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Demographic and Socioeconomic Determinants of Time Use for Household Activities: a Study in Kolfe Keranyo Sub city, Addis Ababa, Ethiopia

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Abstract

Household activities constitute an important dimension of time use that have previously received little attention in labor force analysis. Most labor force analysis have looked only at paid labor, ignoring the fact that individuals often devote much of their time and labor in household activities. This seriously underestimates the labor and time spent on unpaid labor such as house work and child care. Existing standard of living measurements and household economic models often do not take into account this important dimension. The objective of this paper is to examine some of the demographic and socio-economic factors of time use for household in a residential neighborhood in Addis Ababa, Ethiopia. The study uses a cross-sectional survey data conducted on 696 randomly selected individuals in the age group 15 - 65 in Kolfe Keranyo sub city, Addis Ababa, in 2013. The average minutes of domestic work shows strong gender bias with an average men participation amounting to only 65.6 minutes as compared to women participation of 476.6 minutes per reference day. This study serves as a baseline in quantifying women length of time spent for household activities that are presently invisible in estimation of national accounts. In addition, through this study we hope to inspire other researchers to utilize the time use enormous data that remain largely untouched and cover time allocated to leisurely activities and time spent for caring to others.

Key words: House work, Kolfe Keranyo, Time Use, Time allocation, Unpaid Work

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1. Introduction

Human time use studies provide a valuable attachment to traditional statistical information regarding income, household expenditure, employment patterns, housing and demographics (Robinson and Godbey, 1997). They complement other forms of data collection by giving a more comprehensive measurement of all forms of work that people do and by providing the most accurate current estimates of all unpaid work and family care that takes place in the society (Robinson and Godbey, 1997).

Such studies were first developed in the early 1900s in social surveys reporting on the living conditions of working class families. The long working hours characteristic of early industrial development and organized labor's advocacy for the shortening of the working day, made knowledge about the proportions of work and leisure in the daily life of laborers a concern in countries where industrialization was in progress (Szalai, 1972).

Time-use data are quantitative summaries of what women and men do over the course of a day, a week, and across seasons over a year. And also can systematically be described by using a classification of activities which is comprehensive enough to cover all human activities that could possibly occur in a 24-hour day from the time we wake up to the time we go to sleep (Bittman, 1999).

Since the basic building blocks of time-use data are activity and time, usually generated from recording of the activities and measuring the time spent on them by individuals in terms of number of minutes or hours in a specified period, ideally a 24-hour day. Time-use data paints a quantitative picture of who does what (and what else simultaneously) during the day, for how long, how often, at what time, in what order, where, with whom, and for whom (Bittman, 1999).

Household activities present an important area for research. First, it represents a major component of daily life for most people, and therefore should be of interest to social scientists of all types. Second, household activities constitute an important dimension of time use that has previously received little attention in labor force analysis. Most labor force analysis has looked only at paid labor, ignoring the fact that individuals often devote much of their time and labor in household activities. Moreover, household activities are a significant source of economic activity and are directly tied to living standards.

Several countries, therefore, undertake national statistical surveys on employment or production since the 1960s and in few even earlier (UN, 1996). The Central Statistical Agency of Ethiopia also has undertaken labor force surveys, twice in 1999/2000 and2004/2005, on various activities of the population at national, rural and urban levels.

From the results of 2004/2005 national labour force survey; the employment-to-population ratio for men is 84.7%, which is substantially higher than the ratio for women (69%). A further look at these reports, major occupational group urban and rural areas at country level show that elementary occupations were occupied by a relatively greater proportion of women than men, while the reverse holds true for skilled agricultural and fishery occupation group in rural areas. On the other hand, 21.8% of the employed persons in urban areas were engaged in the wholesale and retail trades, followed by manufacturing (14.3%) and hotels and restaurants related activities (10.8%). Higher proportion of females than males in urban areas participated in the wholesale and retail trade, manufacturing and hotel and restaurant industrial divisions compared to men. The gap is particularly wide in hotel and restaurant industry: 3.4% for males and 19.2% for

females. Self-employment at country level was the dominant employment status among the men (54.8%), while the majority of females employed were found to be in unpaid family employment.

