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Gender Differences in Time Poverty in Rural Mozambique

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Keywords: intra-household allocation, time allocation, poverty, gender, Africa

JEL Classification: D13, J22, I3, J16, O55

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1 Introduction

The traditional concept of poverty, based on income/consumption measures and household as a unit of analysis, is critiqued for its narrow approach. Sen (1999) argued that the monetary measures of poverty overlook important dimensions of individual freedoms and agency. He conceptualized poverty as capability deprivation, rather than a mere shortfall of income, thus, broadening the concept of poverty. Especially, in assessing the actual deprivations faced by women, Sen's capability approach offers a superior framework than relying on monetary measures.

Martha Nussbaum, a pioneer in the field of gender and social justice, praises capabilities approach for its superiority in addressing the inequalities that women

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suffer inside the family like inequality in resource allocation, control of one's labor, bodily integrity etc (Nussbaum (2006), 55). The feminist scholarship has long advocated for the analysis of intra-household inequalities in examining gender issues. The different forms of gender inequalities, particularly, unequal division of labor within the household leaves women time constrained or time poor, thus, hinder their capability formation (Robeyns, 2003).

The most important development in gender analysis of poverty is the application of time lens to understand poverty. The concept of *time poverty* helps identify the poor in terms of time, that is, those who do not have time to rest or enjoy leisure because of excessive burden of work (Bardasi and Wodon, 2006). Time poverty articulates the idea that income poverty and time poverty may reinforce each other, thus, adversely affecting the well-being of the household members especially women and children (Bardasi and Wodon, 2010; Vickery, 1977; Zacharias et al., 2012). The workload constraints may force an individual to make trade-offs between different market-oriented and household activities. These trade-offs are generally made by women; who usually face competing claims on their time. For those in rural areas in developing countries, the time constraints are more severe due to lack of basic infrastructure.

In many parts of Sub-Saharan Africa, women cope with various sets of responsibilities including food production, marketing food for income generation, household chores and care work. Social norms, which define the gender roles, leaves women with a heavy work burden. Consequently, women undertake simultaneous tasks and enjoy minimal or no leisure time. Due to lack of flexibility in gender roles, on a day-to-day basis, women in Sub-Saharan Africa have to make difficult choices or trade-offs. These constrained choices affect the short-term well-being of household members. For example, a woman making trade-off between taking care of her child and tending to her farm. This choice may affect the overall food security of the household, if the woman decides to spend more time on child-care. The competing claims on women's time may also have long run impacts. For example, women's time poverty restricts women's ability and children's, especially girls', ability to expand their capabilities (Kes and Swaminathan, 2005). Girls help with household work instead of doing homework or going to school. Therefore, a fuller understanding of differences in poverty between men and women demands incorporating time-use analysis into poverty analysis (Kes and Swaminathan, 2005).

The paper contributes one of the first individual level time-use studies for Mozambique. In this paper, the intra-household allocation of labor in the subsistence households in rural Mozambique is examined to evaluate the differences in the incidence and depth of time poverty between men and women. The dataset used for this analysis is from a primary household survey, *Gendered Poverty in Rural Mozambique*, I conducted in the Nampula province in Mozambique between May and August 2013. Because of the simultaneity of tasks performed by women in the time-use survey, I took into account both primary and secondary activities undertaken in a given time segment. The time poverty estimates in this study tend to be higher than those in other countries' time-use studies (like Bardasi and Wodon (2006); Gammage (2010)) mainly because of accounting for primary care work and simultaneous activities. A

measure of work intensity is constructed using the time poverty gap and overlapping work hours, which illustrates that women work more intensively than men. Lastly, I examine the determinants of time poverty faced by men and women, using a probit model. The insights from focus group discussions and life stories complement the quantitative results.

2 Time-use and Poverty in Rural Africa

Contrary to the United Nations System of National Accounts (SNA) definition of work, time-use literature uses a broader definition of work. Accordingly, work time includes time spent on any work activity - production of goods and services for sale or own consumption, household maintenance, care work and voluntary work. An individual can divide the 24 hours in a day between work time and leisure (sleeping, personal care, eating, resting and socializing). The allocation of time to work and leisure varies by individuals especially between men and women. The evidence from Africa shows that women spend longer hours working with very little time for rest or leisure (Fafchamps et al., 2009; Ngome, 2003; Sow, 2010; Tibaijuka, 1984). In rural Tanzania in 1992, women spent between 12-16 hours a day on agriculture and household work and had virtually no leisure (non-labor) time (Warner and Campbell (2000), p1329). In Southern Cameroon, in 1985, men spent close to 22 hours per week on income-generating activities and only 9 hours per week on household work while women spent close to 12 hours per week on income generating activities and more than 50 hours per week on household food production and chores (Koopman, 1991). Evers and Walters (2001) show that women in Uganda supply 80 % of the household labor time for food production, 60 % for production of cash crops and most of labor for household and care work. In rural Ethiopia, Arora and Rada (2014) find that overall women's working day is 1.6 hours or 19 % longer than man's working day.

