

Gender Differences in Time Poverty in Rural Mozambique*

Diksha Arora[†]

December 4, 2013

Preliminary draft

Abstract

This study examines the nature and extent of time poverty experienced by rural men and women in the subsistence households in Mozambique. The patriarchal norms place heavy work obligations on women. They are required to fulfill the needs of the household through a variety of care work and assist the husbands in farming and other cash-generating activities. I use time-use data from a primary household survey conducted in Mozambique. The main findings are that women's labor allocation to economic activities including subsistence agriculture is comparable to that of men. Moreover, the household chores and care work are women's responsibility, which they perform with minimal assistance from men. I construct a time poverty headcount index separately for men and women; compared to 50% of women who are time poor, only 8% of men face time constraints. The incidence of time poverty among women increases when the burden of simultaneous care work is taken into account. Examination of the determinants of the time poverty show that traditional measures of bargaining power like assets and education do not necessarily affect time poverty faced by women.

Keywords: intra-household allocation, time allocation, poverty, gender, Africa
JEL classification: D13, J22, I3, J16, O55

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.

*The author would like to thank the Association for Social Economics for their generous financial support in undertaking the field research for this project.

[†]Correspondence: Department of Economics, OSH 367, 260 S. Central Campus Drive, University of Utah, Salt Lake City, UT 84112, email: diksha.arora@economics.utah.edu

While there is increasing recognition that men and women experience poverty differently and a move towards use of gender disaggregated measures, lack of individual-level income data still present an obstacle for measuring gender-differences in income poverty. The most important development in the gender analysis of poverty in recent years has been 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.

Due to the heavy work burden and expectations, simultaneous tasks and 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).

In this paper, I examine the intra-household allocation of labor in the subsis-

tence households in rural Mozambique 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. I examine the determinants of time poverty faced by men and women, using a probit model. I use the insights from focus group discussions and life stories to complement the econometric results. I conclude by presenting the implications of time poverty on overall food security and human development and offer possible solutions to reduce women's work burden.

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 (2013) 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 (2006b), 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, shaped mainly by societal norms, is highly rigid (Kes and Swaminathan, 2005). So the scope for men helping women with household chores or care work is very limited. 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.

2.1 Conceptual Framework for Time Poverty

Time poverty, as defined by Bardasi and Wodon (2006), means that some people are not left with enough time to rest or to recuperate after accounting for working time. Kes and Swaminathan (2005) explain time poverty as “the burden of competing claims on individual’s time that reduce their ability to make unconstrained choices on how to allocate their time, leading, to increased work intensity and to trade-offs among various tasks” (in Blackden and Wodon (2006a), p16). 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.

The time poverty studies devise a time poverty line to account for the proportion of individuals facing time poverty and examine the determinants of time poverty (Bardasi and Wodon, 2006; Gammage, 2010). 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: $X_i - \alpha > 0$ where X_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 who working hours exceed the poverty line α . The proportion of those who are time poor or the poverty headcount index is given by:

$$P_o = \frac{N_{tp}}{N}$$

The poverty gap is calculated as following:

$$P_s = \frac{1}{N} \sum_{X_i \geq \alpha} \left[\frac{X_i - \alpha}{\alpha} \right]^\beta$$

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.

In the next section, I present the descriptive results on gender division of labor in rural Mozambique and calculate the differences in incidence of time poverty between men and women.

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.

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. The growth rate of GDP in the province of Nampula has been lower than the country's average (UNDP, 2007). 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 randomly selected districts - Mogovolas and Mogincual. 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 household work is minimal and about 43% of that time is spent on repair or construction work.⁴

Men’s labor contribution to income generating activities is slightly greater than that of women.⁵ However, women’s labor input to farm production is higher, reinforcing the critical role played by women in maintaining food security of the household.

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.

⁵Income generating activities include farm work, paid employment (agricultural labor and non-agricultural labor) and self employment.