In urban areas, male paid employment covers a higher percentage share, (46.3%)compared to 38.8% among women, while more percentage of females than males were found in self-employment which is 42.0% for females against 38.9% for males. In addition, the majority of females in rural areas work as unpaid family workers (74.7%), whereas men in rural areas were dominant in self-employment (56.7%); moreover, the regional distribution of the proportion of urban employed population of the country who are engaged in the informal sector, shows a higher proportion of women are engaged in the informal sector in all regions (CSA, 2006).

National surveys have traditionally been concerned with recording only those labor inputs involved in the production of goods and services of market value, and have ignored and continue to ignore the unpaid labor and economic contributions by household activities. The Ethiopian labor force survey is not an exception, where attention has focused on documenting data on economically active/inactive size of the population, unemployment rate and employment status putting aside the need for data on the economic contributions of unpaid household work activity relative to paid work. Specifically, while the fact that most households spent much of their time producing goods and services at home satisfying their daily family needs is documented in the surveys, such households have been considered economically inactive.

As such national surveys give only a partial view of the total labor use in a society excluding unpaid household work activity. It is increasingly being realized that data from such surveys are largely incomplete and consequently quite misleading in framing public policy and in business decision-making. The problem is likely to be serious for countries that do not perform time use studies to augment national survey data. Deliberations on public issues such as gender equality, labor market policies, wages and income policies, to name a few, therefore, become misinformed. Perhaps, because of lack of such data on time use by households, studies on the demographic and socioeconomic determinants of time use are not available. These limitations are likely to hinder attempts to design public policies that impact economic growth and social well-being.

It has been recommended that poverty reduction strategies and the monitoring efforts of the Millennium Development Goals need to include the analysis of time use by members of the household most involved in house work, particularly women. Time use data allows a comprehensive analysis of all activities (market and nonmarket work and leisure activities), and gives a complete picture of the society, by providing detailed information about how households use their time on a daily and weekly basis given demographic and socioeconomic determinants. In the context of Ethiopia, where gender based traditional divisions of labor is a common feature, women tend to work longer hours and shoulder larger responsibilities than men do. An average day for a woman starts at dawn and continues through dusk. Apart from the burden of feeding the family, women have to care for babies, children and the elderly. Despite their contributions, they are often seen and considered as weak and invisible in development. Their role in the overall development endeavors of the country is either misunderstood or totally underestimated. They are minority in decision making process and had no voice in matters that even concern their households (CSA, 2001).

The present study uses a household sample survey of 696 respondents from 384 households in Kolfe Keranyo sub city to document the demographic and socio-economic determinants of adult domestic work hours. It also, provides unique information on the time use pattern of both paid and unpaid labor of women, men and children in the study area.

2. The Research Methodology

2.1 Research Approach

A cross sectional study design involving quantitative, since the study intends examining factors that influence an outcome, or understanding the best predictors in outcomes; and qualitative methods, because, to the best of the author's knowledge the topic has not been addressed before; was used to examine the effect of demographic and socio-economic variables on time use for household activities. In this research, with quantitative data we first explain the relationships between variables known from previous literature, and proceed with qualitative approach next to follow up with in-depth investigation, both are undertaken simultaneously. In these situations collecting both closed-ended quantitative data and open-ended qualitative data prove advantageous to best understand a research problem (Velez, 2004). Therefore, this design is useful to capture both quantitative and qualitative data/information required to better generalize the findings to a population and have a detailed better understanding of the meaning of a phenomenon or determinants of time use for households and individuals.

2.2 Sampling Technique

The sampling technique was multi-stage sampling. First as a cluster, 3 woredas (woreda 01, woreda 04 and woreda 10) from the sub-city were selected by simple random sampling technique. Households' selection comprised the second stage of sampling. A complete listing of households and Sketch maps drawn for each of the clusters from 2012 Inter Censal Survey was used in each of the 10 selected EAs and households were selected from a given woreda by systematic random sampling technique. Finally, on the basis of the listing of households in each woreda enumeration areas, dwellings that have at least one member at the time of the survey in the study area were selected by systematic sampling method. The sample size 384 household units which enable us to get 696 respondents were allocated to each enumeration area based on proportion to the size of household units in the enumeration area. In so doing, the assumptions used to determine the sample size are as follows:

1. The level of the sampling error was accepted to be 5 percent
2. The confidence interval was chosen to be 95 percent
3. P was assumed to be 50 percent, since there is no related previous study in Ethiopia to know P value.

