

Gendered Patterns of Time Use in Tanzania: Public Investment in Infrastructure Can Help

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December 2008

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Paper prepared for the IFPRI Project on 'Evaluating the Long-Term Impact of Gender-focussed Policy Interventions'

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Acknowledgements

We acknowledge with thanks the staff of the Tanzania National Bureau of Statistics who very kindly shared with us their data, and promptly responded to our queries. We are most grateful to Siwa Msangi, for having involved us in the project, and for his support and great patience at every stage of the work. Many thanks also to Debbie Budlender, for her precious advice on the data, and for inspiration. Wezi Mwangulube provided valuable help with the formatting of the paper.

1. Introduction

This paper examines gender patterns of time use in Tanzania with a view to identify areas that are most in need for infrastructure investment. The data show that the burden of unpaid work in Tanzania is large, and mostly borne by women. We argue that public investment policy has an important role to play in redressing gender inequalities and reducing poverty by promoting initiatives that reduce time spent on water collection, home maintenance and other unpaid activities. The role of these activities in maintaining households' standards of living, and in supporting the functioning of the market economy, is not sufficiently recognised. Examples of relevant public policy interventions are infrastructure in the water sector, sanitation services, electrification, roads and better transports—especially in the rural areas.

Some descriptive statistics are presented as a first step in analysing activities for which the burden of work is most unequally distributed between different groups of women and men. Investment should especially focus on infrastructure that contributes to reducing the time intensity of such activities, thus having a positive impact both on equality and on labour productivity. These interventions should be given priority in poverty reduction strategies. The analysis draws on the nationally representative 2006 Time Use Survey (TUS) for Tanzania, which is the first of its kind. The Tanzania TUS is very comprehensive and contains rich information that should be taken into account in policy formulation.

This initial data exploration was undertaken also with the objective of taking steps towards integrating time use data into an economy-wide macro-model of Tanzania. Such modelling approach could be an effective way to examine and quantify the many linkages between unpaid work and the market economy, and to highlight the important role of gender relations in structuring such interconnections. Lack of time prevented us to take the task forward but we do plan to develop a full modelling project in future research.

A few first attempts at including unpaid work into Social Accounting Matrix (SAM)-based modelling do exist (for example Fontana and Wood, 2000 and Fontana, 2001 for Bangladesh; Fontana, 2002 for Zambia; Siddiqui, 2005 for Pakistan; and Fofana et al. 2005 for South Africa) but their approach has limitations since it involves lumping all unpaid household activities together into one homogenous sector— variously called 'social reproduction' or 'household production'. Household tasks differ in terms of their production technologies and the objectives they fulfil (compare, for instance, the activity of washing dishes and cleaning the house, with the task of taking care of a terminally ill family member).

The unpaid time inputs necessary to achieve a basic minimum level of well-being for all family members in a household (some time called in the literature 'household overhead time', Harvey and Taylor, 2000) vary a great deal across household types, depending on the availability of: public services and infrastructure, intermediate market inputs, income, and other assets. All these elements can be seen as important constitutive components of a 'well-being production function'. Differences in overhead time requirements are a significant source of inequality across households and need to be adequately reflected in economy-wide modelling, to help with the appropriate assessment of alternative investment strategies for gender equality.

The paper is organised as follows. The first section provides an introduction to the data by offering an overview of how females and males in Tanzania spend their time, including their engagement in paid employment, unpaid work, care for others, their volunteering in communities, socialising, personal care and sleep. The sections that follow each focus on one specific aspect of work, which is singled out for its gender relevance. We analyse in particular water collection, fuel collection and food preparation - the activities in which gender differences in time patterns appear most marked, and which could mostly benefit from improvements in physical infrastructure. A brief analysis of gender patterns in travel is also provided.¹ We describe how the time burden associated with water collection, fetching of fuel, and food preparation vary by sex, location, income, age and other characteristics. We develop the analysis further by focusing on the socio-economic characteristics of those people who must spend above average time on each of such tasks, and whom we call the 'overburdened'. The last section provides some preliminary quantification of the time that could be saved in a year if interventions to reduce specific aspects of unpaid work were implemented.

Most of the analysis refer to the adult population defined as persons of 15 years of age or older (conforming to the standard definition of the labour force as commonly found in most statistics) but selected information on children's time (age between 5 and 14 years), further disaggregated by sex, is also provided.

¹ We decided not to consider unpaid care for persons as this dimension has been thoroughly analysed in an excellent recent study (Budlender, 2008), and would require a more complex range of policy interventions than simply investment in physical infrastructure.

2. Data

The TUS was undertaken by the Tanzania's National Bureau of Statistics (NBS) in 2006 as an add-on module of the Integrated Labour Force Survey (ILFS) and is the outcome of several years of advocacy and research led by the Tanzania Gender Networking Programme (TGNP). The survey provides a wealth of information on the range of paid and unpaid activities and tasks that women and men undertake during a day. The broad categories making up SNA work are: (1) employment for establishments, which more or less correspond to formal sector work (2) primary production activities not for establishments, which includes subsistence production as well as collection of fuel and water (3) services for income and other production of goods not for establishments, which more or less corresponds to non-agricultural informal sector work. The categories making up unpaid work (some time called also non-SNA or extended-SNA work) are: (4) household maintenance (including food preparation), management and shopping for own household, (5) care for children, the sick, elderly and disabled for own household and (6) community services and help to other households. Non-work activities include: learning, social and cultural activities, mass-media use, personal care and sleep. The full list of activity codes is reported in Annex 1. Methodological issues are dealt with in Annex 4.

The Tanzania TUS is a very useful and innovative dataset—the undertaking of more such surveys should be definitely encouraged. This survey allows us to measure work by women which goes usually undercounted in all other surveys. The design of the TUS, as an add-on module of the ILFS² usefully provides the opportunity to draw links between gendered patterns of time use and other socio-economic characteristics contained in other parts of the labour survey.

² This is not typical of any TUS—time use surveys have been undertaken as stand-alone surveys in some cases and are not always drawing on nationally representative samples.

3. How women and men in Tanzania spend their time: an overview

This section presents data on all the activities identified in the survey broken down by sex. Table 3.1 describes the average time spent per day by the entire female and male Tanzanian populations (aged 5 years and above) in the ten main activities, with the average calculated over the whole population, whether or not engaged in that activity.

Table 3.1: Average time spent on activities in a day, by sex and main activity type

	<i>Broad activity type</i>	Mean minutes per day			% of day		
		<i>All</i>	<i>Female</i>	<i>Male</i>	<i>All</i>	<i>Female</i>	<i>Male</i>
1	Employment for establishments	61.0	34.7	89.7	4.2	2.4	6.2
2	Primary production activities not for establishments	171.3	163.0	180.2	11.9	11.3	12.5
3	Services for income and other production of goods not for establishments	6.3	6.9	5.7	0.4	0.5	0.4
4	Household maintenance, management and shopping for own household	113.3	169.9	51.8	7.9	11.8	3.6
5	Care for children, the sick, elderly and disabled for own household	23.9	35.4	11.5	1.7	2.5	0.8
6	Community services and help to other households	8.0	7.2	8.9	0.6	0.5	0.6
7	Learning	80.8	75.1	86.9	5.6	5.2	6.0
8	Social and cultural activities	111.4	94.6	129.7	7.7	6.6	9.0
9	Mass media use	12.5	7.7	17.8	0.9	0.5	1.2
10	Personal care and self maintenance	851.5	845.7	857.8	59.1	58.7	59.6
	Total	1440.0	1440.0	1440.0	100.0	100.0	100.0

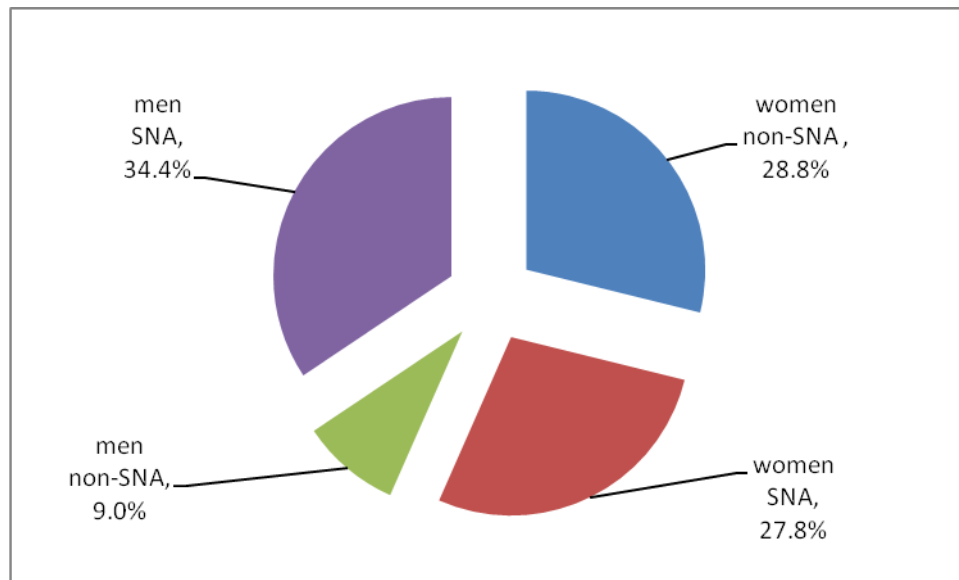
Source: Calculations from the 2006 Tanzania TUS

Table 3.1 shows that patterns of time use between paid and unpaid work are highly gendered, confirming trends observed in many other countries. On average, women devote much more time to unpaid activities than men do (for instance, female time in both household maintenance and care is three times as much as male time). Women and men spend a similar share of their day on primary agricultural work (about three hours per day) but men spend more time in other forms of paid work than women do. Men allocate more time to non-work activities such as social and cultural engagements and learning.

Figure 3.1 illustrates shares of male and female time inputs into both SNA and non-SNA production³. Women in Tanzania contribute a larger share of total work time than men in a year (about 57 per cent). The share of their contribution to non-SNA work time is especially significant (more than 76 percent of their total work time inputs).

³ This is still for the whole population, aged 5 years or older.

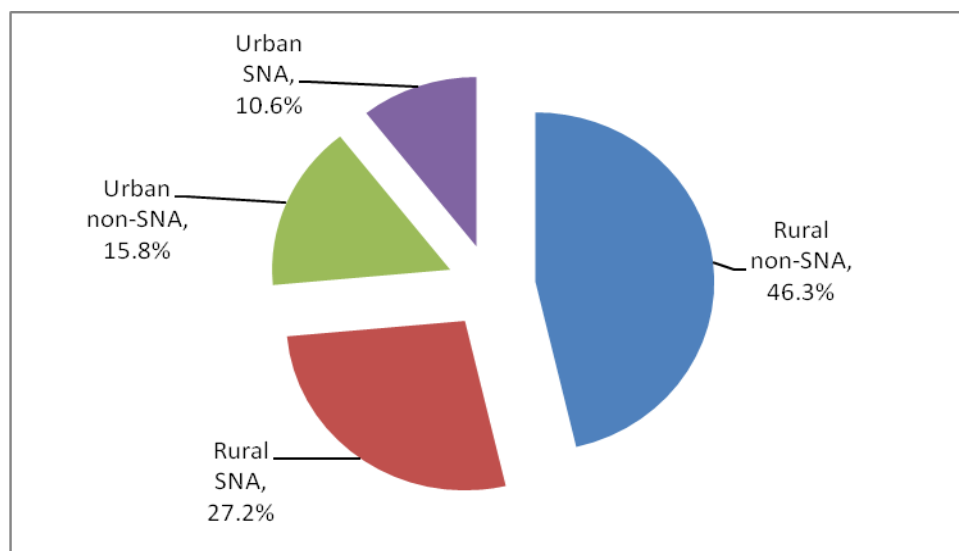
Figure 3.1: Female and male shares in total time inputs to SNA and non-SNA



Source: Calculations from the 2006 Tanzania TUS

Figure 3.2 shows differences in time contributions to SNA and non-SNA work by location. As expected, people in rural areas contribute more than people in urban areas to non-SNA production (as well as to SNA production).

