

**SOME FACTORS ASSOCIATED WITH TIME USE ON NON PRODUCTIVE
ACTIVITIES IN TANZANIA**

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Abstract

This study utilizes the International Classification of Activities for Time-Use Statistics (ICATUS) to delineate non-productive and productive activities. The study uses data from the Tanzania country-wide survey on time-use conducted between January and February 2005. An attempt was made to examine some factors associated with time-use on non-productive activities. The factors included age, residence, marital status, education and gender. The findings showed statistically significant association between non-productive activities and each of the above factors. The effect of these factors on involvement in non-productive activities was tested through a logistic regression. The results revealed that residence and gender have significant effect on non-productive activities while education has an insignificant effect ($p=0.07$). In particular the findings showed that respondents in rural areas are 1.5 times less likely to be involved in non-productive activities than those in urban areas. With regard to gender the results suggested that women are 2.4 times more likely to be involved in non-productive activities than men.

Introduction

This paper makes use of the International Classification of Activities for Time Use Statistics (ICATUS) to determine some factors associated with non-productive activities. The main purpose of ICATUS is to provide a set of activity categories that can be used to produce statistics on time use that are meaningful vis-à-vis the broad range of objectives of national time-use statistics. The classification has been designed to serve as a standard for activity classification for time-use statistics applicable both to developing and developed countries.

For classifying activities ICATUS makes a distinction between productive and non-productive activities. A productive activity is defined as the activity that can be delegated to a third party or the activity that results in an output that can be exchanged (Eurostat, 1999); otherwise it is said to be non-productive. Therefore, activities performed for personal maintenance and care such as eating, drinking, sleeping, exercising etc are considered non-productive or personal activities since they cannot be delegated to a third party. Likewise, activities associated with socializing and community participation, entertainment, sports participation, hobbies and games and use of mass media are non-productive activities. Also learning activities, which include time spent on full-time and part-time classes, special lectures, laboratories, examinations, homework or leisure are

considered personal activities from the student's/pupil's point of view since studying cannot be delegated to someone else.

(http://www.unescap.org/stat/meet/wipuw/8.unpaid_module1_part2.pdf)

Ås (1978) has developed a framework for analyzing and reporting the results of many time-use studies. The framework identifies four types of time namely *Necessary time*, *Contracted time*, *Committed time*, and *Free time*. Table 1 shows how ICATUS categories fit in the Ås (1978) framework.

Table 1: Classification of ICATUS categories using the Ås framework.

Types of time	ICATUS main categories
Necessary time	Personal care and maintenance
Contracted time	Work for A: Corporations, quasi-corporations, government etc Work for household unincorporated enterprises in: B: Primary production activities C: Non-primary production activities D: Construction activities E: Providing services for income I: Learning
Committed time	Work F: Providing unpaid domestic services for own final use within a household G: Providing unpaid care-giving services to household members H: Providing community services and help to other households
Free time	J: Socializing and community participation K: Attending/visiting cultural, entertainment and sports events/venues L: Engaging in hobbies, games and other pastime activities M: Indoor and outdoor sports participation N: Use of mass media

Data and methods

Data used in this study were obtained from the Tanzania country-wide time use survey conducted between January and February 2005. Using the International Classification of Activities for Time-Use Statistics (ICATUS) respondent's main activity was classified as non-productive if it belonged to any one of the following:

- Learning,
- Socializing and community participation,
- Attending/visiting cultural, entertainment and sports events/venues,
- Engaging in hobbies, games and other pastime activities,
- Indoor and outdoor sports participation,
- Use of mass media, and
- Personal care and maintenance.

With the above classification we identified a total of 341 respondents out of 2797 (12.2%) whose main activity was considered to be non-productive.

Five correlates of involvement in non-productive activities considered in this study included age, residence, marital status, education level and gender. For age, one can argue that young and old age individuals are more likely to be involved in non-productive activities than their counterparts in the middle ages, while for residence one might expect urban population to be more involved in non-productive activities than rural population since the former may have other sources of livelihood like rented houses etc. Marital status may also be associated with involvement in non-productive activities. For example, one would expect married individuals to be less involved in non-productive activities since they have to work hard to keep their families. The relationship between education and involvement in non-productive activities may be indirect. For example, more educated individuals are likely to be employed either in government or private sector and may therefore be less likely to be involved in non-productive activities than others. Finally, the association between involvement in non-productive activities and gender may be a result of say women's role in other household core activities.