2.3 Data Collection

Quantitative data through questionnaire was collected by face-to-face interview, considering the characteristics of respondents and level of literacy. The questionnaire comprised three sections; area identification; demographic and socio-economic details; and a retrospective diary to record the activities performed by the persons selected respectively.

The survey was administered by collecting information from two respondents, persons between the ages of 15 and 65 from each selected household. Where the household contains only one person in this age group, only that person was interviewed. Because time use is likely to be different for weekends and weekdays and perhaps even between weekdays, sample members were assigned to each weekday (Monday through Friday),

Saturday, Sunday and were asked what activities they had performed prior to the survey date using two day (weekday and weekend) diary method /24-hours/, divided into one hour time period from 5:00-6:00 morning to 4:00-5:00 after mid night. And before administration of the diary, the respondents were asked for basic demographic information about themselves, such as age, sex, children and work situation.

In addition, qualitative data collection by two focus group discussants in which we generated rich information and obtained a representation of diverse opinions and ideas, was held with about ten people who have similar characteristics, and it was led by a moderator/facilitator (researcher) who uses an interview guide to introduce topics of interest.

From 10 sub-cities of Addis Ababa City Administration, considering its size in terms of area and also its more or less residential function, Kolfe Keranyo sub city is selected for this study, which is one of the sub-cities located on south west of the center of Addis (see Figure 1). The total population of Kolfe Keranyo sub city is estimated to be 428,895 (CSA, 2007) and it is sub-divided into 10 woredas and it is the largest sub-city in terms of area. Percentage Distributions of living standards in the sub-city from Urban Inequities Surveys (UIS) fielded in Addis Ababa in 2003 shows that very poor 5%, near poor 25%, poor 18% and other 52% (UN Habitat, 2003).