Figure 3.2: Rural and urban shares in total time inputs to SNA and non-SNA



Source: Calculations from the 2006 Tanzania TUS

Table 3.2 provides some further breakdown of work activities (codes 1-6) to highlight the sub-categories that present most marked differences between women and men.

Table 3.2: Average time spent on disaggregated work activities in a day by sex⁴

Activity	Mean minutes per day		
	All	Female	Male
(1) Employment for establishments			
Wage employment	23.6	10.5	37.9
Self-employment and home based work	17.9	12.9	23.4
Paid domestic and personal services produced by domestic work	9.7	5.8	14.0
Travel	9.1	5.2	13.4
Other	0.7	0.4	1.1
(2) Primary production activities not for establishments			
Crop farming	76.3	71.8	81.2
Tending animals and hunting	20.0	7.1	33.9
Collecting firewood or dung	6.2	7.7	4.6
Collecting and waiting to collect water	15.7	22.1	8.7
Travel	47.9	50.0	45.7
Other	5.2	4.3	6.1
(3) Services for income and other production of goods not for establishments			
	6.3	6.9	5.7
(4) Household maintenance, management and shopping for own household			
Activities related to food preparation	70.9	119.1	18.4
Cleaning house and care of clothes	19.9	28.3	10.8
Do it yourself	5.7	3.6	7.9
Chopping wood	2.8	3.7	1.8
Travel	8.9	9.7	8.1
Other	5.2	5.4	4.9
(5) Care for children, the sick, elderly and disabled for own household			
	23.9	35.4	11.5
(6) Community services and help to other households			
	8.0	7.2	8.9

Source: Calculations from the 2006 Tanzania TUS

Crop farming seems to be the activity taking up the largest amount of time among productive activities (as conventionally classified by standard statistical systems), with no significant differences between women and men (about 72 minutes per day for women compared to 76 minutes for men). Men spend on average more time than women in most other paid activities. To note, however, that crop farming is not always a 'paid' activity (in the sense that the person carrying out the work receives some monetary remuneration), as it includes subsistence agriculture. Women, and girls, in particular, are likely to be involved in home own food production.

Travel time related to primary production seems to be quite high for both women and men (more than 45 minutes per day) while travel time related to other activities is significantly smaller, but usually greater for men than for women.

⁴ Refer to Annex 2 for a list of the aggregations carried out and corresponding activity codes.

Women spend three times as much as men (about 22 minutes per day) collecting water, and caring for other family members (about 35 minutes per day)⁵. Food preparation is by far the activity that shows most marked differences between women and men: while the female population spends on average two hours per day cooking, the male population devotes to this task only 18 minutes.

It is thus to a more detailed analysis of some of these specific activities, namely water collection, fuel collection and food preparation, that we now turn. The subsequent analysis will look at adult men and women (population aged 15 years and above) separately from children (girls and boys between the age of 5 and 14 years). It will zoom into some of the broad unpaid work categories and decompose the average time calculated over the entire population into: (a) participation rates (share of people actually undertaking the task in the total population) and (b) average duration among participants. The 24 hours approach has been used throughout the analysis (for further discussion of advantages and disadvantages of this approach please see Annex 4).

⁵ For a more detailed analysis of time spent on unpaid care in Tanzania please refer to the excellent UNRISD Tanzania Research Report 2 by Debbie Budlender - Budlender, D. 2008, "The Political and Social Economy of Care: Tanzania Research Report 2". Geneva: The United Nations Research Institute for Social Development. Person care, especially child care, is frequently carried out at the same time as other tasks; hence the average figures in the table 2, calculated using the 24 hours approach, might underestimate actual time and effort going into this activity.

4. Patterns of time use in water and fuel collection

4.1 Water collection

Water is essential for the well-being of women, men and children. Water is important for people's health and is a key input into cooking, cleaning, nursing and other domestic activities carried out mostly by women as part of their caring responsibilities. As shown in Table 4.1.1, women in Tanzania are more involved in water collection and spend more time on this task than men do: about 76 per cent of all adult women collect water, compared with only 33 per cent of men. The average time spent by women in this activity is about 30 minutes compared with 20 minutes for men.

Table 4.1.1: Participation rate, mean time among participants and mean time among population by sex for adults

	All	Female	Male
	<i>Percentage (%)</i>		
Participation rate	55.4	75.6	32.9
	<i>Absolute minutes per day</i>		
Mean among participants	27.2	30.1	19.6
Mean among population	15.1	22.8	6.5

Source: Calculations from the 2006 Tanzania TUS

Does location matter?

As shown in Table 4.1.2, women residing in rural areas are more likely to collect water (80 per cent) than urban women (65 per cent), but the share of urban women who fetch water is still significant. The average time spent by rural women is slightly longer (31 minutes) than the time spent by urban women (27 minutes) whereas men devote to the task the same time on average on a daily basis, regardless of where they live.

Table 4.1.2: Participation rate, mean time among participants and mean time among population by sex and location.

	Adult females		Adult males	
	Rural	Urban	Rural	Urban
	<i>Percentage (%)</i>			
Participation rate	79.6	65.4	34.1	29.7
	<i>Absolute minutes per day</i>			
Mean among participants	31.2	26.7	19.7	19.3
Mean among population	24.8	17.5	6.7	5.7

Source: Calculations from the 2006 Tanzania TUS

This high level of participation in both rural and urban areas could be explained by the fact that water infrastructure in Tanzania is rather poor even in the urban areas. Data from the Integrated Labour Force Survey show that

only 4.5 percent of all households have private tap water in their dwelling. About 30 percent of households use wells as their main source of water, while more than 24 percent of all households must collect water mostly from springs, rivers or lakes (authors' calculations from the 2006 ILFS). The distance that needs to be walked to reach a source of water is likely to be shorter for urban households than for rural household though.

Many recent studies of urban areas in Tanzania draw attention to the presence in urban areas of many squatters and unplanned settlements, consequence of a rapid growth in rural-urban migration, which is often not accompanied by a parallel expansion of infrastructure and services (for example, Muzzini and Lindeboom, 2008). Rapid urbanization has increased pressure on the already overstrained urban infrastructure and services, much of which has not been maintained, let alone expanded. Because of these problems, according to some reports, 'people are on average spending more time fetching water than they did in the 1990s' (Arvidson and Nordstrom, 2006).

Does the income level matter?

Collection of water takes more time and effort for both women and men from poorer households. As indicated in Table 4.1.3, 79 percent of women and 36 percent of men from households with monthly cash income of less than Tshs 50,000 collect water, compared with only 63 percent of women and 27 percent of men in households with income greater than Tshs 100,000. When looking at households at the very top decile of the income distribution (income greater than Tshs 1,000,000) the proportion of women and men engaged in water collection drops further (60 per cent for women and 5 percent only for men).

Table 4.1.3: Participation rate, mean time among participants and mean time among population by sex and household income

	Adult females			Adult males		
	Y<50,000	50,000≤Y≤99,000	Y>100,000	Y<50,000	50,000≤Y≤99,000	Y>100,000
	<i>Percentage (%)</i>					
Participation rate	79.0	76.7	63.5	35.9	31.6	26.6
	<i>Absolute minutes per day</i>					
Mean among participants	30.6	30.1	28.2	21.0	17.9	17.8
Mean among population	24.2	23.1	17.9	7.5	5.7	4.7

Source: Calculations from the 2006 Tanzania TUS

Does headship matter?

Table 4.1.4 shows an interesting pattern in water collection as related to the sex of the household head. The share of women who have to collect water in male headed households (about 78 percent) is higher than the share of women

who collect water in female headed households (71 percent). The task takes longer in the former households (about 31 minutes for women in male headed households compared with 28 minutes for women in female headed households). Men are more likely to collect water in female headed households (about 48 percent) than in male headed households (about 31 percent). Of course, to understand better the reasons for these patterns, a more in-depth analysis of each of these two household categories' characteristics would be required.

Table 4.1.4: Participation rate, mean time among participants and mean time among population by sex and headship

	Adult females		Adult males	
	Female Head	Male Head	Female Head	Male Head
	<i>Percentage (%)</i>			
Participation rate	71.1	77.7	47.9	30.9
	<i>Absolute minutes per day</i>			
Mean among participants	27.6	31.2	19.3	19.7
Mean among population	19.6	24.2	9.2	6.1

Source: Calculations from the 2006 Tanzania TUS

Does the presence of young children matter?

Participation rates in water collection are usually higher for those women who live in households with small children (below 7 years old). But for men the opposite pattern is true: about 37 percent of adult men in households without young children collect water compared to only 30 percent of adult men living in households with young children. This is shown in Table 4.1.5. We will see in subsequent sections that a similar pattern seems to emerge in most of the other unpaid activities later analysed in this paper: men do less unpaid work if they belong to household with young children, a fact for which we have not found yet any plausible explanation. As always, we would probably need to look into other characteristics of these two household groups to understand better.⁶

⁶ Households with young children constitute about 58 per cent of all households in the sample whereas households without young children are about 42 per cent.

Table 4.1.5: Participation rate, mean time among participants and mean time among population by sex and presence of children in the household ⁷

	Adult females		Adult males	
	Presence of children	No children	Presence of children	No children
	<i>Percentage (%)</i>			
Participation rate	77.6	72.0	30.5	36.7
	<i>Absolute minutes per day</i>			
Mean among participants	31.0	28.3	20.3	18.7
Mean among population	24.0	20.4	6.2	6.9

Source: Calculations from the 2006 Tanzania TUS

The presence of young children in a household may increase the need for water required for cleaning and care. Children, both young and less young, however, are not only ‘users’ of water but also ‘providers’ of water, as they often contribute to its collection. It is to the analysis of their involvement in water collection that we therefore turn.

Children’s contribution to water collection

Children’s participation in water collection is high: about 72 percent of girls and 60 percent of boys fetch water. This compares with 76 percent and 33 percent respectively for adult women and men. Gender differences among children are not as pronounced as they are among adults, in the sense that boys participate more than men in this activity. The average time spent on this task is similar between girls and women and between boys and men. The data are reported in Table 4.1.6.

Table 4.1.6: Participation rate, mean time among participants and mean time among population by sex for children

	All	Girls	Boys
		<i>Percentage (%)</i>	
Participation rate	66.0	72.0	59.7
	<i>Absolute minutes per day</i>		
Mean among participants	25.9	28.4	22.8
Mean among population	17.1	20.5	13.6

Source: Calculations from the 2006 Tanzania TUS

As for the adult population, children’s participation in fetching water is higher in rural areas, but the average time required is slightly higher in urban areas than in rural areas.

⁷ We considered children all those aged below 7 years old.

