



ERC Working Papers in Economics 06/02
January 2006

Time Use in Rural Areas: A Case Study in Turkey

Erkan Erdil
Ozan Eruygur
Zehra Kasnakoğlu
Department of Economics
Middle East Technical University
Ankara 06531, Turkey

Time Use in Rural Areas: A Case Study in Turkey

Erkan ERDIL - Ozan ERUYGUR - Zehra KASNAKOGLU*

Abstract

This study aims to analyze rural household work and leisure time and how it is allocated among various activities and by socio-economic characteristics of individuals. The analysis is based on a survey carried out in two central Anatolian villages. Three time use questionnaires are administered between May-October 2003 during two different days of the week, an ordinary weekday and the day of the local bazaar. 138 household members from these two villages have participated in the survey. It is found that on the average, the villagers spend over half of their non-sleeping time on non-economic activities including personal development. The remaining time spent on agricultural and non-agricultural economic activities is about the same. Males on the average spend more time on all activities than females except for personal development. The results show that, time use patterns change during different days of the week and months of the year. It is also found that, there is a high correlation between time use patterns and socio-economic characteristics of the households. In general there are statistically significant differences in the average time devoted to activities by education and age groups. Finally, significant differences are observed in the time use patterns rather than magnitudes by gender. As expected, differentiation in men's and women's roles is observed in agricultural activities.

Keywords: Time Use surveys, rural households, agricultural activities.

JEL Codes: D13, J16, Q12.

1. Introduction

Time use surveys are conducted i) to measure and analyse time spent within daily and between daily activities to gain more insight on the productive and leisure activities of household members, ii) to obtain information on the division of both paid and unpaid labour between women and men and other groupings, iii) to learn more about the productive activities such as subsistence work, casual work and work in the informal sector and iv) to provide data to improve significantly the estimated contributions, to GDP and employment, of domestic services of household industry.

Therefore, time use survey data provide vital inputs to policy analysis. These data supply valuable information on the allocation of time to household production for the market as well household's own consumption, and hence on the allocation of time to leisure activities. This information is generally not available in the databases of household income and expenditure surveys.

*Department of Economics, Middle East Technical University, Ankara.

Authors would like to acknowledge the support from METU Research Fund and the assistance from students who have participated in the field work and the data entry phases of the project.

The economic analysis is in principal based on models of individual and household behavior that relate welfare to consumption and leisure. Without access to information on the nature of time use outside the market, the models are not able to distinguish between the real leisure time of family members and the time spent by family members on household activities for other family members.

The literature on the urban households though limited are not scarce, yet the number of studies on the rural households is very limited in number and scope. The roles of women and children in agriculture have generally been neglected by the researchers as their contributions to production activities take place outside the market. The relationship between labor use, the leisure time and the time spent on income-generating activities in rural households is frequently represented as an implicit trade-off. However, such relationships significantly contribute to the shaping of agrarian economies. While the main interest of traditional economic analysis is to scrutinize the hours supplied to income-earning activities, the labor supply of individuals cannot be fully understood without taking into account the hours allocated to other non-market activities.

Time use (allocation) studies have also been used to investigate the links between work patterns and environmental degradation and change (UNDP, 1995: 92-3); to compare the amount of leisure which individuals and societies enjoy as a measure of welfare at both micro and macro levels (Acharya, 1999); to provide a more accurate picture of activities in rural areas where non-market work is prevalent (Acharya and Bennett, 1981, cited in *ibid.*), and more recently to assess the extent of involvement in unpaid labour by gender and age. Time use data provide an important input into the process of valuing non-market work in national accounts, and also allow for analysis of the effects of changes in public spending on time use.

Time use surveys can be based on observation, recall or diary keeping, or a combination of these methods (see UNDP 1995, pp. 88-96 for a summary of studies in 31 countries). Time use surveys have been conducted in Canada (since 1978) and Norway as parts of their official data collection systems. Time use surveys and studies are very limited and confined to few for the urban areas in Turkey (Kasnakoğlu, et al, 1996; SIS,1996; Kasnakoğlu and Dayıoğlu 2002). This study is a first attempt to analyze the time use relations in rural Turkey. The coverage is confined to two villages in the Central Anatolia

region. Although, the results are not representative of all rural Turkey, they nevertheless provide interesting observations leading to important conclusions which could contribute to further and more comprehensive studies in different regions of rural Turkey.