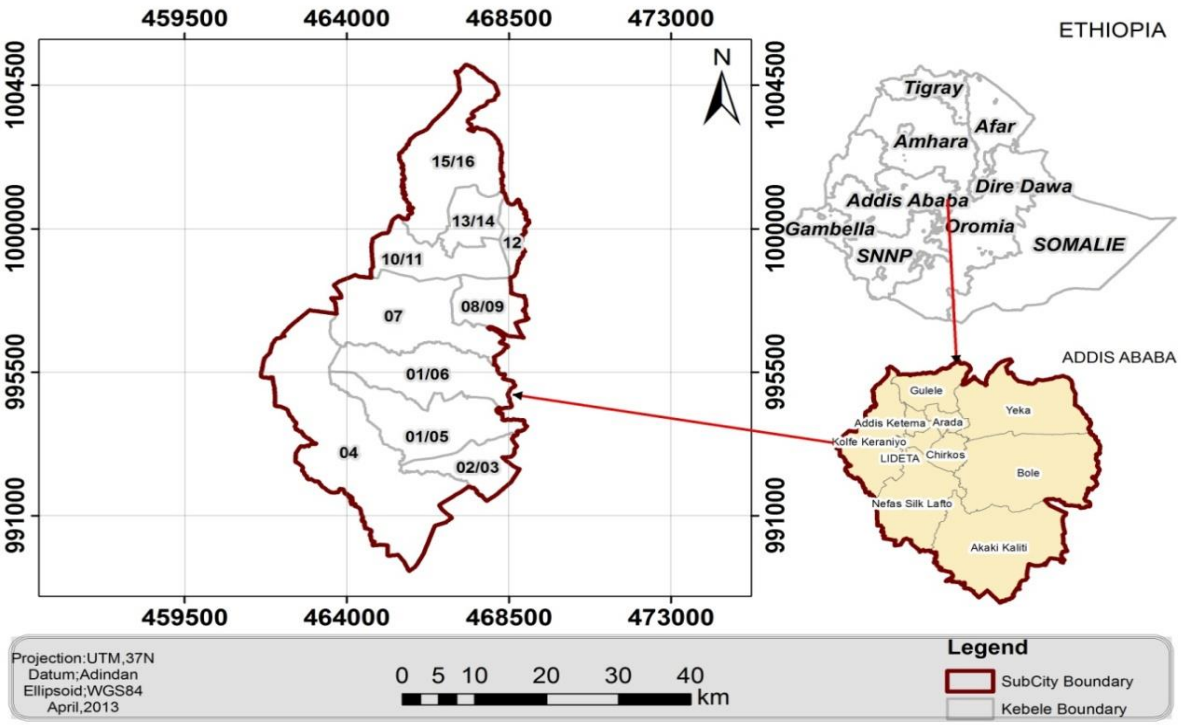

Figure- 1 Map of the Study Area

2.4 Variables of the Study

Individual's work minute per day for household activities is the outcome measure for the study. A combination of predictor variables were included based on the research questions we are attempting to explore and technical literatures reviewed. We identified demographic and socio-economic variables such as age, sex, marital status, religion, family size, employment status and level of education for the study.

2.5 The Statistical Model

Given a continuous response outcome and a set of k numerical explanatory variables, X_1, X_2… X_k, the Multiple Linear Regression model is given by:

$$Y_i = \beta_0 + \beta_1 X_{1i} + \beta_2 X_{2i} + \ldots + \beta_k X_{ki} + \varepsilon_i$$

where, Y_i is time use in minutes per day of a member of the ith household; β_0 is the Y-intercept, the model-predicted value of the dependent variable when the value of every predictor is equal to 0; β_1, β_2,… β_k are parameter coefficients of vectors of each X_{1i}, X_{2i}, X_{ki}; and ε_i is the error term in the model for the ith case.

2.6 Examining Multicollinearity Effects and Assumptions

In fitting multiple regression models, the first thing to be done is to examine the existence of inter correlation among explanatory variables. As is presented in Appendix A, for the model tolerance is well greater than 0.20; Thus, multi-co-linearity effects do not influence the model. Alternatively, VIF, which is simply the reciprocal of tolerance, shows in Appendix A, that VIF is less than 4 for all variables, suggesting non-existence of multicollinearity problem. The second things to be done in fitting a multiple linear regression model are as follows:

- Case wise diagnostics output in SPSS lists 5 cases with standardized residual more than 3 away from the predicted result. This means that these five cases are clearly unproblematic in a sample of over 600;
- The standardized residuals (histogram) are almost symmetrical and the normal probability plots are lying about the diagonal line (Appendix B) .This suggests that the Normality assumption is not violated;
- The scatter plot of standardized residual versus standardized predicted value indicates that there is less variation at the lower end of predicted values than at the higher end (Appendix B) suggesting some evidence of heteroscedasticity that is tolerable;
- The result, in model summary table of Durbin-Watson test or d is 1.889 and hence there is no auto-correlation in the multiple linear regression data.

3. Results

3.1 Participation Rate by Selected Variables

Table 1 depicts individual house work participation rate in households and how the participation rate differs by household type and individual specific characteristics.

Table 1: Domestic Work Participation Rate

Variable		Participated		Not Participated	
		No.	%	No.	%
Sex	Male	102	33.6	202	66.4
	Female	350	89.3	42	10.7
	Total	452	64.8	244	35.2
Marital Status	Married	243	65.1	130	34.9
	Never married, Widowed, Divorced and Separated	209	64.7	114	35.3
	Total	452	64.9	244	35.1
Age Group	< 25	127	64.5	70	35.5
	25-34	134	67.3	65	32.7
	35-44	100	66.2	51	33.8
	45-54	59	63.4	34	36.6
	55^{+}	32	58.2	23	41.8
Religion	Orthodox	280	70.7	116	29.3
	Protestant	74	67.3	36	32.7
	Muslim	98	51.0	94	49.0
Family size	1-3	143	73.0	53	27.0
	4-6	223	64.1	125	35.9
	Above 7	86	55.8	68	44.2
Education	Primary	100	66.7	50	33.3
	Secondary	176	61.1	112	38.9
	More than Secondary	115	65.3	61	34.7
Employment Status	Employed	210	50.9	202	49.1
	Unemployed	240	84.5	44	15.5
	Total	450	64.7	246	35.3

Note: Primary education includes "no education"

The univariate analysis of domestic work participation rate of individuals shows that of the total respondents, 65% have been reported to participate in domestic work activities. Among these, 33% were males and 89% were females. This shows the preponderance of females domestic work participation over their male counterparts, which in turn suggests the existence of a gender bias. Participants of the focus group meeting noted that: "*females shoulder much of the house work load compared to males. But even when males, participate in house work they do this for their own individual consumption rather than for the family as a whole*".

