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TIME USE DIFFERENTIALS BY HIERARCH OF HOUSEHOLD MEMBERS

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Abstract

Typically the main focus of conducting the time-use surveys is to study the frequency of human activities along with their durations. Time-use surveys as instruments for informing the development of the public is achieved by comprehensive coverage of social and economic activities of individuals. Households can accommodate different members with different hierarch levels. In a household its members in different hierarch levels seem to have different activities. Questions, which this study has been able to answer, include; (a) do household hierarchy members have specific types of time-use activities? (b) Are time-use activities done by males different from those by female? (c) Are there any rural-urban time-use activities' differentials? The findings show that in general both males and females participate in all activities but they differ in durations.

1.0 Introduction

Every human being has 24 hours to spend in different activities each day. Some of them use their time to produce goods and services, in paid or unpaid sectors. One of the possible sources of collecting data on time spending is through the Time Use Survey. Some of the developed countries have conducted Time Use Surveys since long. In Tanzania this is the first such survey which is conducted by the department of Statistics of the university of Dar es Salaam. It is a Country-wide Time Use Survey for which the Statistics department of the university of Dar es Salaam undertook the task of designing it from 2003. Data collection took place during a two-week period in January-February

2005. The first results were released in a conference in December 2005. This paper incorporates the comments and suggestions from that conference.

A time use survey sheds some light on the linkages and trade-offs between different areas of work. Equally of value is to know how household members spend their 24 hours each day. Household time usage is frequently not taken into account in decision-making process though it is important like any other sector. Time use statistics have great value in informing the government policy development process. It can for example inform the public and policy makers perceptively the intensity participation of selected members of a household. Many have echoed in various forums that female spouses work longer than their counterpart and that female youths participate in household activities more than males. It is the intention of this paper to show the participation intensity of different members of the household for different activities. Specifically we are interested in the participation intensity for the Head of household, his/her spouse, and male and female youths.

One of the challenging problems in conducting time use surveys is on the format of recording activity times. Some guidelines are available in the literature such as one presented in Ahmedabad (1999) during a seminar on Time use surveys 'Economic and social commission for Asia and the Pacific'. In measuring how people spend their time Linda (1999) has discussed some methodological decisions concerning the mode, follow-up probes, coding schemes for simultaneous activities with far-reaching

implications. She provides two formats; (a) the time clock format used to collect time-budget information and (b) the time diary used by the Australian Bureau of Statistics. Similarly the Yeast Connection provides another example of time diary. There is wide variation on how different researchers analyze time use data. An examples of analyzing time-use survey data can be found in Andrew, Sudhanshu and Narasimhan. Common analyses are; tabulation, model construction, and graphical approaches, which are used to show the results for, appropriate audience.

An attempt is made in this paper to compare how some selected members of the household spend their daily times. It concentrates on three hierarchy levels; Head of household, Spouse and Youths. At each level we compare the Activity Time Participation Intensity (ATPI) within gender by area and in terms of within area by gender differentials. Although many activities were recorded during the survey, our comparison makes use of broader coded activities. Our coding procedure is basically to pool all individual activities belonging to the same conception into one broader group. Next section deals with such coding scheme of activities. The justification of using these broader activity groups rests on the notion that there can be several activities, which belong to the same type of activity. The activities of (i) cooking, (ii) sweeping, (iii) cleaning the surroundings, (iv) washing clothes, (v) ironing clothes and (vi) travel related to household activities all can be pooled together into one group of Household Activities. We have done this in order to avoid the notion of inferring for example that a male head of household does not do household activities because he does not cook or sweep. It

may be true that he does not cook or sweep but he might be doing a similar household activity such as cleaning the household surroundings or ironing the clothes.

2.0 Coding schemes

There are various activity coding schemes in literature. Table 1 shows an extract from two examples of coding schemes. In the first column we have an activity-coding scheme developed by Alexander Szalai for the Multinational Time- Use Project in the 1960s. On the other hand Kristina (2005) provides the American Time Use activity classification system used during a survey on 'what Americans do during the day and how much time they spend doing those activities'. In all classification systems the aim is to put the activities into mutually exclusive groups that cover all aspects. The classification systems attempt to reflect meaningful distinctions between specific activities for the purposes of analysis.

A hybrid of the two classifications is used so as to suit our comparison. Personal care includes activities such as teeth brushing, taking shower, travel related to personal care; Eating involves activities of taking breakfast, lunch, dinner, drinking and travel related to eating and drinking activities. Household activities include cooking, sweeping, cleaning the surroundings, washing clothes, ironing clothes and travel related to household activities. Working activities include working on employment activities, household income generating activities, and travel related to Work-related activities.