Table 4.1.7: Participation rate, mean time among participants and mean time among population by sex and location

	Girls		Boys	
	Rural	Urban	Rural	Urban
	<i>Percentage (%)</i>			
Participation rate	75.0	62.5	61.1	54.2
	<i>Absolute minutes per day</i>			
Mean among participants	28.0	29.9	22.2	25.7
Mean among population	21.0	18.7	13.6	13.9

Source: Calculations from the 2006 Tanzania TUS

As shown in Table 4.1.8, children in poorer households are more likely to be engaged in water collection than children in other households (about 76 percent of girls and 63 percent for boys). Still many children must perform this task even in better off households (60 percent of girls and 45 percent of boys in households with average monthly income above Tshs 100,000).

Table 4.1.8: Participation rate, mean time among participants and mean time among population by sex and household income

	Girls			Boys		
	Y<50,000	50,000≤Y≤99,000	Y>100,000	Y<50,000	50,000≤Y≤99,000	Y>100,000
	<i>Percentage (%)</i>					
Participation rate	75.7	71.6	59.9	62.6	63.6	45.4
	<i>Absolute minutes per day</i>					
Mean among participants	29.4	27.6	25.9	23.4	21.3	23.3
Mean among population	22.2	19.8	15.5	14.7	13.5	10.6

Source: Calculations from the 2006 Tanzania TUS

As described in Table 4.1.9, participation rates of boys are significantly higher in female headed households (67 percent) than in male headed households (about 58 percent). While participation rates of girls and boys are very similar in female headed households (about 70 percent, very high-- but suggesting a more equal sharing of tasks among children), the gap between them in male headed households is significant (about 20 percentage points higher for girls).

Table 4.1.9: Participation rate, mean time among participants and mean time among population by sex and headship.

Activity	Girls		Boys	
	Female head	Male head	Female head	Male head
Participation rate	71.0	75.2	66.9	57.5
	<i>Absolute minutes per day</i>			
Mean among participants	28.0	29.6	22.5	23.0
Mean among population	19.9	22.2	15.0	13.2

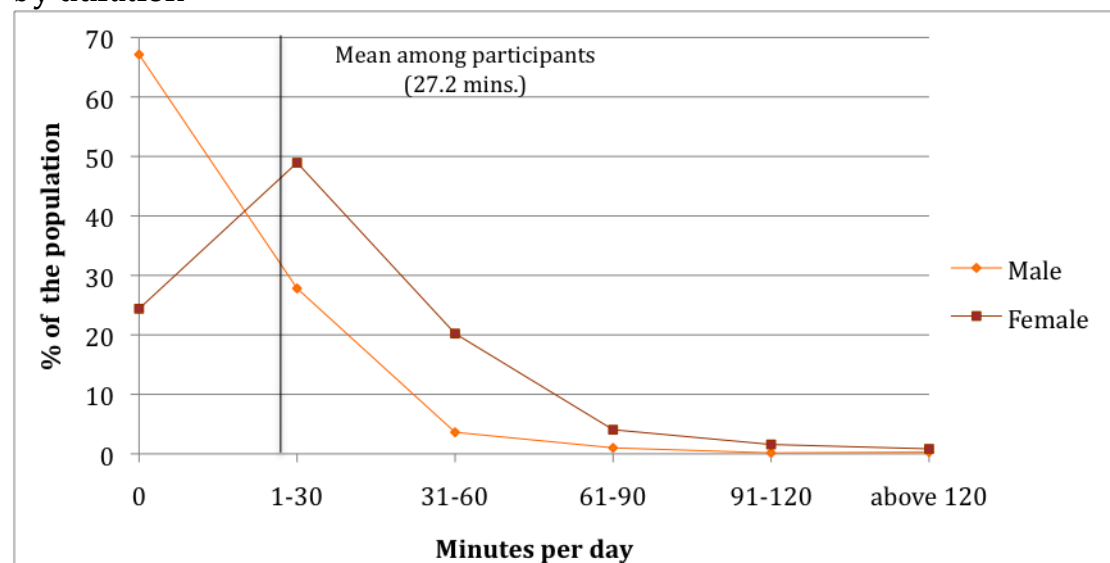
Source: Calculations from the 2006 Tanzania TUS

Who are the 'overburdened'?

The tables presented in the previous sections helped to identify factors that may affect the distribution of the burden of collecting water between men and women. We saw, for example, that location as well as income level matters.

So far we presented only averages - either for the overall population or for the groups actually carrying out the activity, but it is important to also take note of the dispersion around the average. Figure 4.1.1 shows that the male distribution for water collection is more skewed than the female distribution as there is a much larger share of men who do not collect water at all relative to women, and a much smaller share of men who spend above average time collecting it. Some of the people who are involved in the collection of water spend on it much longer than the average 27 minutes. About 7 percent of the total female adult population spend more than 60 minutes while the corresponding share for men is only about 2 percent. Most of the people spending above two hours per day (more than 120 minutes) collecting water are women.

Figure 4.1.1: Distribution of female and male population collecting water by duration



Source: Calculations from the 2006 Tanzania TUS

We wanted to understand better what the socio-economic characteristics of those people who are especially burdened by the task of water collection are. It is especially them whom projects to improve water access should aim at benefitting. In order to carry out our analysis further, we arbitrarily set the 'average duration among participants' as some sort of 'time poverty line' and defined those above such time poverty line as 'the overburdened'. 'Being overburdened' is defined here with respect to one particular activity only-- in this case water collection. We did not take into account people's overall time

burdens, or the correlation between involvement in multiple activities (a possible avenue for further analysis).⁸

How many are the overburdened?

The overall mean time spent on water collection among participants is 27 minutes per day. About 36 percent of those collecting water are 'time poor' or 'overburdened'.

As illustrated in Table 4.1.10, about 85 percent of the overburdened are women and over three quarters of them live, as expected, in rural areas (even though a lot of urban households need to collect water, as discussed in earlier sections, they are usually closer to the source than rural households are). Only 4 percent of the overburdened are urban men.

Table 4.1.10: Overburdened adult population by location/geographic area and sex

<i>Geographic location</i>	Above average		
	<i>Female Adults</i>	<i>Male Adults</i>	<i>Total</i>
Urban area	17.0	4.1	21.1
Rural area	67.7	11.2	78.9
<i>Total</i>	84.7	15.3	100

Source: Calculations from the 2006 Tanzania TUS

How many of the overburdened are poor?

More than 60 percent of the overburdened belong to households with a monthly average income below Tshs 50,000, and the vast majority of the people who are both income poor and time poor are women (about 85 percent).

Table 4.1.11: Overburdened adult population by income level and sex

<i>Household income</i>	Above average		
	<i>Female adults</i>	<i>Male Adults</i>	<i>Total</i>
Y<50,000	51.2	8.9	60.0
50,000≤Y≤99,000	22.2	4.4	26.6
Y≥100,000	11.2	2.1	13.4
<i>Total</i>	84.6	15.4	100

Source: Calculations from the 2006 Tanzania TUS

⁸ This analysis is for the adult population only but a further examination of the data suggests that a significant proportion of children are overburdened (according to our definition).

Men and women working in 'subsistence farming' ('own shamba') represent a significant share of the Tanzanian adult population (around 57 per cent, of which around 31 per cent are women and 26 per cent are men). When looking at the sub-sample of the adult population who spend above average time in water collection, we note that about 47 percent of them are female subsistence farmers- hence this group is overrepresented among the overburdened. Women who live in locations with no access to markets or shops (a likely good proxy for general poor infrastructure) are also overrepresented among the overburdened relative to their percentage in the total population.

In sum, our analysis of the burden of water collection in Tanzania suggests that this is indeed a very strenuous and time consuming activity, especially for women and children living in low-income households. This is largely the reflection of an extremely poor water infrastructure system. In light of these facts, the recent Government's proposal to reduce the budget for water by a significant amount (to 3 per cent of the total 2008-2009 budget) is rather worrying.⁹

⁹ The Tanzania 2008-2009 Budget Speech is available at: http://www.parliament.go.tz/bunge/docs/budget08_Eng.pdf . Details on the criticisms it has generated, especially from the Tanzania Gender Networking Programme (TGNP) can be found at <http://www.tgnp.org/downloads/2008-2009%20Budget%20Review.pdf>

4.2 Fuel collection

Fuelwood is one of the main sources of energy in many Tanzanian households, in particular in rural areas—it is used mostly to cook meals, but also to provide warmth and lighting when needed.

Almost three quarters of Tanzanian households (70 percent), use firewood as their main source of energy for cooking. Charcoal is the second most used source of energy. Firewood is mostly used in rural areas, whereas charcoal is more frequently used in urban areas. Less than one percent of all households use electricity for cooking and these are almost entirely in cities (ILFS 2006). The great majority of households does not have any heating, but when they have one, their source is frequently firewood (13 per cent of households use it). Firewood is less used for lighting (by only about 2 percent of all households) while kerosene is the most widely employed source (more than 80 per cent of all households use it). Those households which use electricity for lighting (about 14 percent of all households) mostly reside in urban areas.

As shown in Table 4.2.1, and as it was also the case for water collection, women in Tanzania are more involved in fetching fuelwood than men. Participation rates of both men and women, however, are lower than those for water collection. Only 39 of all adult women (compared with 76 percent for water collection) and 17 per cent of men (compared with 33 percent for water collection) collect fuel. The average time spent by women in this activity is about 22 minutes compared with 29 minutes for men—the opposite pattern as in water collection, for which women spend on average ten minutes more than men.

Table 4.2.1: Participation rate, mean time among participants and mean time among population by sex for adults

	All	Female	Male
	<i>Percentage (%)</i>		
Participation rate	28.6	38.9	17.1
	<i>Absolute minutes per day</i>		
Mean among participants	24.3	22.5	28.8
Mean among population	6.9	8.8	4.9

Source: Calculations from the 2006 Tanzania TUS

Does location matter?

Table 4.2.2 confirms what we outlined earlier in the section: that the need for fuelwood is much higher in rural areas, where about 50 percent of women and 21 percent of men spend on average more than 20 minutes every day collecting it. Participation rates are only 9 percent and 8 percent respectively

in the urban areas. This is a more marked difference between rural and urban areas than the one observed for water collection.

Table 4.2.2: Participation rate, mean time among participants and mean time among population by sex and location

	Adult females		Adult males	
	Rural	Urban	Rural	Urban
	<i>Percentage (%)</i>			
Participation rate	50.4	9.5	20.6	8.3
	<i>Absolute minutes per day</i>			
Mean among participants	22.4	23.3	29.1	26.8
Mean among population	11.3	2.2	6.0	2.2

Source: Calculations from the 2006 Tanzania TUS

Does the income level matter?

Similarly to what was observed for water collection, the collection of fuel is more commonly undertaken by both women and men from poorer households. As shown in Table 4.2.3, 47 percent of women and 22 percent of men from households with monthly cash income of less than Tshs 50,000 collect fuel, compared with only 22 percent of women and 9 percent of men in households with income greater than Tshs 100,000. When looking at households at the very top decile of the income distribution (income greater than Tshs 1,000,000) the proportion of women and men engaged in fuel collection drops much further (4 per cent for women and no men). These patterns confirm that the time burden of unpaid work is heavier for the income poor and suggest a worrying correlation between time poverty and income poverty, as in other literature.