Marital status plays a vital role in domestic work participation rate as 65.1% of marred individuals reported participation in domestic work, compared to 64.7% of those who were never married, were divorced, widowed or separated. This support the hypothesis of this study that being married or cohabiting with a partner increases individual's time for house work. Participants of the survey also noted that: "*those unmarried individuals particularly males were less involved in the household activities; according to the survey participants, this is partly because females do not encourage their husbands to do house work; they prefer doing the house work by themselves*".

In terms of age , about 64.5 percent in the age group <25, 67.3 percent in the age group 25-34, 66.2 percent in the age group 35-44, 63.4 percent in the age group 45-54 and 58.2 percent in the age group 55 and above were participated.

Domestic work participation also differs by type of faith; 70.7% of Orthodox, 67.3% of Protestant indicated their participation in domestic activities. The highest level of participation occurs in smaller families and amongst the lowest educated. As expected unemployed individuals are of higher likelihood to participate in domestic activities (84.5%) compared to those employed.

Table 2 shows the magnitude of basic statistics for the variable house work participation minutes of individuals in a household and how the minutes of participation differs by individual specific characteristics. Men and women were most likely engaged in unpaid services for domestic use, although average daily time spent was much higher for women. Time spent in domestic activities falls steadily with age. On the other hand, the burden of domestic work increases among the elderly; and is also reflected in much higher time spent among married, divorced and widowed. Greater educational attainment reduces time spent in domestic work substantially, although time spent is not as sensitive to changes in family size. Across economic activity status, unemployed individuals spend more time in unpaid domestic work. Table 3 presents association of some variables with participation in domestic activities.

Table 2: Basic Statistics Results for Minutes of Domestic Work, by Respondents Characteristics

Variables		Mean	Standard Errors of Mean	Standard Deviation
Sex	Male	65.59	7.951	139.092
	Female	476.55	16.484	326.370
Age	15-19	211.99	27.871	275.906
	20-24	275.88	30.051	299.001
	25-29	305.39	31.136	322.073
	30-34	292.17	31.113	298.421
	35-39	346.28	38.549	365.710
	40-44	320.95	42.843	334.615
	45-49	380.36	51.614	386.245
	50-54	255.68	62.793	381.956
	55-59	346.91	64.843	378.097
	60-65	284.05	80.126	367.184
Religion	Orthodox	314.05	16.740	333.114
	Protestant	315.05	31.485	330.221
	Muslim	249.01	23.502	325.651
Marital Status	Never Married	196.51	16.257	264.148
	Married	350.7	18.640	359.513
	Divorced	403.70	56.269	292.383
	Widowed	477.50	58.028	307.057
	Separated	75.00	75.000	150.000
Family size	1-3	304.20	21.626	302.766
	4-6	317.39	18.871	352.038
	7-10	245.29	26.230	314.764
	Above 10	151.00	91.778	290.228
Employment Status	Employed	168.81	11.694	236.497
	Unemployed	482.05	21.294	360.114
Education	No Education	380.00	194.641	476.770
	Primary	371.58	31.367	376.403
	Secondary	279.28	19.803	336.060
	More than secondary	213.10	18.554	246.143

Table 3: Association of Selected Variables with Participation in Domestic Activities

