secondary	8.26 (0.01)	2.87 (0.02)	7.91 (0.01)	5.9 (0.01)	0.14 (0.00)	5.04 (0.01)
Post-secondary	9.98 (0.01)	2.51 (0.01)	9.49 (0.01)	3.14 (0.01)	0.99 (0.01)	2.82 (0.01)
Koranic/non-formal/other	4.82 (0.01)	2.63 (0.01)	4.68 (0.01)	2.78 (0.01)	1.08 (0.00)	2.53 (0.01)

Table 2: Gross enrollment, net enrollment, and gender parity by group

<i>Gross Enrollment Ratio</i>	Urban		Rural	
	Non-poor	Poor	Non-poor	Poor
Primary	83.95 (0.03)	59.68 (0.09)	86.22 (0.06)	43.93 (0.09)
Lower secondary	58.40 (0.07)	34.36 (0.18)	31.07 (0.08)	22.07 (0.21)
Upper secondary	69.98 (0.11)	21.83 (0.16)	34.76 (0.07)	0.92 (0.01)
Tertiary	11.22 (0.02)	6.77 (0.05)	2.96 (0.01)	0.00 (omitted)
<i>Net Enrollment Ratio</i>	Urban		Rural	
	Non-poor	Poor	Non-poor	Poor
Primary	53.55 (0.02)	33.86 (0.06)	57.14 (0.05)	35.83 (0.08)
Lower secondary	8.76 (0.02)	0.00 (omitted)	5.00 (0.03)	0.00 (omitted)
Upper secondary	11.34 (0.02)	4.47 (0.05)	2.92 (0.02)	0.00 (omitted)
<i>Gender Parity</i>	Urban		Rural	
	Non-poor	Poor	Non-poor	Poor
Primary	75.84 (0.05)	68.47 (0.20)	79.39 (0.07)	70.98 (0.13)
Lower secondary	111.63 (0.17)	16.86 (0.19)	92.60 (0.75)	4.17 (0.06)
Upper secondary	40.03 (0.09)	12.61 (0.11)	19.79 (0.12)	0.00 (omitted)
Tertiary	91.39 (0.21)	0.00 (omitted)	16.56 (0.17)	0.00 (omitted)

Table 3: Urban enrollment by quintile

<i>Gross Enrollment Ratio</i>	Consumption Quintile				
	Q1	Q2	Q3	Q4	Q5
Primary	58 (0.06)	77.33 (0.06)	89.31 (0.05)	92.14 (0.07)	87.70 (0.05)
Lower secondary	41.19 (0.09)	36.90 (0.06)	61.20 (0.19)	53.58 (0.10)	88.98 (0.11)
Upper secondary	31.35 (0.06)	39.75 (0.08)	48.91 (0.09)	82.72 (0.15)	120.89 (0.24)
Tertiary	4.24 (0.01)	7.99 (0.03)	12.15 (0.30)	11.53 (0.02)	13.73 (0.02)
<i>Net Enrollment Ratio</i>	Consumption Quintile				
	Q1	Q2	Q3	Q4	Q5
Primary	38.77 (0.04)	43.25 (0.04)	56.19 (0.03)	59.06 (0.06)	58.78 (0.03)
Lower secondary	3.58 (0.01)	7.59 (0.02)	8.64 (0.02)	2.62 (0.04)	17.15 (0.03)
Upper secondary	6.36 (0.02)	5.01 (0.02)	14.62 (0.04)	10.04 (0.03)	15.44 (0.04)
<i>Age-Specific Enrollment</i>	Consumption Quintile				
	Q1	Q2	Q3	Q4	Q5
Age 6-13	54 (0.04)	63.27 (0.03)	71.95 (0.03)	72.38 (0.05)	73.19 (0.03)
Age 14-15	59.37 (0.06)	68.03 (0.05)	81.41 (0.05)	76.32 (0.09)	80.29 (0.03)
Age 16-17	59.08 (0.08)	80.20 (0.05)	76.69 (0.05)	69.14 (0.07)	66.65 (0.07)
Age 18-24	29.17 (0.05)	44.45 (0.04)	41.12 (0.04)	43.33 (0.04)	49.94 (0.04)

