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Gendered patterns of adults' and children's time and access to technology and infrastructure in rural Uganda

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Working Paper 230

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Rosemary Emegu Isoto, Irene Nakamatte, Bernard Bashaasha and Sundus Saleemi

Abstract

This study analyses the time use patterns of men, women and children in rural areas of Uganda. The aims are to 1. Map the gendered patterns of time allocation to paid and unpaid work, total work and leisure. 2. Analyze the differences in individuals' time allocation in various household types and income levels 3. Assess the relationship between time use patterns, diets and productivity and 4. Assess agricultural and domestic technologies and access to infrastructure in their relationship to patterns of time use. The study was conducted in four regions of Uganda. A survey of rural households collected information on the time spent on different activities in the 24 hours by one adult woman, an adult man and the eldest child above age 10.

Time Use Patterns: Men predominantly spend more time on paid work and leisure compared to women, reflecting traditional gender roles. Women are heavily involved in unpaid work, such as domestic and caregiving tasks, while men dedicate considerably less time to unpaid work. The gap in time allocation between men and women persists across different household sizes and compositions, highlighting the strong influence of sociocultural norms. Rural Ugandans; men, women and children in poor households generally spend more time on work than those in non-poor households.

Hours of total work by both men and women increase as the level of formal education increases; among women with formal education, time on unpaid work reduces as their education level increases and time on paid work increases.

Children often support in household tasks, particularly in large households, where they spend more time on unpaid work. Single adult households headed by men exhibit different time allocation patterns compared to dual adult households, where women and children share the burden of unpaid work. Children in dual-adult households spend more time on learning activities than those living in single-adult households.

Time Use and Technologies: The majority of households in rural areas rely on handheld agricultural tools, with fewer households utilizing animal-pulled or mechanized technologies. Access to digital technologies was relatively common but basic phones were more prevalent than smartphones. Domestic technologies such as basic cooking stoves and pumps were also uncommon; washing machines and refrigerators/freezers were absent in rural households.

Access to domestic and agricultural technologies, interacts with time allocation, with implications for women's paid work and leisure. Women in households with no access to agricultural technologies spend the most time on unpaid work. Mechanized technologies increase men's participation in paid work and reduce women's time spent on unpaid work, providing opportunities for reallocation of time.

Time Use and Infrastructure: Access to infrastructure was limited, with only a minority of households having piped water, or electricity grid connections. Women spend more time on total work, particularly unpaid work, in households without access to piped water or electricity, underscoring the gendered impact of infrastructure availability. The distance to all-weather roads and water sources influences time allocation, with variations observed in commuting time and unpaid work among children and adults. Distance to the water source is associated with women's time use patterns; women in the lowest income quintile spend more time in paid work and less in unpaid work when the distance to the water source is less than the sample average. Boys in households closer to the water source spend less time in unpaid work than those nearer the water source, however, this reduction in their time in unpaid work appears to increase girls' time in unpaid work. Overall, children in households with a distance to an all-weather road less than the sample average spend less time commuting and have more leisure time.

Children's Diets and Women's Time Use: Women living with children who consumed at least 5 food groups spend more time on both paid and unpaid work compared to those with children consuming fewer food groups. Specifically, women in households where children had at least 5 food groups spent 4.6 hours on paid work and 5.8 hours on unpaid work, while those with children consuming less than

5 food groups spent 4.1 hours and 4.8 hours, respectively. Additionally, women in households with children consuming at least 5 food groups spent significantly less time on leisure activities. Furthermore, within households where children had at least 5 food groups, children were less involved in total work, indicating a potential alleviation of household responsibilities for them. Men in these households were not involved in unpaid work.

Keywords: Time-Use, Unpaid Work, Gender Inequality, Children's Diets, Technology

JEL codes: J22, J16, B54

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All errors and omissions are our own.

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1 Introduction

Time as a constrained input in household production functions was introduced in economic theory by Gary Becker. Households are considered to produce goods and services for market exchange and consumption from inputs of other goods and time (Heckman, 2015). Since then, various strands of literature have examined economic agents' preferences regarding time allocation in various activities. Some of this literature has focused exclusively on the allocation of women's time since traditional gender roles impose different constraints on women than men.

Women's traditional role subsumes unpaid domestic and care work. It includes childcare, care of the elderly and infirmed members of the household, providing food including its procurement and preparation, and activities surrounding the maintenance of household members such as cleaning, and household management. Gender norms play an important role in determining the time allocated to market and non-market activities, albeit these norms differ temporally and spatially. However, the effect of gender norms on household decisions or the ability of economic agents to allocate their labour suggests that non-economic factors affect the allocation of labour time. These norms may make price signals and/or purely economic incentives ineffective or less effective than in the absence of norms. This may result in labour market imperfections and misallocation of labour. These allocations may also have implications for productivity – time spent on economically unproductive tasks may hinder agents from participating in productive activities. These potential impacts render research on the allocation of time and gender salience.

The study of women's time use is also significant to the analyses of development-related outcomes such as health, education, nutrition and welfare. Households' welfare depends on the services provided by members of the household. The levels of children's health, nutrition, and education depend on parents' income and inputs in home production with both being affected by the input of time (Agénor, & Agénor, 2014). Men often do not participate in home production-related activities or participate less than women. In the absence of men's participation and quality alternatives such as state provision of childcare services, the labour of other household members, hired help, and pre-cooked healthy meals, the loss of inputs of women's time for home production may have negative implications for children's outcomes.

There is, however, little empirical evidence on the effects of the time spent by women in home production and its impact on these outcomes. A number of factors contribute to a dearth of this literature. First, activities performed by women inside the household tend to be ignored and remain unacknowledged. Women do not receive any payment for the services they provide at home. This is both an outcome as well as the reason behind the lack of attention paid to women's work. Second, there is a lack of data to analyse these associations. One way to quantify women's inputs to home production is to assess the time spent by women in these activities. Time use data is not as widely available, especially for countries in the Global South. Time-use surveys are more expensive to administer than traditional household surveys, these surveys also require levels of literacy and numeracy among the respondents, and are time-consuming (Seymour, Malapit & Quisumbing, 2020; Esquivel et al, 2008). Moreover, a lack of familiarity or absence of culture where the concept of time is clock-oriented has also historically hindered the collection of time use data in low- and middle-income countries (Chakraborty et al, 2021). Where there is data available, often does not contain information on socio-economic conditions and/or cannot be combined with other data (Kes & Swaminathan, 2005). There is also a dearth of adequate methods and frameworks to analyse this data. Studies on aspects of time use and its various linkages note that studies fail to adequately conceptualize time use and its linkages with the variables of interest (Stevano et al, 2019). The bounded nature of time demands a holistic analysis of the time spent in various activities as necessarily time spent in one activity must reduce the time spent by an individual in another activity (Ragassa, 2012). Third, there is also evidence of trade-offs between women's time use and children's time.

Women have to rely on children's time to perform tasks at home, children contribute to activities ranging from caring for other children, collecting fuel and water for domestic use, and partaking in their farm activities or activities surrounding the care of animals in rural households. In some contexts, girl children are more likely than boys to undertake these tasks (Fox et al, 2016; Nankhuni & Findeis, 2004). Changes in the allocation of women's time, or changes in the constraints to women's time affect the allocation of children's time as well that may have independent impacts on their life outcomes. Time use is also linked to deprivation and poverty. If working individuals do not have sufficient income to fulfil their basic needs, they are forced to trade off time between competing claims often sacrificing rest, leisure, or entertainment. (Msigwa and Mofulu, 2013; Stratton, 2020; Rios-Avila et al., 2021).

There is limited evidence on the impact of interventions on overall time burdens because studies either focus on only time use in agriculture which means that they are unable to assess if time spent in other work; domestic work, food preparation, and childcare increases or decreases and also that studies do not always look at the intrahousehold distribution of time or the attendant impacts of interventions on all household members. Moreover, research on agriculture and time use rarely uses an intersectional lens in their analysis of gendered patterns of time use, so while most studies find that women spend on average more time in work than men including in agricultural activities, the differences in the time spent by people due to the differences in socio-economic backgrounds of these people are less well known (Johnston et al, 2018; Vemireddy & Choudhary, 2021). Understanding time-use effects is important to target policy interventions yet with limited empirical evidence, this study, therefore, sets out to examine how the adoption of agricultural technologies may influence changes in time-use patterns among farming households.

The overall objectives of this study are to:

1. Assesses the time use pattern of men, women and children,
2. Assesses the relationship between women's time use and indicators of children's diets,
3. Assess the relationship between women's time use and household productivity,
4. Examine the technologies that impact patterns of men's, women's and children's time use.

2 Review of Literature

The various aspects of women's allocation of time and its interactions with development outcomes have garnered some research and analysis. Here, three strands of this work are reviewed; research that 1. Examines patterns of time use and impacts of technologies and innovations on time spent in various activities. 2. Examines the impact of time (or time burden) on outcomes such as health, education, and welfare and 3. Examines the impact of time on productivity.

2.1 Time use patterns and the impacts of technology, mechanization, and innovation

Women spend more time than men in non-leisure activities and spend significantly more time in home production. Charmes (2006), examines the data from time-use surveys from five countries in Africa¹ and shows that women spend more hours per day at work than men across these various contexts due to domestic activities. However, the differences in the time spent by men and women in work vary across these countries. Charmes (2019) examines the magnitude of unpaid care work and paid work undertaken by men and women in all world regions where data were available. The data shows that more than two-thirds of the global unpaid care work is undertaken by women. Moreover, the higher the number of hours spent by women in unpaid care work, the lower the number of hours spent by women in paid work. This pattern suggests that the burden of unpaid work on women does not allow them to participate equally as men in paid work (Floro and Komatsu, 2011). The data also show that countries where women spend more time in paid work than in unpaid work in the rural areas, are countries where majorities are engaged in agriculture, and globally women in the rural areas spend more time in unpaid work than those in the urban areas.

The rates of time poverty among women are also considerably higher than among men. Time poverty refers to having no choice but to work long hours because otherwise, individuals would become poor or, working long hours to avoid falling into poverty or to avoid further poverty (Kes & Swaminathan, 2005; Bardasi & Wodon, 2010; Gammage, 2010; Antonopoulos et al 2017)². Time use data from Guinea shows that even with the absence of data on time spent by individuals on care work; women in the rural areas are most burdened with work surrounding the provisioning of basic needs of households and women have overall higher working hours (Bardasi & Wodon, 2010). In the review of studies that have estimated the total time spent by individuals in non-leisure activities, i.e, time spent in work including paid work, domestic and outside chores (cooking, fetching water) and work on subsistence farming or own-farming or business enterprise women work more than men (Ilahi, 2000).

Empirical studies examining the impact of technology on women's time allocation particularly in the Global South remain few. Economic incentives often considered by studies are wages, unearned income and education levels. Campos & Gassier (2017) have reviewed studies that have identified factors that contribute to profitability gaps in women-owned enterprises in Africa. The authors report interventions/innovations instrumental in freeing up women's time and increasing their rates of

¹ Benin, South Africa, Madagascar, Mauritius, Ghana

² In related work, Gálvez-Muñoz et al (2013) have used the Spanish time-use survey to estimate the covariates of capabilities as conceptualized in the capabilities approach. They use time spent by children and adolescents in activities surrounding social life, sports and leisure, education and unpaid housework and care work. They explore the correlations between parents' time in paid and unpaid activities with children's capabilities. They find negative associations between time spent by mothers and fathers in paid work with children's capabilities and also a negative association between mothers' time spent in unpaid work with children's capabilities. Seymour & Floro (2021) have explored the link between individual identity and well-being as affecting the impact of time-use on women's subjective well-being. Whether individuals gain utility, pleasure or displeasure from activities is hypothesized to be linked to their sense of identity.

employment; childcare services in rural Mozambique and public funding of childcare in Brazil (Martinez et al, 2012; Barros et al 2011). Similarly, in Argentina, the introduction of pre-primary school programs increased the mothers' likelihood of being employed (Berlinski and Galiani, 2007). Carrand & Hartl (2010) also provide an overview of interventions that have reduced women's time burdens, these include community-based water schemes in Kenya that led to a decline in women's time burdens allowing them to work on their kitchen gardens and improving girls' school attendance. Simple technologies such as efficient cooking stoves have the potential to reduce women's time burdens but often cannot be accessed by women due to a lack of own income – women may not have the bargaining power to access households' income or their husbands' income to buy improved cooking stoves in the absence of their incomes.

Peterman et al (2014) reviewed empirical literature published during 1999-2009 on gendered access to agricultural input and technology in developing countries. Of the studies reviewed 24 examined technological resources and did not assess the impacts on women's time use; these studies mostly focus on gendered adoption rates and differences in outputs/yield. Similarly, 11 studies examining natural resources have also examined adoption rates and changes in output, not the effects on time. Paolisso et al (2002), show that women spend more time in childcare and a fruit and vegetable intervention program was associated with a reduction in women's time in this activity. Quisumbing & Yohannes (2004) reported that childcare is among the major obstacles to women's participation in public works programs. De Barros, Lunde, & Carvalho (2011) show in their analysis of randomized trials a significant increase in the participation of women in the labour force and employment rates with the introduction of subsidized childcare in Rio de Janeiro. Pender & Gebremedhin (2006) found differences in the availability of labour (including own labour hours) between male and female-headed households. The hours of work done by household members in women-headed households were less than in male-headed households and this was associated with the presence of children in the household (Horrell, & Krishnan, 2007).

Grassi, Landberg & Huyer (2015) note the significant impact (and untapped potential) of digital and ICT technologies for women farmers and entrepreneurs in a range of contexts. In Africa, women onion wholesalers use mobile phones to coordinate their activities reducing the need for commuting to sellers and buyers. Mobile phones also allow access to financial services and digital banking, e-governance services, and access to information such as weather forecasts. Collectives and cooperatives have also been observed to reduce women's time burdens by allowing them to access technologies that would not be otherwise affordable. Access to energy also features prominently in terms of its potential to reduce women's time burdens. Access to water and irrigation facilities are helpful so are improvements in transport and infrastructure.