In this study, emphasis is placed on rural household work and leisure time and how time is allocated among various activities and between genders. In the first section, the literature on the rural household time use surveys will be reviewed. The second section will discuss the methodological issues and describe the data collected in this study. The third section will provide results of the analysis carried out with compiled data. The last part will be devoted to the concluding remarks.

2. Time Allocation in Rural Households: A Review on Developing Countries

The gender based division of labour remains strong in industrialised and urban societies as well as agricultural and rural communities. Worldwide, most women and men work in jobs that are done predominantly by one sex. It is reported that while women make up 41 percent of the non-agricultural labour force in OECD countries, they form 62 percent of service workers compared to only 15 percent of production workers (Elson, 1999). For specific professions, such as nursing, the proportion of female employees can rise to as high as 82 percent. This degree of job segregation by sex (and the related uneven distribution of the labour force across broad sectors) makes job comparison across the sexes difficult, and contributes to ghettoisation of women in low-paid occupations and sectors (Elson, 1999).

The critical role of children and women in agricultural activities for the developing countries is increasingly emphasized in many studies over the last decade. In most of the studies of the peasantry, the family farm is used as the basic unit of production and consumption. The production and reproduction take place in the family farm. It is generally assumed that family farms are synonymous with male-headed households with respect to agricultural activities and men are the main farmers subordinated by women and children (Deere, 1995). However, many studies have challenged this assumption claiming that distinction between male and female led farming systems is not to be overlooked (Boserup, 1970; Deere and León, 1982; Stephens, 1991; Guyer, 1991; Deere, 1995; Whitehead, 1999; Bachman, 2000; and Kim and Zepeda, 2004). The studies in this

tradition differentiate the family-based agricultural activities by gender division of labor not only in terms agricultural activities but also with respect to other tasks performed.

The “gender division of labour” refers to the allocation of different jobs or types of work to men and women, usually by tradition and custom (Alexander and Baden, 2000). Collier (1993), demonstrated that adoption of tea cultivation in Kenya was hampered by the prevalent gender division of labour. Tibaijuka (1994) used a linear programming model and input-output data for a one-year period for Tanzania to show that by liberalising sex roles in production of coffee and banana for export, villagers would increase their cash incomes by up to 10 percent, while the productivity of labour and capital would improve by 15 percent and 44 percent respectively. However, she found that barriers to such a change were significant. In a study of Sahelian households, Turner (2000) stated that men and women tended to assign greater secondary responsibility below the household head to their own gender. He further pointed to the general adherence to Islamic provisioning across gender and seniority categories.

Ruben and Ruiters (2002) presents an empirical assessment of time allocation of labour and the composition of farm household income in a sample of peasant households located in different types of agrarian settlements in the Atlantic Zone of Costa Rica. They found that small farms in organized settlements rely on labour-intensive cropping systems that guarantee higher incomes at the expense of leisure, while farms in spontaneous and more remote settlements still maintain labour-extensive production with reliance on wage labour. Empirical evidence points towards a clear trade-off between leisure-time and marginal income as well as possibilities for substitution of family labour by hired labour to increase leisure. Personal characteristics (*i.e.* education, age, work attitudes) and farm characteristics (*i.e.* location, farm size, lifetime) are identified as relevant factors to explain leisure choice (*ibid.*, 201).

In a study of rural Burkina Faso, Thorsen (2002) addresses the intrahousehold division of responsibilities. The majority of women maintain that they only help their areas of responsibility and keep within norms of showing respect for the husband. However at the same time, they may put pressure on their husbands to fulfill their obligations. Kevane and Wydick (2001) suggest that major determinants of allocation of women’s time are social norms that regulate the economic activities of women. Again employing data from Burkina

Faso, it is found that social norms significantly explain differences in patterns of time allocation. In an interesting study showing the impact of social norms on time use, Rose (2000) examines the impact of a child's gender on time allocation of rural household for rural Indian households. The study concludes that women work less subsequent to the birth of a boy relative to a girl which can be interpreted as a gender bias.