Table 1: Time Use Survey Coding Schemes

Alexander Szalai Multinational Time- Use Project of the 1960s.	**American Time Use Survey, 2003 (ATUS)**
Personal care	Personal care
Employment	Eating and drinking
Education	Household
Domestic	Purchasing goods and services
Child care	Caring and helping household members
Purchasing goods and services	Caring and helping non-household members
Voluntary work and care	Working and work-related
Social and community	Educational
Recreation and leisure	Organizational, civic, and religious
Travel time	

Education activities include preparation of children for school, studying and travel related to education. Another broader group is Community activities, which include religious and spiritual activities, volunteer activities, civic obligations and participation activities, and travel related to those activities. Lastly we have Leisure activities including recreation, staying at home, watching TV, listening to the radio and travel to leisure related activities.

3.0 Methodology

The survey involves all regions (locations) in Tanzania mainland and only one in Zanzibar. Population of interest is all males and females aged between ten to 69 years. During the designing stage it was felt to categorize the members of the population into six categories according to age as shown in table 2. Due to some logistical problems it was decided during the survey that all members in age groups 10 - 29 be considered as one group of Youths and age group 30 – 69 as Adults.

Table 2: Survey zones and Population Age Groups

Survey Zones		Population Age Groups	
Zone	**Number of Households**	**Age Group**	**Name of Age Group**
East	767	10 – 14	Older Children
Central	420	15 – 19	Young Youths
Lake	379	20 – 29	Older Youths
West	368	30 – 49	Adults
Southern Highlands	490	50 – 59	Older Adults
North	556	60 – 69	Old
Total	**2980**		

3.1 Sample selection

The process of selecting a sample involves two clusters, one from the urban and the other from the rural. Number of households in both clusters was decided to be 3,300 in total. This meant that each of the 22 regions (locations) to contribute 150 households. Of the 150 households, 90 of them were selected from the urban cluster and the remaining 60 households from the rural. The villages and enumeration areas were selected proportionally to the number of rural and urban households. A systematic probability proportional to size (PPS) sampling procedure was used in selecting the villages in each region. Thereafter two villages and two enumeration areas were selected from each region. Village and enumeration area registers from each selected village and enumeration area were used to select the households to be included in the sample.

In each selected household two members, the head of the household and the spouse were interviewed. If the head of the household happened to be a male then his spouse or the oldest female in that household was also interviewed, and vice versa. For some of the selected households male and female youths were also interviewed. These youths were mainly interviewed for activity durations.

3.2 Data collection

Due to non-familiarity of this type of a survey and, expected low literacy of the respondents, the method of collecting data was adopted from the Indian time use survey as reported by Pandey (1998/99). This approach is different from those used in the developed countries where self-administered diary is commonly used. In place of diary method, an interview on activity time recall method was adopted. Respondents were asked to recall their daily activities and the time of starting and finishing these activities.

4.0 Activity Time Participation Intensity

A decision to use the three-hierarch levels is based on the experience that most often we find these occupants. By this decision we are not paying less attention to other occupants listed in the household. Treatment of other members can as well be performed, but not in this paper. One way to compare whether one member spends more time on an activity than another is by using a simple indicator, ATPI. This indicator at each hierarch level is defined below.

Let us define

x_{ij} = Mean time on activity *i* by a male member at area *j*

and

y_{ij} = mean time on activity *i* by a female member at area *j*

where

$$i = \begin{cases} 1 \text{ if Community activities} \\ 2 \text{ if Eating or drinking activities} \\ 3 \text{ if Educational activities} \\ 4 \text{ if Household activities} \\ 5 \text{ if Leisure activities} \\ 6 \text{ if Personal care activities} \\ 7 \text{ if Working activities} \end{cases}$$

and

$$j = \begin{cases} 1 & \text{if urban area} \\ 2 & \text{if rural area} \end{cases} .$$

Let $z_m(ij) = \frac{x_{ij}}{y_{ij}}.100\%$ (1).

Equation (1) provides an activity time participation indicator, which measures in percentage, how a male member works for more or less time on activity i in area j as compared to his female counterpart. This is referred to as within area by gender indicator. If the value of z is greater than 100 it implies that the male member in a particular hierarch level spends more time on activity i at area j than a female member. On the other hand if z is equal to 100 then, both members spend equal time on activity i

at an area j. This indicator can be used to compare the activity time participation intensity between genders at different areas.