Within the work time, the division of labor between different market and non-market activities varies significantly by sex. A large part of women's work time is devoted to direct care work (child care and caring for old/sick) and indirect care (fetching water & firewood, cooking, cleaning, food processing) (Blackden and Canagarajah, 2003; Ilahi, 2000; Sikod, 2007). These tasks are not accounted in national accounts and thus, remain invisible in the economy (Beneria, 1992; Waring, 2003). Elson and Evers (1997) report that about 66% of women's work goes unrecorded in the national accounts. In turn, because women's work in the household economy does not produce any monetary resources, feminist researchers argue that it is unrecognized and unappreciated in the household and in the society. Nonetheless, this reproductive work performed by women plays a critical role in the survival and functioning of the household and the wider social and economic system (Folbre, 2006). On the other hand, men, who are viewed as the main breadwinner of the household, spend all or most of their work time on income generating activities or subsistence agriculture (See Pitamber and Hanoomanjee (2004), p10 and Blackden and Wodon (2006), p1). Men are not the sole breadwinners; women provide significant labor for production of food and income generation for household survival (Blackden and

Canagarajah, 2003; Tibaijuka, 1994). In many cases, women’s labor contribution to agricultural production is substantially greater than that of men (Saito et al., 1994; Tibaijuka, 1994).

The division of labor as it exists in rural societies is shaped mainly by societal norms. The rigidity of these norms restricts *change* (Kes and Swaminathan, 2005) and therefore, limits the scope for an equitable distribution of household chores or care work between men and women. In light of these constraints, time poverty becomes a serious threat to the well-being of women and children, especially those in poor households. Moreover, it can have serious implications for food security and the process of economic transformation in subsistence economies (Arora, 2014).

2.1 Conceptual Framework for Time Poverty

The first time poverty study by Claire Vickery conceptualizes poverty in terms of both time and money inputs. Vickery (1977) argues that the official poverty standards do not correctly measure household needs, since maintenance of nonpoor consumption requires both income and unpaid work output. The study defines a minimal level of money and time input, M_o and T_o , and if a household falls below these levels, it will be considered ‘poor’. Therefore, it is possible to distinguish between hard-core poor (below M_o and T_o), temporary poor (below M_o but above T_o) and voluntary poor households (below T_o but above M_o) (Vickery (1977), pp-28).

The labor input in market and home (non-market) production are considered equally necessary for sustaining the household (Vickery, 1977). From the perspective of feminist economics, the recognition and accounting of household production in Vickery’s study makes it relevant for a gendered analysis of poverty. However, the framework uses ‘household’ as a unit of analysis and therefore, restricts an examination of differences in poverty among men and women within the household.

Almost three decades later, Bardasi and Wodon (2006) present an individual level study that considers the differences in time poverty between men and women in Guinea. They define time poverty, as a state where some people are not left with enough time to rest or to recuperate after accounting for working time. Within a household, some individuals can be more time-pressed than others. Compared to men, women are often more time poor both in rural and urban areas because of the unequal distribution of work in and outside the household.

In their time use studies, Bardasi and Wodon (2006); Gammage (2010) devise a time poverty line to account for the proportion of time poor individuals and examine the determinants of time poverty. Gammage (2010) use a time poverty line of 12 hours/day in Guatemala and finds that less than 15% of men experience time poverty compared with 33% of women. In Guinea, Bardasi and Wodon (2006) apply a poverty line of 70.5 hours/week (10.5 hours/day) that yields the time poverty headcount of 24.2% for women compared to 9.5% of men. These studies also observe that the incidence and adverse impact of time poverty is more acute in rural areas and among the individuals in poorer households. The time poverty of women in rural areas is accentuated due to the strenuous work of collection of water and firewood caused by lack of basic infrastructure and lack of access to modern time saving household implements (Antonopoulos and Memis, 2010; Blackden and Bhanu, 1999;

Wangui, 2003).

To examine the incidence of time poverty and its determinants in rural Mozambique I use the *Foster-Greer-Thorbecke* (FGT) methodology, which was applied to the question of time poverty first by Bardasi and Wodon (2006).

1. Headcount index - the proportion of population that is time poor. In other words, the proportion of population that falls above the time poverty line.¹
2. Poverty gap - This measures the depth of the poverty by estimating how far the time poor are from the poverty line.
3. Squared poverty gap - This indicator is helpful in measuring the severity of poverty and inequality among the poor. It places a higher weight on those who are further away above the time poverty line.

Using the poverty line, α , a person is termed as time poor if: $X_{wh,i} - \alpha > 0$ where $X_{wh,i}$ is person i 's number of working hours in a day. The total number of time poor is, N_{tp} , that is all the people whose working hours exceed the poverty line α . The proportion of those who are time poor or the poverty headcount index is given by:

$$P_o = \frac{N_{tp}}{N} \quad (1)$$

The poverty gap is calculated as following:

$$P_s = \frac{1}{N} \sum_{X_{wh,i} \geq \alpha} \left[\frac{X_{wh,i} - \alpha}{\alpha} \right]^\beta \quad (2)$$

where $\beta = 1$. P_s gives the mean distance between population and the time poverty line, therefore, for the non-time poor this distance is zero. When the β takes the value of 2, we get squared poverty gap (P_s^2), that measure the severity of poverty by giving more weight to those who are very time poor.

3 Study Region

The Republic of Mozambique, in southern Africa, has registered an impressive growth rate in the last one decade. Still, the level of human development (Human Development Index rank 185 out of 186 in 2012) and gender development (Gender Inequality Index rank 114 out of 148 in 2012) remains very low. The regional inequality in the country is quite stark. Compared to the south, the central and the northern provinces are way behind in the process of development.

The region of this study, province of Nampula, is in the north of Mozambique. It is one of the most populated provinces in the country. The growth rate of GDP in the province of Nampula has been lower than the country's average (UNDP, 2007).

¹Contrary to the income poverty measure, for time poverty individuals who fall above the poverty line are considered time poor, as they are working more than what is considered a reasonable limit.