Apps (2003) analyses South African and Nicaraguan time use surveys and finds that women work longer than men do and that there is a high degree of specialization in domestic work and care activities by females. Moreover, market and domestic work become closer substitutes as per capita consumption increases.

For Zambian rural households, Whitehead (1999) shows that time-use surveys may provide inadequate understandings of women's and men's work, in the absence of an understanding of the significance of the local context in which the work is done, including the relationship between farm and off-farm work, and of labour markets. Whitehead (1999) argues that many rural African women have heavy workloads; in some accounts, this is contrasted with apparently light work burdens for men. The study further claims that in making women's work visible, where once it was not, it is possible to slip into thinking of African rural men as not doing very much at all.

Deere (1995) claims there is sufficient evidence to suggest that, over time, rather than decreasing, women's participation in peasant agriculture in a number of Latin American countries have been increasing - a product of growing land shortage and male migration in search of wage work, and women's lower opportunity cost in the labor market, among other factors. Research in Latin America uncovered not only a heterogeneous gender division of labor in agriculture and heterogeneous family farming systems, but also drew attention to the existence in rural areas of female-headed households that do not have an adult male in permanent or even temporary residence. Rural female-headed households and female managed farming systems were found to be a historical feature of some regions, such as the English-speaking Caribbean, while associated with capitalist development, proletarianization and male migration into other areas (Deere, 1995; 55-56).

Jacoby (1993) analyzes Peruvian farm households and develops a general methodology for estimating structural time-allocation models for agricultural households whose members

do not work for wages. The study finds significant gender differences in shadow wages and peasant family labor supply.

For Guatemalan rural households, Pagán (1998) analyzes the causes and the consequences of male-female differences in labour force participation and self-employment. Substantial differences are observed in the labor force participation rate of men and women and in self-employment. The empirical results suggest that external constraints (i.e., demand-driven structural factors) explain almost all of the observed gender gap in employment. Gender differences in individual endowments and human capital contribute to increasing the male-female self-employment gap; while, structural factors help to reduce gender differences in rural entrepreneurship.

Cain (1991) analyzes the time use of elderly in rural Bangladesh. Comparing total hours worked by the elderly in different economic classes, an interesting pattern emerges, where total hours worked by men decline with increasing wealth, while for women the situation is reversed. This reversal reflects, on the one hand, cultural restrictions on women's employment (poor women, including the able-bodied elderly, would undoubtedly seek more paid employment if such restrictions did not exist), and, on the other hand, that increasing household wealth does not free women from drudgery to the same extent that it frees men (*ibid.*, 197). The findings confirm that the specialization by men on income-earning work and women on home-based work is preserved across age and class. In general, class-specific patterns of time-use are preserved by the elderly. Older men from households owning land spend proportionately more time in crop production and animal husbandry than land-poor elderly, who, like their younger counterparts, are engaged in wage work and trading to a larger extent (*ibid.*, 198). The major difference is that the elderly do less of everything than the young. A more detailed accounting of time spent by women in home production activities leads to a similar conclusion: within economic status groups. The distribution of time for the elderly between activities is not very different from the younger reference group; the main difference between young and old is that the old do less of everything. Interestingly, this extends to child care, which is often assumed to be an activity in which the elderly specialize. A small exception to this among the relatively poor is firewood collection, to which older women devote as much, or more time as younger women (*ibid.*, 198-99).

Reardon (1997) utilizes data on 18 African countries to investigate the household income diversification for rural nonfarm labor. The examples of interhousehold differentiation show that initial endowments that create differential capacity to enter the nonfarm labor market can affect household and gender income differentiation over time. On the one hand, income from nonfarm jobs can be spent to buy more land, where there is a land market and other assets, which gives further advantage in farm productivity and in the nonfarm labor market. By consequence, over the generations the local nonfarm sector becomes more concentrated and dominated by a subset of local families. Such a situation has significant implications on time use in terms of gender. Men stay in nonfarm jobs while the women tend to stay in farming activities.

Time budget surveys have revealed the failure of conventional labour statistics to capture the extent, range and complexity of activities in which individuals engage, particularly in developing countries, and particularly among women, for whom multi-tasking is common. For example, the 1971 Census in Nepal gave an activity rate for women of 35 percent compared to 83 percent for men. By contrast, time use surveys conducted in Nepal found that women worked 4.62 hours a day compared to 5.81 hours per day for men, including only those activities which fall under conventional definition of employment. Overall, men worked 7.51 hours per day compared to 10.81 by women. (Acharya, 1999, pp.5, 12).