Table 4.2.3: Participation rate, mean time among participants and mean time among population by sex and household income

	Adult females			Adult males		
	Y<50,000	50,000≤Y≤99,000	Y>100,000	Y<50,000	50,000≤Y≤99,000	Y>100,000
	<i>Percentage (%)</i>					
Participation rate	47.0	33.6	21.6	22.4	13.2	8.9
	<i>Absolute minutes per day</i>					
Mean among participants	23.0	22.4	19.2	27.8	31.2	29.8
Mean among population	10.8	7.5	4.2	6.2	4.1	2.6

Source: Calculations from the 2006 Tanzania TUS

Does headship matter?

Table 4.2.4 shows that even with regards to fuel collection, female participation rates in male headed households (40 percent) are higher than female rates in female headed households (36 percent). For male participation rates the opposite holds (21 percent of men collects fuel in female headed

households compared with 17 percent in male headed households). But the differences between the two types of households are small.

Table 4.2.4 Participation rate, mean time among participants and mean time among population by sex and headship

	Adult females		Adult males	
	Female Head	Male Head	Female Head	Male Head
	<i>Percentage (%)</i>			
Participation rate	36.4	40.1	20.9	16.6
	<i>Absolute minutes per day</i>			
Mean among participants	22.4	22.5	27.2	29.1
Mean among population	8.2	9.0	5.7	4.8

Source: Calculations from the 2006 Tanzania TUS

Does the presence of young children matter?

The presence of children younger than 7 years seems to increase the average time spent by men (32 minutes a day compared to 24 minutes in households without young children), but not their participation rates. As for women, both their participation rates and the duration of their task are slight higher when young children are present.

Table 4.2.5: Participation rate, mean time among participants and mean time among population by sex and presence of children in the household

	Adult females		Adult males	
	Presence of children	No children	Presence of children	No children
	<i>Percentage (%)</i>			
Participation rate	40.4	36.2	16.1	18.7
	<i>Absolute minutes per day</i>			
Mean among participants	23.4	20.7	32.1	24.2
Mean among population	9.4	7.5	5.2	4.5

Source: Calculations from the 2006 Tanzania TUS

Children's contribution to fuel collection

About 25 percent of girls and 18 percent of boys collect fuel. This compares with 39 percent and 17 percent respectively for adult women and men. There seems to be no difference in participation rates between adult men and young males. Children's participation in water collection was 72 percent and 60 percent, for girls and boys respectively. Evidently, many more children are involved in collecting water than in collecting firewood. Their average daily time spent fetching wood is about 20 minutes.

Table 4.2.6: Participation rate, mean time among participants and mean time among population by sex for children

	All	Girls	Boys
	<i>Percentage (%)</i>		
Participation rate	21.4	25.1	17.7
	<i>Absolute minutes per day</i>		
Mean among participants	21.1	20.4	22.2
Mean among population	4.5	5.1	3.9

Source: Calculations from the 2006 Tanzania TUS

As shown in Table 4.2.7, participation rates among children are much higher in rural areas than in urban areas. 31 percent of girls are involved in fuel collection in rural areas, compared with only 6 percent in the cities. The percentages are 21 percent and 6 percent respectively for boys. Female children spend more time collecting firewood in rural areas whereas male children spend more time collecting firewood in urban areas (the opposite pattern was observed among the adult population).

Table 4.2.7: Participation rate, mean time among participants and mean time among population by sex and location

	Girls		Boys	
	Rural	Urban	Rural	Urban
	<i>Percentage (%)</i>			
Participation rate	30.9	5.8	21.1	4.6
	<i>Absolute minutes per day</i>			
Mean among participants	20.5	18.6	22.0	25.6
Mean among population	6.3	1.1	4.6	1.2

Source: Calculations from the 2006 Tanzania TUS

As highlighted in Table 4.2.8, children in poorer households are more likely to be engaged in fuel collection than children in household with average monthly income above Tshs 100,000.

Table 4.2.8: Participation rate, mean time among participants and mean time among population by sex and household income.

	Girls			Boys		
	Y<50,000	50,000≤Y≤99,000	Y>100,000	Y<50,000	50,000≤Y≤99,000	Y>100,000
	<i>Percentage (%)</i>					
Participation rate	30.8	18.4	17.0	21.6	15.0	9.2
	<i>Absolute minutes per day</i>					
Mean among participants	21.3	19.7	15.7	22.5	23.0	18.5
Mean among population	6.6	3.6	2.7	4.9	3.4	1.7

Source: Calculations from the 2006 Tanzania TUS

As illustrated in Table 4.2.9, a higher number of both girls and boys participate in fuel collection if they live in male headed households. They spend more time on this activity, however, if they belong to female headed households. The difference in participation between the two household types is more marked for girls while the difference in duration is more marked for boys. These patterns are somewhat different from the patterns we observed for water collection (for which girls' participation rates were higher in male headed households but boys' rates were higher in female headed households).

Table 4.2.9: Participation rate, mean time among participants and mean time among population by sex and headship.

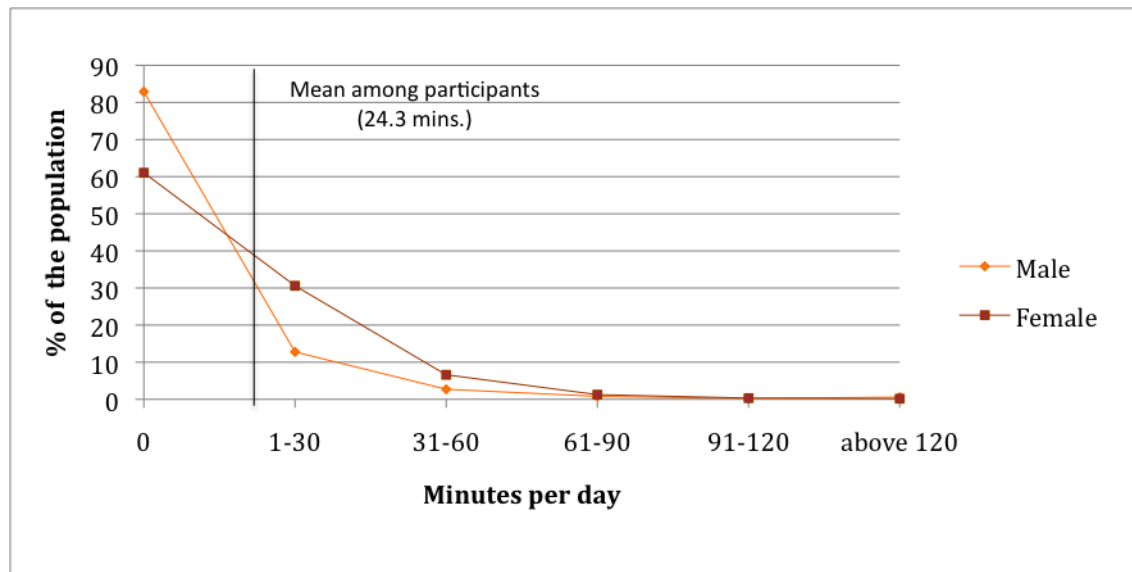
Activity	Girls		Boys	
	Female head	Male head	Female head	Male head
Participation rate	23.2	30.6	14.3	18.7
	<i>Absolute minutes per day</i>			
Mean among participants	21.0	18.9	28.0	20.8
Mean among population	4.9	5.8	4.0	3.9

Source: Calculations from the 2006 Tanzania TUS

How many are the overburdened?

Figure 4.2.1 shows that, differently from what was observed for water collection, both the male and the female distributions for firewood collection decline smoothly from left to right. This is because the share in the population who collect fuel is smaller than the share of the population which does not collect it, for both women and men. As in Figure 4.1.1 though, the female distribution lies above the male distribution, indicating higher participation and duration for women. About 34 percent of those collecting fuel spend every day longer than the average time. Most of them are women. Very few in the population (1.6 per cent of the male population and 1.8 per cent of the female population) spend more than an hour per day on the task.

Figure 4.2.1: Distribution of female and male population collecting fuel by duration



Source: Calculations from the 2006 Tanzania TUS

Who are the 'overburdened'?

The vast majority of the overburdened (90 percent) live in rural areas and more than 66 percent of them are rural women. Almost 70 percent of the overburdened belong to households with a monthly income below Tshs 50,000, thus highlighting once again that the burden of unpaid work falls especially on the most vulnerable and disadvantaged women.

5. Home maintenance

5.1. Food preparation

The activities of food preparation include grinding, cutting, heating water, actual cooking, setting tables and serving, and cleaning up after a meal. Healthy and carefully prepared meals are essential for the nutritional status of both children and adults, as well as contributing to their broader sense of well-being. Food preparation is the activity in which differences between women and men appear most marked. As illustrated in Table 5.1.1, almost the entire female population (95 percent of adult women) devote a share of their average day to preparing food while only 35 percent of men do. The gap between women and men is striking also as far as duration is concerned. Adult women on average spend 153 minutes per day (or about two hours and a half) cooking while adult men spend on this task about 47 minutes.

Table 5.1.1: Participation rate, mean time among participants and mean time among population by sex for adults

	All	Female	Male
	<i>Percentage (%)</i>		
Participation rate	66.7	94.9	35.1
	<i>Absolute minutes per day</i>		
Mean among participants	126.4	152.6	47.4
Mean among population	84.3	144.8	16.6

Source: Calculations from the 2006 Tanzania TUS

Does location matter?

As shown in Table 5.1.2, rates of participation in food preparation are higher in rural areas than in urban areas for both women and men, but the average duration of this task appears higher in urban areas. Both urban women and urban men spend at least 10 minutes longer than rural women and men preparing food and cooking. Further analysis could break down the activity of food preparation in its many components to identify which of the tasks take more time between rural and urban areas.

Table 5.1.2: Participation rate, mean time among participants and mean time among population by sex and location

	Adult females		Adult males	
	Rural	Urban	Rural	Urban
	<i>Percentage (%)</i>			
Participation rate	95.9	92.2	36.8	31.0
	<i>Absolute minutes per day</i>			
Mean among participants	148.6	163.4	44.6	55.8
Mean among population	142.5	150.6	16.4	17.3

Source: Calculations from the 2006 Tanzania TUS

Does the income level matter?

As illustrated in Table 5.1.3, the level of income does not seem to be an important determinant of time devoted to food preparation. It is worth noting, however, that in households with monthly income below Tshs 50,000 female participation rates are higher (96 percent compared with 92 percent in richer households) but the average duration time is slightly lower (150 minutes per day compared with 155 minutes) than in other households. As for men, both their participation rates and the average duration of their involvement are higher in poorer households, but still much lower than for the female members with similar levels of household income. When analysing households at the very top decile of the income distribution, the proportion of women and men doing some cooking drops (80 per cent for women and 5 percent for men). This household group however is only a small fraction of all households.

Table 5.1.3: Participation rate, mean time among participants and mean time among population by sex and household income

	Adult females			Adult males		
	Y<50,000	50,000≤Y≤99,000	Y>100,000	Y<50,000	50,000≤Y≤99,000	Y>100,000
	<i>Percentage (%)</i>					
Participation rate	95.6	95.2	92.3	37.9	32.5	31.6
	<i>Absolute minutes per day</i>					
Mean among participants	150.3	155.8	155.2	49.5	47.8	40.0
Mean among population	143.6	148.3	143.2	18.8	15.6	12.6

Source: Calculations from the 2006 Tanzania TUS

Does headship matter?