Daum, Capezzone, & Birner, (2019) have examined the effect of farm mechanisation on household members' time use in agricultural and non-agricultural activities. The study does not find that mechanization of land preparation due to tractors increases women's work on farms including weeding and post-harvest processing. They find that the mechanization of men-dominated activities benefits both men and women in terms of reduction of time spent in farming activity. The study is based on a small sample. Hasanbasri, et al (2021) show a strong negative association between asset ownership and time spent by women in unpaid work in Cambodia.

Daum et al. (2020) argue that new technologies, policies, and practices can affect the intra-household allocation of time in smallholder farming households. Therefore, the time-use of men, women, boys, and girls can be affected differently as farm technologies and policies target different crops and tasks. Results suggested that animal-draught-using households spent more of the extra time associated with mechanization on domestic chores compared to manual labor-using households; while tractor-using households re-allocated this time for off-farm work and domestic work such as household chores and care for children. Most importantly, household production tasks and the domestic care burden of women may limit technology adoption especially if such technologies require a greater time commitment. Daum et al. (2020) state that the time-use effects of technologies for home economics

such as improved cook stoves, electronic household items, and processed food, may reduce time poverty especially among women and also loosen constraints to participate in paid work.

2.2 Time use and health, education and welfare outcomes

Agénor, & Agénor (2014) show that improvements in infrastructure impact economic growth via its effects on the allocation of women's time to market and non-market activities. The level of children's human capital depends on parents' income and parents' time spent on home production. Infrastructure, by alleviating constraints on women's time leads to the accumulation of human capital having attendant impacts on growth.

Higher time spent by women in activities such as the collection of fuel leaves them with little time to prepare nutritious foods (Cecelski, 2000; Padmaja et al, 2019; Kadiyala, et al, 2014). The time spent by women in domestic work is associated with higher dietary diversity among women and children (Komatsu et al, 2018). However, the impact depends on various factors. First, activities may compete with childcare practices whereby a negative effect on the time spent on such activities can be expected, however, some other activities may be possible to be undertaken simultaneously with childcare activities. Also, the relationship may be mediated by the age of the child. The absence of a negative association between increased time burdens and nutritional outcomes of children may also be because women who see an increase in their time burdens may be able to compensate for the reduction in childcare activities by other means, for example, hiring help in the household. Also, women may reduce their leisure or rest (Johnston et al, 2018).

Nankhuni & Findeis (2004) find that women rely on children for their work in fuel wood and water collection and living in areas with fuelwood scarcity increases the number of hours spent by women and children in fuelwood collection. They report that having more women in the household increases the likelihood of children attending school suggesting that allocation of women's time to these tasks improves schooling. Households' access to piped water reduces the time spent on this work. Similarly, Ndiritu & Nyangena (2011) find that scarcity of natural resources decreases the likelihood of children attending school by increasing the time required to collect fuelwood. They also find that mothers' involvement in fuelwood collection decreases the time spent by children on this task and thereby increases the likelihood of children attending school. In related work, Agesa & Agesa (2019) use the Kenyan Integrated Household Survey to estimate the trade-offs between time spent by children collecting water for the household and going to school. The study notes that this trade-off may partially explain the high rates of school dropouts, particularly for girls in Kenya. Similar results are shown by Gebru & Bezu, (2013) in the case of Ethiopia. Koolwal & van de Walle (2013) also show that access to water has a positive impact on children's schooling.

2.3 Time use and agricultural productivity among farming households

Cui et al. (2019) examined the impact of leisure time on labor productivity and found leisure time to be positively related to labor productivity in some OECD countries. This was attributed to positive and constructive activities engaged in during leisure time they benefit individuals' physical strength, willpower and creativity. In addition, education time had a significant positive impact on labor productivity in terms of per capita per hour GDP attributable to the highly skilled and productive workers, who in turn increase the output of goods and services in the economy. In a study to examine the relationship between working hours and the productivity of call centre agents, Collewet & Sauermann (2017) indicated that an increase in effective working time by 1 percent leads to an increase in output, i.e. the number of calls answered, by about 0.9 percent corresponding to moderately decreasing returns to hours or productivity probably due to fatigue among agents.

Getahun (2018) analyzed the determinants of Ethiopian women's hours of housework in Bahir Dar City and rural villages of two nearby districts. Results revealed that time availability and resources or bargaining power, and gender ideology/display, women's employment status, years of schooling, and loan receipt status had statistically significant negative associations with a woman's housework time. On the other hand, traditional gender perception/practice had a weak significant positive association with housework time.

Rios-Avila et al. (2021) estimate the impact of a group of variables on time dedicated to household production by husbands and wives in Ethiopia, Ghana, South Africa, and Tanzania. Study results indicated that women who engaged in paid employment dedicate fewer hours to household production while unemployed women dedicate more hours than their self-employed counterparts. Evidence suggests that factors that impact the overall hours necessary to fulfil the household needs, such as the presence of young children, increased wives' hours more than their husbands while time-saving characteristics, such as the use of electricity, increased benefits for husbands with a greater decrease in hours.

Stratton (2020) argues that household members spend considerable time on routine household tasks and activities they place a higher value. In rural communities, subsistence farming remains the major livelihood activity and is more likely to allocate more of productive work hours in a day.

3 Data and Methodology

The data collection followed the survey design approach to provide a quantitative description of time allocation by the sample respondents. The survey instrument comprised modules to capture; household demographic and socioeconomic characteristics; dwelling, energy, water, household and agricultural assets, use of social services, household consumption expenditures; crop and livestock production; household incomes; time allocation of primary adult male, adult female and eldest child over age 10 and below 18 years as well as children diets. For individual time use data, survey respondents recorded their daily activities in for every 30-minute interval during 24 hours. Time use data were collected from a man, a woman and the eldest child in the household over age 10 and below 18 years. We used nineteen (19) pre-specified activities categorized under six (6) broad categories: paid work, unpaid work, self-care, leisure, commuting, and schooling. While most activities would fall within these categories, an open-ended *other (specify)* option was also included in the module.

3.1 Survey Design, Sampling and Scope

Following the first phase of CAES-ZEF (I) project areas, one district was randomly selected from each region making a total of four (4) districts for the entire sample. The selected districts were Moroto (Karamoja), Lira (Northern), Kisoro (Western) and Bududa (Eastern). All the households as per the sixth wave of CAES-ZEF I at the district level were targeted to maintain a representative sample that allows for reliable estimation of the key indicators of interest from both the regional and national level perspectives. With a target sample of 311 households (with 73 HHs targeted from Bududa and 79 HHs from each of the other three (3) districts), the majority of households 310 at 99% were successfully interviewed with slight attrition cases largely resulting from household migrations/shifts from the district. The field exercise lasted for eight (8) days from September 28, 2022, to October 5, 2022, conducting an average of 4 interviews per research assistant to ensure soundness and avoid the negative effects of fatigue.

3.2 Data analysis

3.2.1 *Characteristics of the study population*

Table 1 shows that overall, the average age of the household head was 47 years with an average of six members in the household. On gender disaggregation, the average age of male-headed households was 47 years while women-headed households were older (51 years). A majority of the sampled household heads were married (82.3%). Of those who were married, about 25.9% were from polygamous families. Table 1 also shows that household heads from Karamoja had the lowest number of completed years in school. In the same way, Karamoja was comprised of the highest proportion of female-headed households perhaps explained by the high mobility of pastoral husbands who seasonally move from place to place in search of pastures and water for their livestock, culturally referred to as assets and an important store of wealth at the household level. Farming households were largely male-headed (82.3%) across all the regions with the Karamoja region having comparably more female-headed households (24.1%), followed by Eastern (21.9%), Northern (15.2%) and Western (10.1%).

Table 1: Socio-demographic characteristics of sampled households by region

Variable	Overall	Karamoja	Eastern	Western	Northern
Sex of household head (1=Male)	82.3	75.9	78.1	89.9	84.8
Proportion married	82.26	78.48	75.34	92.41	82.28
Sex of respondent (1=Female)	56.77	69.62	45.21	60.76	50.63
Age of household head (years)	47.51 (13.59)	44.41 (15.72)	51.23 (15.07)	47.67 (13.30)	47.03 (8.64)
Household size	6.26 (2.28)	5.63 (2.05)	6.21 (2.95)	6.47 (2.21)	6.73 (1.68)
Education of household head(years)	4.85 (4.17)	1.89 (4.33)	5.78 (3.71)	5.32 (3.68)	6.49 (3.35)

Note: Out of the total sample (310) at the national level, 79 respondents were from Karamoja, 73 from Eastern, 79 from Western and 79 from Northern region.

Overall, about 36.8% of the household heads from the sampled population could not read with understanding and write in any language. High illiteracy levels were observed among female-headed households reported at 69.1% and in the Karamoja region (82.3%). Most of the household heads could perform basic numeracy across all regions; 89.9% in Karamoja, 86.3% in Eastern, 81.0% in Western and 94.4% in northern regions. This is perhaps attributed to the fact that most of the household heads had ever attended school for an average of seven years.

Table 2 shows that overall, a majority (65%) of the households are engaged in the agricultural sector. Region-wise, the western region leads followed by the eastern, northern and lastly Karamoja region. Karamoja lags due to predominantly having semi-arid climatic conditions and experiencing only one rainy season for crop production activities. The one season is from March to October which is in contrast to other parts of Uganda where two main production seasons are observed coinciding with the short and long rainy seasons. Other income-generating activities include retail trade, mining and quarrying and others (education, health and social work). Very few households (1.4%) were involved in manufacturing.

Table 2: Proportion of households engaged in sector of employment

Sector of employment	Overall	Karamoja	Eastern	Western	Northern
Agriculture, Hunting and Forestry	65.0	28.9	77.4	84.1	75.4
Mining and Quarrying	11.0	33.3	0.9	3.2	3.4
Manufacturing	1.4	0.0	0.0	1.6	3.4
Retail trade, except of motor vehicles	16.1	32.1	13.0	7.1	10.3
Education	2.8	4.5	3.5	4.0	0.0
Health and Social Work	3.7	1.3	5.2	0.0	7.4

Note: Out of the total sample (310) at national level, 79 respondents were from Karamoja, 73 from Eastern, 79 from Western and 79 from Northern region.

Most of the households were self-employed in agriculture (42.0%) partly explained by the fact that these were largely farming households with agriculture being the main economic activity in the rural communities. These were followed by households self-employed in non-agricultural activities without employees (19.1%) and temporary casual labor (18.5%). Working as agricultural/fishery skilled laborers (market-oriented farmers, hunters, forestry workers) was the main occupation for most households (43.4%), followed by elementary laborers (street vending, shoe cleaning, cleaner, labor in mining, construction, transport laborers) at 20.8% and service workers or market sales agents (shop

salespersons, personal care, housekeeping and restaurants) at 10.5%. About 11.7% of the households sampled did not have any main occupation. Moreover, a considerable proportion of households sampled did not have secondary occupations.

3.2.2 Time Use Patterns

We provide cross-tabulations of time use data to draw patterns of men, women and children’s time use and their relationship with important variables that influence time allocation such as age, education, household demography, household incomes and expenditures, type of dwelling, access to services, children’s nutrition score, among other factors in the study areas. Following UBOS (2019) and ICATAS (2016), the activities a person spends in 24 hours can be classified into six major categories namely paid work, unpaid work, self-care, commuting, learning/schooling, leisure and any other activities.

3.2.3 Time use patterns by gender and regions ³

More women (79.4%) out of the total sampled households participated in the time use survey, followed by men (54.2%) and children (35.5%).

Table 3: Difference in time use by men and women

Activity	Men	Women	Difference
Total Work	6.96	8.37	-1.41***
Paid work	6.47	3.92	2.54***
Unpaid work	0.49	4.45	-3.96***
Self-care	13.46	13.78	-0.33
Leisure	2.86	1.34	1.53***
Commuting	0.64	0.50	0.14
Schooling	0.04	0.00	0.04
Other activities	0.04	0.00	0.04

Note: Level of significance denoted as *p<0.05, **p<0.01 and ***p<0.001. .*** and ** indicates that the difference in the time devoted by men and women to the reference activity is statistically highly significant and statistically significant at the 99% level of significance, respectively, based on a t-type test of equal means. The difference is measured as the time devoted by men minus the time devoted by women to the different work categories. Number of observations for men (168), women (246) and children (110) computed as the proportion of households from which men, women and children participated in the time-use survey.

Table 3 shows that women spend more time (8.4 hours) than men (7.0 hours hours) on total work. Within the total work category, men spend much of their time on paid work activities (6.5 hours) while women spend slightly the same amount of time on paid work (4.0 hours) and unpaid work (4.5 hours) activities. In addition, men significantly spend more time (1.5 hours) on leisure activities than women.

Women and men from the western region spend more time on **total work** followed by those in the eastern, northern and Karamoja regions. Men generally spend more time on **paid** than **unpaid** work regardless of region. However, the trend slightly changes among women where more time is spent on **unpaid** than paid work in Karamoja and northern Uganda while women in eastern and western Uganda spend slightly more time on paid than unpaid work. Notably, children in Karamoja spend more hours on total work, and in particular unpaid work, compared to children in other regions. On the

³ In the appendix, time use patterns by the hour are presented.

other hand, children in Karamoja spend zero hours while those in other regions spend between one and two hours on paid work. Overall, both men and women in Karamoja comparably spend less time on total work, and more specifically, paid work partly explained by the single agricultural season yet this is the main source of rural livelihoods in the country. Regardless of region, men spend more time on leisure activities than women. It was also noted that men, women and children in northern Uganda spend more time on leisure than the rest of Uganda. In terms of time spent on commuting, men, women and children in eastern Uganda remain leading. Generally, women are not observed to spend any of their days on learning activities. Among children, children in other regions of the country rather than Karamoja were seen to spend some of their time between two to 7 hours on learning activities.