Table 1: The distribution of awake hours in a day across different activities by sex

Type of activity	Average Time spent (in hours)	
	Man	Woman
1. Child Care	0.07	0.39
2. Caring for old/sick	0.02	0.48
3. Care Work (1+2)	0.10	0.88
4. Household chores	0.14	3.39
5. Food Processing	0.13	1.8
6. Fetch water	0	0.72
7. Fetch firewood	0.04	0.47
8. Shopping	0.38	0.21
9. Construction/repair	0.65	0.05
10. Voluntary Work	0.07	0.09
11. Domestic work (4-10)	1.42	6.74
12. Work inside the household (3+11)	1.52	7.61
13. Farm sector	2.58	3.02
14. Paid Employment	0.61	0.57
15. Self Employment	1.72	0.50
16. Work outside the house (13-15)	4.90	4.08
17. Rest	0.6.4	2.02
18. Personal Care	0.76	0.73
19. Others	0.76	0.25
20. Leisure (17+18+19)	7.92	2.99
21. Total Work Time (12+16)	6.42	11.70
N	206	206

The inequality in women’s and men’s total work time and leisure is shown in figure 1. 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.

This inequality 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.

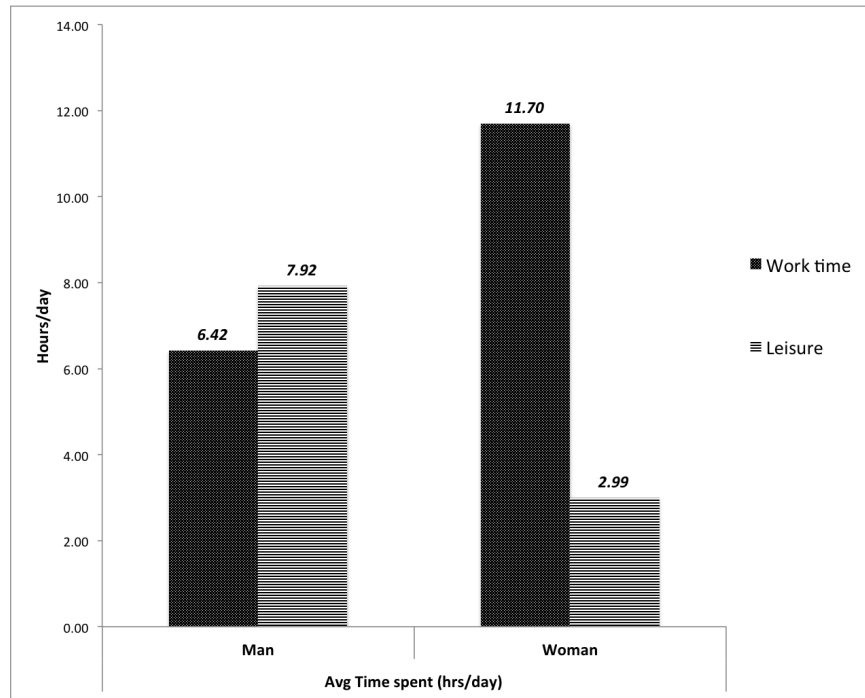


Figure 1: Total work time and leisure hours during a day for a man and a woman

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 said that they are less efficient 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.