Women in male headed households spend about 30 minutes longer every day on food preparation than women in female headed households. There is only a slight difference between male headed households and female headed households in the time devoted by adult males to cooking, but male participation rates are higher in female headed households than in male headed ones (44 percent compared with 34 percent).

Table 5.1.4: Participation rate, mean time among participants and mean time among population by sex and headship

	Adult females		Adult males	
	Female Head	Male Head	Female Head	Male Head
	<i>Percentage (%)</i>			
Participation rate	93.4	95.6	43.6	34.0
	<i>Absolute minutes per day</i>			
Mean among participants	134.4	160.9	50.0	47.0
Mean among population	125.6	153.8	21.8	16.0

Source: Calculations from the 2006 Tanzania TUS

Does the presence of young children matter?

Consistently with patterns observed for water and fuel collection, the presence of young children in the households seems to make female participation rate (slightly) higher and male participation rates (significantly) lower. This is shown in Table 5.1.5.

Table 5.1.5: Participation rate, mean time among participants and mean time among population by sex and presence of children in the household

	Adult females		Adult males	
	Presence of children	No children	Presence of children	No children
	<i>Percentage (%)</i>			
Participation rate	95.0	94.7	30.7	42.3
	<i>Absolute minutes per day</i>			
Mean among participants	155.0	148.2	38.8	57.6
Mean among population	147.2	140.3	11.9	24.3

Source: Calculations from the 2006 Tanzania TUS

Children's participation to food preparation

Table 5.1.6 illustrates that about 81 percent of girls and 57 percent of boys do help in food preparation. Girls' participation rates are lower than women's rates but boy's participation rates are higher than men's.

Table 5.1.6: Participation rate, mean time among participants and mean time among population by sex for children

	All	Girls	Boys
		<i>Percentage (%)</i>	
Participation rate	69.2	80.6	57.5
	<i>Absolute minutes per day</i>		
Mean among participants	57.8	71.3	38.5
Mean among population	40.0	57.4	22.1

Source: Calculations from the 2006 Tanzania TUS

Children spend on average on this task 40 minutes, which is significantly lower than for adults (84 minutes).

Table 5.1.7: Participation rate, mean time among participants and mean time among population by sex and location.

	Girls		Boys	
	Rural	Urban	Rural	Urban
	<i>Percentage (%)</i>			
Participation rate	80.9	79.3	57.3	57.9
	<i>Absolute minutes per day</i>			
Mean among participants	70.1	75.3	37.2	43.5
Mean among population	56.7	59.7	21.3	25.2

Source: Calculations from the 2006 Tanzania TUS

Differences in participation patterns across income levels are more pronounced among girls than among adult women. As described in Table 5.1.8, indeed both girls and boys in low income households are more involved in food preparation and spend longer on this task than children in better off households (82 percent compared with 77 percent for girls, and 60 percent compared with 48 percent for boys).

Table 5.1.8: Participation rate, mean time among participants and mean time among population by sex and household income

	Girls			Boys		
	Y<50,000	50,000≤Y≤99,000	Y>100,000	Y<50,000	50,000≤Y≤99,000	Y>100,000
	<i>Percentage (%)</i>					
Participation rate	82.4	79.0	76.9	59.9	58.5	48.6
	<i>Absolute minutes per day</i>					
Mean among participants	72.1	69.3	71.8	39.9	35.9	37.3
Mean among population	59.4	54.7	55.2	23.9	21.0	18.1

Source: Calculations from the 2006 Tanzania TUS

As illustrated in Table 5.1.9, girls in male headed households have higher participation rates and spend more time on food preparation than girls in female headed households. The opposite holds for boys who have higher participation rates and spend more time on food preparation in female headed households.

Table 5.1.9: Participation rate, mean time among participants and mean time among population by sex and headship

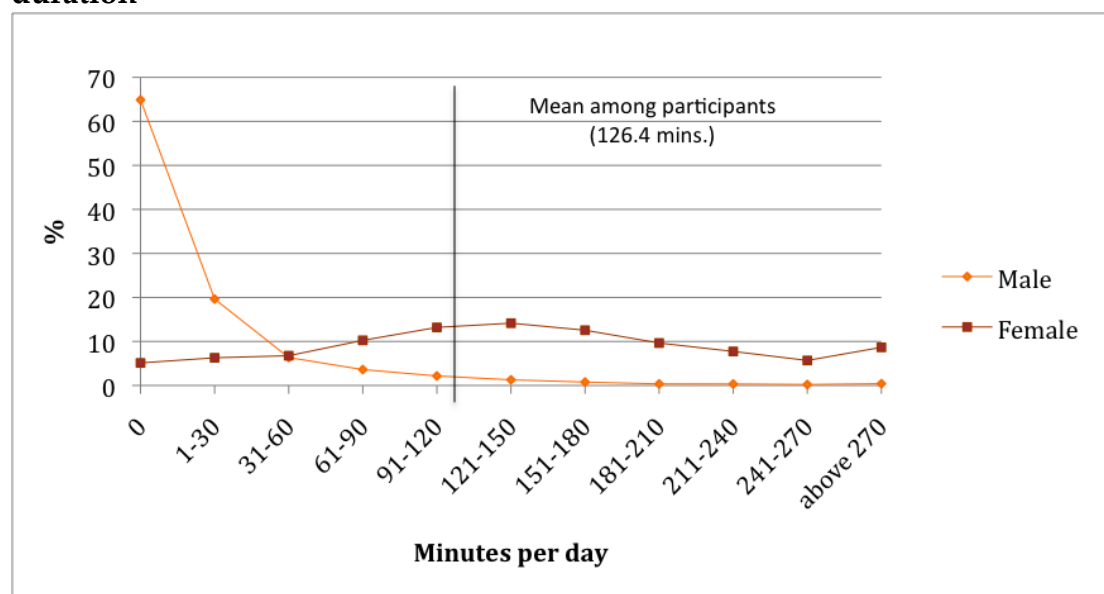
	Girls		Boys	
	Female head	Male head	Female head	Male head
Participation rate	78.8	85.7	58.6	57.1
	<i>Absolute minutes per day</i>			
Mean among participants	69.9	75.0	39.3	38.2
Mean among population	55.1	64.3	23.0	21.8

Source: Calculations from the 2006 Tanzania TUS

How many are the overburdened?

As one can see in Figure 5.1.1, the shape of the female and male distributions are different from the previous ones in that the vast majority of women and only a tiny proportion of men engages in cooking. Among women the distribution across duration levels is more even than in the previous distributions. The average time spent by participants is just above two hours per day (or 126 minutes). About 46 percent of the 'participants' devote to food preparation above average time.

Figure 5.1.1: Distribution of female and male population preparing food by duration



Source: Calculations from the 2006 Tanzania TUS

Who are the 'overburdened'?

As expected, almost all the overburdened (95 percent) are women and about 70 percent of them live in rural areas. However, it is urban females who are the most overrepresented among the overburdened (they constitute about 20 percent of the population engaged in food preparation but more than 27 percent of the overburdened).

About 53 per cent of the overburdened are women belonging to households with monthly income lower than Tshs 50,000 (women with such income level represent about 42 percent of the total population engaged in food preparation). Women in households with average monthly income between Tshs 50,000 and Tshs 99,000 constitute about 26 percent of the overburdened and 20 percent of the total population preparing food, while women in richer households constitute about 17 percent of the overburdened and 13 percent of the population preparing food.

5.2. Other household maintenance

Women tend to be more involved than men in other aspects of household maintenance as well, as shown in Table 5.2.1. About 86 percent of all adult women clean the house compared with only 42 percent of men, and spend on it an average of 37 minutes per day, compared with 21 minutes for men. Women's involvement in chopping wood is also greater than men's, in terms of both participation and duration. DIY is the only activity to have a higher male participation (21 percent of all men undertakes some DIY compared with 12 percent of all women, and spend on it about 51 minutes per day compared with 39 minutes for women).

Table 5.2.1: Participation rate, mean time among participants and mean time among population by sex for adults

	All	Female	Male
	<i>Percentage (%)</i>		
Participation rates			
Cleaning house and care of clothes	65.3	86	42.2
Do it yourself	16.4	12	21.3
Chopping wood	17.6	25.5	9
Other	37.1	40.8	32.9
	<i>Absolute minutes per day</i>		
Mean among participants			
Cleaning house and care of clothes	32.7	37.3	22.2
Do it yourself	46.3	38.9	50.9
Chopping wood	17.4	17.4	17.4
Other	16.8	16.9	18
Mean among population			
Cleaning house and care of clothes	21.3	32.0	9.4
Do it yourself	7.6	4.6	10.9
Chopping wood	3.1	4.4	1.6
Other	6.2	6.5	5.9

Source: Calculations from the 2006 Tanzania TUS

Table 5.2.2 shows that the proportion of adult men devoting time to cleaning is considerably higher in urban areas while there are not significant differences between women's patterns due to location. DIY activities are more frequent in rural areas, both for men and for women.

Table 5.2.2: Participation rate, mean time among participants and mean time among population by sex and location.

	Adult females		Adult males	
	Rural	Urban	Rural	Urban
Participation rate	<i>Percentage (%)</i>			
Cleaning house and care of clothes	85.1	88.2	38.9	50.5
Do it yourself	12.8	9.6	25.3	11.4
Chopping wood	28.1	18.6	10.4	5.1
Other	34.5	57.1	33.7	30.8
Mean among participants	<i>Absolute minutes per day</i>			
Cleaning house and care of clothes	33.1	47.6	19.5	27.3
Do it yourself	40.1	34.8	52.3	42.9
Chopping wood	17	18.9	18.3	12.5
Other	15	17.4	18.5	16.2
Mean among population	<i>Absolute minutes per day</i>			
Cleaning house and care of clothes	28.1	42.0	7.6	13.8
Do it yourself	5.1	3.3	13.2	4.9
Chopping wood	4.8	3.5	1.9	1.0
Other	5.2	10.0	6.2	5.0

Source: Calculations from the 2006 Tanzania TUS

Table 5.2.3 suggests that the income level might not be an important explanatory factor for variations in time spent cleaning or repairing the house, although men living in high income households devote less time to DIY than men living in other households.

Table 5.2.3: Participation rate, mean time among participants and mean time among population by sex and household income

	Adult females			Adult males		
	Y<50,000	50,000≤Y≤99,000	Y>100,000	Y<50,000	50,000≤Y≤99,000	Y>100,000
Participation rate	<i>Percentage (%)</i>					
Cleaning house and care of clothes	85.4	88.0	84.9	40.7	45.0	42.0
Do it yourself	12.3	11.9	10.9	23.3	20.5	17.3
Chopping wood	28.3	22.6	20.7	11.3	7.6	4.6
Other	35.4	49.4	45.2	33.0	33.4	31.9
Mean among participants	<i>Absolute minutes per day</i>					
Cleaning house and care of clothes	32.6	42.7	43.5	21.0	22.0	25.6
Do it yourself	42.6	38.8	25.7	56.3	45.1	42.2
Chopping wood	16.1	18.5	20.7	18.4	12.6	22.5
Other	15.7	15.4	17.3	16.4	18.7	20.8
Mean among population	<i>Absolute minutes per day</i>					
Cleaning house and care of clothes	27.9	37.5	37.0	8.5	10.0	10.7
Do it yourself	5.2	4.6	2.8	13.1	9.2	7.3
Chopping wood	4.6	4.2	4.3	2.1	1.0	1.0
Other	5.6	7.6	7.8	5.4	6.2	6.6

Source: Calculations from the 2006 Tanzania TUS

One of the most interesting patterns to be highlighted in Table 5.2.4 is that while women's participation rates in cleaning, and the average duration of their task, are higher in male headed households, men's participation in cleaning indicates a significantly higher participation in female headed households (59 percent compared with 40 percent).