3.2.4 *Time use pattern by Age groups and Gender*

We disaggregate the sample by age into three age groups namely, youth (18-30 years), adults (31-59 years), and elderly (60+ years). In the study, a majority of the men who participated in the time use survey were adults (69.6%), followed by the elderly (18.5%) and youths (11.9%). Among women, the majority of the adults participated in the study (68.7%), followed by youths (20.3%) and lastly, the elderly (11.0%).

Youths' time use pattern: Overall, female youths spend much more time (9.1 hours, $p < 0.05$) on total work compared to the males who spend 7.1 hours. Overall, these female youths devote their time to unpaid than paid work activities (Figure 1). On the other hand, male youths spent more time on paid work. Higher male involvement in paid work is consistent with previous studies such as UBOS (2017) which indicated that the proportion of males among working youths was higher than that of their female counterparts. This could partly be explained by the recently increasing youth livelihood government programs and initiatives such as the Emyooga in rural Uganda that have largely enrolled male youths. While evidence suggests that male youths are more interested than female youths in entrepreneurial development training (Mawanga, 2017), social and cultural norms also require female youths to take on day-to-day household activities than their male counterparts. This could also explain why more female youths are involved in unpaid work activities.

Adults' time use pattern: Women are observed to carry the brunt of the burden of unpaid work activities and significantly spend more time (4.5 hours) on the work category compared to men (0.3 hours). This could be attributed to the fact that Ugandan rural women not only contribute a higher-than-average share of crop labor in farming activities, but also have the primary responsibility of caring for their families including child-rearing, preparing food, and providing for basic needs such as education and health care. While men spend more time (6.6 hours) on paid work than women, the latter are also increasingly actively engaged in paid work activities (4.2 hours). Women also often take on income-generating activities such as agricultural produce trading, poultry raising, hair braiding, and or handcraft making, among other activities to earn money for household day-to-day expenses and emergencies which is an important reason that explains the relatively equal amount of time spent on paid work. Notably, men spend significantly more time (3.1 hours) on leisure than women (1.4 hours). Lastly, men spend a small proportion of their time on learning and other activities while women do not.

Elderly time use pattern: Elderly women tend to spend more time in unpaid work activities than men. However, elderly men were observed to spend more hours (3.4 hours, $p < 0.01$) on paid work activities than elderly women. Overall, Figure 1 shows that elderly women also spend comparably lesser time on both paid and unpaid work activities than the youth and adult female age groups partly attributed to the strong association of physically demanding work with poor functioning yet most of these activities entail high physical workload. In a similar trend, elderly men are more time (2.0 hours) involved in leisure activities than elderly women (1.5 hours).

Table 4: Mean time allocation by household members on different work categories by region

Activity	Men				Women				Children			
	Karamoja	Eastern	Western	Northern	Karamoja	Eastern	Western	Northern	Karamoja	Eastern	Western	Northern
Total Work	5.78	7.58	7.77	6.05	6.93	8.57	9.25	8.48	7.00	2.76	3.94	4.59
<i>Paid work</i>	4.63	7.00	7.47	5.80	2.06	4.54	4.94	3.80	0.00	1.04	1.47	1.55
<i>Unpaid work</i>	1.15	0.58	0.30	0.26	4.88	4.03	4.31	4.69	7.00	1.73	2.46	3.04
Self-care	15.35	13.12	13.01	13.34	15.55	13.34	13.14	13.4	17.00	13.21	11.58	13.45
Leisure	2.57	2.45	2.46	3.86	1.31	1.43	0.99	1.61	0.00	1.68	0.65	3.45
Commuting	0.30	0.73	0.63	0.71	0.21	0.65	0.61	0.48	0.00	0.76	1.13	0.55
Schooling	0.00	0.13	0.01	0.00	0.00	0.00	0.00	0.00	0.00	5.58	6.71	1.96
Other activities	0.00	0.00	0.12	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Note: Number of observations for men (168), women (246) and children (110) computed as the proportion of households from which men, women and children participated in the time use survey. Among men who participated in the time-use survey, number of observations from Karamoja, Eastern, Western and Northern were 23, 52, 46 and 47, respectively. The number of observations for women participation in the time use survey were Karamoja (53), Eastern (68), Western (64) and Northern (61) while children participation was recorded as Karamoja (1), Eastern (42), Western (39) and Northern (28).

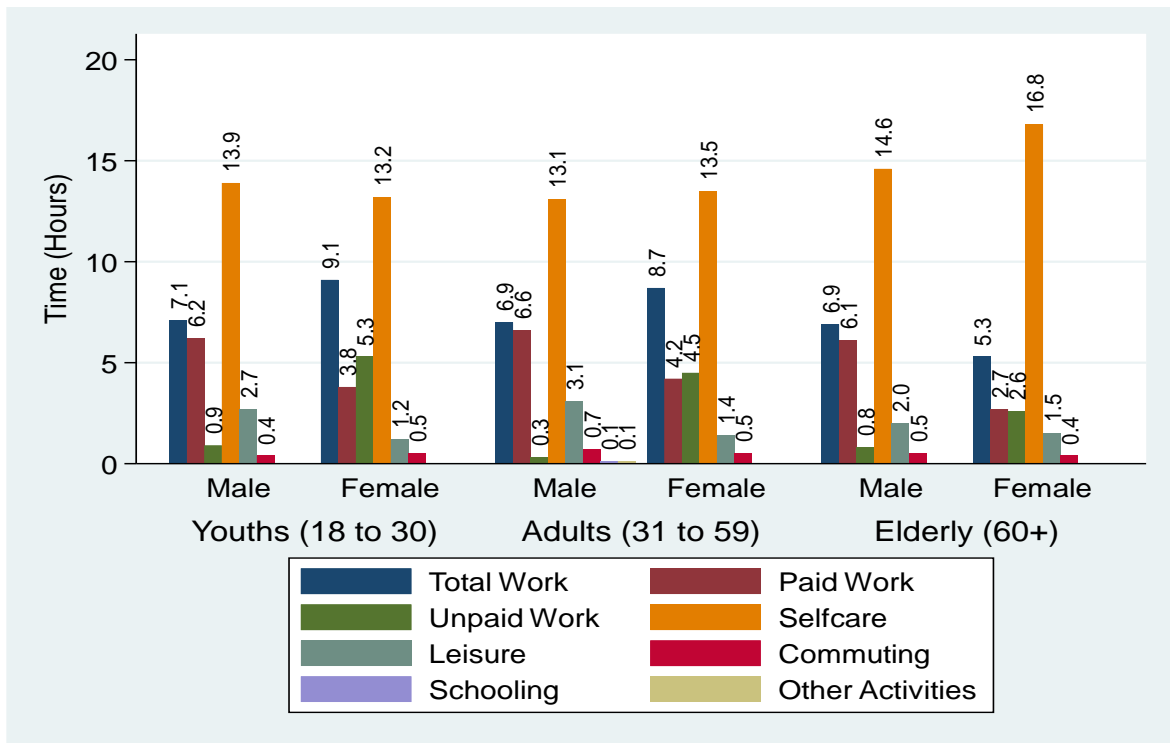


Figure 1: Average hours spent on different work categories disaggregated by age groups.

Table 5: Significance of time use differences between men and women, by age categories

Activity	Mean difference in time use		
	Youths	Adults	Elderly
Total Work	-2.06*	-1.69***	1.59
<i>Paid work</i>	2.41*	2.46***	3.38**
<i>Unpaid work</i>	-4.47***	-4.14***	-1.78**
Self-care	0.71	-0.41	-2.19
Leisure	1.53**	1.76***	0.5
Commuting	-0.17	0.21*	0.09
Schooling	-	0.06	-
Other activities	-	0.06	-

Note: Level of significance denoted as * $p < 0.05$, ** $p < 0.01$ and *** $p < 0.001$. *** and ** indicates that the difference in the time devoted by men and women to the reference activity is statistically highly significant and statistically significant at the 99% level of significance, respectively, based on a t-type test of equal means. The difference is measured as the time devoted by men minus the time devoted by women to the different work categories.

Children time use pattern: Children had an average of 14 years (ranging from 10 to 13 years). Children are then observed to allocate their time to total work averagely 4 hours in a day, largely to unpaid work (75%) with a few children who most probably do not attend school devoting some time to paid work. Averagely children devote 2 hours of their time to leisure in a day. Nonetheless, it is observed however that the amount of time spent on self-care activities gradually reduces as age increases partly because of the increasing involvement in unpaid work activities with the intermittently delegated roles of caregiving and support on household chores.

3.2.5 *Time use pattern by education and gender*

Education was categorized into four categories, no education (0 years of formal education), primary (1-7 years of formal education), secondary (8-13 years of formal education) and tertiary (more than 13 years of formal education). Most of the women who participated in the time-use survey had attained primary education (57.3%), followed by those with no formal education (34.9%) and secondary education (7.7%). None of the sampled women attained tertiary education. Among men, the majority attained primary education (58.9%), followed by secondary education (18.5%), no formal education (16.7%) and tertiary education (5.9%).

Men and women's time use pattern: Disaggregation by education shows that men and women with no formal education spent much less time on total work than their counterparts with formal education. Within the category of individuals with no formal education, men spend more time (1.6 hours, $p < 0.05$) than women in paid work while women spend more time (3.1 hours, $p < 0.001$) than men on unpaid work.

Notably, the number of hours spent on total work by both men and women increases as level of formal education increases. To note, women significantly spend more time (1.9 hours, $p < 0.001$) compared to men on total work. Among men, time allocation largely increases for paid work from over 5 hours to 6 hours, 7 hours and 9 hours which could be explained by the positive correlation between education and increase in business acumen where more educated men work as employed and/or participate in income generating activities than the illiterate. Overall, men spent more time on paid work than women at each successive education level, that is 2.4 hours ($p < 0.001$) and 2.01 hours ($p < 0.05$) among primary and secondary level graduates, respectively. Among women however, time is significantly spent on unpaid work at each level of education attainment. Nonetheless, women tend to spend more time on paid work with increase in education level from 4 hours among those with no education level to 4 hours and over 5 hours among women with primary and secondary education, respectively.

Men with tertiary level of education spend zero hours on unpaid work perhaps due to absence of monetary payoffs at the completion of such tasks but also the sociocultural roles attributed to women as caretakers of domestic work and other household members. Among women with formal education, time spent on unpaid work reduces as education level increases partly because women tend to get more involved in formal activities and thus delegating or allocating some of the unpaid work tasks to their children from time to time. Men spend more time on leisure compared to women, regardless of education level.

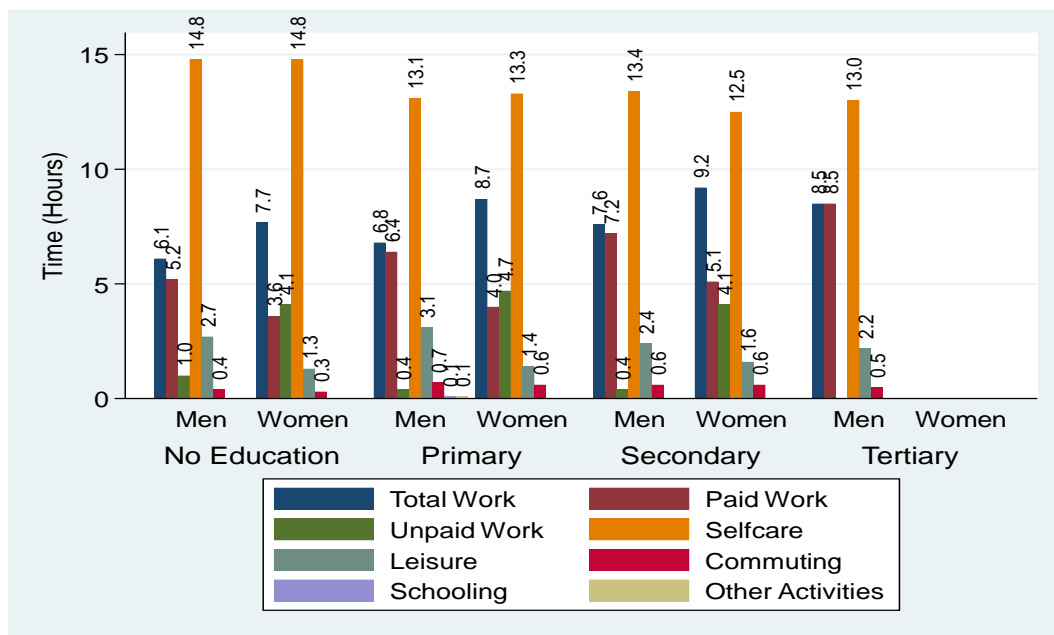


Figure 2: Average time spent on work categories by men and women per day, by education level and gender.