Time use surveys across a range of developing countries have revealed that the overall burden of work varies greatly, with a much higher work burden in rural than urban areas. In general, though, in all places women work more hours than men, whilst women spend far less time in market work (around one third) than men (about three quarters) (UNDP, 1995: 91-2).

In a time-use study of Norwegian peri-urban areas, Eikeland (1999) considers a case what is termed as post-ruralism in the context of new rural pluriactivity. Eikeland (1999) found that for a majority of households running enterprises in peri-urban areas, their incomes are pooled from managing several enterprises concurrently and earnings from paid employment. The analysis also demonstrates that practices carried out by the households are based on clearly defined gender specific patterns. Men in the pluractive households develop and run the new speciality enterprises. Eikland (1999) comment on this observation that *perhaps rural women have managed to break free from pluractive*

adaptations and have realized the 'dream' of a job of their own?....or is the sexual division of labouring these households a response to the entry of women into the labour market?..

3. Time Use in Rural Turkey: A Survey in Two Anatolian Villages

To administer the time use surveys, two central Anatolian villages, namely Karacaören (Ankara) and Hacıömerli (Kırşehir) are chosen,. In the first village, Karacaören cereals and vegetables constitute the main production activities, while in Hacıömerli the main production activities are cereals and sunflower. In what follows, we present the survey methodology, questionnaire design and data collection . The next section describes the main socio-economic characteristics of these villages.

3.1 Methodology and Data Collection

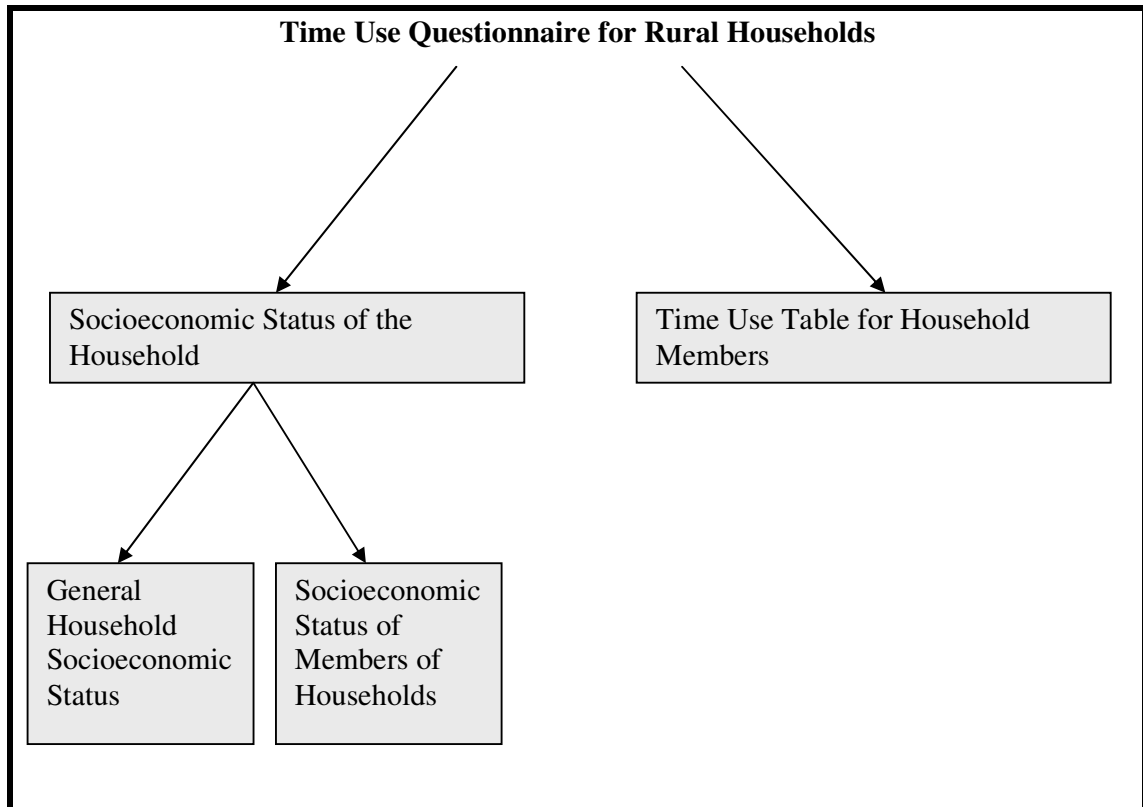
The questionnaire employed in this study consists of two main parts.¹ The first part concentrates on the socio-economics status of the household. This part is also divided into two subsections. The questions in the first subsection attempt to obtain a general picture of the household's socio-economic situation and are addressed to the head of the household. The questions such as the household size, the number of income earners in the household, household's assets, ownership of land and livestock, type of agricultural product produced are requested to be answered by the head of the household. The second subsection focuses on the socioeconomic status of the members of the household who are above 12 years of age. The questions in this subsection are directed to obtain information on the sex, age, education, occupation, employment status of the household members. This subsection further investigates the social and cultural habits of household members like reading newspaper and watching TV and the status of their residence.