Compared to the national poverty incidence of 52%, in rural Nampula about 66% of the population live below the consumption poverty line (Alfani et al., 2012). With regard to social services, access to education, health care and basic infrastructure like water supply, sanitation, roads and transport is very poor, especially in the rural areas. Culturally, Nampula remains more traditional than the southern and central parts of the country, especially with regard to status of women (Tvedten, 2012).

4 Data Requirement

The dataset used in this analysis is from a primary household survey, *Gendered poverty in rural Mozambique*, implemented between May-August 2013 in the Nampula province in Mozambique. The data collection was done in two districts - Mogovolas and Mogincual. In terms of economic development, the performance of these two districts is quite contrasting with Mogovolas being a better performer while Mogincual being one of the poorest. The selected districts serves as a good representation of the province. Within the districts, the postos (administrative posts) and villages in postos were randomly selected. The selection of households was done using the purposive random sampling method. Only the households with both man and the woman living together were interviewed. Within such households, the selection process was random.

The time-use module in the dataset gives information on respondents' activities performed on the previous day and the time spent on each activity.² This approach is useful in recording more realistic and reliable time-use data as the recall for "yesterday's activities" is better. The main drawback is that, if collected only for one day, it is not possible to capture all the main tasks performed by the household members on a regular basis.³

Besides time-use, this paper makes use of gender disaggregated information on asset possession and disposition upon separation, income control patterns, demographic variables given in the dataset. The qualitative information gathered through focus group discussions (FGD) and individual life stories is used for supporting the quantitative results in this paper.

5 Gender Division of Labor in Mozambique

As observed in other parts of Sub-Saharan Africa, the gender division of labor in Mozambican society is highly unequal. The distribution of working hours across different activities, presented in table 1, shows that women bear the maximum brunt of household survival. Men's contribution to domestic work is minimal and about 43% of that time is spent on repair or construction work.⁴ The difference in

²For each interview, it was ensured that the woman is interviewed alone in order to prevent any bias that may occur in the presence of the husband.

³During the field work, it was observed that there is considerable variation in the type of economics activities undertaken. For example, some days an individual may work on his/her own farm and in the next few days work as paid agricultural labor.

⁴Repair or construction work is performed less frequently, around 3-4 times in a year.

mean hours spent by men and women in most categories of domestic work and care work is significantly different from zero.

Table 1: The distribution of awake hours in a day across different activities for men and women

Type of activity	Time spent (Mean hours/day)		t-test for difference in mean hours
	Man	Woman	t-statistic
1. Child Care	0.07(0.41)	0.39(0.81)	-4.98***
2. Caring for old/sick	0.02(0.35)	0.48(1.48)	-4.33***
3. Care Work (1+2)	0.10(0.54)	0.88(1.62)	-6.52***
4. Household chores	0.14(0.97)	3.39(2.08)	-20.46***
5. Food Processing	0.13(0.70)	1.80(1.90)	-11.87***
6. Fetch water	0.00(0.00)	0.72(0.76)	-11.87***
7. Fetch firewood	0.04(0.31)	0.47(1.12)	-5.24***
8. Shopping	0.38(0.66)	0.21(0.46)	3.37***
9. Construction/repair	0.65(1.74)	0.05(0.50)	4.73***
10. Voluntary Work	0.07(0.61)	0.09(0.66)	-0.23
11. Domestic work (4-10)	1.42(2.32)	6.74(3.00)	-20.11***
12. Work inside the household (3+11)	1.52(2.38)	7.61(3.34)	-21.32***
13. Farm sector	2.58(3.61)	3.02(3.52)	-1.25
14. Wage Employment	0.61(2.25)	0.57(2.20)	0.19
15. Self Employment	1.72(3.44)	0.50(1.91)	4.44***
16. Work outside the house (13+14+15)	4.90(4.35)	4.08(3.88)	2.02**
17. Rest	6.4(4.01)	2.02(1.88)	13.55***
18. Personal Care	0.76(0.59)	0.73(0.68)	0.49
19. Others	0.76(2.86)	0.25(1.24)	3.47***
20. Leisure (17+18+19)	7.92(4.09)	2.99(2.25)	15.24***
21. Total Work Time (12+16)	6.42(4.26)	11.70(2.89)	-14.70***
Number of cases (N)	206	206	

Notes: 1) Standard deviation is reported in the parentheses. 2) The t-test compare the mean hours spent on each activity by men and women. The null hypothesis states that the difference of mean hours between men and women is not significantly different from zero. 3) ***, **, * denote significance at the 1%, 5% and 10% levels.

Bardasi and Wodon (2010) show that in rural areas of Guinea, adult women devote an average of 25.6 hours/week to domestic and community work while men spend only 7.2 hours/week on an average. Gammage (2010) study show that compared to 0.93 hours/day devoted to unpaid work by rural men, rural women in Guatemala spend 3.3 hours/day. Compared to these studies, the estimates of

women’s time input in household production in rural Mozambique tend to be higher, potentially, due to accounting of care work for children, old and sick individuals. Secondly, this study considers only subsistence households where considerable amount of time is spent on processing of food for daily food consumption. Similar, which tends to increase the overall work burden on women.

Men’s labor contribution to wage employment (agricultural labor and non-agricultural labor) and self employment is relatively higher than that for women. However, for agricultural production, women spend greater amount of time on the farm. Contrary to Bardasi and Wodon (2010) study, where women in rural Guinea spend slightly lesser number of hours on farm work (21 hours/week) compared to men’s labor input (23.9 hours/week), in rural Mozambique, women’s labor input to farm production is slightly higher than that of men (see table 1). Nevertheless, the estimates of women’s farm work time from both the studies reinforce the critical role played by women in maintaining food security of the household in Sub-Saharan Africa.