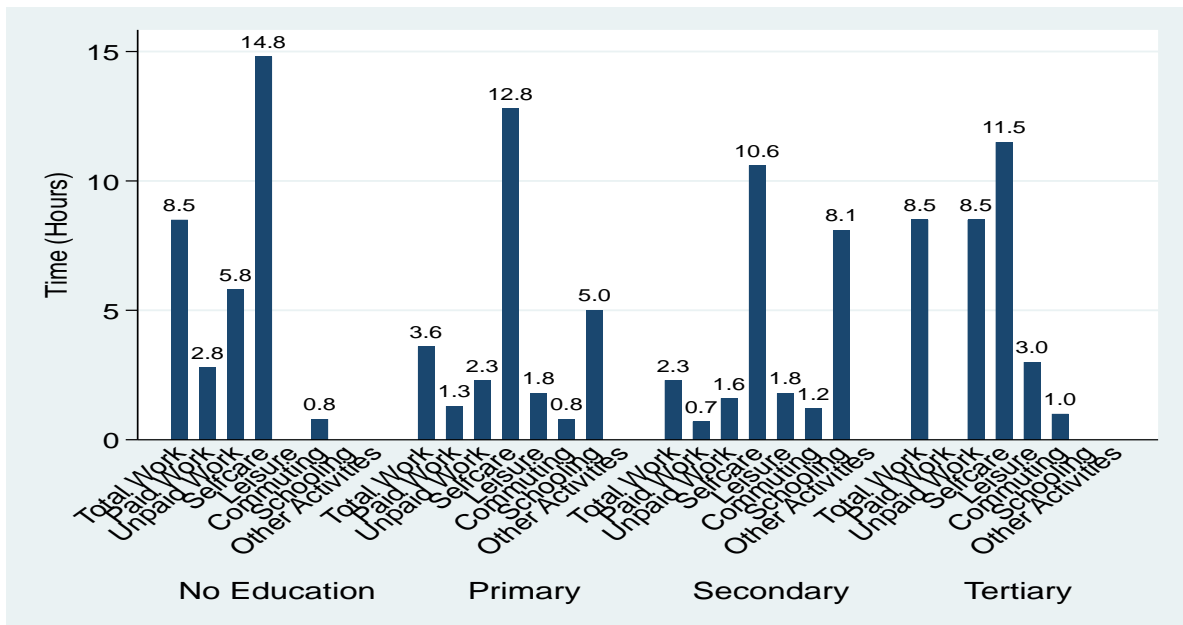
Table 6: Significance of time use differences between men and women, by education categories

Activity	Mean difference		
	No Education	Primary	Secondary
Total Work	-1.53	-1.85***	-1.64
<i>Paid work</i>	1.60*	2.43***	2.05*
<i>Unpaid work</i>	-3.13***	-4.28***	-3.69***
Self-care	0.02	-0.21	0.92
Leisure	1.40**	1.79***	0.77
Communing	0.11	0.14	-0.05
Schooling	-	0.07	-
Other activities	-	0.07	-

Note: Level of significance denoted as * $p < 0.05$, ** $p < 0.01$ and *** $p < 0.001$. .*** and ** indicates that the difference in the time devoted by men and women to the reference activity is statistically highly significant and statistically significant at the 99% level of significance, respectively, based on a t-type test of equal means. The difference is measured as the time devoted by men minus the time devoted by women to the different work categories

Children time use pattern: Majority of the children had attained primary education (92.7%) with only a few having secondary education (4.5%), no education (1.8%) and lastly, tertiary education (0.9%). Children with no formal education averagely spend more hours on total work (9 hours) compared to children with formal education as they support their parents on a day to day basis, save for children with tertiary education who spend the same amount on time (9 hours). Children with no education spend the highest amount of their time on unpaid work. While children with tertiary education devote all the time to unpaid work activities, children in other categories of education level devote a smaller proportion of the time (no education, 33%; primary education, 36% and secondary education, 30%) to paid work activities. The largest share of time on learning activities is spent by children with secondary education (8.1 hours), followed by children with primary education (5 hours).

Figure 3: Average time spent on work categories by children per day, by education level.



3.2.6 Time use pattern by Household composition

Household composition was classified based on the mean size of the households. Hence, we have small-sized households (below 6 members and large-sized- households (above 6 members). Figure 8 shows that men and women in large sized households spend more time on paid work than those in small-sized households. Men significantly spend more time (1.5 hours) at 5% level of significance. This is partly explained by the compulsion to meet the increased household basic needs. Notably, men in small households spend slightly more time on unpaid work than those in large households perhaps supporting their family in domestic work.

Women in large households spent more time on unpaid work than their counterparts in small households given the increased workload resulting from a larger household size. Moreover, large households have more children (9) compared to the small households with only about 5 children. While men in small households spend slightly more time on leisure than their counterparts in large-sized households, women tend to spend the same amount of time on leisure regardless of household size.

Children in small households spend slightly more time on total work (3.8 hours), self-care (12.9 hours) and leisure (1.8 hours) compared to their counterparts living in large households. However, children living in large households spend relatively more time (5.7 hours) on learning activities than those living in small households (4.7 hours).

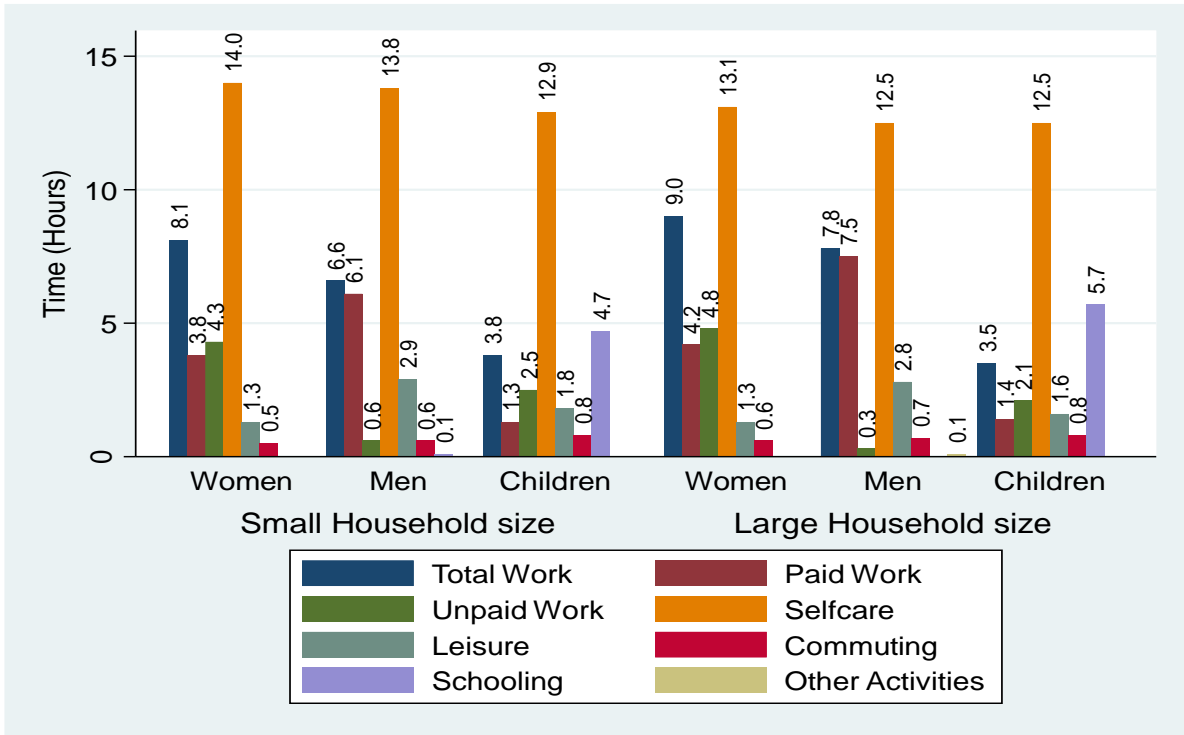


Figure 4: Time Use by household composition.

3.2.7 Time use pattern by Number of adults (Single vs. dual adult households)

To assess whether there is a difference among men, women and children living in single adult vis-à-vis dual adult households, the study categorized households as either single adult when a household acknowledges one adult male or female as the head of the household, or dual adult household when more than one adult are acknowledged. Both men and women in single adult households spend comparably lesser amounts of time on total (paid and unpaid) work than in dual adult households. In general, women spend comparably more time on total work than men. Among women, those living in dual adult households significantly spend more time (2.4 hours) on total work and in particular, on unpaid work (1.4 hours) at 1% level of significance than their fellow women living in single adult households. Comparably, women in single adult households spend less time on paid work than those living in dual adult households

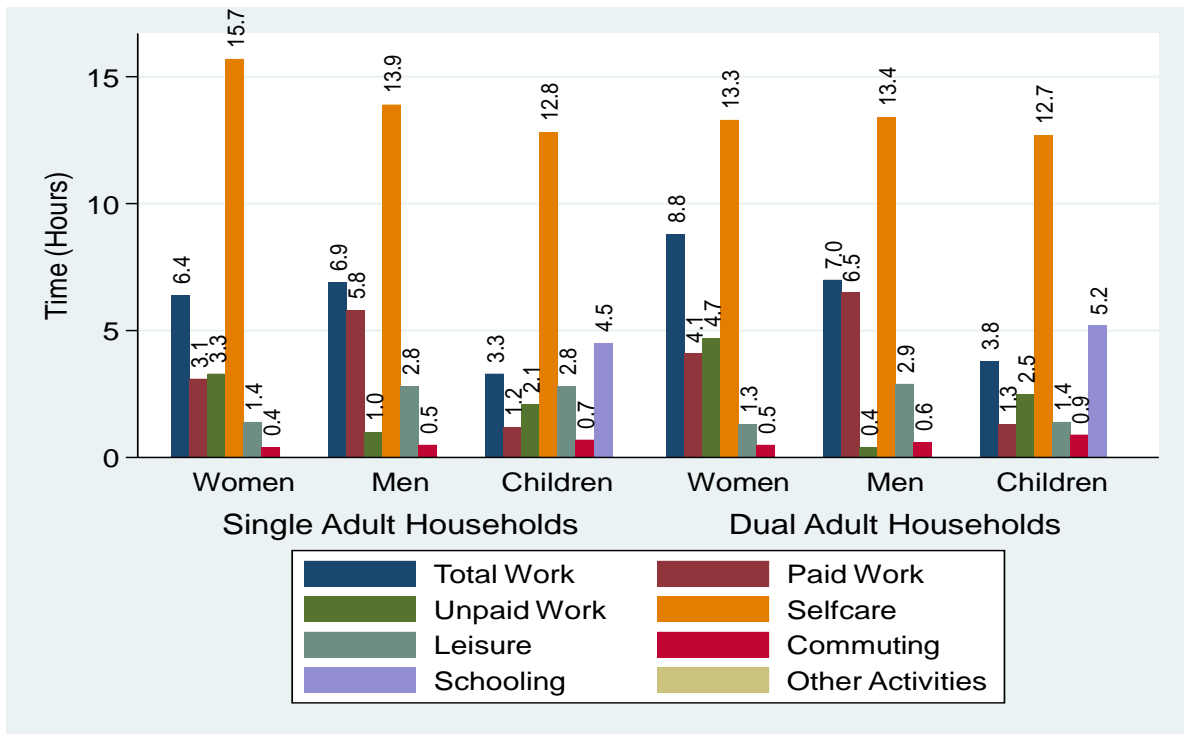


Figure 5: Time use by number of household adults

Men in single adult households spent slightly more time on unpaid work. Whereas, women and children in dual adult households spent more time on unpaid work activities than those in single adult households partly attributed to the sociocultural norms where women and children are expected to primarily undertake the domestic and caregiving tasks rather than the men in a household. Regardless of the number of adults in a household, men spend more time on leisure than women. However, children in dual adult households spend lesser time (1.3 hours) on leisure compared to children living in single adult households significant at 1%. In the same way, children in dual-adult households spend more time on learning activities than those living in single-adult households.

3.2.8 Time use pattern by income status

In line with the definition of headcount poverty as the percentage of the population below the poverty line, the income-based poverty rate was estimated following the poverty line of USD 1.90 (UGX 6,840) per person a day. We categorized the households into poor households (those living below USD 1.90 and non-poor households (those living above USD 1.90). The majority of the sampled population (97.4%) were living in extreme poverty for the past two months in contrast to the 21.4 % national estimate in 2019/2020 mostly owing to improved agricultural incomes among poor households (UBOS, 2020). We also use data on household expenditures to classify households as poor and non-poor; poor households, below the poverty line of USD 1.9 and non-poor households USD 1.9 and above.

Figure 9 shows that women in poor households spent more time on total work than their counterparts in non-poor households based on income and expenditure-based classifications. While men in non-poor households spend slightly more time (7.2 hours) on total work than men in poor households (6.9 hours) in the expenditure-based classification. Within both poor and non-poor households, women spend more time on total work than men while men spend more time on leisure than women. Women in non-poor households spend slightly more time (4.3 hours) on paid work than women in poor households (3.9 hours) while women in poor households spend more time (4.5 hours) on unpaid work than those living in non-poor households (3.4 hours). This implies that women in non-poor households

are more engaged in income-generating activities. While men and women in non-poor households spend almost the same time on leisure, it is evident that men spend significantly more time on leisure than women in poor households. It is worth mentioning that women in non-poor households spend significantly more time (1.6 hours, $p < 0.05$) on leisure than women living in poor households. Lastly, men and women living in poor households spend slightly more time commuting than their counterparts in non-poor households.