In order to compute the ATPI within the same gender but at different areas we need to define similar indicator as follows.

Let $z_m(i) = \frac{x_{i1}}{x_{i2}}.100\%$ (2).

This time equation (2) provides an activity time participation indicator, which measures in percentage, how a male member works for more or less time on activity i in an urban area as compared to his male in a rural area. This is referred to as within gender by area indicator. Similarly if the value of z is greater than 100 it implies that the male member in a particular hierarch level spends more time on activity i in an urban area than a male counterpart in the rural. On the other hand if z is equal to 100 then, both male members in the urban and rural areas spend equal time on the same activity i. Having defined the indicators we are now in a position to examine our survey results. A clear comparison of within gender by area or within area by gender can be performed by drawing a horizontal line of z = 100 on a graph of ATPI against activity i. These comparisons are presented in section 5.

5.0 Results

Activity time records show that there was a problem of time recording by the interviewers. Interviewers mixed up two time formats. There were those who followed a twelve-hour clock format and those who followed the twenty-four hour clock format. Yet, others mixed up the two formats making it had to identify. In order to get a meaning full

though not necessarily correct activity recall time records, cases for analysis were selected if the time of finishing an activity was ahead of its starting time.

The distribution of the number of household members who were interviewed is shown on table 3. It shows that there were more male heads of households in the sample than female heads both in the urban and rural areas. This is not surprising in the context of both developed and developing countries. Contrary to the distribution of the heads of households, there are by far many female spouses both in the urban and rural areas.

Table 3: Distribution of Household members interviewed

Household member	Urban		Rural	
	Male	Female	Male	Female
Heads of households	1333	388	975	190
Spouses	359	1266	179	943
Youths	561	532	389	344

This is a feature, which is typical in many families where spouses are usually the wives of the heads of households. The differences on the number of male and female youths both in the urban and rural do not differ very much.

5.1 Head of household

During the main survey the head of a household was asked to provide information about his/her household including the, list of household members, household characteristics, participation, empowerment, time use, and language and usage of Kiswahili. Information about the list of members and household characteristics were for the whole household whereas, the rest were directly for the head of the household as an independent individual. Figure 1 shows the ATPI for heads of households of which

figure 1(a) is a comparison within gender by area. In this situation we compare the ATPI for the male or female heads of household in the urban or rural areas. It shows that urban male heads of household spend more time on Eating or drinking (128), Education (310), Household (140) and Working (123) activities than their counterparts in the rural. However, they almost spend an equal time for Leisure and less time in Community and Personal care activities. In the case of female heads of households, those in the urban spend more time than their counterparts in the rural on Eating and drinking (143), Household (136) and Working (114) activities. They however spend less time on Community (90), Education (41) and on Personal care (73) activities. We also notice that while male heads of households spend more time in educational activities (310), urban female heads spend less time (41) on it.

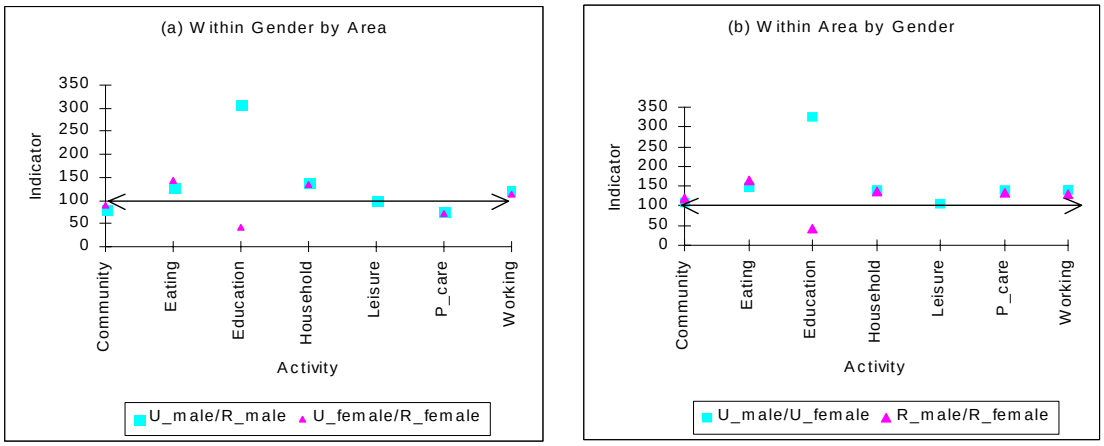

Figure 1: Head of household Activity Time Participation Indicator

For the within area by gender differential figure 2(b), male heads of households notably spend more time than their female counterparts on almost all activities. However, they prominently spend more time on Education (325) and just above 100 on Community and Leisure activities. The rural male heads of households participate little in Education

(43) than their female counterparts. It is also observed that these rural male heads do not have leisure time at all. This can be explained by the fact that many people in the rural are farmers fully engaged in farming activities. Generally it is shown that with exception of Education and Leisure activities, the rural male heads work for longer time in all activities as compared to their female counterparts.