Row 20 and 21 in table 1, reflect the inequality in women’s and men’s total work time and leisure. The difference is substantial and significant. Men enjoy more leisure, almost thrice as much of women’s leisure. On the other hand, the time spent by women on all categories of work is almost twice as much of men’s work time. These results conform with the inequality in GDOL observed in other developing countries (Akram-Lodhi, 1996; Antonopoulos and Memis, 2010; Bardasi and Wodon, 2010; Gammage, 2010; Ilahi, 1999).

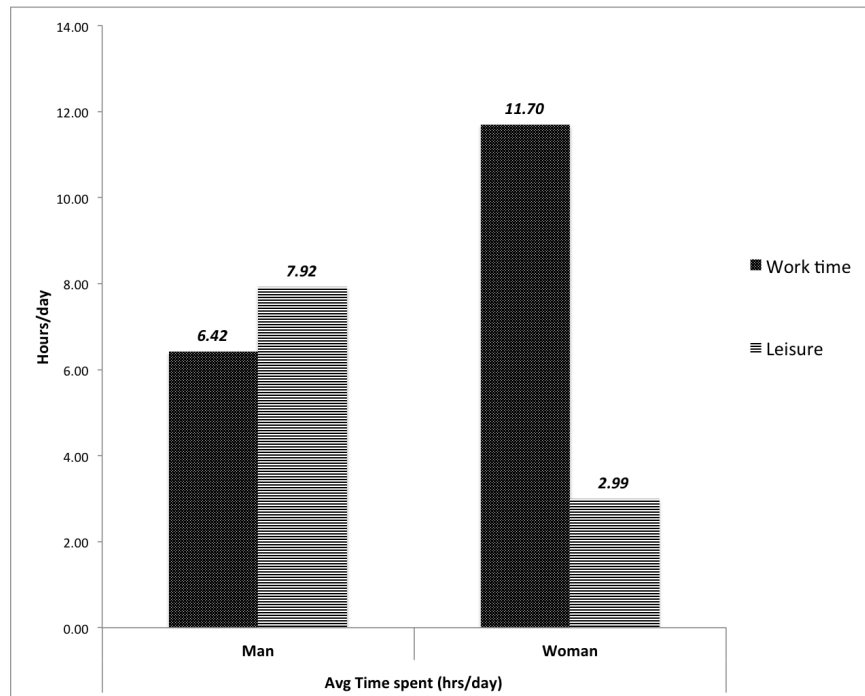


Figure 1: Total work time and leisure hours during a day for a man and a woman

The inequality in division of work, as shown in figure 1, is voiced by a woman in a focus group discussion at *Posto de Nanhuporio*:

“... We women work all day.. no rest.. nothing else.. only work. Even when I spend time with my friends, I take care of my grandchildren or shell the groundnuts. The main task of a woman in this society is to work. Idleness is seen as a vice”

Maria, woman aged 46 years, Muanona Village

Maria’s insightful comment casts light on the next analytical issue discussed in the paper, simultaneous tasks or overlapping activities to manage the time constraints.

5.1 Simultaneous Activities and Burden of Care Work

The competing claims on women’s time necessitates that women undertake some tasks simultaneously with other activities. Multi-tasking not only makes work more taxing, but also affects the productivity of an individual in either or both tasks. The distress of simultaneous work suffered by women is reflected in a comment in a focus group discussion at *Posto de Namige*:

“... Imagine lifting and transporting 10 liters of water on your head while carrying the child tied to your back.”

Most women expressed that they work less efficiently on the farm when they care for the child simultaneously. For instance, Luisa in Nihoma village experiences excessive back pain when she sows cassava on the farm while carrying a 15 months old child on her back. As a result, she covers a smaller area in a day.

The framework presented in figure 2 is useful for studying overlapping categories of work. The overlap of care and paid work (area PC), paid and household work (area PH) and care and household work (area CH) represents simultaneity of two different work activities.⁶ The most commonly occurring simultaneous activity is care work, which is undertaken mainly by women. About 33% of the women multi-task child care with household chores. Almost 20% of the women care for a child while working on the farm.

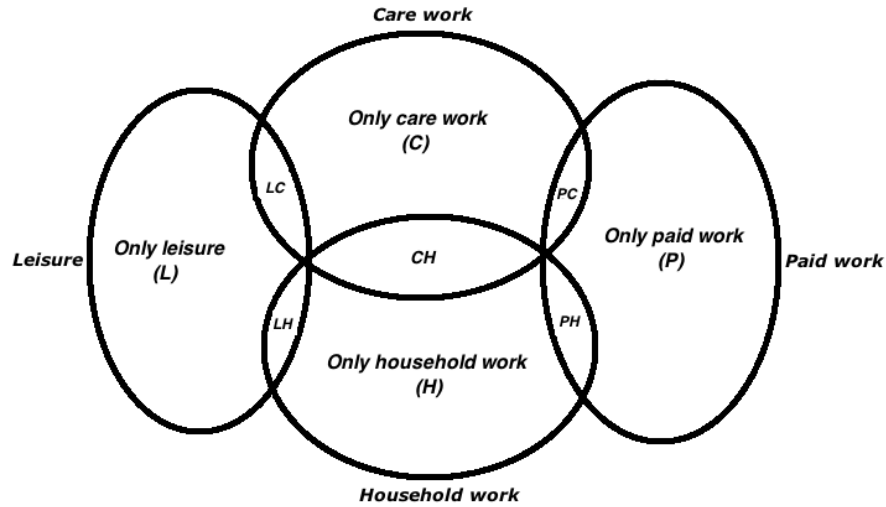
Area LC represents the time when an individual enjoys leisure while looking after a child or a sick person and area LH is the overlap between household work with leisure.⁷ Though the work intensity is lower, this time is not necessarily pure leisure because of the concomitant work performed in the same time. Accounting for simultaneous work, I define another measure of total work time that counts the overlap between leisure and any work activity as “*work*”. This new measure of total work time shows that the leisure time enjoyed by women reduces substantially, as they perform a lot of care work while resting, chatting etc.