Table 5.2.4: Participation rate, mean time among participants and mean time among population by sex and headship

	Adult females		Adult males	
	Female Head	Male Head	Female Head	Male Head
Participation rate	<i>Percentage (%)</i>			
Cleaning house and care of clothes	83.6	87.1	59.1	40.0
Do it yourself	12.0	11.9	17.0	21.9
Chopping wood	22.3	26.9	10.3	8.8
Other	42.6	40.0	33.0	32.9
Mean among participants	<i>Absolute minutes per day</i>			
Cleaning house and care of clothes	34.0	38.7	23.5	21.9
Do it yourself	40.7	38.0	47.8	51.2
Chopping wood	17.6	17.3	13.5	17.9
Other	16.6	15.6	15.8	18.2
Mean among population	<i>Absolute minutes per day</i>			
Cleaning house and care of clothes	28.4	33.7	13.9	8.8
Do it yourself	4.9	4.5	8.1	11.2
Chopping wood	3.9	4.6	1.4	1.6
Other	7.1	6.2	5.2	6.0

Source: Calculations from the 2006 Tanzania TUS

6. Patterns of travel

We also examined whether time spent on travel differs between women and men. Our analysis took into account only travel related to work (both SNA and non-SNA), which was aggregated in three broad categories¹⁰:

- Travel to formal sector work and non-agricultural informal sector work
- Travel to primary production activities
- Travel related to household management, care activities and community services

Our main findings are that the vast majority of the population travels every day and that both women and men spend a lot of time going to work—an average of 85 minutes and 89 minutes per day for women and men respectively, as described in Table 6.1. However their reasons for travelling are different.

Table 6.1: Travel related to SNA and non-SNA activities (aggregated)

	All	Female	Male
	<i>Percentage (%)</i>		
Participation rate	93.2	92.8	93.7
	<i>Absolute minutes per day</i>		
Mean among participants	86.7	84.9	88.6
Mean among population	80.8	78.8	83.0

Source: Calculations from the 2006 Tanzania TUS

As the comparison between the two tables below suggests, most (but not all) people who participate in either non-agricultural work or primary production must travel, while only a share of people engaged in home management and care is involved in activities associated with travel. Men usually travel for 15 minutes longer than women as far as travel related to non-agricultural work is concerned, whereas women travel slightly longer than men as far as agricultural work is concerned. Travel related to agricultural work takes the longest (an average of 70 minutes per day for women and 67 minutes per day for men). Travel related to home management and care takes about 25 minutes per day for both men and women.

¹⁰ See Annex 3 for the aggregation of travel categories and corresponding activity codes.

Table 6.2: Participation rate, mean time among participants and mean time among population by sex for adults

<i>Travel related to</i>	Participation rates			Mean among participants			Mean among population		
	<i>Percentage (%)</i>			<i>Absolute minutes per day</i>			<i>Absolute minutes per day</i>		
	All	Female	Male	All	Female	Male	All	Female	Male
Formal and non-agricultural informal sector work	25.4	17.1	34.7	54.3	45.0	59.4	13.8	7.7	20.6
Primary production activities (not for establishments)	78.8	82.1	75.1	68.3	69.6	66.6	53.8	57.1	50.1
Household management, care activities and community services	53.5	57.8	48.7	24.7	24.1	25.5	13.2	14.0	12.4

Source: Calculations from the 2006 Tanzania TUS

Table 6.3: Travel related to SNA and non-SNA activities (disaggregated)

	Participation rates		
	<i>Percentage (%)</i>		
	All	Female	Male
Formal and non-agricultural informal sector work	34.0	27.1	41.7
Primary production activities (not for establishments)	85.5	89.5	81.0
Household management, care activities and community services	92.2	97.9	85.8

Source: Calculations from the 2006 Tanzania TUS

Both women and men spend more time travelling to non-agricultural work if they live in urban areas and more time travelling to agricultural work if they live in rural areas. Women appear to spend more time travelling for household and care activities in urban areas than in rural areas (an average of 29 minutes per day in urban areas compared with 21 minutes in rural areas).

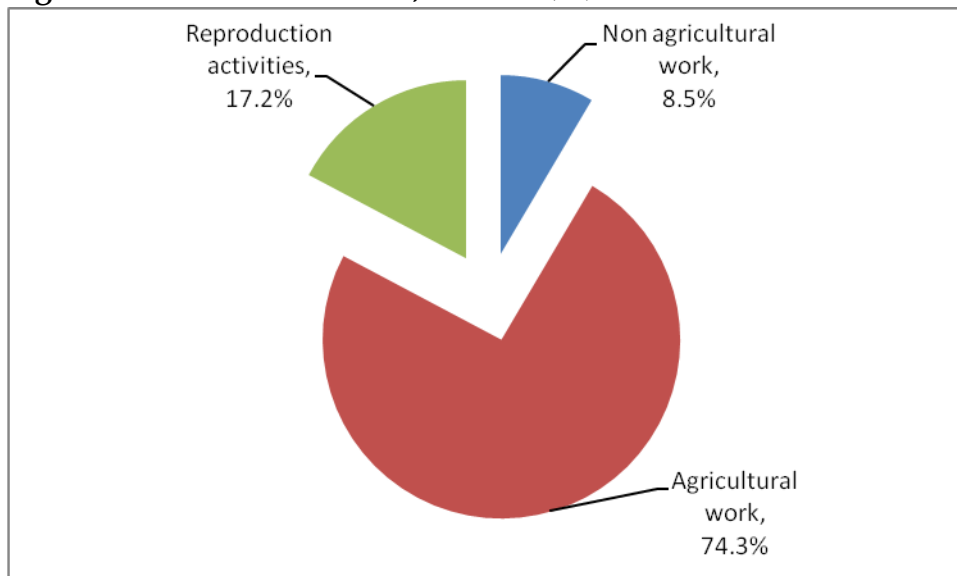
Income levels seem to affect significantly the pattern of travel to paid work. Travel to non-agricultural work takes more time for both women and men living in households with monthly income above Tshs 100,000. For men this time is close to 70 minutes and for women is about 50 minutes. Conversely, it is women and men living in the poorest households who spend more time travelling to primary production work, about 73 minutes per day, for both women and men. This is not at all surprising and simply reflects households' different activity profiles. It is also important to note that the mode of travel (by public or private transport, or by foot) may vary greatly across locations as well as by gender, with low income women in rural areas more likely to walk.

For both men and women, time spent travelling for non-agricultural work is higher if they do not have young children but time spent travelling for agricultural work and for home management and care is slightly lower for families without young children.

There appears not to be a strong correlation between the absence of public transports, and of market and hospital facilities, and the average time of travel. This applies to both men's and women's patterns. However there are differences among types of travel (the absence of public transports and other facilities seems to increase the average travel duration for primary production but not the travel duration for non-agricultural work and for home related activities). These patterns are rather unclear, might be related to the mode of travel and deserve further analysis.

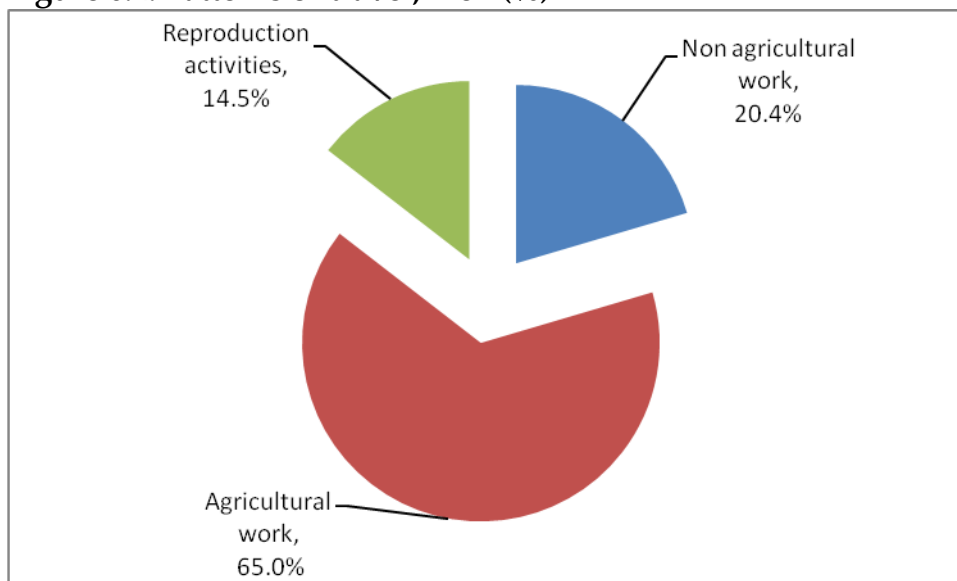
As a way of summarising this brief and preliminary account of gender patterns in travel, Figure 6.1 and Figure 6.2 highlight differences between men and women in the share of total travel time required by various activities.

Figure 6.1: Patterns of travel, women (%)



Source: Calculations from the 2006 Tanzania TUS

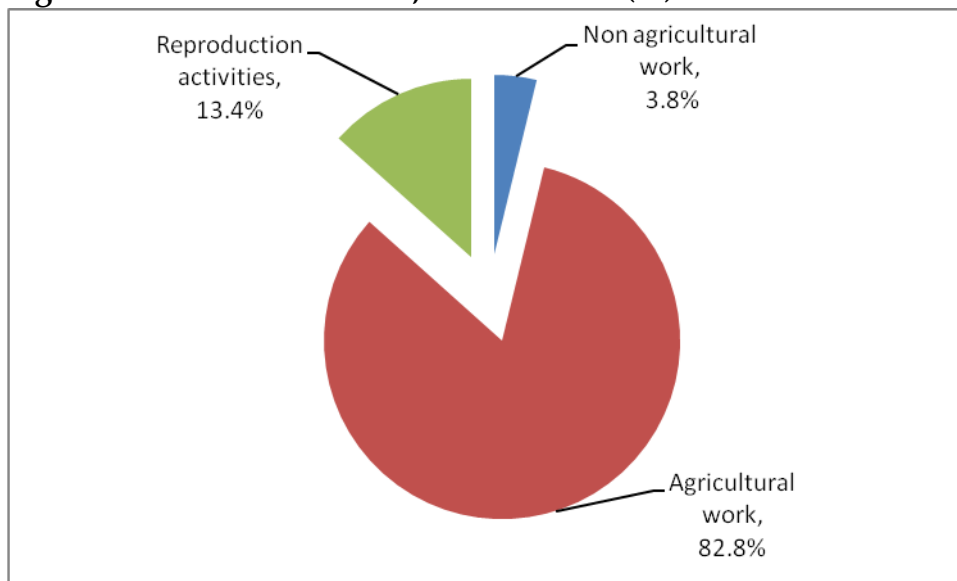
Figure 6.2: Patterns of travel, men (%)



Source: Calculations from the 2006 Tanzania TUS

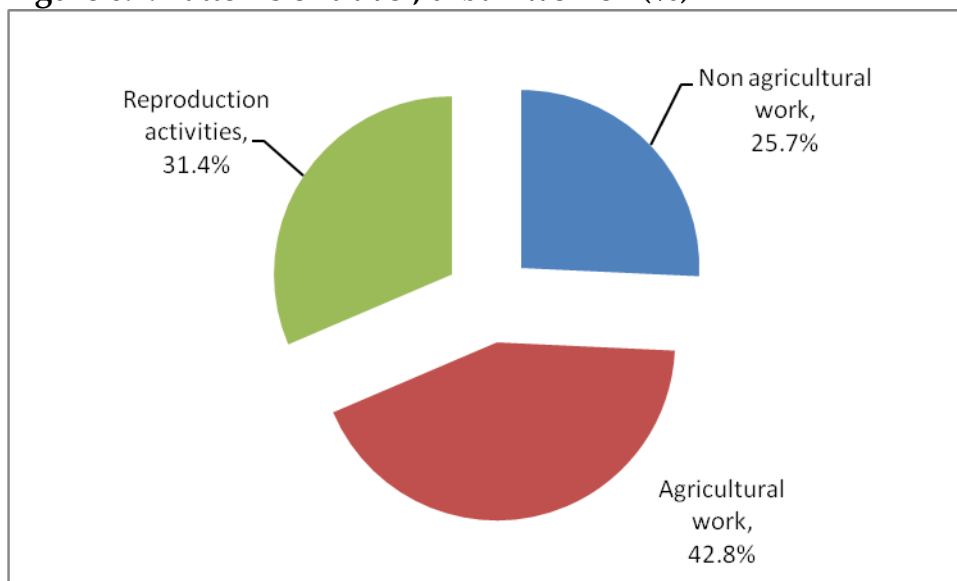
Figure 6.3 and Figure 6.4 show differences in travel patterns of women, depending on whether they live in rural or urban areas.