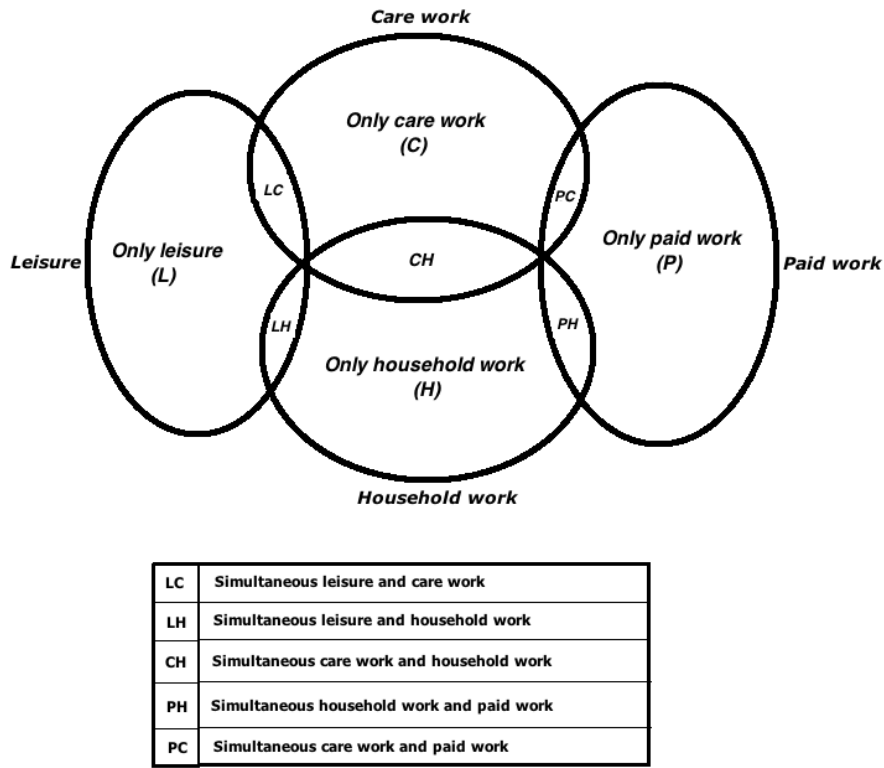


Figure 2: Analytical Framework for Simultaneous Activities⁷

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

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

⁷Paid work also includes agricultural activities for own consumption.

with leisure.⁸ 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 secondary work, I define another measure of total work time that counts the overlap between leisure and any work activity as “*work*”. This measure substantially reduces the leisure time enjoyed by women as they perform maximum 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 secondary activity (chiefly, care work) in Table 2. Where secondary activities are included, women’s average work day increases (by 0.72 hours) while men’s work day is virtually unchanged. This result is particularly important in the face of increasing incidence of HIV/AIDS in Mozambique and rest of Sub-Saharan Africa, which raises care demands.

Table 2: The inequality in men’s and women’s work time with and without secondary work

Type of activity	Average Time spent (in hours)	
	Man	Woman
<i>Definition1- Total work time on primary activities</i>		
Work	6.42	11.70
Leisure	7.92	2.99
<i>Definition 2- Total work time with Secondary Activity</i>		
Work	6.46	12.42
Leisure	7.96	2.29

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,

⁸The 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.

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 as 12 hours per day.⁹

Table 2 gives an account of the poverty headcount index, 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 secondary work is added, the incidence of time poverty among women increases and that of men remains the same. The depth of poverty is higher for women (distance between women’s working time and time poverty line is larger). The severity of time poverty, that is, the inequality among the time poor is worse for men.

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 Secondary Activity	
	Woman	Man	Woman	Man
Poverty Headcount index	49.5%	8.3%	64.6%	8.3%
Time Poverty gap	-3%	-46%	4%	-46%
Squared Poverty gap	6%	34%	8%	34%

6.1 Determinants of Time Poverty

To examine the factors affecting time poverty, I run Probit regressions.¹⁰ I use the probability of being time poor as the dependent variable. Among the independent variables I include, individual demographic variables (age, sex), individual educational qualification and ability to speak Portuguese. Other regressors include household demographic variables such as household size, number of infants (aged 0-3 years), religion and household help. The variable *household help* denotes chil-

⁹“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).