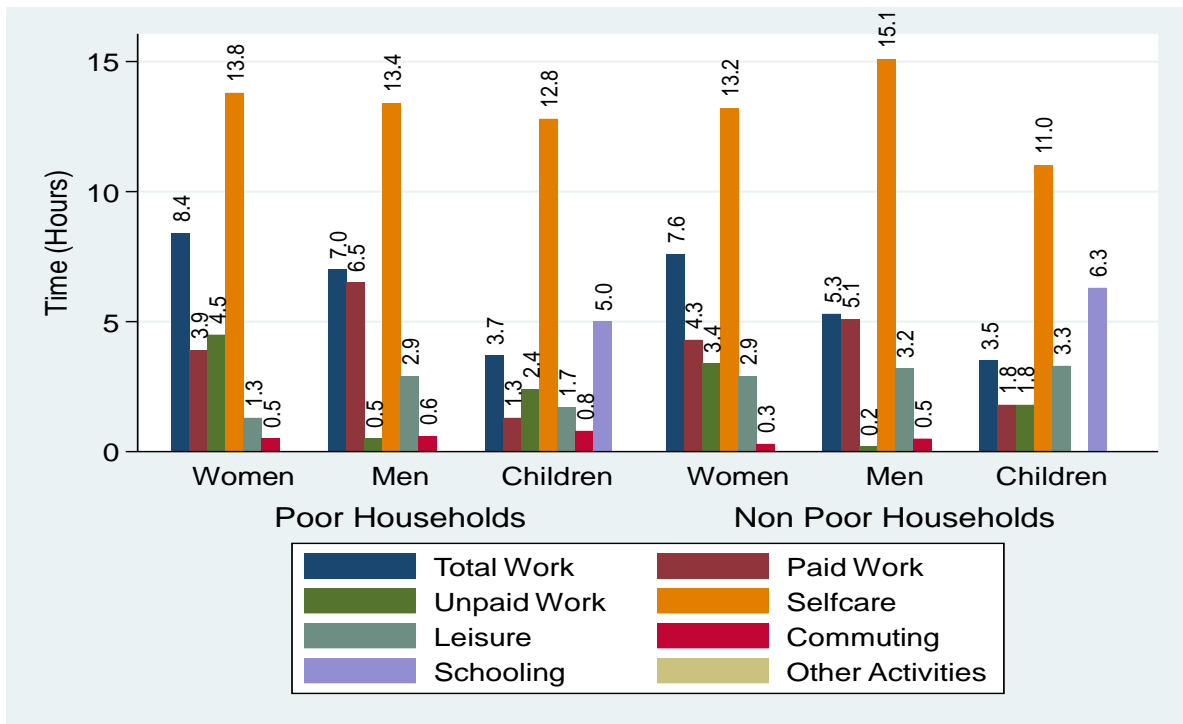


Figure 6: Time Use by income-based poverty status.

Children in poor households spent slightly more amount of time on total work than in non-poor households. In particular, children in poor households spend more time on unpaid work (2.4 hours) than allotted to paid work (1.3 hours) while children in non-poor households spend the same amount of time (1.8 hours) on both paid and unpaid work. Children living in non-poor households tend to spend slightly more time on learning activities (6.3 hours) and leisure (3.3 hours) than their counterparts in poor households, 5 hours and 1.7 hours, respectively. To note, children spend a small amount of their time commuting while those living in non-poor households do not. Using the expenditure-based poverty status, however, children in non-poor households spend slightly more time (1.2 hours) on commuting significant at 5% than those in poor households (0.8 hours).

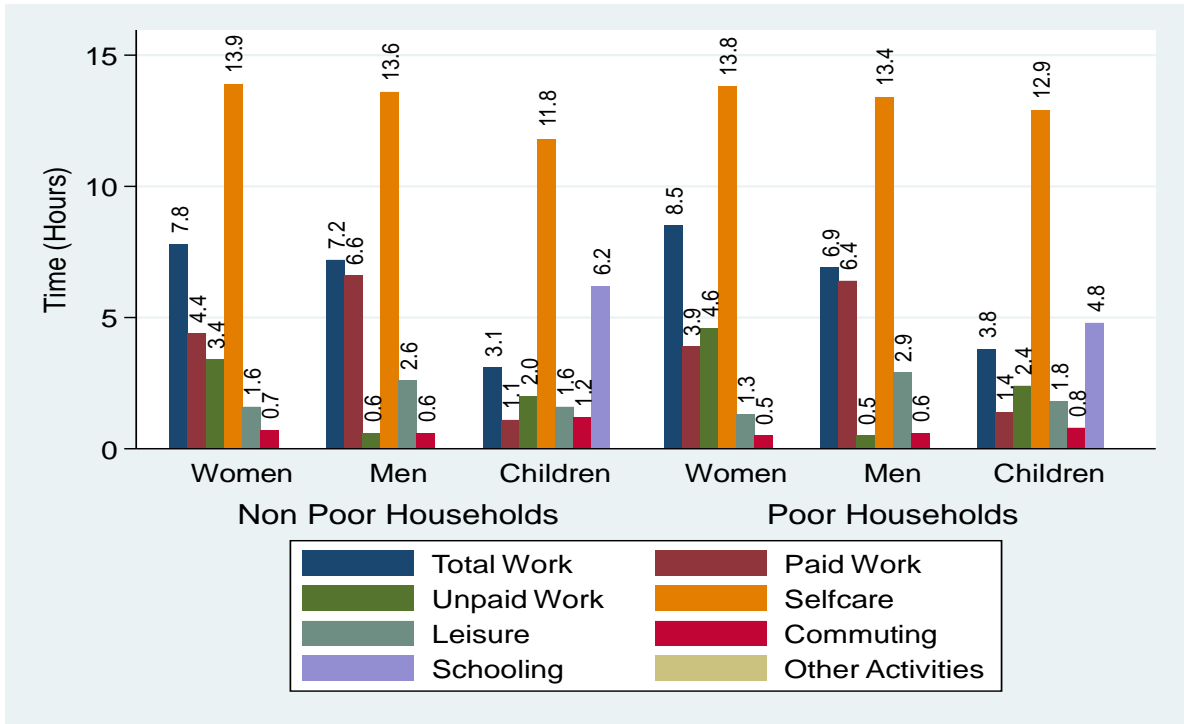


Figure 7: Time Use by expenditure-based poverty status.

4 Results

4.1 Time use pattern and Dietary diversity Scores

The Dietary Diversity Score (DDS) is the number of food groups consumed by a household over a given reference period. DDS provides a glimpse of a household's food quality and access. This continuous measure was determined by summing the number of food groups consumed by children in the 24 hours (Figure 12) preceding the survey using a standardized questionnaire. Foods were grouped into 8 standard groups that had either been consumed or not consumed. A single point was awarded to each of the food groups consumed over the reference period giving a maximum total dietary diversity score of 8 points for each child if his/her responses are positive to all food groups. Following the WHO June 2017 expert consultation⁴, the minimum dietary diversity was considered 5 out of 8 food groups and categorized into two groups (one with less than 5 groups and the other where children received from 5 or more food groups in the study period) to establish the relationship with time use. The mean children's dietary diversity was 2.6.

Figure 14 shows the relationship between time use and the children's dietary diversity. It suggests that women living with children who had at least 5 food groups spend comparably more time on both paid (4.6 hours) and unpaid work (5.8 hours) than women with children who had less than 5 food groups who spent 4.1 hours and 4.8 hours, respectively. In addition, women living with children who had at least 5 food groups spent comparably much less time (0.2 hours) on leisure as compared to women with children who had less than 5 food groups (1.5 hours). Within households where children had at least 5 food groups, children were less involved in total work while men were not involved in unpaid work at all which may imply that women take the lead role of household food preparations and serving. This could be attributed to the sociocultural responsibility of women to ensure food security, nutrition and well-being of their children but also attesting to the fact that women's incomes from paid activities are very important in children's welfare.

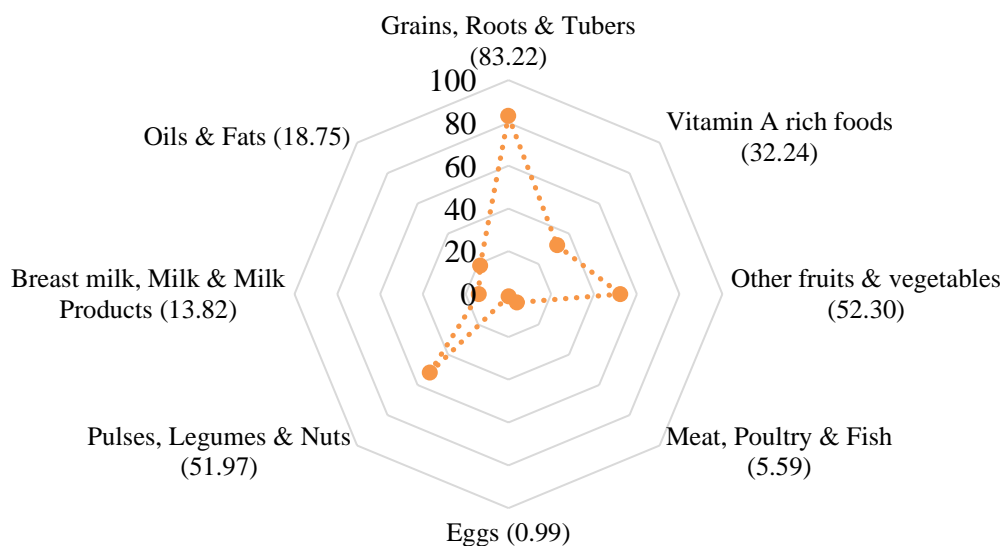


Figure 8: Percentage of children who had eaten the different food groups in the last 24 hours

⁴ <https://apps.who.int/iris/handle/10665/259904>

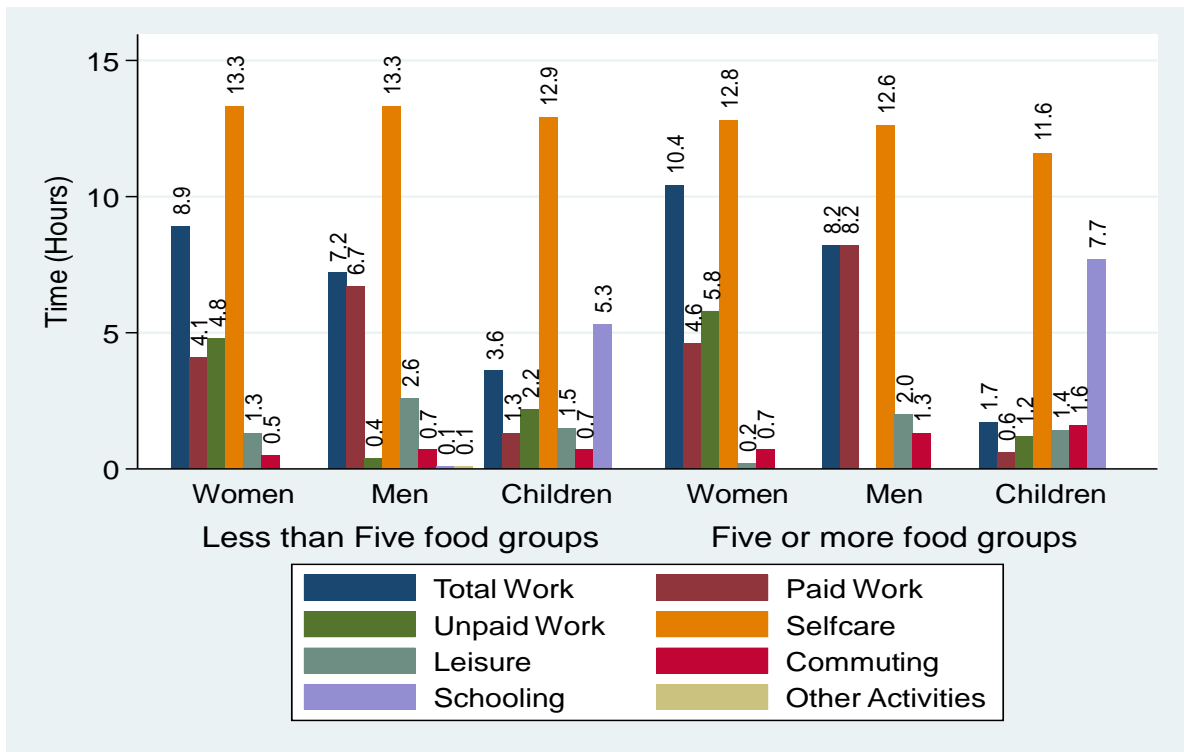


Figure 9: Children's dietary diversity score and time use

4.2 Time Use, Technologies and Infrastructure

Among the agricultural technologies, the majority of households had handheld tools (60.9%), followed by households with animal pulled (9.7%) and mechanized technologies (6.5%). Only one household had advanced agricultural technologies. The majority of households (59.7%) had access to digital technologies. More households (58.4%) had basic phones than smartphones (7.7%). Only 23.5% of the sampled households had basic cooking stoves and 1% with domestic pumps. None of the households had washing machines, or refrigerators/freezers in rural Uganda. A few households had access to different assets such as solar panels for light energy (39.7%), radio cassettes (45.2%), bicycles (20.3%), motorcycles (4.9%), water flasks (16.5%), and television (5.2%). In rural Uganda, only a few households had access to services and infrastructure, namely; all-weather roads (44.2%), piped water (2.3%) and electricity grid (1%).

Table 7: Proportion of Households with Domestic and Agricultural Technologies

Technologies	Proportion of households with Access
Domestic	
<i>Basic Cooking Stove</i>	23.55
<i>Washing Machine</i>	-
<i>Refrigerator/Freezer</i>	-
<i>Domestic Water Pump</i>	0.65
Agricultural	
<i>Hand-held tools (Sickle, axe, saw, spade, shovel, machete, wheelbarrow, manual water pump)</i>	60.97
<i>Animal-pulled tools or an animal (Animal pulled plough, animal-driven cart, Oxen/Donkey/Mule/Camel)</i>	9.68
<i>Mechanized Tools (Flour mill, insecticide pump, diesel or electric pump)</i>	6.45
<i>Advanced machinery (Tractors, harvesters, threshers)</i>	0.32
Digital	
<i>Basic Mobile Phone</i>	58.39
<i>Smart Phone</i>	7.74
Services and Infrastructure	
<i>All weather road</i>	44.19
<i>Average Distance (km)</i>	4.02 (7.85)
<i>Average walking time (Rainy season)</i>	54.96 (95.99)
<i>Average walking time (Dry Season)</i>	50.22 (93.64)
<i>Access to Piped Water</i>	2.26
<i>Average time to the source of water (minutes)</i>	22.36 (23.26)
<i>Access to Electricity Grid</i>	0.97

Note: Number of observations (310) of the sampled households

4.2.1 *Time use by men and women and technology*

Table 8 illustrates access to technologies and income levels and the distribution of time spent on various activities among men and women. There appears to be a positive relationship between access to technology and time in overall work; men and women with domestic technologies spend more time on total work than those without access to technology. As pointed out, domestic technologies such as washing machines, or freezers are not available to any household in our sample. The rudimentary technology available are improved cooking stoves. Households' ownership of improved cooking stoves appears to be associated with women's work, particularly their paid work with women in households with improved cooking stoves spending more hours in paid work than those without the stoves. It could be that improved cooking stoves reduce the time required in unpaid work allowing women to spend more time in paid work. However, we do not observe a reduction in women's time in unpaid work when they have improved stoves. The other explanation would be that women who undertake paid work have independent incomes that they can spend in purchasing stoves to help in their domestic work. Women in households that have domestic technologies spend slightly more time on leisure than those without access. Women under the highest income quintile spend slightly more time on leisure than those categorized under the lowest income quintile regardless of access to domestic technologies.