	Participate	Not participate	P-value	Chi-square
Sex				
Male	102 (198.2)	202 (107.8)		235.8
Female	350 (253.8)	42 (138.2)		
Total	452	244		
Marital Status				
Married	243 (242.2)	130 (130.8)		0.015
Never married, Widowed, Divorced and Separated	209 (209.8)	114 (113.2)		
Total	452	244		
Age Group				
< 25	127 (64.5)	70 (35.5)	0.271	13.3
25-34	134 (67.3)	65 (32.7)		
35-44	100 (66.2)	51 (33.8)		
45-54	59 (63.4)	34 (36.6)		
55^{+}	32 (58.2)	23 (41.8)		
Religion				
Orthodox	280 (70.7%)	116 (29.3%)	0.003	22.3
Protestant	74 (67.3%)	36 (32.7%)		
Muslim	98 (51%)	94 (49%)		
Family size				
1-3	143(73%)	53(27%)	0.002	14.3
4-6	223(64.1%)	125(35.9%)		
Above 7	86(55.8%)	68(44.2%)		
Education				
Primary Education	100 (66.7%)	50 (33.3%)	0.501	2.3
Secondary Education	176 (61.1%)	112 (38.9%)		
More than Secondary	115 (65.3%)	61 (34.7%)		
Employment Status				
Employed	210(266.4)	202 (145.6)		82.7
Unemployed	240(183.6)	44 (100.4)		
Total	450	246		

The chi-square test of association is used to test for the relationship between participation in domestic work and socio-demographic variables. Domestic participation proportions show significant difference in men and women as well as among employed and unemployed household members. Domestic participation proportions are the same regardless of marital status or age or educational level of household members. Religion shows a statistically significant association with domestic work as well as family size. Table 4 presents determinants of time use for household activities

Table 4: Determinants of Time Use for household Activities

Variables	Coefficient	SE	t-value	95% Confidence Interval	
				Lower	Upper
Constant	-544.364	69.951	-7.782	-681.740	-406.988
Sex	332.148	20.814	15.958	291.271	373.024
Religion	-14.490	7.641	-1.896	-29.497	.517
Marital status	43.670	16.797	2.600	10.683	76.657
Age	18.162	4.999	3.633	8.345	27.979
Employment status	218.921	21.012	10.419	177.654	260.187
Education	-28.296	12.976	-2.181	-53.780	-2.812
Family size	-53.271	13.058	-4.080	-78.946	-27.627

Note: The dependent variable is expressed in minutes

Appendix B regression results depicts, the unadjusted R^2 shows that 50.7% of the variation in time use for domestic activities is explained by variation in sex, age, religion, marital status, family size, education and employment status. The F-statistics and the associated p-value show that the model is well fitted to the data.

From Table 4 t-statistics (tests of the significance of individual regression parameters), we can see that, a number of demographic and socio-economic factors that affect time use for household activities. After controlling for other confounding factors; sex, age, marital status and employment status had significant net effect on time use for household activities. Religion and family size had no significant but considerable effect on time use. However, education did not show observable influence on time use for household activities.

4. Discussion of the results

This study was based on the primary time use survey and focus group discussions conducted in Kolfe Keranyo Sub city Addis Ababa and hence the data used for this analysis were unique in terms of content and geographical coverage. The purpose of this research was to assess the effects of demographic and socio-economic determinants of time use for household activities.

The quantitative study is a cross-sectional design which is best suited for exploring the determinants of time use for household activities. Therefore, it examined different forms of demographic and socio-economic factors. Additionally, focus group discussions with a separate set of category are utilized. The qualitative study provides valuable insight that strengthens evidences in the quantitative study.

The study population comprises about 56.0 percent females and 44.0 percent males, while the target group is both male and female with the age range of 15-65.

Among respondents in the survey, the proportion females participated in domestic work activities over the reference day, found to be 89% while males 33%. In addition to this some more facts was raised in focus group discussions. They stated, "*Males are less concerned in household activities*". Moreover, one mother highlighted the following point: "*My daughter, even though she is a student, performs all household activities while my son is idle he didn't participate in any form of house work.*"

The strong significant positive association between sex and domestic work is easily understood. As proved with the analysis and raised in the focus group discussions of this study and also documented in other studies, the explanation for this association revolves around the following facts. There are distinct gender differences in the average time spent on household activities. When mean time spent by actors on domestic activities is further examined across demographic and socioeconomic factors, the overall pattern is that women spend more time than men on unpaid household services. As a result domestic work participation is highly affected by sex.