SPSS was used for analysis of the data. A bivariate analysis was first carried out by cross tabulating involvement in non-productive activity (the dependent variable) and the independent variables and a chi-square test was used to establish the relationship between the dependent variable and the explanatory variables. Having established significant correlates of involvement in non-productive activities, both bivariate and multivariate logistic regressions were estimated. The logistic regression model used takes the form:

$$\log\left(\frac{p}{1-p}\right) = \alpha + \sum_{i=1}^k \beta_i x_i$$

where p =probability of involvement in non-productive activity; α and $\beta_i (i = 1, \dots, k)$ are the regression coefficients and $x_i (i = 1, \dots, k)$ are the independent variables. The definitions of the variables used in the analysis are shown in Table 2.

Table 2: Definition of variables used in the analysis

Variable	Description and coding
Non productive activity	Whether or not the head of household's main activity is non productive or not 1: Yes 0: No
Age in years	1: <= 24 2: 25-29 3: 30-39* 4: 40-49 5: 50-59 6: 60+
Education level	1: Nil 2: Primary 1-7 or 8* 3: Adult education 4: Secondary Form IV 5: Secondary Form IV plus Course 6: Secondary Form VI 7: Post Form VI
Residence	1: Urban* 2: Rural
Sex	1: Male* 2: Female

Marital Status	1: Married*
	2: Single
	3: Separated
	4: Widow/Widowed

*Used as reference category in the logistic regression. The choice was guided by the frequency of that category in the univariate analysis. The category with the highest frequency was taken as the reference category (Polissar and Diehr, 1982).

Results

Table 3a shows the distribution of main activities according to the International Classification of Activities for Time-Use Statistics (ICATUS) while Table 3b gives the types of time using the framework by Ås (1978). Clearly according to the findings in Table 3a most (28.6%) of the respondents are involved in primary production, followed by those working for corporation or government (22%) and those who provide services for income (21.2%). For the remaining categories the percentage of respondents involved is less than 10%.

Table 3a: Distribution of main activities according to ICATUS categories

ICATUS category	Frequency	Percent
Personal care	256	9.2
Work for corporation, government	614	22.0
Primary production	800	28.6
Non-primary production	9	0.3
Construction activities	208	7.4
Providing services for income	593	21.2
Learning	12	0.4
Providing unpaid domestic services for own final use within	122	4.4
Providing unpaid care-giving services to household members	45	1.6
Providing community services and help to other households	65	2.3

Socializing and community participation	22	0.8
Engaging in hobbies, games, and other pastime activities	48	1.7
Use of mass media	3	0.1
TOTAL	2797	100

Table 3b: Distribution of type of time using the Ås (1978) framework.

Type of time	Frequency	Percent
Necessary time	256	9.2
Contracted time	2236	79.9
Committed time	232	8.3
Free time	73	2.6
Total	2797	100

Table 3b shows that contracted time accounts for nearly 80% of the respondents' time use followed by necessary time (9.2%), committed time (8.3%) and free time (only 2.6%).

Background profile of the sampled population

Table 4 gives the profile of the sampled heads of household whose main activity according to the International Classification of Activities for Time-Use Statistics (ICATUS) was categorized as non-productive. The findings in Table 4 show that most of the heads of household included in this study were men, comprising 72.4% of the sample. As for age, the distribution seems to be skewed towards old age; those aged 60 years and above being the majority (23.2%). With regard to education, the results indicate clearly that the majority (60.1%) of the respondents involved in non-productive activities had primary education up to 7 or 8 years of schooling. Also out of 341 respondents, 234 or 68.6% were from urban, 105 or 30.8% were from the rural setting, while the residence of 2 respondents was not stated. The findings further show that 284 or 83.3% of the study population was married, 167 or 49% were Christians while 46.9% were Moslems.

Table 4: Profile of the sampled heads of household whose main activity is non Productive

Characteristics	Number of heads of households (n=341)	Percentage
Age in years		
<=24	14	4.1
25-29	28	8.2
30-39	77	22.6
40-49	78	22.9
50-59	65	19.1
60+	79	23.2
Education level		
Nil	45	13.2
Primary 1-7 or 8*	205	60.1
Adult education	12	3.5
Secondary Form IV	48	14.1
Secondary Form IV plus Course	11	3.2
Secondary Form VI	11	3.2
Post Form VI	9	2.6
Residence		
Urban	234	68.6
Rural	105	30.8
Not Stated	2	0.60
Sex		
Male	247	72.4
Female	94	27.6
Marital Status		
Married	284	83.3
Single	12	3.5
Separated	16	4.7
Widow/Widowed	29	8.5
Religion		
Traditional	4	1.2
Moslem	160	46.9
Christian	167	49.0
Other	9	2.6
Not stated	1	0.3

Relationship between engagement in non productive activities and other variables

The results in Table 5 show that five variables namely age, education level, residence, gender and marital status were all significantly associated with engagement in non productive activities using a chi-square test. While age and marital status were statistically significant at 5% level ($p=0.04$), sex, residence and education were significant at 1% level ($p \leq 0.01$).