The second part of the questionnaire targets the time use patterns of the household members. A time use table is asked to be completed by each household member containing information on the type of the activity he or she performs, the duration of the activity, the place of the activity, for and with whom the activity is performed, and if relevant the second activity performed simultaneously. Moreover, each respondent is asked to complete

¹ Questionnaire is available from the authors upon request.

the time use table for two different days of the week: one for an ordinary weekday and the other on the day of the local bazaar. While the respondents were provided with a guiding list of activities; their answers not instructed to be limited with the list. A schema summarizing the organization of the questionnaire is given in Figure 1.

Figure 1: Organization of the Questionnaire



The questionnaire is administered between May-October 2003. The respondents were asked to fill out the questionnaire during three different months of the year namely, May, August, and October to be able to capture the seasonal differences in time use patterns during the different cycles of the production activity. The survey team has visited 31 households in Karacaören and 26 household in Hacıömerli. In total 138 household members from these two villages have participated in the survey.

3.2 Main Socio-economic Characteristics of Surveyed Rural Households

The average household size for the total of two villages is around 3.5. It is 3 in Karacaören and 4 in Hacıömerli. Nearly 40% of the household members participate in the labor market

as income earners. Furthermore, 93% of the households own their dwellings. The percentage of house ownership is relatively higher in Karacaören. (Table 1).

Table 1: Summary Statistics of Households

	Karacaören	Hacıömerli	Overall
Average Household Size	3.09 (1.82)	4.08 (1.36)	3.53 (2.04)
Average Number of Income Earners	1.43 (1.07)	1.36 (0.70)	1.40 (0.90)
Ownership of Dwellings	97%	88%	93%

Note: Numbers in brackets are standard deviations.

Tables 2a - 2e describe the agricultural activities of the households in the two villages visited. On the average an household owns 3 bovines, 7 ovines and 9 chickens. The most frequently owned livestock are cattle, sheep, and poultry. Higher values of standard deviations relative to means indicate that ownership of livestock is distributed unequally among the villagers (Table 2a).

Table 2a: Average Ownership of Livestock by Households (#)

	Karacaören	Hacıömerli	Overall
Cattle-Domestic	0.91 (0.96)	1.00 (2.02)	0.95 (1.50)
Cattle-Culture	0.97 (2.31)	3.12 (3.83)	1.91 (3.23)
Buffalo	0.00 (0.00)	0.12 (0.43)	0.05 (0.29)
Sheep	6.22 (19.25)	6.40 (22.89)	6.30 (20.73)
Goat	0.47 (2.65)	0.32 (1.60)	0.40 (2.23)
Poultry	4.97 (7.40)	14.68 (14.42)	9.23 (11.96)
Bee (hives)	0.88 (2.39)	0.00 (0.00)	0.49 (1.83)

Note: Numbers in brackets are standard deviations.

Tables 2b-2c show that the main agricultural products in the survey area are wheat, barley, chickpeas and rye. More than half of the households produce either wheat and/or barley which together constitute nearly two thirds of the cultivated crop area. Average farm size over 50 hectares and significantly larger than the national average for Turkey. Again the

standard deviations are high as compared to the averages, especially in the case of wheat, indicating unequal distribution in ownership.