Furthermore, the domestic work participation rate is high for those married individuals, as compared to other marital status, which support the hypothesis of this study, that being married or cohabiting with a partner increases individual's time for house work. Focus group participants noted that: "*Those unmarried individuals particularly males were less involved in the household activities*"; according to the participants, this is partly because "*females do not encourage their husbands to do house work; they prefer doing the house work by themselves instead*".

This finding was similar to other studies, it has been shown that while married women do more house work than single women, men do less house work after they get married (Gupta 1999; Couprie 2007).

Domestic participation proportions referring to respondents age shows, a pattern of participation decreases as age increases, which support the hypothesis of this study unpaid work time increases by age but decreases after reaching a level of 44.

As documented in other studies, household size and composition also could matter, but the relationships are not straightforward. A positive coefficient is estimated indicating that each additional child increases the probability of being time-poor (Bardasi and Wodon, 2006a). In this study also family size had no statistically significant association but had considerable effect in household domestic work participation. Evidence shows that the

number of children does not always have an increasing effect on the time spent on unpaid work activities. The reverse is also pointed out that children also allocate significant amounts of time to household maintenance as well as care of younger siblings (Ilahi, 2009).

Education attainment is expected to influence an individual's tendency to household activities. This association is expected due to the fact that basically those with more education may have higher expectations of themselves and their use of time. They place greater importance on the quality of the output or on the self-fulfilling elements of the tasks. This could manifest itself as higher standards of cleanliness, better care for the sick or elderly, more nutritious meals or more involvement in their children's activities (Zick, 1996), but time devoted exclusively to children (child care) was not explicitly studied in this research rather domestic chores; consequently educational level had considerable effect on time use for household activities but the association was not statistically significant in this study.

Employment status had significant positive relation with domestic participation. This is due to the fact that the extent, to which a person is engaged in market work full time or part time, is seeking a job or not in the labor force can increase or decrease time pressure. This finding was supported by similar studies (Probert, 1993).

The major objective of this study was to identify demographic and socio-economic factors that affect time use for household activities in Addis Ababa. The study had identified several factors that have important influence on domestic work participation. These include age, sex, marital status, religion, family size, employment status and level of education.

Finally; this study shows the importance of both demographic and socio-economic variables to time use for household activities. Both demographic and socio-economic factors had equivalent effect on domestic work participation. Only education was not statistically significant predictor for time use in household activities. This is due to the nature of the data, in that even though a household activity includes child care and leisure activities, this study focus was only on domestic chores. Most of these findings were consistent with previous documented studies.

5. Conclusion

The Ethiopian national labor force survey, focused on documenting data on economically active/inactive size of population, unemployment rate and employment status putting aside the need for data on the economic contribution of unpaid household work activity relative to paid work. It is increasingly being realized that data from such surveys are very incomplete and consequently quite misleading in framing public policy and in business decision-making. The problem is likely to be serious for countries that do not perform time use studies to augment national survey data, since time-use studies give a relatively complete picture of the society, by providing detailed information about how people use their time on different market and non-market activities, on a daily and weekly basis.

Using household time-use survey conducted in Kolfe Keranyo sub city in Addis Ababa, we estimated the impact of demographic and socio economic determinants of time use for household activities. We found that age, sex, marital status, religion, family size and employment status as the most important factors influencing time use for household activities whereas level of education had considerable effect but not statistically significant.

Finally, the time use survey is an enormous data resource that is largely untouched, other analysts will be inspired to use the data and cover more of the richness of what it can tell us. If these results taken into account, they might be initial to enumerate the invisible household activities time resource, being identifying other determinants.