Figure 6.3: Patterns of travel, rural women (%)



Source: Calculations from the 2006 Tanzania TUS

Figure 6.4: Patterns of travel, urban women (%)



Source: Calculations from the 2006 Tanzania TUS

7. Saving time

Earlier sections have vividly illustrated how large, and unequally distributed, the burden of unpaid work is in Tanzania. Differences and similarities in patterns across types of activity have also been shown. We conclude this paper by undertaking a few basic calculations to estimate the gains that could be achieved by investing in infrastructure that reduces unpaid work, and targeting in particular those who spend above average time on it. These calculations are based on strong assumptions and hence the results should be taken as just an indication.

We estimated how much time per year would be saved, by women and men separately, if there were improvements in infrastructure such as that all those involved in water collection, fuel collection and food preparation would spend on these tasks no longer than what we calculated as the current average – which is 27 minutes, 24 minutes and 126 minutes per day for water collection, fuel collection and food preparation respectively. In other words, the overburdened would no longer exist!

The results are shown in Table 8.1. Millions of hours would be saved which could be spent in more productive work, or could be simply devoted to more rest and recreation.

Table 8.1. Gains from unpaid-work-reducing infrastructure, by activity and sex

	Hours saved in a year (million)	Potential Full-time jobs	Resulting earnings (Tshs million)
Water Collection			
Adult Women	1,128	644,655	390,338
Adult Men	212	120,897	81,454
Fuel Collection			
Adult Women	394	225,358	136,454
Adult Men	231	132,163	89,045
Food preparation			
Adult Women	8,034	4,590,742	2,779,694
Adult Men	365	208,698	140,610

Source: Calculations from the 2006 Tanzania TUS and ILFS

We then took the exercise a little further by calculating the number of jobs that could be generated if all the freed up hours could be converted into paid employment (the calculation assumes a 7 hours working day for 250 days a year, and that these job opportunities would be truly available to people seeking them). The results are shown in the second column of Table 8.1. : more than half a million jobs could be generated for women from reducing water collection time; about 225,000 from reducing fuel collection; and above 4 millions from reducing food preparation time. In all cases, of course, the number of jobs created for women would be much higher than the number of jobs for men.

The third column of Table 8.1 shows the earnings that could be produced, assuming both women and men taking up these jobs would earn a hourly wage equal to the median hourly wage in the Tanzanian population for 2006, which is Tshs 346 and Tshs 385 for women and men respectively (ILFS 2006). The resulting earnings from reducing food preparation time (and/or converting it into paid work) would thus be about 24 percent of the total cash earnings for 2006. The earnings from reducing water collection and fuel collection time would be about 4 percent and 2 percent of the total 2006 cash earnings respectively. Because most of these wages would accrue to women, this could significantly contribute not only to reduce poverty but also to redress the gender gap in earnings and to increase women's visibility and decision making power, with positive consequences for all.

8. Conclusions

The analysis carried out in this paper has shown a marked gender bias in most unpaid work undertaken in Tanzania. Women, and particularly women from low income groups and living in areas with limited facilities, spend long hours on water and fuel collection, food preparation and other domestic and care activities to compensate for poor infrastructure. Children, too, are heavily involved in unpaid work, and girls more than boys, reproducing patterns found in the adult population (which may have potentially serious negative consequences for their future).

We looked at a wide range of activities but we focused in particular on: water collection, fuel collection and food preparation. The problem of fuel collection affects mostly the countryside while high time burdens due to food preparation and water collection are found in both rural and urban areas. Patterns of time distribution vary across types of activity also depending on other household characteristics, such as the level of monthly income or the sex of the household head—we found, for instance, that both adult men and boys tend to participate more in households managed by women.

Our findings are the result of a preliminary exploration of the data. Further analysis to assess more precisely the circumstances of people who carry heavy burdens of unpaid work and to identify their needs (and those of the communities where they live) must be undertaken. Such analysis is urgently required to identify priority areas for infrastructure investment.

It is hoped that this account, however tentative, has helped at least in making the work of many Tanzanian women more visible. Recognition is the first step, efforts to reduce and redistribute such work should follow.

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ANNEXES

Annex 1 - Full list of activity codes

1. Employment for establishments (Fixed structures such as a shop, office, factory, mine)

111 First job or employment on full or part time basis other than domestic work

112 Outworkers/home based work for an establishment

113 Paid domestic and personal services produced by domestic work

114 Work as employer/self-employed for an establishment

115 Paid (whether cash or in kind) domestic and personal services produced by domestic work

130 Working in apprenticeship, internship and related positions

140 Short breaks and interruptions from work

150 Seeking employment and related activities

180 Travel to and from work

188 Waiting to travel to and from work

190 Employment in establishments not included/classified elsewhere

2. Primary Production activities not for establishments

210 Crop farming and market/kitchen gardening: planting, weeding, harvesting, picking, etc.

220 Tending animals and fish farming

230 Hunting fishing, gathering of wild products and forestry

236 Collecting firewood or dung

240 Digging, stone cutting, splitting and carving

250 Collecting water

258 Waiting to collecting water

261 Purchase of (inputs) goods for primary production activities not for establishment

262 Sale of products arising from primary production activities not for establishment

270 Travel related to primary production activities (not for establishments)

290 Primary production activities (not for establishments) not included/classified elsewhere

3. Services for income and other production of goods not for establishments

310 Food processing and preservation activities: grain processing, butchering, preserving, curing

318 Waiting to Food processing and preservation activities: grain processing, butchering, preserving, curing

320 Preparing and selling food and beverage, preparation, baking, making sweets/confectionery and related activities

330 Making and selling bricks, textiles, leather, and related craft: weaving, knitting, sewing, shoemaking, tanning, and products of wood

338 Waiting to Making and selling bricks, textiles, leather, and related craft: weaving, knitting, sewing, shoemaking, tanning, and products of wood

340 Building and extensions of dwelling: laying bricks, making a pole frame for walls, plastering thatching, roofing, repairing buildings, cutting grass, plumbing, painting, carpentry, electric wiring

348 Waiting to Building and extensions of dwelling: laying bricks, making a pole frame for walls, plastering thatching, roofing, repairing buildings, cutting grass, plumbing, painting, carpentry, electric wiring

351 Petty trade, street/door-to-door vending, selling water in carts, selling charcoal, selling airtime, roadside food selling shoe-cleaning and other similar services in fixed structure

352 Petty trade, street/door-to-door vending, selling water in carts, selling charcoal, selling airtime, roadside food selling shoe-cleaning and other similar services not in fixed structure

360 Fitting, installing, tool setting, sharpening knives, maintaining and repairing tools

370 Provision of services for income such computer services, telephone services, transport (buses, taxis, carts, etc), hairdressing, cosmetic treatment, baby sitting, massages, prostitution

378 Waiting for Provision of services for income such computer services, telephone services, transport (buses, taxis, carts, etc), hairdressing, cosmetic treatment, baby sitting, massages, prostitution

380 Travel related to services for income and other production of goods (not for establishment)

388 Waiting to Travel related to services for income and other production of goods (not for establishment)

390 Services for income and other production of goods (not for establishments) not included/classified elsewhere

398 Waiting to Services for income and other production of goods (not for establishments) not included/classified elsewhere

4. Household maintenance, management and shopping for own household

410 Preparing food and cooking where cannot distinguish

411 Preparing food (grinding, milling, cutting, heating water, chopping wood)

412 Cooking, making drinks, setting tables and serving

413 Cleaning up after meal

418 Waiting to prepare food

420 Cleaning house and surroundings
430 Care of clothes and other textiles (sheets, curtain, etc): washing, ironing, mending and ordering clothes and linen
440 Shopping for personal and household goods
441 Accessing government services: Collecting government pension, going to the post office, social welfare, police
448 Waiting to access government services
450 Household management: planning, supervising, paying bills, buying pre-paid electricity (luku) etc
460 Do it yourself home improvements and maintenance, installation servicing and repair of personal and household goods (repair of watch, bicycle, fridge)
470 Pet care
480 Travel related to household maintenance, management and shopping
488 Waiting to access the travel related to household maintenance, management and shopping
490 Household maintenance, management and shopping not included/classified elsewhere
491 Chopping wood, lighting fire and heating water not for immediate cooking

5. Care of children, the sick, elderly and disabled for own household

510 Physical care of children: washing dressing, feeding including breast feeding
520 Teaching, training and instruction of children in household
530 Accompanying children to places: school, sports. Lessons
538 Waiting to access the accompanying children to places: school, sports. Lessons
540 Physical care of the sick, disabled, elderly: washing, dressing, feeding, Helping
541 Physical care of sick adults
542 Physical care of disabled adults
543 Physical care of elderly adults
551 Accompanying sick adult to receive personal care services
552 Accompanying disabled adult to receive personal care services
553 Accompanying elderly adult to receive personal care services
558 Waiting to access to receive personal care services
561 Supervising children needing care
562 Supervising sick adult needing care
563 Supervising disabled needing care
564 Supervising elderly needing care
581 Travel related to care of children
582 Travel related to care of sick adult

- 583 Travel related to care of disabled adult
- 584 Travel related to care of elderly adult
- 588 Waiting to access to travel related to care of sick, disabled and elderly adult
- 590 Care of children, the sick, elderly and disabled in the household

6. Community services and help to other Household

- 610 Community organized construction and repair.
- 618 Waiting for community organized construction and repair.
- 615 Cleaning of public buildings
- 620 Community organized work.
- 628 Waiting for community organized work.
- 630 Volunteering with or for an organization
- 650 Participation in meetings of local government and informal groups, associations, union
- 658 Waiting to participation in meetings of local government and informal groups, associations, unions
- 660 Involvement in civic and related responsibilities
- 661 Participating in the ILFS/TUS
- 671 Caring for non-household children
- 672 Caring for non-household sick adult
- 673 Caring for non-household disabled adult
- 674 Caring for non-household elderly adult
- 675 Other informal help to other households
- 680 Travel related to community services
- 688 Waiting to travel related to community services
- 690 Community services not included/classified elsewhere