Involvement in non-productive activities and age

The relationship between involvement in non-productive activities and age follows a U shape whereby young (≤ 24 years) and old (≥ 60 years) respondents appear more likely to be involved in non-productive activities than other age groups as one would naturally expect.

Involvement in non-productive activities and education

Though the relationship between education and involvement in non-productive activities is statistically significant, it does not show any clear pattern. For example, the percentage of respondents involved in non-productive activities is nearly the same for those with adult education and those with secondary Form IV plus course.

Involvement in non-productive activities and residence

The findings in Table 5 show that a higher percentage (14%) of respondents living in urban are involved in non-productive activities than those living in rural areas (9.4%). A possible explanation here is that while people living in urban may have other sources of livelihoods even if they do not engage in productive activities, those in rural areas heavily depend on engagement in productive activities for their survival. Such sources of livelihood in the urban include, for example, income from rented houses and pension schemes.

Involvement in non-productive activities and gender

The findings show that a higher proportion (20.7%) of females than males (10.5%) engage in non-productive activities. This is not quite unexpected particularly in our society where men are usually expected to be bread earners.

Involvement in non-productive activities and marital status

An interesting feature of the findings in Table 5 concerning the relationship between involvement in non-productive activities and marital status is that the smallest percentage of respondents involved in non-productive activities is married. Naturally such respondents ought to be involved in productive activities for the survival of their families.

Table 5: Relationship between involvement in non-productive activities and other variables.

Variable	Total number of respondents	Percentage who had non productive activity
Age in years		
<=24	84	16.7
25-29	279	10.0
30-39	725	10.6
40-49	712	11.0
50-59	487	13.3
60+	506	15.6
	$\chi^2 = 11.595$	p=0.041
Education level		
Nil	268	16.8
Primary 1-7 or 8*	1901	10.8
Adult education	76	15.8
Secondary Form IV	381	12.6
Secondary Form IV plus Course	73	15.1
Secondary Form VI	52	21.2
Post Form VI	46	19.6
	$\chi^2 = 16.595$	p=0.011
Residence		
Urban	1676	14.0
Rural	1119	9.4
	$\chi^2 = 13.198$	p=0.000

Sex		
Male	2343	10.5
Female	454	20.7
	$\chi^2 = 36.691$	p=0.000
Marital Status		
Married	2442	11.6
Single	90	13.3
Separated	78	20.5
Widow/Widowed	183	15.8
	$\chi^2 = 8.148$	p=0.043

Results from bivariate logistic regression for involvement in non-productive activities.

Table 6 shows that all the independent variables used have individually significant effect on involvement in non-productive activities. While residence, education and sex are statistically significant at 1% level, age and marital status are significant at 5% level. The odds ratios indicate that young respondents aged ≤ 24 years are about 1.7 times more likely to be involved in non-productive activities than those aged 30-39 years (reference group). On the other hand old respondents (60+ years) are 1.6 times more likely to be involved in non-productive activities than those aged 30-39 years.

As for residence, the findings show that respondents in rural areas are 1.6 (1/0.638) times less likely to be involved in non-productive activities than their counterparts in the urban while the odds ratios for gender show that females are 2.2 times more likely to be involved in non-productive activities than males.

Table 6: Results from bivariate logistic regression for involvement in non productive activity.

<u>Variable</u>	Coefficient	Standard error (SE)	Statistical significance (p)	Odds ratio (OR)
Age in years				
<=24	0.521	0.317	0.100	1.683
25-29	-0.063	0.233	0.786	0.939
30-39	(Reference)	-	-	1.00
40-49	0.035	0.170	0.838	1.035
50-59	0.259	0.180	0.149	1.296
60+	0.443**	0.172	0.010	1.557
Constant	-2.130			
Model χ^2	11.228		0.047	
Degrees of freedom (df)	5			
Number of cases (n)	2793			
Education level				
Nil	0.513**	0.179	0.004	1.669
Primary 1-7 or 8*	(Reference)	-	-	1.00
Adult education	0.439	0.323	0.174	1.551
Secondary Form IV	0.176	0.171	0.304	1.193
Secondary Form IV plus Course	0.384	0.335	0.253	1.468
Secondary Form VI	0.797	0.348	0.022	2.220
Post Form VI	0.699	0.379	0.065	2.012
Constant	-2.113			
Model χ^2	15.215		0.019	
Degrees of freedom (df)	6			
Number of cases (n)	2797			
Residence				
Urban	(Reference)	-	-	1.00
Rural	-0.449**	0.124	0.000	0.638
Constant	-1.818			
Model χ^2	13.568		0.000	
Degrees of freedom (df)	1			
Number of cases (n)	2795			