5.2 Spouse

A spouse of the head of a household was interviewed on participation, empowerment, time use and language and usage of Kiswahili. Her ATPI is shown in figure 2(a) for within gender by area and figure 2(b) for within area by gender. It is revealed that urban male spouses work for longer time on Eating or drinking (111), on Household (109), on Leisure (122), on Personal care (121) and on Working (174) activities. They spend less time than their counterparts in the rural on Community (67) and education (87) activities. On the other hand female spouses in the urban participate for longer time on Education (135) and Working (166) activities than those in the rural areas. This may be because they are engaged in employment activities, and that, they take their children to school in the morning when they go for work and collect them when coming back. Since Working activities include many other activities related to income generation for the household, then, it is not surprising to have this result. These urban female spouses spend less time on Community and Eating or drinking (80), on Household (82), on Leisure (54) and on Personal care (77) activities.

ATPI for within area by gender, figure 2(b) shows that the urban male spouses spend less time on Education (56), Household (32) and on Working (93) activities. However, male spouses in the urban concentrate more on Community (144), Eating or drinking (239), on Leisure (260) and on Personal care (191) activities than female spouses. A similar general pattern is observed in the rural areas. Here rural male spouses work for less time than their female counterparts on Education (87), Household (24) and on Working (89) activities. These rural male spouses spend more time on Community and Eating or drinking (174), Leisure (116) and on personal care (122) activities.

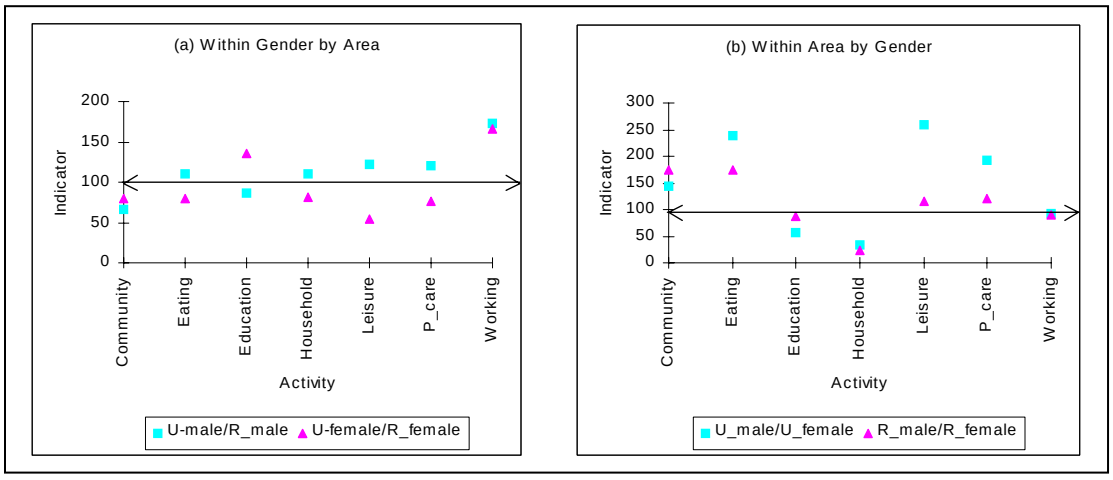

Figure 2: Spouse Activity Time Participation Indicator

5.3 Youths

The youths were only interviewed about their daily activities. Figure 3(a) shows their ATPI for within gender by area. There is a very striking observation on an urban male youth who seem to be spending most of his time on Community (646) based activities than his counterpart in the rural. This may be caused by misconception on what constitutes to Community activities by both parties. The urban (rural) male youth may

have included (excluded) some activities not-constituting (constituting) to Community activities. Urban male youth spends less time on Eating or drinking (57) as compared to his rural youth counterpart. For the remaining activities the urban and rural male youths seem to spend an equal time. For urban female youths, they work for less time on Community (55), Household (70) and on Education and Personal care (90). However, both urban and rural youths seem to spend an equal time on Eating or drinking, on Leisure and Working activities.