Women tend to underestimate care work. This inference is illuminated in the difference between women’s total work time with and without the burden of simul-

⁵Paid work also includes agricultural activities for own consumption.

⁶The overlap between paid and household work (area PH) is not reported in the interviews. Therefore, I assume this category as null.

⁷The overlap between household work and leisure was noted through participant observation. For instance, shelling groundnuts while talking to a friend. However, this simultaneous activity is not reported in the interviews and therefore, assumed as null.



LC	Simultaneous leisure and care work
LH	Simultaneous leisure and household work
CH	Simultaneous care work and household work
PH	Simultaneous household work and paid work
PC	Simultaneous care work and paid work

Figure 2: Analytical Framework for Simultaneous Activities⁵

Table 2: The inequality in men's and women's work time with and without simultaneous work

Type of activity	Average Time spent (in hours)	
	Man	Woman
<i>Definition 1- Total work time on primary activities</i>		
Work	6.42	11.70
Leisure	7.92	2.99
<i>Definition 2- Total work time with Simultaneous Activity</i>		
Work	6.46	12.42
Leisure	7.96	2.29

taneous activity (chiefly, care work) in Table 2. Where simultaneous activities are included, women's average work day increases (by 0.72 hours) while men's work day is virtually unchanged.

6 Time Poverty in Mozambique

Applying time-use analysis to the framework of poverty and deprivation, I compute the incidence of time poverty in rural Mozambique. Firstly, I determine a time poverty line. It is the maximum number of working hours in a day, beyond which, if an individual continues to work, he/she may not get sufficient rest to maintain his/her well-being. I use Claire Vickery’s classic benchmark to define time poverty line as 12 hours per day.⁸ The estimates for time poverty in Mozambique conform to the initial expectation and field observation that many more women are time poor compared to men mainly due to unequal division of labor within the household, poor infrastructure and lack of substitutes for unpaid work.

Table (3) gives an account of the time poverty headcount index, time poverty gap and squared poverty gap separately for men and women. While only 8% of men face time poverty, almost 50% of the women in the sample are time poor. When the burden of simultaneous work is added, the incidence of time poverty among women increases and that of men remains the same. Compared to rural Guinea where 26% of the women are time poor (Bardasi and Wodon, 2010), situation of women in rural Mozambique seems worse.⁹ Possibly, the underestimation of unpaid work in Bardasi and Wodon (2010) study could explain this difference. Their study does not give any information on the time spent on care work, food processing, construction or repair work and therefore, omits some important categories of unpaid work undertaken by women in rural areas. Gammage (2010) uses a similar poverty line of 12 hrs/day and reports that 13% of men and 32% of women in Guatemala face time poverty.¹⁰

The depth of time poverty (distance between women’s working time and time poverty line is larger) is considerably higher for women and gets worse when the burden of simultaneous work is taken into account. The severity of time poverty, that is, the inequality among the time poor is also worse for women.

Table 3: Time Poverty headcount, time poverty gap and squared poverty gap

	<i>Using Time Poverty line of 12 hours/day</i>			
	Definition 1- Time poverty line based on total work time on primary activities		Definition 2- Time poverty line based on total work time with Simultaneous Activity	
	Woman	Man	Woman	Man
Poverty Headcount index	49.5%	8.3%	64.6%	8.3%
Time poverty gap	8.0%	0.9%	10.8%	0.9%
Squared poverty gap	1.9%	0.1%	2.5%	0.1%

⁸“The maximum amount of time an individual can work each week over an extended period of time and maintain his/her well-being is approximated to be 87 hours per week” (Vickery (1977), p.32-33).

⁹Bardasi and Wodon (2010) study uses a poverty line of 70.5 hrs/week or 10hrs/day, while in this study, I use a poverty line of 12 hrs/day. Therefore, the difference in estimates of time poverty may be greater if similar poverty line is used.

¹⁰There is no reporting of separate estimates of time poverty for rural men and rural women.

6.1 Intensity of work

In considering well-being and quality of life of an individual, the issue of intensity of work time is often ignored. Usually, women tend to work longer hours and perform two or more activities simultaneously, therefore, the issue of work intensity is relevant for illustrating the time pressures that women deal with (Floro, 1995). Floro and Pichetpongsa (2010) study constructs an inverse work intensity index for Thai home based workers, which shows that women work more intensively with an index value of 0.226, compared to men with an index value of 0.315.