¹⁰Choice between Probit and Logit model, is based on the goodness of fit for each model. Probit model provides a better fit, that is, a higher R squared compared to Logit model

dren in the age group of 5-16 years who actually provide help with household work. 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 economic variables in the regression are household ownership, number of individually owned farming plots, the value of individual's durable assets and a variable for those engaging in a secondary economic activity. I also include the regional dummy variables. Both definitions of time poverty, based on total work time on primary activities and total work time with secondary work, are used as the dependent variables in the regressions.¹¹

Table 4 reports the marginal effect, standard error (in parentheses) and significance levels for all individuals as well as for men and women separately. The marginal effects 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.

I will first consider the results for the regression using time poverty based on total work time on primary activities as a dependent variable. For all individuals, sex is the main indicator of the probability of being time poor. Men are 49% less likely to be time poor. The presence of children who provide household help reduces the probability of being time poor by 16 percentage points. 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 explains this result. The presence of household help is significant at 1% for women. Greater the size of the household, higher will be the probability of being time poor. The significance of this variable is mainly driven by the female sample' following from the fact that women are the home-makers, and increase in the number of members in the household implies greater burden of household chores.

¹¹Dependent 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 4: 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
Sex	-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 (0.0.116)
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

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. This result is not significant for men. A one-year increase in an individual's age reduces the probability of being time poor for all individuals. However, the result is not significant for all regressions using definition 1 of time poverty. For a literate person, this probability decreases significantly by 20%. Literacy is not precisely estimated in determining women's time poverty. I expected education to play a favorable role in increasing women's awareness and position in the household. However, though not strictly significant, primary and junior secondary degree tends to increase the probability of being time poor for women.

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.

The asset variables, possession of a house, value of durable assets and number of farming plots are included in the regression based on the expectation that asset ownership may strengthen women's bargaining position, which in turn may improve the allocation of labor within the household. However, the coefficients for asset variables do not provide a clear story, as most of them are statistically not significant. 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.

Now I turn to results using time poverty calculated using total work time with secondary 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.¹² 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 sex dummy variable between the regression with definition 1 and 2 of time poverty suggests that the simultaneous activities are mainly undertaken by women.¹³ Now, the impact of household help is greater suggesting that children also help in caring for younger siblings in the household. 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. However, the coefficient of age becomes significant in definition 2 regression. After all, women mainly undertake the secondary care work and older women are less likely to have younger kids in need of direct care.

The results from the regressions suggest that the proxies of bargaining power (asset ownership and education) are not significant in determining women's time poverty. This suggests that gender division of labor, defined by *patriarchal norms*, is very rigid. 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 and go to the factory, 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". In a focus group discussion at *Posto de Liupo*, women

¹²The results are similar because according to both definitions of total work time, the time poverty incidence remains the same for men.

¹³Also, 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.

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 divorce us.....”

7 Policy Implications

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 change existing household labor allocation patterns in order to improve women’s well-being. At the same time, women’s welfare is important to strengthen the process of agricultural and rural development. Time poverty analysis is a step in this direction. The time use analysis in this paper shows that in rural Mozambique women disproportionately suffer time poverty. The expectations of the household members and society combined with the time constraints leave women with very few choices. They multi-task, thereby, work more intensively and enjoy lesser or no leisure time.

The vicious circle of more and more work caused by unequal gender division of labor, exacerbated by lack of proper infrastructure, poses a threat to women’s health in the rural parts of Sub-Saharan Africa. Moreover, the competing claims on women’s time may negatively affect children’s health and nutrition (Hyder et al., 2005). In view of the importance of good health in promoting human development, the link between time poverty and health demands greater attention in academic and policy debates.

Women’s time constraints can also have serious consequences in dimensions of material poverty. For instance, greater incidence of time poverty among women

may adversely affect the overall food security; after all women's labor contribution to food production in rural Sub-Saharan Africa is very critical. Preliminary results in Arora (2013) shows that the trade-offs women make due to excessive work burdens adversely affect overall crop production by the household. Moreover, it reduces household's potential to generate surplus for sale, thus, lowering overall welfare of the household.