Sex			0.000	
Male	(Reference)	-	-	1.000
Female	0.796**	0.134	0.000	2.216
Constant	-2.138			
Model χ^2	32.347		0.000	
Degrees of freedom (df)	1			
Number of cases (n)	2797			

Marital Status			0.047	
Married	(Reference)	-	-	1.00
Single	0.156	0.316	0.622	1.169
Separated	0.673*	0.287	0.019	1.961
Widow/Widowed	0.358	0.212	0.091	1.431
Constant	-2.028			
Model χ^2	7.253		0.064	
Degrees of freedom (df)	3			
Number of cases (n)	2793			

* Significant at 5% level

** Significant at 1% level

Results from multivariate logistic regression analysis

Having identified significant relationships between the dependent variables and independent variables, we carried out a multivariate logistic regression analysis to see the effect of the independent variables on the dependent variable. In our case all the independent variables considered showed significant relationships at 5% level with the dependent variable and hence all were entered into the multivariate logistic regression model. The results are shown in Table 7. The effect of each independent variable is indicated by the odds ratios computed for each variable category relative to the reference category.

Table 7: Estimated logistic regression equation for involvement in non productive activities.

<u>Variable</u>	Coefficient	Standard error (SE)	Statistical significance (p)	Odds ratio (OR)
Age in years				
<=24	0.389	0.328	0.235	1.475
25-29	-0.155	0.240	0.518	0.856
30-39	(Reference)	-	-	1.00
40-49	0.002	0.174	0.992	1.002
50-59	0.253	0.185	0.171	1.288
60+	0.434**	0.188	0.021	1.544
Education level				
Nil	0.299	0.205	0.144	1.349
Primary 1-7 or 8*	(Reference)	-	-	1.00
Adult education	0.466	0.331	0.160	1.593
Secondary Form IV	0.205	0.175	0.241	1.228
Secondary Form IV plus Course	0.247	0.342	0.470	1.280
Secondary Form VI	0.700	0.356	0.050	2.014
Post Form VI	0.641	0.388	0.099	1.899
Residence				
Urban	(Reference)	-	-	1.00
Rural	-0.422**	0.129	0.001	0.656
Sex				
Male	(Reference)	-	-	1.00
Female	0.894**	0.172	0.000	2.444
Marital Status				
Married	(Reference)	-	-	1.00
Single	-0.209	0.337	0.535	0.811
Separated	0.030	0.317	0.924	1.031
Widow/Widowed	-0.526	0.266	0.048	0.591
Constant	-2.209			
Model χ^2	67.177		0.000	
Degrees of freedom (df)	16			
Number of cases (n)	2787			

* Significant at 5% level

** Significant at 1% level

The findings show that residence and gender have significant effects on involvement in non-productive activities ($p=0.00$) while the effect of age is only significant at 10% level. For residence the odds ratios show that respondents in rural areas are 1.5 (1/0.656) times less likely to be involved in non-productive activities than those living in the urban. On the other hand for gender the odds ratios suggest that women are 2.4 times more likely to be involved in non-productive activities than men.

Concluding remarks

The results in this study have shown that 341 out of 2797 respondents (12.2%) from the Tanzania country-wide study on time-use are mostly engaged in non-productive activities as defined in the International Classification of Activities for Time-Use Statistics (ICATUS). Some of the factors considered to have an association with involvement in non-productive activities included age, residence, marital status, education and gender. The bivariate analysis revealed statistically significant association between non-productive activities and the above correlates at 5% level. When the effect of these variables was tested through a multivariate logistic regression model gender and residence were found to have significant effect ($p=0.00$) on time spent on non-productive activities while the effect of education was significant at 10% level ($p=0.07$). In particular the findings revealed that respondents from rural areas are less likely to engage in non-productive activities than those from urban. Also the odds ratios showed that women are roughly 2.4 times more likely to spend their time on non-productive activities than men.

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