Rural Ugandans, especially women, in households with no agricultural technologies, spend more time on total work compared to those living in households with farm and animal-pulled tools. Women in households with mechanized technologies spend slightly less time on unpaid work while the trend is

observed among men who live in households with access to animal-pulled technologies. Both men and women with access to advanced technologies spend more time on unpaid work than households under the other categories. Notably, none of the households in the lowest income quintile have access to advanced agricultural technologies. Women in households with access to handheld spend comparably the least time on paid work than women living in households with access to other technology types.

Overall, men with basic phones tend to spend the least time on total work than the men within the other digital categories while women with no access to digitalized technologies are the ones spending the least amount of time on total work under both the lowest and highest income quintiles. While men remain leading in terms of the time allocated to paid work compared to women, men and women with access to smartphones tend to spend comparably more time on paid work compared to those in households with access to other digital categories, a trend more consistent with them categorized under the lowest income quintile. Importantly, women with no access to digital technologies in both the lowest and highest income quintiles tend to spend the least time on paid work than those women with access to the other digital technology categories perhaps attributed to the absence of networking opportunities.

Men and women in the lowest income quintile generally spend less time on total work compared to the highest income quintile. Women in the lowest income quintile spend more time on unpaid work compared to those in the highest income quintile. Men and women in the highest income quintile generally spend more time on total work compared to the lowest income quintile. Women in the highest income quintile spend more time on paid work compared to those in the lowest income quintile.

4.2.2 *Time use and access to infrastructure*

Households with no access to piped water or electricity: Overall, men spend significantly less time on total work than women among households with no access to piped water or electricity. Both men and women in these households tend to spend more time on overall work compared to those with access to these services. The absence of piped water or electricity likely means more manual labor or time-consuming tasks for both genders. Men and women in households without access to piped water or electricity spend more time on both paid and unpaid work. This suggests that without the convenience of electricity and piped water, individuals may need to allocate more time to tasks such as fetching water, cooking without modern appliances, and other manual labor. Individuals in households without access to piped water or electricity tend to have less leisure time compared to those with access⁵.

Households with a distance to an all-weather road greater or less than the sample average: The data shows inconsistent patterns regarding road access and time allocation. In households with a greater distance to all-weather roads, men and women seem to spend slightly more time on paid work compared to those with shorter distances. However, this trend is not consistent across all categories. Overall, women spend more 4 hours ($p < 0.001$) on unpaid work than men regardless of the distance to an all-weather road. Men spend more time on leisure than women among households with a distance to all-weather road greater than the sample average (1 hour, $p < 0.01$) and households with a distance to all-weather road less than the sample average (2 hours, $p < 0.001$). There is a slight trend where men in households with a greater distance to all-weather roads spend slightly more time on paid work compared to those with shorter distances.

Households with a distance to a source of water greater or less than the sample average: Distance to water source appears to impact women's time use patterns; those in the lowest income quintile spend more time in paid work and less in unpaid work when the distance to the water source is less

⁵ Only three households in the sample had were connected to the electricity grid and/or received piped water inside the household, their data not shown here.

than the sample average. Overall, women in households with a distance to source of water greater than the sample average spend about more 2 hours ($p < 0.05$) on total work than the men. Similarly, women living in households with the distance to source of water less than the sample average significantly spend an extra hour ($p < 0.01$) on total work than the men. Both men and women in households with a greater distance to the water source tend to spend slightly more time on overall work compared to those with shorter distances. This could be due to the additional time needed for tasks related to water collection or other manual labor in households located further from the water source. Both men and women in households with a greater distance to the water source tend to spend slightly more time on unpaid work compared to those with shorter distances. Particularlry, men's time in unpaid work is higher when they reside in households with a greater distance to source of water overall as well as in the two income categories. This indicates that the absence of easy access to water may result in additional time spent on household chores or other unpaid labor for both genders.

Table 8: Time spent by men and women on work categories and access to technologies at household level, disaggregated by wealth status

Activity	Gender	Domestic = 1 when the hh has access to one or more domestic technologies	Domestic = 0 when household does not have any of these	Agriculture = 0 (when hhs has no agri technology)	Agricultural Technologies =1 (<i>Hand-held tools</i>)	Agriculture =2 (Animal-pulled tools or an animal	Agriculture = 3 (Mechanize d Tools	Agriculture = 4 (Advanced machinery)	Digital = 0 (no smart or basic phone)	Digital =1 (Basic Phone)	Digital = 2 (Smart Phone)
Overall											
Total Work	Men	8.41	6.38	7.51	6.58	5.06	7.78	9.50	7.54	6.72	7.66
	Women	9.75	7.93	8.52	8.20	8.48	8.09	13.00	8.07	8.52	8.60
<i>Paid Work</i>	Men	7.88	5.90	7.00	6.11	4.75	7.19	5.50	6.76	6.33	7.55
	Women	5.20	3.51	4.28	3.62	3.84	4.27	7.00	3.47	4.20	4.55
<i>Unpaid Work</i>	Men	0.53	0.48	0.51	0.47	0.31	0.59	4.00	0.79	0.39	0.11
	Women	4.55	4.42	4.24	4.58	4.64	3.82	6.00	4.59	4.33	4.05
Commuting	Men	0.81	0.57	0.47	0.77	0.72	0.59	0.50	0.43	0.72	0.63
	Women	0.83	0.40	0.40	0.57	0.52	0.41	1.50	0.39	0.58	0.83
Leisure	Men	2.59	2.97	2.31	3.21	4.03	3.09	0.00	2.67	2.89	2.71
	Women	1.39	1.32	1.36	1.31	1.70	2.18	0.00	1.06	1.54	2.20
Lowest Income quintile											
Total Work	Men	6.50	5.73	6.53	5.44	0.25	8.67	-	6.93	4.94	7.00
	Women	10.25	7.72	8.45	7.67	6.33	11.50	-	7.65	8.60	10.50
<i>Paid Work</i>	Men	6.14	5.10	6.33	4.56	0.00	8.67	-	5.80	4.76	7.00
	Women	4.45	3.17	4.16	2.86	2.83	0.00	-	3.11	3.68	4.50
<i>Unpaid Work</i>	Men	0.36	0.63	0.19	0.88	0.25	0.00	-	1.13	0.18	0.00
	Women	5.80	4.54	4.29	4.81	3.50	11.50	-	4.54	4.92	6.00
Commuting	Men	1.86	0.31	0.39	0.69	0.00	0.33	-	0.28	0.74	1.00
	Women	1.20	0.29	0.42	0.39	0.17	0.00	-	0.30	0.57	1.00
Leisure	Men	3.43	3.26	2.97	3.48	4.00	2.33	-	3.05	3.60	0.00
	Women	0.75	0.96	0.94	0.96	1.33	0.00	-	0.95	0.93	0.00
Highest Income quintile											
Total Work	Men	8.56	7.03	8.44	7.24	5.71	7.50	9.50	8.83	7.44	8.13
	Women	9.73	8.17	8.80	8.77	8.90	7.94	13.00	7.94	9.02	8.41
<i>Paid Work</i>	Men	8.12	6.64	7.88	6.88	5.33	6.95	5.50	8.21	7.05	8.00
	Women	5.29	3.72	4.17	4.19	4.37	5.00	7.00	3.38	4.63	4.44
<i>Unpaid Work</i>	Men	0.44	0.40	0.56	0.37	0.38	0.55	4.00	0.63	0.39	0.13
	Women	4.44	4.45	4.63	4.58	4.53	2.94	6.00	4.56	4.39	3.97
Commuting	Men	0.63	0.82	0.63	0.80	0.88	0.77	0.50	0.54	0.80	0.67
	Women	0.74	0.62	0.70	0.72	0.63	0.25	1.50	0.56	0.72	0.85
Leisure	Men	2.56	2.68	1.54	3.20	3.79	3.27	0.00	1.83	2.72	2.43
	Women	1.45	1.38	1.39	1.41	1.67	2.13	0.00	1.29	1.44	2.44

Note: - denotes no observations. Number of observations for men (168) and women (246) was computed as the proportion of households out of the total sample in which men and women answered the time use modules, respectively.

Table 9: Differences in the time spent by men and women on work categories and households' access to services, disaggregated by wealth status

Activity	Household has no access to piped water or electricity			Households with the distance to all-weather road greater than the sample average			Households with the distance to all-weather road less than the sample average			Households with the distance to source of water greater than the sample average			Households with the distance to source of water less than the sample average		
	M	W	Diff	M	W	Diff	M	W	Diff	M	W	Diff	M	W	Diff
Overall															
Total Work	6.96	8.37	-1.41***	7.10	8.18	-1.08*	6.86	8.50	-1.64***	7.06	8.60	-1.54*	6.91	8.26	-1.35**
<i>Paid Work</i>	6.47	3.92	2.54***	6.72	3.88	2.84***	6.28	3.95	2.33***	6.34	4.44	1.91**	6.53	3.67	2.86***
<i>Unpaid Work</i>	0.49	4.45	-3.96***	0.38	4.30	-3.92***	0.57	4.55	-3.98***	0.72	4.16	-3.44***	0.38	4.59	-4.21***
Commuting	0.64	0.50	0.14	0.76	0.58	0.18	0.55	0.45	0.10	0.52	0.52	0.00	0.69	0.49	0.20*
Leisure	2.86	1.34	1.52***	2.45	1.38	1.07**	3.16	1.31	1.85***	2.57	1.15	1.42***	3.00	1.43	1.57***
Other activities	0.39	0.00	0.39	0.00	0.00	0.00	0.07	0.00	0.07	0.10	0.00	0.10	0.01	0.00	0.01
Lowest Income quintile															
Total Work	5.85	8.01	-2.16**	5.38	7.84	-2.46*	6.21	8.10	-1.88*	5.74	8.29	-2.55*	5.93	7.84	-1.91*
<i>Paid Work</i>	5.26	3.32	1.94**	5.18	2.76	2.42**	5.33	3.62	1.70	4.87	3.88	0.99	5.54	2.98	2.56*
<i>Unpaid Work</i>	0.59	4.69	-4.10***	0.20	5.08	-4.88***	0.88	4.47	-3.59***	0.87	4.41	-3.54***	0.39	4.85	-4.47***
Commuting	0.54	0.40	0.14	0.93	0.61	0.31	0.25	0.28	-0.03	0.32	0.44	-0.12	0.70	0.37	0.33
Leisure	3.28	0.93	2.35***	3.08	1.21	1.87**	3.44	0.78	2.66***	2.95	0.61	2.34***	3.52	1.13	2.39***
Other activities	0.01	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Highest Income quintile															
Total Work	7.70	8.87	-1.17*	8.06	8.85	-0.79	7.46	8.89	-1.43	8.50	9.35	-0.85	7.46	8.71	-1.25*
<i>Paid Work</i>	7.28	4.43	2.85***	7.63	4.59	3.03***	7.05	4.31	2.74***	8.03	5.46	2.57*	7.05	4.08	2.98***
<i>Unpaid Work</i>	0.42	4.44	-4.03***	0.44	4.26	-3.82***	0.40	4.57	-4.17***	0.47	3.89	-3.42***	0.40	4.63	-4.23***
Commuting	0.74	0.68	0.06	0.85	0.73	0.13	0.66	0.64	0.02	0.78	0.87	-0.09	0.73	0.61	0.11
Leisure	2.63	1.41	1.22**	2.03	1.15	0.88	3.02	1.59	1.43**	2.33	1.15	1.18	2.72	1.50	1.22*
Other activities	0.13	0.00	0.13	0.00	0.00	0.00	0.02	0.00	0.02	0.00	0.00	0.00	0.02	0.00	0.02

Note: Level of significance denoted as *p<0.05, **p<0.01 and ***p<0.001; M denotes men, W for women and Diff for the significance of difference based on paired t-tests comparing the mean time spent on each activity between men and women. Number of observations for men (168) and women (246) computed as the proportion of households out of the total sample in which men and women answered the time use modules, respectively.

4.2.3 *Children's Time Use and Infrastructure*

Household with no access to piped water or electricity: Overall, time under total work is largely devoted to unpaid work among both boys and girls. Boys tend to spend more time (1 hour, $p < 0.05$) on paid work compared to the girls while girls spend more time (1 hour, $p < 0.05$) on unpaid work than the boys among households with no access to piped water or electricity. Although not significant, girls spend slightly more time on paid work than boys in the lowest income quintile. Boys and girls in households with access to infrastructure spend more time on schooling compared to those without access.⁶

Households with a distance to an all-weather road greater or less than the sample average: Household access to an all-weather road measured as greater or less than the sample average shows inconsistent patterns with children's time use. A clearer pattern, however, emerges in terms of their leisure and commute; children in households with shorter distances to the road spend less time commuting and have more leisure time. This is observed for both boys and girls in the lowest and the highest income categories.