In order to reduce women's work load, provision of better infrastructure in rural areas is a good short-term measure. For instance, supply of tapped water and improving sanitation facilities, provision of efficient cooking technology, construction of roads and provision of local transport are some of the important measures that will reduce women's time poverty. However, in the long-run, policy action needs to aim at improving women's agency in order to empower them. The results in this paper suggest that in order to reduce women's disproportionate time poverty associated with the rigidity of GDOL, it is necessary to go beyond strengthening women's economic fallback position and implement programs to raise awareness among both men and women.

References

- Alfani, F., Azzarri, C., d'Errico, M., and Molini, V. (2012). Poverty in Mozambique: New Evidence from Recent household Surveys. Policy Research Working Paper 6217, The World Bank, Washington D.C.
- Antonopoulos, R. and Memis, E. (2010). Time and Poverty from a Developing Country Perspective. Working Paper 600, Levy Economics Institute of Bard College, New York.
- Arora, D. (2013). Women's Time Poverty: A Barrier to Economic Transformation in Mozambique.
- Arora, D. and Rada, C. (2013). Gender Differences in Time and Resource Allocation in Rural Households in Ethiopia.
- Bardasi, E. and Wodon, Q. (2006). Measuring Time Poverty and Analyzing its Determinants: Concepts and Application to Guinea. In Blackden, M. and Wodon, Q., editors, *Gender, Time Use and Poverty in Sub-Saharan Africa*, pages 75–95. The World Bank, Washington D.C.
- Bardasi, E. and Wodon, Q. (2010). Working Long Hours and Having No Choice: Time Poverty in Guinea. *Feminist Economics*, 16(3):45–78.
- Beneria, L. (1992). Accounting for women's work: the progress of two decades. *World Development*, 20(11):1547–1560.
- Blackden, M. and Bhanu, C. (1999). Gender, Growth and Poverty Reduction: Special Program of Assistance for Africa, 1998 Status Report on Poverty in Sub-Saharan Africa. World Bank Technical Paper 428, The World Bank.
- Blackden, M. and Canagarajah, R. S. (2003). Gender and Growth in Africa: Evidence and Issues. Paper Prepared for UNECA Expert Meeting on Pro-Poor Growth, Kampala, Uganda.

- Blackden, M. and Wodon, Q., editors (2006a). *Gender, Time Use and Poverty in Sub-Saharan Africa*. Number 73. The World Bank, Washington D.C.
- Blackden, M. and Wodon, Q. (2006b). Gender Time Use, and Poverty: Introduction. In Blackden, M. and Wodon, Q., editors, *Gender Time Use, and Poverty in Sub-Saharan Africa*, number 73, world bank working paper 1, pages 1–7. The World Bank, Washington D.C.
- Elson, D. and Evers, B. (1997). Gender-Aware Country Economic Reports. DAC/WID Task Force on Programme Aid and Other Forms of Economic Policy-Related Assistance 2, OECD, Paris.
- Evers, B. and Walters, B. (2001). The Model of a Gender-Segregated Low-Income Economy Reconsidered: Evidence from Uganda. *Review of Development Economics*, 5(1):76–88.
- Fafchamps, M., Kebede, B., and Quisumbing, A. R. (2009). Intrahousehold Welfare in Rural Ethiopia. *Oxford Bulletin of Economics and Statistics*, 71(4):567–599.
- Folbre, N. (2006). Measuring Care: Gender, Empowerment and the Care Economy. *Journal of Human Development*, 7(2):183–199.
- Gammage, S. (2010). Time Pressed and Time Poor: Unpaid Household Work in Guatemala. *Feminist Economics*, 16(3):79–112.
- Hyder, A., Maman, S., Nyoni, J., Khasiani, S., Teoh, N., Premji, Z., and Sohani, S. (2005). The Pervasive Triad of Food Security, Gender Inequity and Women’s Health: Exploratory Research from Sub-Saharan Africa. *African Health Sciences*, 5(4):328–334.
- Ilahi, N. (2000). The Intra-household Allocation of Time and Tasks: What Have We Learnt from the Empirical Literature? Policy Research Report on Gender and Development Working Paper Series 13, The World Bank, Washington D.C.