Using a slightly different methodology from Floro and Pichetpongsa (2010), this paper will devise a work intensity measure to illustrate the differences in the intensity of work between men and women in rural Mozambique.¹¹ For example, individual A and B are time poor by 2 hours. Of the two, individual B spends 2 hours multi-tasking, food processing with caring for a child. Though both lie above the time poverty line by same margin, individual B works more intensively and therefore, is more time constrained than individual A. This difference is reflected in this measure of work intensity. The two components of the index are:

- The number of work hours over and above time poverty line (X_{gap}), i.e. the time poverty gap. The calculation of time poverty gap is same as explained in equation 2.
- The number of overlapping work hours (X_{ovh}), i.e. the number of hours spent doing two different work activities in the same time segment. Area PC, PH and CH in figure 2 are examples of two overlapping work activities.

Table 4: The inequality in men’s and women’s work intensity

	Mean value	
	Man	Woman
$Normalized(X_{gap})$	0.018(0.07)	0.220(0.24)
$Normalized(X_{ovh})$	0.000(0.00)	0.129(0.22)
Work intensity index (WI)	0.012(0.047)	0.228(0.250)
Number of cases (N)	206	206

Notes: 1) Because of normalization, the values of X_{gap} , X_{ovh} and WI range between 0 and 1. 2) Standard deviation in parentheses.

As a result of higher time poverty gap and performing more than one task at the same time, the intensity of work is much larger for women, compared to the work intensity of men (Table 4). A major drawback of this index is that it does not account for the intensity of a particular activity. Some activities are more work intensive than others, e.g. a construction worker building roads has heavier work load compared to a field worker harvesting rice. In some cases, accounting for intensity of a work activity may cause the work intensity index for men to increase.¹²

¹¹The construction of work intensity index is explained in Appendix.

¹²Lack of relevant data restricts this kind of analysis.

7 Determinants of Time Poverty

The factors affecting time poverty are examined using Probit regressions. The probability of being time poor is the dependent variable. Two sets of regression are performed using both definitions of time poverty, based on total work time on primary activities and total work time with simultaneous work, as a dependent variable.¹³

The set of independent variables include, individual demographic variables (age, sex), individual educational qualification and ability to speak Portuguese. Other regressors are household demographic variables such as household size, number of infants (aged 0-3 years), religion and household help. The variable *household help* denotes the presence of children in the age group of 5-16 years who actually provide help with household chores. This group is mostly composed of girls, indicating that the process of socialization of women to undertake household chores starts at a young age.

The individual level economic variables in the regression are household ownership, number of individually owned farming plots, the value of durable assets and a dummy variable for those engaging in a secondary economic activity. A regional dummy for each administrative post is also included in the model.

Table 5 reports the marginal effects, standard errors (in parentheses) and significance levels for all individuals as well as for men and women separately. The marginal effect represent the change in the probability of being time poor when a dummy variable changes value from 0 to 1 or a continuous variable changes by one unit.

The results using time poverty based on total work time on primary activities as a dependent variable is considered first. Sex of an individual is the main indicator of probability of being time poor. Men are 49% less likely to be time poor. Other time use studies (Bardasi and Wodon, 2010; Gammage, 2010; Ilahi, 1999, 2000; Newman, 2001) also find gender to be an important factor in explaining unequal burden of work on women. Owing to different methodologies, sample size and regions, the magnitude of the impact vary, however, the essence is the same.

The presence of children who provide household help reduces the probability of being time poor by 16%. Though the sign of this variable remains negative, it is insignificant in explaining the probability of being time poor for men. Men's minimal participation in household work may explain this result.

The significance of household size in explaining the probability of being time poor is mainly driven by the female sample. This follows from the fact that women are the home-makers, and an increase in the number of members in the household implies greater burden of household chores.

The coefficient for number of infants significantly reduces the probability of being time poor. This is contrary to the expectation that higher the number of infants, greater will be the work burden, thus, higher time poverty. Bardasi and Wodon (2010) also found a time poverty lessening impact for the variable, number of infants, in Guinea. However, their result is not statistically significant.

¹³Dependent variable is a binary variable, taking a value of 0 or 1. A value of 1 implies that a person is time poor and a value of 0 signifies that a person is not time poor.