7. Learning

- 710 School, technical institute, college or university attendance
- 718 Waiting to school, technical institute, college or university attendance
- 720 Homework, home studies and course review for general education
- 730 Additional study, non-formal education and courses during free time
- 740 Work related training
- 780 Travel related to media use
- 788 Waiting to travel related to media use
- 790 Learning not included/classified else where

8. Social and Cultural Activities

- 810 Participating in cultural activities, weddings, funerals, births and other celebrations
- 818 Waiting to participating in cultural activities, weddings, funerals, births and other

celebrations

820 Participating in religious activities, religious services, practices, rehearsals, etc.

828 Waiting to participating in religious activities, religious services, practices, rehearsals, etc.

831 Socializing with family (visiting family, eating out with family, visiting places together)

832 Socializing with non-family (visiting namely, eating out with family, visiting places together)

838 Waiting to socializing

840 Arts, making music, hobbies and other related courses

850 Indoor and outdoor sports participation and related courses (Kutembea)

860 Games (e.g. cards, chess, draughts, etc.) and other pastime (not related to media) activities

870 Spectator to sports, exhibitions (e.g. saba saba), museums, cinema/theatre/shows/and other performances

880 Travel related to social, cultural and recreational activities

888 Waiting to travel related to social, cultural and recreational activities

890 Social, cultural and recreational activities not included/classified elsewhere

9. Mass Media Use

910 Reading

920 Watching television and videos

930 Listening to music/radio

940 Accessing information by computer

948 Waiting to accessing information by computer

950 Visiting library

958 Waiting to library services

980 Travel media use

988 Waiting to travel media services

990 Media use not included/classified elsewhere

10. Person care and self-maintenance

010 Sleep and related activities

011 Having sex

012 Lying down/rest related to illness

020 Eating and drinking

028 Waiting to eating and drinking

021 Drinking alcohol & related

030 Personal hygiene and health

038 Waiting to personal hygiene and health

041 Receiving medical treatment and personal care from professionals (including traditional healers)
042 Receiving medical treatment and personal care from household members
043 Receiving medical and related treatment from non-household members including home & community based care worker
048 Waiting for medical care
050 Doing nothing, rest and relaxation
060 Individual religious practices and meditation
080 Travel related to personal care and self-maintenance
088 waiting to Travel related to personal care and self-maintenance
090 Personal care and self-maintenance not included/classified elsewhere
999 Not stated

Annex 2

Table A1 - Aggregations and activity codes

<i>Activity</i>	<i>Activity codes - aggregations</i>
Employment for establishments	
Wage employment	111
Self-employment and home based work	112+114
Paid domestic and personal services produced by domestic work	113+115
Travel	180+188
Other*	130+140+150+190
Primary production activities not for establishments	
Crop farming	210
Tending animals and hunting	220+230
Collecting firewood or dung	236
Collecting and waiting to collect water	250+258
Travel	270
Other	240+261+262+290
Services for income and other production of goods not for establishments	310 to 398
Household maintenance, management and shopping for own household	
Activities related to food preparation	410+411+412+413+418
Cleaning house and care of clothes	420+430
Do it yourself	460
Chopping wood	491
Travel	480+488
Other	440+441+448+450+470+490
Care for children, the sick, elderly and disabled for own household	all sub-activities aggregated (510 to 590)
Community services and help to other households	all sub-activities aggregated (610 to 690)

Annex 3

Table A2 – Aggregations and activity codes for the travel category

<i>Aggregations</i>	<i>Activity codes</i>
Formal and non-agricultural informal sector work	180+188+380+388
Primary production activities (not for establishments)	270
Household management, care activities and community services	480+488+581+582+583+584+588+680

Annex 4 – Methodology

Data description (TUS/ILFS 2006)

As already mentioned in the introduction, this paper is based on the time use module of the Tanzanian Integrated Labour Force Survey (ILFS). The TUS 2006 is the first of its kind in Tanzania. One out of every five households who took part in the ILFS was interviewed for the time use module as well. The sample consists of 10,553 individuals aged 5 years or above (corresponding to more than 3,000 households) weighted in order to be representative at the country level. Respondents were interviewed for 7 consecutive days¹¹ and asked what they had done during the 24 hours (a unique time slot was created for the night hours 12am-4am). The data contains 20-1 hour time-slots per day in which respondents could name up to five activities indicating whether the activities were carried out simultaneously or separately from other activities (Budlender, 2008).

Refer to Annex 1 for the detailed categorization of activities.

Aggregation of activities: rationale

For the purpose of this paper we have aggregated activities into broader categories. The aggregations are shown in table A1 of Annex 2 and Table A2 of Annex 3.

First of all, given the TUS sample is rather small if compared to the real population (aged 5 years and above) too detailed disaggregations would not generate reliable results (Budlender, 2008). This is one of our reasons for aggregating activities: activities were either aggregated or highlighted with a star to indicate that caution in interpretation of the results whenever activities were carried out by less than 5% of the population.

Moreover, the main aim of the paper, as well as that of the TUS, is to single out activities where gender distribution is skewed the most. Analyzing those activities which are often not included in the standard definition of employment and are usually carried out by women is vital considering the important role that they play for the welfare of the country (Analytical Report-key findings). Aggregation of activities was carried out in such a way as to highlight such gender patterns.

Calculation of activities in a day, and how to deal with simultaneity

¹¹ Not all respondents have been interviewed for the same number of days; diary information on activities is reported for most of the respondents for 6 or 7 days.

Two measures of time are available within the TUS: the 24 hour and the full time approach. The latter approach assigns the full duration to each activity without taking into consideration that activities might have been carried out simultaneously; this approach leads to total hours in a day to exceed 24 hours. On the contrary, the 24 hour approach always produce total times that adds up to 24 hours (or 1440 minutes); when more activities are carried out simultaneously during a definite period, each activity is attributed the time of that slot of time equally divided by the number of simultaneous activities.

Neither of these approaches is necessarily better than the other one. In our analysis we have used throughout all the 24 hour approach; the major risk when using this kind of approach is to undercount activities which are done simultaneously (the use of the 24 hour approach is somehow under-representing simultaneous activities skewing data towards activities which occur less frequently simultaneously). This can create a potentially gender bias since it is women who usually report more often simultaneous activities. These differences are not very big however and we preferred to stick to the 24-hours approach for simplicity.

Participation rates, mean among participants and among population: definition, computation and caveats

As for the design of the survey (described earlier on), the computations of participation rates and average minutes (for all population or only actors) involve the use of weights; definitions and formulas used are as follows:

Average minutes per day. \bar{T}_j , the average number of minutes per day spent by a given population engaging in activity j, is given by

$$\bar{T}_j = \frac{\sum_i wgt_i T_{ij}}{\sum_i wgt_i}$$

where T_{ij} is the amount of time spent in activity j by respondent i, and wgt_i is the weight for respondent i.

Participation rates. P_j , the percentage of the population engaging in activity j on an average day, is computed using

$$P_j = \frac{\sum_i wgt_i I_{ij}}{\sum_i wgt_i}$$

where I_{ij} is an indicator that equals 1 if respondent i engaged in activity j and 0 otherwise, and wgt_i is the weight for respondent i.

Average minutes per day of participants. T_j^p , the average number of minutes spent per day engaged in activity j by people who participated in that activity on that day, is given by

$$T_j^p = \frac{\sum_i wgt_i I_{ij} T_{ij}}{\sum_i wgt_i I_{ij}}$$

where T_{ij} is the amount of time spent in activity j by respondent i,

wgt_i is the final weight for respondent i, and

I_{ij} is an indicator that equals 1 if respondent i participated in activity j during the reference day and 0 otherwise.

When computing the mean time per day spent on a certain activity it was considered that respondents were not always interviewed for the same number of days (7). In order to avoid bias or to weight more those respondents who had been interviewed for more days means were first computed at the individual level (mean time spent per day on activity per person) and only then averaged among all the (sub)population or participants.

Moreover, as already highlighted earlier on, the TUS has been weighted in order to be representative of the population aged 5 years and above. When computing the average of the time spent on a certain activity over all respondents the use of weights renders the TUS sample representative of the population and so the computed mean. However, when estimating the mean over different sub-samples (i.e. female population, etc.), different weights should be used. Given that recalculating the weights for each subgroup under scrutiny was not possible, the same weights were used on the assumption that they are still better than working without any weight at all.

Finally, given the design of the survey (respondents were interviewed for around 7 days and not only for one day, as in similar time surveys conducted in other countries) participation rates are higher than usual; as the Tanzanian Survey covers more days it is more likely that the respondent will report to have been involved in an activity.

Simultaneity measures

Two measures have been used to take into account the simultaneity of activities in the same time slot.

The first measure has been computed as follows:

1 – the average time spent per person on the activity under scrutiny was computed:

- when accompanied by other activity/ies (simultaneous) and
- when not accompanied by other activity/ies (not simultaneous)

2 –the average time spent per day per person on the activity under scrutiny was added up among subgroups (female-activity simultaneous, female-activity non simultaneous, male-activity simultaneous, female-activity non simultaneous), using personal weights, so as to obtain the total time spent on a day on average.

In the dataset two variables are included 'full_time' and 'mins2_24'. 'full_time' gives the actual duration of the activity whereas 'mins2_24' adjusts the time reported in each slot in order for the day to add to 24 hours. To detect simultaneity a variable which takes into account of discrepancies between full_time and mins2_24 was created¹².

The second measure which was used to take into account the simultaneity of activities is the simultaneity ratio; this is computed as the simple ratio of the 'full time' spent on the activity under scrutiny over the '24 hour minute' time spent on the same activity¹³.

Overburdened and top decile definition

The overburdened are those who spend more time than average (among participants) on a certain activity. We also calculated the top decile, which roughly consists of the one tenth of the population who is most heavily overburdened. We decided not to report results for the top decile of the overburdened as this was often too small a group to generate any reliable outcome.

Computation of total hours

In estimating the total number of hours spent on SNA and extended SNA activities by the population aged 5 years and above in a year the following procedure was followed:

- we took into consideration 8 subgroups of the population age 5 years and above:
 - o Women rural poor
 - o Women rural non poor
 - o Women urban poor
 - o Women urban non poor

¹² Small data errors exist but are few. For example, full-time should always be equal or bigger than mins2_24; however this is not always the case. As a rule I considered the activity to be carried out simultaneously with at least another one whenever min2_24 and full-time diverge.

¹³ As respondents were interviewed for a different number of days mean per person were first computed (using the full time and the 24 hour approach) and only then the means per day per person per activity were added up over the subgroups.

- Men rural poor
- Men rural non poor
- Men urban poor
- Men urban non poor
- we computed the number of minutes spent on average on SNA and extended SNA on a day per subgroup, converted them into hours (dividing by 60) and multiply them by 365 to get the total amount of hours spent by subgroups in a year;
- we computed the Tanzanian population aged 5 years and above in each subgroup¹⁴;
- finally we multiplied each population subgroup by the number of hours spent by each subgroup in a year.

¹⁴ We used the Tanzanian population data from UNDATA for 2006. From the ILFS we computed the percentages of each subgroup in the total population and we used them to get the actual numbers of the population per groups.