Table 4: Rural enrollment by quintile

<i>Gross Enrollment Ratio</i>	Consumption Quintile				
	Q1	Q2	Q3	Q4	Q5
Primary	54 (0.06)	78.36 (0.06)	85.76 (0.05)	101.53 (0.07)	82.79 (0.05)
Lower secondary	15.41 (0.09)	16.75 (0.06)	70.25 (0.19)	48.10 (0.10)	15.55 (0.11)
Upper secondary	1.53 (0.06)	23.15 (0.08)	25.63 (0.09)	36.14 (0.15)	105.11 (0.24)
Tertiary	0.00 (0.01)	7.13 (0.03)	0.38 (0.30)	4.97 (0.02)	0.00 (0.02)
<i>Net Enrollment Ratio</i>	Consumption Quintile				
	Q1	Q2	Q3	Q4	Q5
Primary	39.07 (0.04)	49.83 (0.04)	54.84 (0.03)	72.16 (0.06)	58.26 (0.03)
Lower secondary	1.17 (0.01)	2.81 (0.02)	0.00 (0.02)	14.49 (0.04)	0.00 (0.03)
Upper secondary	0.00 (0.02)	4.24 (0.02)	6.38 (0.04)	0.00 (0.03)	3.14 (0.04)
<i>Age-Specific Enrollment</i>	Consumption Quintile				
	Q1	Q2	Q3	Q4	Q5
Age 6-13	43 (0.04)	57.11 (0.03)	60.07 (0.03)	75.83 (0.05)	67.76 (0.03)
Age 14-15	40.44 (0.06)	80.44 (0.05)	61.76 (0.05)	80.42 (0.09)	65.98 (0.03)
Age 16-17	35.70 (0.08)	70.20 (0.05)	72.78 (0.05)	84.57 (0.07)	62.76 (0.07)
Age 18-24	21.26 (0.05)	42.71 (0.04)	41.54 (0.04)	50.28 (0.04)	30.68 (0.04)

Table 5: Regression of determinants of out-of-school status for school-age children (ages 6-17)

	Female	Urban	Log PCE	Wage worker	Distance to primary	# of male children	Dependency ratio	Shocks	Constant
Primary	0.07** (0.02)	-0.08** (0.05)	-0.11** (0.02)	0.34 (0.15)	0.12** (0.05)	0.00*** (0.01)	0.01*** (0.01)	-0.04** (0.04)	0.86 (0.19)

	Female	Urban	Log PCE	Wage worker	Distance to secondary	# of male children	Dependency ratio	Shocks	Constant
Secondary	0.12** (0.04)	-0.03** (0.05)	-0.10** (0.04)	0.55* (0.09)	0.16** (0.05)	-0.03*** (0.01)	0.02** (0.03)	0.00* (0.06)	0.64 0.26

*** significant at 1% level

** significant at 5% level

*significant at 10% level

Table 6: Private spending on education by level

Status	Median household expenses per student (1,000 Somaliland Shillings) per month	Average spending on education as percentage of non-food expenditure
	<i>Primary</i>	<i>Primary</i>
Non-poor urban	17	2%
Non-poor rural	5	0%
Poor urban	8	3%
Poor rural	2	1%
	<i>Lower secondary</i>	<i>Lower secondary</i>
Non-poor urban	28	3%
Non-poor rural	3	1%
Poor urban	0	0%
Poor rural	2	1%
	<i>Upper secondary</i>	<i>Upper secondary</i>
Non-poor urban	17	2%
Non-poor rural	3	0%
Poor urban	2	1%
Poor rural	0	0%
	<i>Tertiary</i>	<i>Tertiary</i>
Non-poor urban	36	3%
Non-poor rural	36	4%
Poor urban	-	0%
Poor rural	-	0%
	<i>All levels</i>	<i>All levels</i>
Non-poor urban	28	4%
Non-poor rural	7	1%
Poor urban	8	3%
Poor rural	6	2%

Table 7: Distribution of enrolled students and school-age population by quintile

			Consumption Quintile				
			Q1	Q2	Q3	Q4	Q5
<i>Urban Enrollments</i>							
Primary	Primary		13	17.06	26.39	21.48	22.54
Lower secondary	Lower secondary		12.25	14.97	21.56	20.54	30.68
Upper secondary	Upper secondary		6.78	10.52	18.99	30.00	33.72
Tertiary	Tertiary		4.67	9.70	26.50	22.92	36.21
			Consumption Quintile				
			Q1	Q2	Q3	Q4	Q5
<i>Rural Enrollments</i>							
Primary	Primary		19	26.53	15.89	24.70	13.45
Lower secondary	Lower secondary		12.84	14.23	28.53	36.34	8.05
Upper secondary	Upper secondary		1.40	15.61	17.66	28.03	37.30
Tertiary	Tertiary		0.00	65.52	2.67	31.81	0.00
			Consumption Quintile				
<i>Urban age-specific population</i>			Q1	Q2	Q3	Q4	Q5
Primary (age 6-13)			17.60	18.06	24.19	19.09	21.05
Lower secondary (age 14-15)			16.68	22.75	19.75	21.49	19.33
Upper secondary (age 16-17)			14.31	17.51	25.70	24.01	18.47
Tertiary (age 18-24)			12.08	13.29	23.92	21.79	28.92
			Consumption Quintile				
<i>Rural age-specific population</i>			Q1	Q2	Q3	Q4	Q5
Primary (age 6-13)			27.78	26.30	14.40	18.90	12.62
Lower secondary (age 14-15)			24.78	25.27	12.08	22.47	15.40
Upper secondary (age 16-17)			26.76	19.80	20.24	22.78	10.42
Tertiary (age 18-24)			24.25	23.80	18.06	16.57	17.33