Table 5: Probit regression for the probability of being time poor

Regressors	Time Poverty line of 12 hrs/day- (Defini- tion 1 - time poverty based on total work time on primary activities			Time Poverty line of 12 hrs/day- (Defini- tion 2 - time poverty based on total work time with secondary activity		
	All	Man	Woman	All	Man	Woman
Male	-0.487 (0.060)***			-0.652 (0.056)***		
Household help	-0.158 (0.044)***	-0.027 (0.025)	-0.296 (0.100)***	-0.176 (0.058)***	-0.027 (0.025)	0.269 (0.111)**
Infants (0-3 yrs)	-0.137 (0.004)***	-0.039 (0.025)	-0.191 (0.071)***	-0.030 (0.049)	-0.039 (0.025)	0.047 (0.068)
Household size	0.037 (0.013)***	0.006 (0.007)	0.063 (0.022)***	0.031 (0.015)**	0.006 (0.007)	0.041 (0.020)**
Age	-0.003 (0.001)	-0.00077 (0.001)	-0.004 (0.003)	-0.004 (0.002)*	-0.00077 (0.001)	-0.004 (0.003)*
Literate	-0.207 (0.064)***	-0.093 (0.051)*	-0.151 (0.155)	-0.226 (0.079)***	-0.093 (0.051)*	-0.126 (0.160)
Primary Edu	0.440 (0.055)	-0.035 (0.036)	0.116 (0.086)	0.059 (0.065)	-0.035 (0.036)	0.114 (0.077)
Junior Sec. Edu	0.274 (0.127)**	0.062 (0.070)	0.200 (0.178)	0.221 (0.132)*	0.062 (0.070)	0.049 (0.173)
Speaks por- tuguese	0.052 (0.071)	0.042 (0.029)	-0.055 (0.125)	0.048 (0.083)	0.042 (0.029)	-0.045 (0.120)
Posto de NPR	-0.033 (0.080)	-0.046 (0.027)*	0.033 (0.140)	-0.018 (0.098)	-0.046 (0.027)*	0.081 (0.121)
Posto de Nametil	-0.070 (0.074)	-0.077 (0.041)*	0.013 (0.129)	-0.086 (0.088)	-0.077 (0.041)*	0.029 (0.0116)
Posto de Namige	0.071 (0.092)	-0.037 (0.026)	0.273 (0.124)**	0.003 (0.100)	-0.037 (0.026)	0.156 (0.111)
Christian	0.089 (0.047)*	0.043 (0.031)	0.103 (0.076)	0.057 (0.055)	0.043 (0.031)	0.024(0.071)
Own a house	0.036 (0.061)	0.009 (0.026)	-0.011 (0.123)	0.0345 (0.071)	0.009 (0.026)	-0.056(0.117)
No. of farming plots	0.013 (0.028)	0.006 (0.011)	-0.032 (0.071)	0.038 (0.032)	0.006 (0.011)	0.029 (0.066)
Value of durable assets	3.41e-06 (0.00)**	1.06e-06 (0.0)*	0.0000406 (0.00002)**	2.32e-06 (0.0)	1.06e-06 (0.0)*	0.000026 (0.00002)
Secondary eco- nomic activity	0.071 (0.052)	0.068 (0.026)***	0.0018 (0.087)	0.133 (0.062)**	0.068 (0.026)***	0.075 (0.078)
Observations	412	206	206	412	206	206
LR chi2 (17)	131.64***	28.25**	30.98**	188.84***	28.25**	29.63**
Pseudo R squared	0.2658	0.2407	0.1085	0.3495	0.2407	0.1106
Log Likelihood	-181.84	-44.56	-127.28	-175.74	-44.56	-119.11

For a literate person, the probability of time poverty decreases significantly by 20%. As observed in Guinea (Bardasi and Wodon, 2010) and Guatemala (Gammage, 2010), education was expected to play a favorable role in reducing women's time poverty by increasing their awareness and position in the household. On the contrary, literacy is insignificant in determining women's time poverty. Similar effect is found by Newman (2001) in Ecuador where higher education had no impact on women's housework burden.

Undertaking a secondary economic activity, significantly increases the probability of experiencing time poverty. For men, this variable is statistically significant, following the result that more than 70% of those undertaking secondary economic activity are men.

In Mozambique, time poverty has a spatial dimension. The regional dummy for Posto de NPR and Posto de Nametil significantly reduces the probability of being time poor for men. These postos are located in a more economically and infrastructure-wise developed district. Moreover, they are closer to the capital of the province that serves as the most important market for agricultural produce. Since men are the main actors in sales and trade activities, the location and development levels of these regions may explain this result. For women, the regional dummy for posto de Namige significantly increases the probability of experiencing time poverty. Since women are mainly responsible for fetching water and firewood, the poor provision of water supply and lack of firewood availability due to deforestation in Namige may explain why women are more likely to be time poor in this posto.

Based on the expectation that asset ownership may strengthen women's bargaining position, which in turn may improve the gender division of labor within the household, variables indicating ownership of assets - possession of a house, value of durable assets and number of farming plots, are included in the regression. Contrary to the expectation, the coefficients for ownership of assets do not provide a clear story, as most of them are statistically insignificant.

Nevertheless, the study acknowledges the role of women's economic empowerment in improving their bargaining power and leading to positive outcomes for women and children (Agarwal, 1997; Doss, 2006, 2013; Quisumbing and Maluccio, 2003). The translation of increased bargaining power to a more equitable division of labor within the household also depends on what women bargain for. It is possible that women prioritize bargaining for a more equitable division of household income, more control over their sexual lives and decisions about their children's lives, over bargaining for redistribution of household work. At the same time, there are extra-household dynamics, institutional and political environment, that may govern the bargaining process and its outcomes (See Agarwal (1997) for a discussion on intra and extra-household dynamics and gender relations). Also, considering the fact that gender roles are rigid, especially, the role of homemaker is solely ascribed to women in rural societies; above result may not be surprising.

Turning to results using definition 2 of time poverty based on total work time with simultaneous work, as the regressand. For the sake of brevity, I will not discuss the results of regressions for the male sample using definition 2 of time poverty as

a regressand, since these are similar to those using definition 1 of time poverty.¹⁴ In regression for the pooled sample, the probability of being time poor decreases by 65 percentage points for men. This difference in the coefficient of the male dummy variable between the regression with definition 1 and 2 of time poverty suggests that the simultaneous activities are mainly undertaken by women.¹⁵

The impact of ‘household help’ is greater suggesting that children also help in caring for younger siblings in the household. The coefficient of age is significant in definition 2 regression suggesting that a one year increase in age reduces the probability of time poverty. After all, women mainly undertake the simultaneous care work and older women are less likely to have younger kids in need of direct care. The coefficients of number of infants, household size, educational level, regional dummies, asset variables and secondary economic activity suggest similar conclusions as in regressions using definition 1.

8 Conclusion

Throughout Sub-Saharan Africa, unequal gender division of labor places women in a more disadvantageous position. The double burden of work inside and outside the household adversely affects women’s well-being and the ability to expand their capabilities. From a human rights perspective, it is crucial to devise appropriate policies to facilitate a change in existing household labor allocation patterns in order to improve women’s well-being.