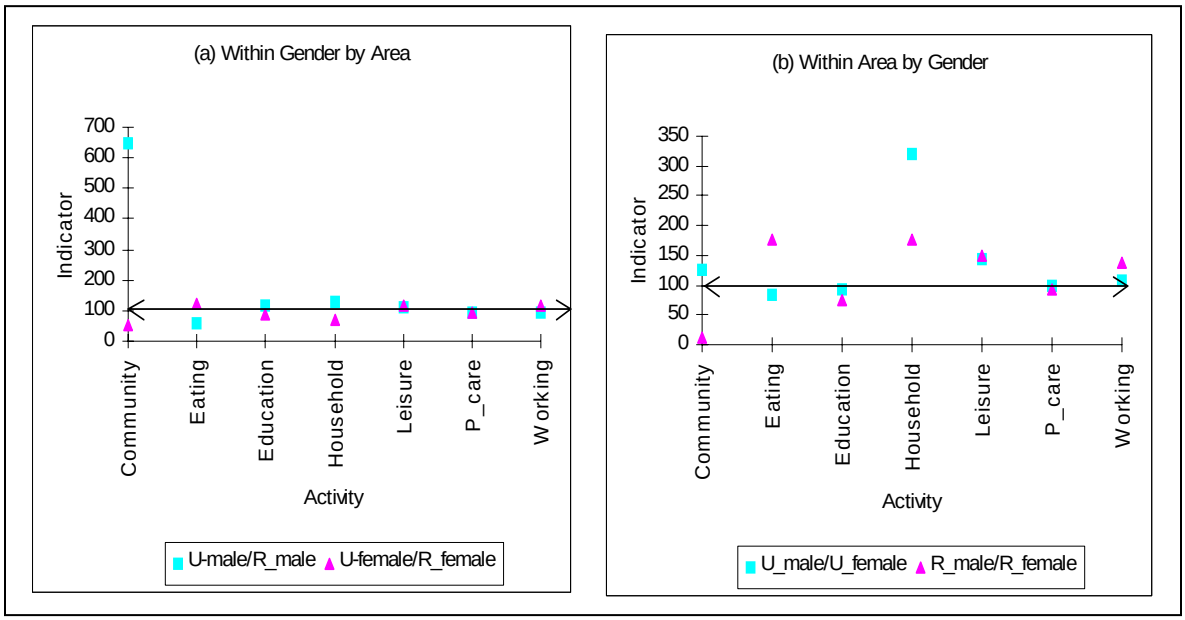

Figure 3: Youth Activity Time Participation Indicator

Whereas within gender by area participation intensity was not very different for most of the activities, the situation is different for within area by gender activity participation intensity in figure 3(b). Here urban male youth works for longer time than the female counterpart on Community (126), on Household (320), on Leisure (144) and Working (109) activities. He however works slightly for less time on Eating or drinking (83) as compared to his female counterpart but they all seem to be spending the same time on

Education and Personal care activities. On the other hand rural male youths use more time than their female counterparts on Eating or drinking (176), on Household (177), on Leisure (150) and Working (137). These male rural youths spend less time on Community (11), Education (74) and on Personal care (94) as compared to their female counterparts

6.0 Conclusion

By categorizing the activities into broad groups, the survey has shown that for the selected members of the household, they all participate in almost all activities. However the differentials are on intensity of participation. For the heads of households, the males in the urban prominently spend more time in almost all activities than their female counterparts in the urban. Urban male heads of households spend more time on Educational activities than their male counterparts in the rural or their female counterparts in the urban. In the rural areas the male heads of households spend less time in Educational activities than their rural female counterparts.

For spouses, the urban male spouses spend more time in many activities except on Community and Educational activities as compared to the male counterparts in the rural. However, for the urban female spouses, they spend more time on Educational and Working activities than their female counterparts in the rural. Within the same area comparison shows that urban male spouses spend less time in Educational and Household activities as compared to their female counterparts, but spend more time on Eating or drinking and, on Leisure activities. In the rural areas male spouses spend less

time in household activities than female counterparts but they use more time on Community, Eating or drinking activities.

Within the same gender, the male youths use less time only on Eating or drinking than their counterparts in the rural. For the rest of the activities both the urban and rural male youths seem to spend equal times. Urban and rural female youths on the other hand spend equal time on Eating or drinking, Leisure and Working activities. Male youths in the urban areas spend more time on Household activities than the female youths. The same pattern is also observed in the rural but not as notable as in the urban. Finally the rural male youths spend less time on Community activities than their female counterparts.

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