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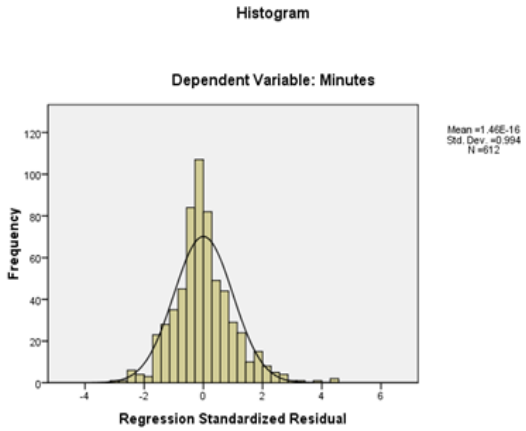
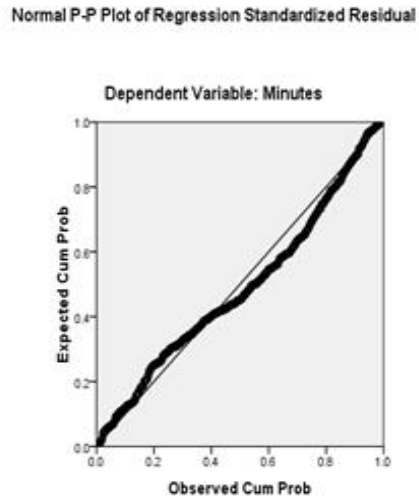
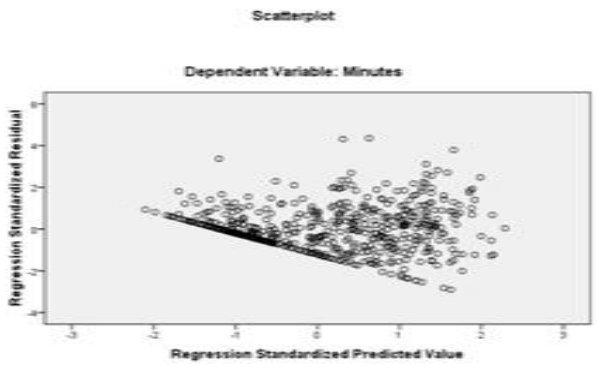
Appendix A: Multicollineartiy diagnosis tolerance and VIF values to check multicollineartiy effects in the model

Variables	Multicolinearity Statistics	
	Tolerance	VIF
Sex	.835	1.198
Religion	.923	1.083
Marital Status	.613	1.632
Age	.591	1.693
Employment Status	.821	1.218
Education	.918	1.089
Family Size	.950	1.053

Appendix B: Linear multiple regression assumptions diagnosis







Model Summary[a]

Model	R	R Square	Adjusted R Square	SE Estimate	Durbin-Watson
1	.712[a]	.507	.501	232.693	1.889

Note: a. Predictors: (Constant), Family size, Religion, sex, Education, Marital Status, Employment status, Age

ANOVA[b]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	3.360E7	7	4799639.998	88.643	.000**
	Residual	3.270E7	604	54145.991		
	Total	6.630E7	611			

REFERENCES

Bardasi et al., 2006. Measuring time poverty and analyzing its determinants: concepts and application to Guinea.

Bittman, M., 1999. An international perspective to collecting time use data.

Couprie, H., 2007. "In BurcaKizilirmak Ankara University and EmelMemis": The Levy Economics Institute and Ankara University: The Unequal Burden of Poverty on Time Use ,August 2009.

Central Statistics Agency, 2001.Gender issues, population and development in Ethiopia.

Central Statistics Agency, 2006. Report on Labor Force Survey

Central Statistics Agency, 2007.Analytical Report on the 2007 Population and Housing Census of Ethiopia.

Gupta, S., 1999. "In BurcaKizilirmak Ankara University and EmelMemis": The Levy Economics Institute and Ankara University: The Unequal Burden of Poverty on Time Use, August 2009.

Ilahi, N., 2009. "In BurcaKizilirmak Ankara University and EmelMemis": The Levy Economics Institute and Ankara University: The Unequal Burden of Poverty on Time Use August 2009.

Probert, B, 1993. Time use, work and overlapping activities: evidence from Australia, Cambridge Journal of Economics.

Robinson et al. 1997, Time for Life. University Park, PA: Pennsylvania State University Press.

Szalai, A. (ed.), 1972. The uses of time: daily activities and suburban populations in twelve countries, Mouton, The Hague.

UN Habitat, 2003, Urban Inequities Surveys (UIS) in Addis Ababa.

Velez A., 2004.Evaluating research methods: assumptions, strengths, and weaknesses of three educational research paradigms, Davenport University.

Zick, 1996. Time use, work and overlapping activities: evidence from Australia, Cambridge Journal of Economics.