Table 2b: Average Area Cultivated/Household (decares)

	Karacaören	Hacıömerli	Overall
Wheat	6.81 (17.77)	168.64 (246.57)	77.79 (181.09)
Barley	5.34 (26.46)	156.44 (169.71)	71.61 (135.84)
Rye	0	16.00 (43.01)	7.02 (29.28)
Chickpeas	3.00 (10.27)	38.00 (53.7)	18.37 (42.09)
Lentil	0	3.60 (13.19)	1.58 (8.82)

Note: Numbers in brackets are standard deviations.

Table 2c: Households Producing Sselected Cereals and Sshares in Ccultivated Cereal Area

	<i>% of Cultivated Cereal area</i>	<i>% of Household Producing</i>	<i>% of Cultivated Cereal area</i>	<i>% of Household Producing</i>	<i>% of Cultivated Cereal area</i>	<i>% of Household Producing</i>
	Karacaören	Karacören	Hacıömerli	Hacıömerli	Overall	Overall
Wheat	44	44	44	64	44	53
Barley	35	16	41	68	41	39
Rye	0	0	4	20	4	9
Chickpea	22	16	10	44	10	28
Lentil	0	0	1	8	1	4

Note: Numbers in brackets are standard deviations.

Vegetable production is an important economic activity in the two villages. The main vegetables cultivated are green beans, tomato and cucumbers (Table 2d). Apple is the main perennial crop, but the average number of apple trees in households growing apples is only 25. The remainder of the fruit trees range between 2-6 per household and are for self-consumption.(Table 2e). In Hacıömerli, sunflower constitutes an important place among non-cereal production.

Table 2d: Vegetable Production/Household (decars)

	Karacaören	Hacıömerli	Overall
Tomato	2.47 (1.85)	1.00 (0)	1.98 (1.81)
Pepper	0.77 (0.40)	0	0.77 (0.40)
Cucumber	2.45 (3.13)	0	2.45 (3.13)
Carrot	9 (0)	0	9 (0)
Green Beans	4.13 (5.30)	23.57 (13.14)	16.50 (14.43)
Others	7.6 (9.13)	36.80 (32.55)	22.20 (27.29)

Notes: 1. Averages belong to the households reporting production

2. Numbers in brackets are standard deviations.

3. Main crop in others category in Hacıömerli is sunflower.

Table 2e: Fruit Production/Household (number of trees)

	Karacaören	Hacıömerli	Total
Apple	6.00 (5.66)	29.09 (44.69)	25.54 (41.74)
Pear	4.67 (4.70)	5.67 (4.80)	5.33 (4.50)
Cherry	3.17 (3.43)	2.0	3.00 (3.16)
Sour Cherry	3 (0)	1.0	2.00 (1.41)
Plum	2.14 (1.35)	4.75	3.09 (2.66)
Grapes (acres)	2.56 (1.45)	6.91 (7.98)	4.40 (5.61)
Others	3.5 (0.71)	9.0 (1.41)	6.25 (3.30)

Notes: 1. Averages belong to the households reporting production

2. Numbers in brackets are standard deviations.

The asset ownership status of the households is presented in Table 3. All the households in the database have a refrigerator and built in water system at home. Moreover, almost all the households have TV, telephone and toilet at home. The high percentage of satellite receiver ownership (63%) may indicate strong interest for the world outside of the village and also limited availability of alternative entertainment outlets in the villages. Finally, more than one quarter of the households own a car. In terms of the agricultural equipment

and machinery, around one third of the households own a tractor and trailer (26%) which are generally used for transportation of agricultural products to the market. Other major agricultural machinery and equipment owned are threshers (21%), seed drills (19%) and combine harvesters (4%).