Time poverty analysis is a step in this direction. The analysis in this paper shows that in rural Mozambique women disproportionately suffer time poverty. The expectations of household members and society combined with the time constraints leave women with very few choices. Women’s working time on the farm and in other income generating activities is more or less similar to that of men. Over and above the responsibility of food production, women devote considerable time to food processing and other household chores to feed the family and care for children and sick household members. Consequently, they work more intensively and enjoy lesser or no leisure time.

The burden of women’s unpaid work is relatively heavier in Mozambique compared to the estimates of studies for other regions like South Africa (Antonopoulos and Memis, 2010), Guatemala (Gammage, 2010), Guinea (Bardasi and Wodon, 2010), Ecuador (Newman, 2001). While other time-use studies analyze comprehensive rural and urban samples, the scope of this study is limited to subsistence households in rural areas of northern Mozambique. For this specific group, basic needs of the household are met mainly with the use of family labor. Lack of market substitutes, basic social services and infrastructure and inability to hire labor for household work due to income constraints are some of the factors that restrict subsistence households to family labor processes. Secondly, unlike most time use

¹⁴The results are similar because according to both definitions of total work time, the time poverty incidence remains the same for men.

¹⁵Also, as indicated in section 5.1, women simultaneously undertake care work along with leisure, which according to definition 2 of work time substantially increases overall work burden.

studies, my study report estimates of time spent on care work of children and sick people; even simultaneous activities are recorded using interviews and participant observation methods.

The study develops a new framework for the analysis of simultaneous activities and extends it further to estimate work intensity measure for men and women separately. Accounting for simultaneous activities, it is concluded that women tend to underestimate care work and they undertake substantial child care work while resting or chatting with friends. Besides, women also multi-task household work and farm work with care work, thereby, working more intensively. Therefore, the work intensity index is much higher for women compared to that for men.

The correlates of time poverty suggest that 'gender' is the most important determinant of time poverty and the proxy of bargaining power, asset ownership, is not significant in determining women's time poverty. This result is suggestive of the rigidity of *patriarchal norms* that define gender division of labor. Most women accept existing pattern of labor allocation with less or no scope for an alternative pattern. For instance, Teresa in *Namige* owns two plots of land and a house. Still she performs all household chores, even when she is sick. She said, "*.if I will not collect firewood or do not cook, we will not have any food to eat*".

Although, the gender roles are more narrowly defined for women in developing countries, pressures from modernization can provoke changes (Newman, 2001). In Ecuador, Newman (2001) found that availability of off-farm employment for women and relatively equal wages for men and women in the flower industry improved women's bargaining power so that there was an increase in men's participation in housework. Similarly, in Mozambique, it was observed that when women work in the cashew processing factory, their husbands provide little help with cleaning of the house. Yet, whether in Ecuadorian case or in Mozambican case, there is stark inequality in distribution of unpaid work between men and women, independent of the effect of women's off-farm employment. The women in a focus group discussion at *Posto de Liupo*, shared that:

".....we do not have any choice but bear the burden of domestic work and food production. We accept our husband's orders and whims as this is our culture. If we refuse to do the household work, our husbands will blame us of not performing our duties and divorce us....."

Above statement clearly points to the fact that culture is an important force that defines gender roles and transformation of culture is a long and a painful process. Nevertheless, women in Mozambique, accept and demand cultural change. A woman said, "it is important for women to have an independent source of income that she can hold onto". Another mentioned, "women must build own assets and therefore, we need to hold onto the fruits of our labor on the farm."

The avenues for independent source of income are very few for women in rural Mozambique. Therefore, creation of off-farm employment for women is one way to increase women's bargaining power. At the same time, facilitating creation and retaining of assets for women will definitely evoke greater financial independence among them.

However, in the long-run, policy action needs to go beyond strengthening women's

economic fallback position and implement programs to raise awareness among both men and women. Mainly because the lack of recognition and appreciation of women's critical role in meeting basic needs of human survival affects their self-esteem and thus, their bargaining power in the household.

Appendix

Work intensity index is constructed in the following way. The two components of the index, time poverty gap, X_{gap} and overlapping work hours, X_{ovh} are normalized. The normalized value of each component are added and the sum is normalized to obtain an index value for work intensity.

$X_{gap,i}$, individual i 's time poverty gap is calculated as:

$$X_{gap,i} = \frac{X_{wh,i} - 12}{12} \quad (3)$$

where $X_{wh,i}$ is individual i 's total number of work hours.

Normalized time poverty gap, X_{gap} :

$$Normalized(X_{gap}) = \left[\frac{X_{gap,i} - \min(X_{gap})}{\max(X_{gap}) - \min(X_{gap})} \right] \quad (4)$$

Normalized overlapping work hours, X_{ovh} :

$$Normalized(X_{ovh}) = \left[\frac{X_{ovh,i} - \min(X_{ovh})}{\max(X_{gap}) - \min(X_{gap})} \right] \quad (5)$$

where $X_{ovh,i}$ is individual i 's overlapping work hours.

Sum of normalized values of time poverty gap and overlapping work hours.

$$Normalized(X_{gap}) + Normalized(X_{ovh}) = S_{gh} \quad (6)$$

Work intensity index:

$$WI = \frac{S_{gh,i} - \min(S_{gh})}{\max(S_{gh}) - \min(S_{gh})} \quad (7)$$

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