Households with a distance to a source of water greater or less than the sample average: Households' access to water measured as their distance to the water source lesser than or greater than the sample average appears to particularly affect boys' unpaid work with implications for the girls' work. Boys in households with a distance to the water source less than average spend less time in unpaid work than those in households with a distance greater than average. However, it seems that the reduction in their time is due to the increased time that girls spend on unpaid work when the distance is less than the sample average. It may be that when a water source is far from the household, boys are more likely to partake in the collection of water for household use due to concerns regarding girls' safety or to share their work burden. However, when the water source is nearer, the task falls mainly on girls. For both boys and girls in the lowest income categories, a shorter distance to the source of water increases their leisure time. Boys' time in paid work, on the other hand, is more when their household is closer to the water source – it may be that the time freed from unpaid work is then spent in undertaking paid activities. This is observed for households in both the highest and the lowest income categories.

⁶ Only three households in the sample had were connected to the electricity grid and/or received piped water inside the household, their data not shown here.

Table 10: Differences in the time spent by children on work categories with respect to their households' access to services, disaggregated by wealth status

Activity	Household has no access to piped water or electricity			Households with distance to all-weather road greater than the sample average			Households with distance to all-weather road less than the sample average			Households with distance to source of water greater than the sample average			Households with distance to source of water less than the sample average		
	Boys	Girls	Diff	Boys	Girls	Diff	Boys	Girls	Diff	Boys	Girls	Diff	Boys	Girls	Diff
Overall															
Total Work	3.69	3.67	0.02	4.48	3.2	1.28	3.11	4.13	-1.02	2.60	3.61	-1.01	4.18	3.70	0.48
<i>Paid Work</i>	1.85	0.88	0.96*	2.4	0.6	1.80**	1.43	1.16	0.26	0.70	1.28	-0.58	2.35	0.72	1.63**
<i>Unpaid Work</i>	1.85	2.79	-0.94*	2.07	2.6	-0.53	1.68	2.97	-1.29*	1.90	2.33	-0.43	1.82	2.98	-1.15*
Commuting	0.78	0.87	-0.08	0.86	1.07	-0.21	0.73	0.68	0.05	1.10	1.00	0.10	0.65	0.81	-0.17
Leisure	1.76	1.74	0.03	1.71	0.88	0.83*	1.80	2.56	-0.76	1.87	1.33	0.53	1.72	1.91	-0.19
Schooling	4.77	5.2	-0.42	3.95	6.82	-2.86**	5.39	3.63	1.76	6.73	6.08	0.65	3.91	4.82	-0.91
Other activities	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Lowest Income quintile															
Total Work	2.46	3.94	-1.48	2.50	2.50	0.00	2.44	4.86	-2.43	2.75	3.58	-0.83	2.41	4.13	-1.72
<i>Paid Work</i>	0.81	1.22	-0.41	1.40	0.14	1.26	0.44	1.91	-1.47	0.25	1.75	-1.50	0.91	0.96	-0.05
<i>Unpaid Work</i>	1.65	2.72	-1.07	1.10	2.36	-1.26	2.00	2.95	-0.95	2.50	1.83	0.67	1.50	3.17	-1.67*
Commuting	1.08	0.86	0.22	1.50	1.21	0.29	0.81	0.64	0.18	2.00	0.67	1.33*	0.91	0.96	-0.05
Leisure	1.88	1.97	-0.09	1.80	1.79	0.01	1.94	2.09	-0.15	0.75	1.75	-1.00	2.09	2.08	0.01
Schooling	4.92	4.08	0.84	5.20	5.21	-0.01	4.75	3.36	1.39	8.00	5.83	2.17	4.36	3.21	1.15
Other activities	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Highest Income quintile															
Total Work	3.75	4.10	-0.35	3.81	3.81	0.01	3.70	4.59	-0.89	2.21	3.94	-1.72	4.73	4.17	0.56
<i>Paid Work</i>	1.75	0.93	0.82	2.06	0.94	1.12	1.50	0.91	0.59	0.36	1.13	-0.77	2.64	0.86	1.78
<i>Unpaid Work</i>	2.00	3.17	-1.17	1.75	2.86	-1.11	2.20	3.68	-1.48	1.86	2.81	-0.96	2.09	3.31	-1.22
Commuting	0.81	0.95	-0.14	0.88	1.06	-0.18	0.75	0.77	-0.02	1.07	1.06	0.01	0.64	0.90	-0.27
Leisure	1.58	1.21	0.38	1.44	0.64	0.80	1.70	2.14	-0.44	1.79	0.94	0.85	1.45	1.31	0.15
Schooling	5.56	5.79	-0.24	5.25	6.86	-1.61	5.80	4.05	1.75	7.29	6.00	1.29	4.45	5.71	-1.26
Other activities	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Note: Level of significance denoted as *p<0.05, **p<0.01 and ***p<0.001; and Diff for the significance of difference based on a two sample t-tests using gender groups to compare the mean time spent on each activity between boys and girls. Number of observations for children (110) computed as the proportion of households out of the total sample in which children answered the time use modules.

4.3 Time Use and Productivity

Productivity is defined as the ratio of output to input. Total factor productivity (TFP) is a better indicator of productivity because it has a more comprehensive coverage of inputs than other productivity measures. To measure TFP, total outputs from crop production were compared to total inputs such as costs of agrochemicals and total labor cost. An index formula was calculated since the outputs and inputs are often measured in different units and they cannot simply be added up. Following the Fisher index method, the quantity and price of each output and input were used to create the TFP index. The quantity of each item was weighted by its price (or share of total value) before being aggregated.

In this study, the agricultural productivity index has been put into two categories i.e. low agricultural productivity index and high agricultural productivity index based on the mean index from the data. The results in Figure 10 show that the overall mean productivity index was 4.2. The mean productivity index for men was 4.4 slightly lower than that of women at 4.62. Based on the categorization, a majority of both men (68.4%) and women (63.8%) registered low agricultural productivity.

Both men and women living in households with high agricultural productivity spent slightly less time on paid and unpaid work than those under the low agricultural productivity category. This is probably attributed to the use of improved and labor-saving technologies and hence, spending less time on manual farm work. This, therefore, calls for improved technologies to reduce time spent on agricultural production. These allow reallocation of time to other categories such as self-care and leisure among households with high productivity.

Children from households with both low and high agricultural productivity are observed to spend relatively the same amount of time on paid work, unpaid work, leisure and commuting. Children from highly agricultural productive households tend to spend more time on learning activities perhaps explaining the reliable source of cash income to cater for the scholastic needs as a major source of income in rural farm households.

While the question requires a deeper analysis, it does not appear from the basic pattern outlined here that the greater time invested in different types of work are correlated with the household productivity.

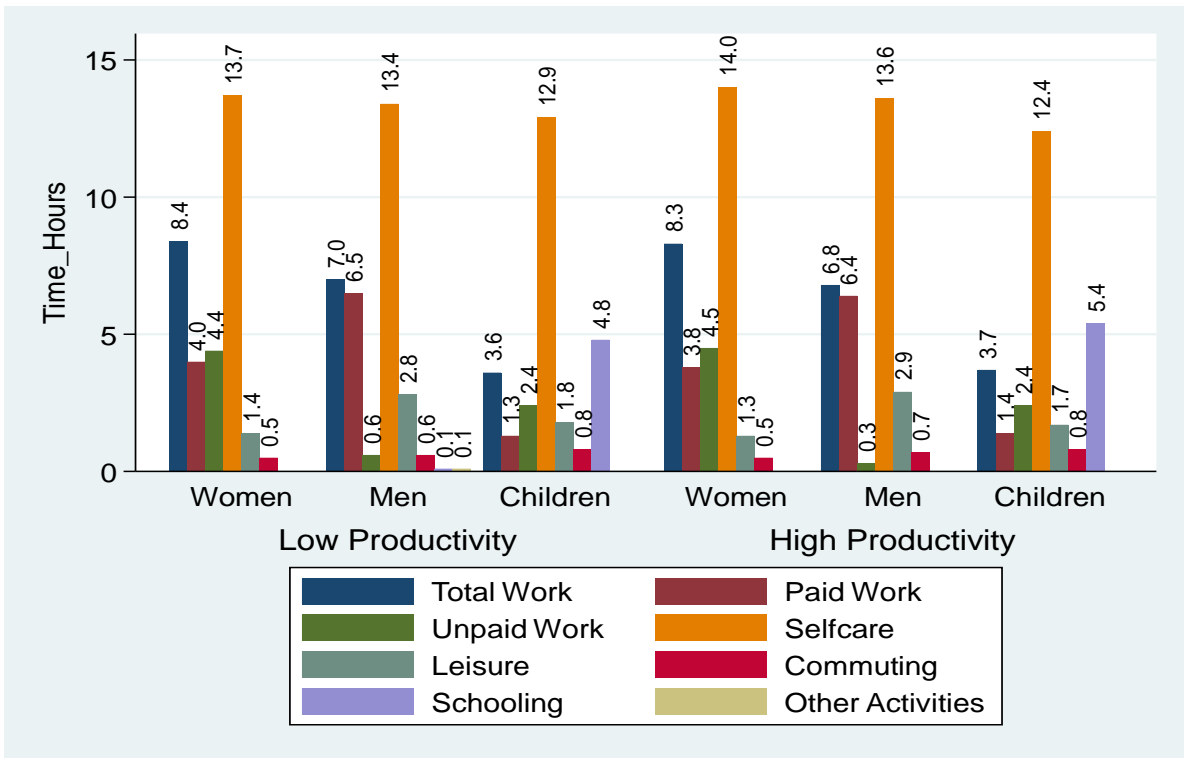


Figure 10: Productivity and time use among men, women and children

5 Discussion and Policy Recommendations

The report analyses the patterns of men's, women's and children's time use among different demographic groups in rural Uganda, disaggregating by age, education, household composition, and income status. The aim is to analyse the distribution of men's and women's and girls' and boys' time in paid work, unpaid work and leisure. Moreover, we analyse the relationship between women's time use and children's diets. Furthermore, the relationship between patterns of time use and household agricultural and domestic technology is assessed.

Overall, women spend more time on total work, particularly unpaid work, compared to men, reflecting traditional gender roles. However, women's involvement in paid work activities increases with higher education levels, highlighting the significance of improving access to education, training and vocational skills development. The number of hours in total work increases with an increase in education for both men and women. Men tend to spend more time on paid work and leisure activities, regardless of education level. Household composition also influences time use, with large households allocating more time to unpaid work, particularly among women and children. Furthermore, poverty status affects time use, with individuals in poor households spending more time on total work and commuting compared to those in non-poor households. Moreover, women in the lowest income quintile spend the most hours in unpaid work.

Technology access and infrastructure appear to shape the time. However, access to technology, particularly domestic technology and electricity and water infrastructure is very low. None of the households sampled had washing machines, fridges or freezers. Only three households in the dataset were connected to the national electricity grid and had piped water inside the household. This access appears to affect time allocation. It appears that for women in low-income households, a shorter distance to the source of water reduces their time in unpaid work and increases their time in paid work. However, shorter distances to the water sources correlate consistently with boys' time in unpaid work with boys in households with a greater distance to the water source spending more time in unpaid work and those living in shorter distances spending less. Access to roads reduces children's commuting hours and increases their leisure time.

Women's time in unpaid as well as paid work is positively associated with children's dietary diversity – an indicator of food access and food quality. However, men's time in unpaid work in households where children either meet the minimum dietary requirements or do not remains abysmally low.

Investments in basic amenities like piped water and electricity are crucial for rural areas in Uganda. Infrastructure development, particularly in transportation, should focus on reducing the distance to key services, ensuring equitable access for all income groups. Initiatives to improve access to agricultural technologies, such as mechanized tools, could help alleviate the time burden associated with manual labour, particularly among women. For women with low levels of education, however, their participation in paid work may not be related to their unpaid work but lack of opportunities.