- Kes, A. and Swaminathan, H. (2005). Gender and Time Poverty in Sub-Saharan Africa. In Blackden, M. and Wodon, Q., editors, *Gender, Time Use, and Poverty in Sub-Saharan Africa*, number 73, pages 13–26. The World Bank.
- Koopman, J. (1991). Neoclassical Household Models and Models of Household Production: Problems in the Analysis of African Agricultural Households. *Review of Radical Political Economics*, 23(3 & 4):148–173.
- Ngome, A. (2003). *Gender Division of Labour and Women's Decision-Making Power in Rural Households: The Case of Mbalangi, Ediki and Mabonji Villages of Meme Division*. PhD thesis, University of Buea, Department of Women and Gender Studies, Cameroon.
- Pitamber, S. and Hanoomanjee, E. (2004). Mozambique: Agriculture and Rural Development North East and South Region. Multi sector country gender profile, African Development Bank, Mozambique.
- Saito, K., Mekonnen, H., and Spurling, D. (1994). Raising the Productivity of Women Farmers in Sub-Saharan Africa. World Bank Discussion Paper, Africa Technical Department Series 230, The World Bank, Washington D.C.
- Sen, A. (1999). *Development As Freedom*. Oxford university Press.
- Sikod, F. (2007). Gender Division of Labour and Women's Decision-Making Power in Rural Households in Cameroon. *Africa Development*, 32(3):58–71.
- Sow, F. D. (2010). *Intrahousehold resource allocation and well-being: The case of rural households in Senegal*. PhD thesis, Wageningen University.
- Tibaijuka, A. K. (1984). *An Economic Analysis of Smallholder Banana-Coffee Farms in the Kagera Region, Tanzania: Cause of Decline in Productivity and Strategies for Revitalization*. PhD thesis, Swedish University of Agricultural Sciences, Uppsala.

- Tibaijuka, A. K. (1994). The Cost of Differential Gender Roles in African Agriculture: A Case Study of Smallholder Banana-Coffee Farms in the Kagera Region, Tanzania. *Journal of Agricultural Economics*, 45(1):69–81.
- Tvedten, I. (2012). Mozambique Country Case Study: Gender Equality and Development. Background paper, world development report 2012, The World Bank.
- UNDP (2007). Mozambique National Human Development Report: Challenges and Opportunities: The Response to HIV and AIDS. National HDR, United Nations Development Programme, Maputo, Mozambique.
- Vaananen, A., V. Kevin, M., Ala-Mursula, L., and Mika Kivimaki, J. P., and Vahtera, J. (2005). The double Burden of and Negative Spillover Between Paid and Domestic Work: Associations with Health Among Men and Women. *Women and Health*, 40(3):1–18.
- Vickery, C. (1977). The Time-Poor: A New Look at Poverty. *The Journal of Human Resources*, 12(1):27–48.
- Wangui, E. E. (2003). Links Between Gendered Division of Labour and Land Use in Kajiado District, Kenya. LUCID Working Paper 23, Land Use Change Impacts and Dynamics Project, International Livestock Research Institute.
- Waring, M. (2003). Counting for something! Recognising women’s contribution to the global economy through alternative accounting systems. *Gender and Development*, 11(1):35–43.
- Warner, J. M. and Campbell, D. A. (2000). Supply Response in an Agrarian Economy with Non-Symmetric Gender Relations. *World Development*, 28(7):1327–1340.
- Zacharias, A., Antonopoulos, R., and Masterson, T. (2012). Why Time Deficit Matter: Implications for the Measurement of Poverty. Technical report, Levy Economics Institute of Bard College.

Notes on Contributor

Diksha Arora is a PhD student in the Department of Economics at the University of Utah.