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Appendix I (Additional results)

Table 11: Mean hours spent on daily activities per day disaggregated by region (Men)

Activity	Karamoja		Eastern		Western		Northern	
	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.
Work as employed	0.98	2.54	0.74	2.42	2.00	3.45	0.28	1.51
Own business work (Non-Farm)	2.28	3.23	1.40	3.07	1.23	2.92	0.64	2.28
Travelling and commuting (incl to work/workplace/school)	0.30	0.49	0.73	0.85	0.63	0.85	0.70	0.85
Farming/livestock/fishing	1.33	3.22	4.85	2.92	4.22	4.10	4.86	2.63
Fetching wood/fuel	0.09	0.25	0.03	0.15	0.07	0.23	0.00	0.00
Fetching Water (also if water is from paid source)	0.26	0.60	0.06	0.21	0.03	0.12	0.00	0.00
Shopping/Going to Market/Getting service (incl health services)	0.37	1.25	0.05	0.20	0.00	0.00	0.15	0.56
Washing Clothes/Ironing/sewing/textile care	0.04	0.21	0.02	0.10	0.02	0.10	0.00	0.00
Cooking for the household (include food preparation, sorting cutting)	0.20	0.45	0.30	0.75	0.02	0.15	0.00	0.00
Domestic work (cleaning rooms, toilet, kitchen, washing dishes)	0.13	0.31	0.07	0.22	0.15	0.57	0.05	0.24
Care for children/adults/elderly/sick	0.07	0.23	0.06	0.21	0.00	0.00	0.07	0.44
School (also homework and evening tuition)	0.00	0.00	0.13	0.90	0.01	0.07	0.00	0.00
Religious activities	0.02	0.10	0.09	0.26	0.14	0.82	0.39	1.25
Watching TV/listening to the radio/reading	0.09	0.33	0.12	0.47	0.12	0.50	0.23	0.83
Exercising	0.02	0.10	0.04	0.22	0.00	0.00	0.00	0.00
Social activities and hobbies	2.43	1.76	2.21	2.03	2.01	2.22	3.14	2.60
Sleeping and resting	12.46	2.10	10.87	3.29	10.97	2.90	11.65	3.17
Eating and drinking	1.91	1.35	1.66	0.65	1.73	0.85	1.03	0.57
Personal Care (Bathing, Brushing Teeth, Combing Hair, Doing Make-up, Shaving, Cutting Nails etc)	0.83	0.44	0.58	0.45	0.33	0.41	0.69	0.55
Going to toilet outside home	0.15	0.28	0.01	0.07	0.00	0.00	0.07	0.23
Funeral	0.00	0.00	0.00	0.00	0.29	1.22	0.00	0.00

Table 12: Mean hours spent on daily activities per day disaggregated by region (Women)

Activity	Karamoja		Eastern		Western		Northern	
	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.
Work as employed	0.26	1.00	0.26	1.05	0.11	0.88	0.29	1.55
Own business work (Non-Farm)	1.69	2.62	0.76	2.01	0.15	0.86	0.43	2.00
Travelling and commuting (incl to work/workplace/school)	0.21	0.50	0.65	0.94	0.61	0.80	0.48	0.68
Farming/livestock/fishing	0.10	0.45	3.49	2.41	4.68	3.50	3.08	2.70
Fetching wood/fuel	0.93	1.06	0.10	0.28	0.09	0.21	0.18	0.38
Fetching Water (also if water is from paid source)	0.85	0.94	0.15	0.28	0.13	0.31	0.32	0.52
Shopping/Going to Market/Getting service (incl health services)	0.13	0.34	0.29	0.79	0.11	0.70	0.12	0.45
Washing Clothes/Ironing/sewing/textile care	0.19	0.61	0.19	0.43	0.30	0.52	0.16	0.44
Cooking for the household (include food preparation, sorting cutting)	1.51	0.90	2.03	1.32	2.05	1.21	2.92	1.66
Domestic work (cleaning rooms, toilet, kitchen, washing dishes)	0.76	0.78	0.79	0.77	1.26	1.16	0.67	0.86
Care for children/adults/elderly/sick	0.50	1.38	0.46	0.83	0.38	0.78	0.32	1.03
School (also homework and evening tuition)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Religious activities	0.01	0.07	0.29	1.13	0.04	0.18	0.43	1.19
Watching TV/listening to the radio/reading	0.00	0.00	0.12	0.44	0.03	0.15	0.02	0.11
Exercising	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Social activities and hobbies	1.25	1.54	0.89	1.55	0.55	1.34	1.05	1.84
Sleeping and resting	13.32	2.75	11.28	3.80	11.16	3.42	11.57	2.97
Eating and drinking	1.45	0.64	1.54	0.61	1.59	0.76	1.06	0.54
Personal Care (Bathing, Brushing Teeth, Combing Hair, Doing Make-up, Shaving, Cutting Nails etc)	0.78	0.58	0.51	0.46	0.38	0.50	0.75	0.57
Going to toilet outside home	0.04	0.13	0.01	0.06	0.00	0.00	0.05	0.15
Funeral	0.00	0.00	0.09	0.54	0.31	1.12	0.01	0.06

Table 13: Mean hours spent on daily activities per day disaggregated by region (Children)

Activity	Karamoja		Eastern		Western		Northern	
	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.
Work as employed	0.00	0.00	0.00	0.00	0.28	1.68	0.00	0.00
Own business work (Non-Farm)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Travelling and commuting (incl to work/workplace/school)	0.00	0.00	0.76	0.84	1.12	0.81	0.55	0.61
Farming/livestock/fishing	0.00	0.00	1.04	1.59	1.19	2.43	1.55	2.34
Fetching wood/fuel	1.00	0.00	0.10	0.20	0.42	0.51	0.16	0.43
Fetching Water (also if water is from paid source)	3.00	0.00	0.42	0.40	0.46	0.42	0.80	0.71
Shopping/Going to Market/Getting service (incl health services)	0.00	0.00	0.04	0.13	0.00	0.00	0.11	0.48
Washing Clothes/Ironing/sewing/textile care	0.00	0.00	0.02	0.15	0.27	0.43	0.21	0.48
Cooking for the household (include food preparation, sorting cutting)	1.50	0.00	0.32	0.67	0.68	1.00	0.95	1.55
Domestic work (cleaning rooms, toilet, kitchen, washing dishes)	1.50	0.00	0.51	0.58	0.59	0.88	0.71	1.08
Care for children/adults/elderly/sick	0.00	0.00	0.32	1.17	0.04	0.18	0.09	0.27
School (also homework and evening tuition)	0.00	0.00	5.58	3.55	6.71	4.02	1.96	3.76
Religious activities	0.00	0.00	0.04	0.13	0.00	0.00	0.79	1.40
Watching TV/listening to the radio/reading	0.00	0.00	0.15	0.72	0.04	0.24	0.04	0.19
Exercising	0.00	0.00	0.19	0.53	0.21	0.41	1.13	2.52
Social activities and hobbies	0.00	0.00	1.30	1.36	0.35	0.82	1.50	2.38
Sleeping and resting	15.00	0.00	10.75	2.93	9.83	1.53	11.79	3.37
Eating and drinking	1.00	0.00	1.81	0.71	1.33	0.70	0.80	0.67
Personal Care (Bathing, Brushing Teeth, Combing Hair, Doing Make-up, Shaving, Cutting Nails etc)	1.00	0.00	0.64	0.46	0.38	0.44	0.80	0.48
Going to toilet outside home	0.00	0.00	0.01	0.08	0.03	0.11	0.05	0.16
Funeral	0.00	0.00	0.00	0.00	0.04	0.24	0.00	0.00

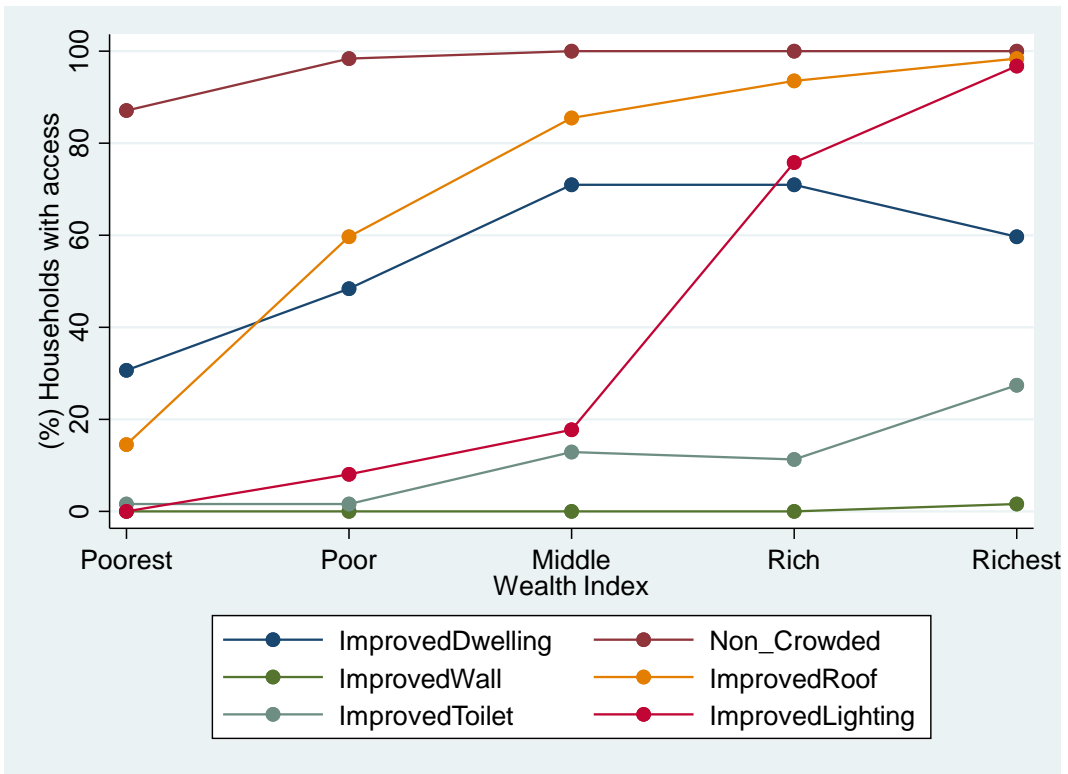


Figure 11: Household amenities and wealth index

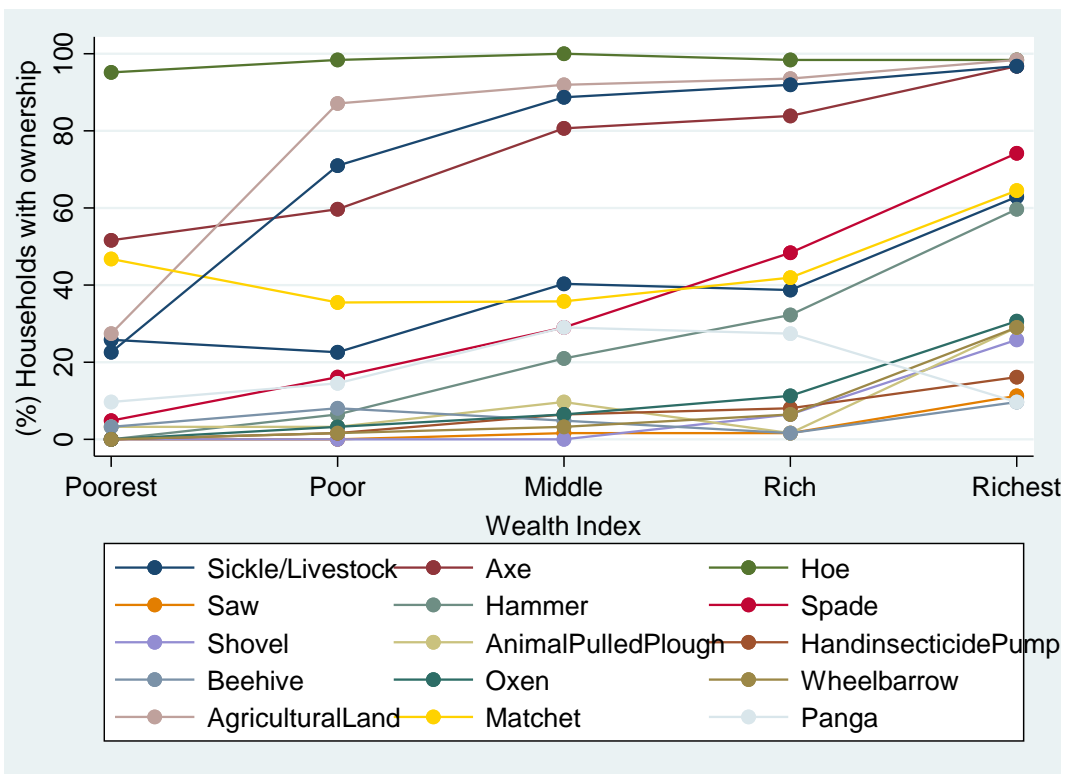


Figure 12: Productive/Agricultural assets and Household wealth index

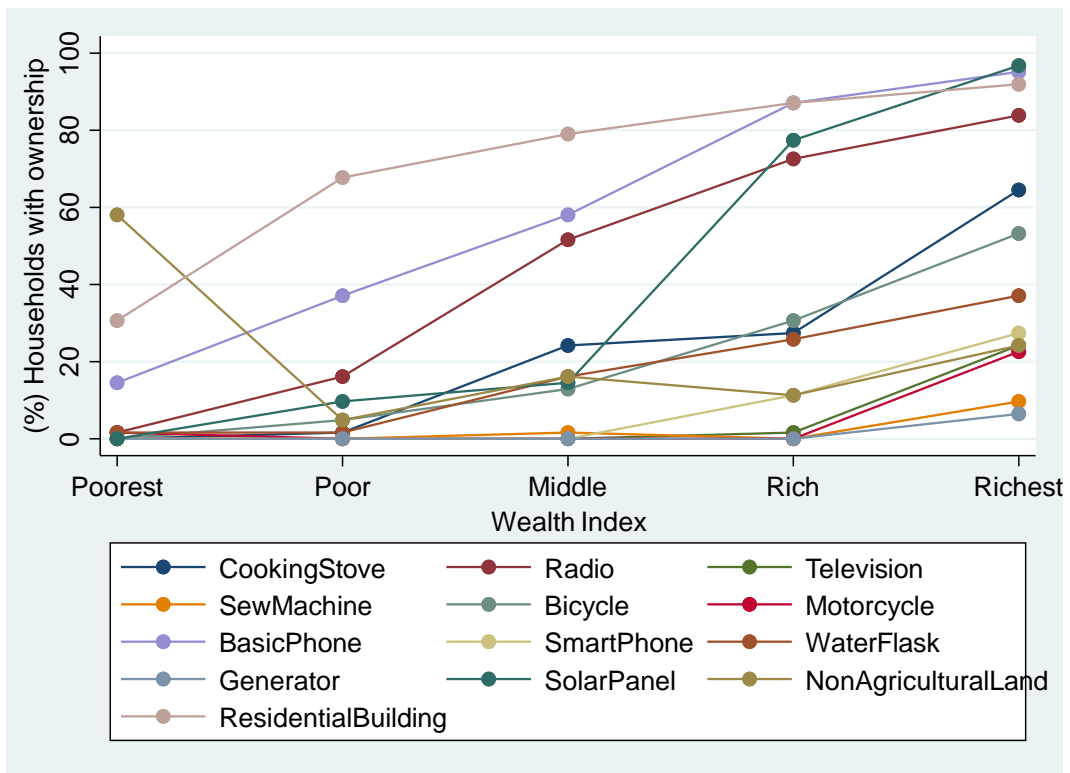


Figure 13 Nonproductive assets and household wealth index



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