Table 3: Household Asset Ownership

Type of Asset	% of Households			% of Households			
	K	H	Total		K	H	Total
Video	6	16	11	Audio Player	34	16	26
Computer	0	4	2	Video Camera	3	0	2
TV	94	100	96	Radio	81	80	81
Refrigerator	100	100	100	Automobile	15	40	26
Dish Washer	16	16	16	Motorcycle	0	4	2
Washing Machine	13	20	16	Small Truck	3	0	2
Automatic Washing M	53	84	63	Pick-up	0	4	2
Vacuum Cleaner	53	92	70	VCD Player	0	12	5
Sewing Machine	47	80	61	CD Player	3	4	4
Iron	59	96	75	Air Condition	0	0	0
Oven	78	76	77	Mobile Phone	19	24	21
Microwave	6	4	5	Bicycle	0	20	9
Water System (Home)	100	100	100	Combine Harvester	0	8	4
Toilet (Home)	97	100	98	Trailer	13	44	26
Telephone	94	96	95	Tractor	19	52	33
Wireless Phone	3	12	7	Seed Drill	0	44	19
Satellite Receiver	47	84	63	Thresher	0	48	21

Note: K: Karacaören; H: Hacıömerli

Tables 4a -4f present sex, age and schooling composition of the respondents on the overall and in the villages of Karacaören and Hacıömerli. The average age of the respondents is 45.5. The male respondents are slightly older (46.6) than the females (44.5). The average years of schooling for females is well below the one for males (half of the men's years of schooling in Karacaören), in conformity with our prior expectations. We can also observe the same trend from Table 4d for the distribution of schooling. Approximately 16% of total females never attended a school whereas this figure is only around 3% for males. Moreover, about one fifth of the female household members just read and write at basic level. For all schooling categories, the figures for males are always above the ones belonging to the females. On the overall half of the household members only completed

primary school. While there is no female household member in Karacaören who has a level of education above primary school, %24 of the females in Hacıömerli had secondary school and higher education, 3% being university graduates (Tables 4e and 4f).

The results show that the household members do not generally use press as a source of information. Instead they prefer visual media. Only 34% of the respondents reported that they read newspapers. Around 20% of those reading newspapers read daily and 23% only once a week. On the otherhand, 95% of the respondents watch TV and 43% of them watch news programmes as their first preference. More than one quarter of those watching TV stated Turkish films as their first choice.

Table 4a: Average Years of Schooling by Gender (Total)

Statistics	Female		Male		Total	
	Age	Schooling Year	Age	Schooling Year	Age	Schooling Year
Mean	44.5	4.4	46.6	6.3	45.5	5.4
Std. Dev.	17.5	3.0	19.8	2.9	18.6	3.1
Min.	13	0	12	0	12	0
Max.	72	13	90	13	90	13
Number of Persons	69	69	69	69	138	138

Table 4b. Average Years of Schooling by Gender in (Karacaören)

Statistics	Female		Male		Total	
	Age	Schooling Year	Age	Schooling Year	Age	Schooling Year
Mean	49.0	3.3	48.6	6.1	48.8	4.7
Std. Dev.	16.8	2.1	19.7	3.2	18.2	3.0
Min.	15	0	14	3	14	0
Max.	72	7	75	13	75	13
Number of persons	35	35	35	35	70	70

Table 4c. Average Years of Schooling by Gender (Hacıömerli)

Statistics	Female		Male		Total	
	Age	Schooling Year	Age	Schooling Year	Age	Schooling Year
Mean	39.8	5.5	44.5	6.6	42.1	6.1
Std. Dev.	17.1	3.4	20.0	2.7	18.6	3.1
Min.	13	0	12	0	12	0
Max.	70	13	90	11	90	13
Observation	34	34	34	34	68	68

Table 4d: Schooling Profiles (Total)

Schooling Grade	Percentage		
	Female	Male	Total
No Schooling	15.9	2.9	9.4
Only Read & Write	20.3	8.7	14.5
Primary School	52.2	52.2	52.2
Secondary School	5.8	21.7	13.8
Public High School	2.9	5.8	4.3
Technical School	1.4	7.2	4.3
University	1.4	1.4	1.4

Table 4e: Schooling Profiles (Karacaören)

Schooling Grade	Percentage		
	Female	Male	Total
No Schooling	14.3	0.0	7.1
Only Read & Write	40.7	17.1	28.6
Primary School	45.7	54.3	50.0
Secondary School	0.0	11.4	5.7
Public High School	0.0	8.6	4.3
Technical School	0.0	5.7	2.9
University	0.0	2.9	1.4

Table 4f. Schooling Profile (Hacıömerli)

Schooling Grade	Percentage		
	Female	Male	Total
No Schooling	17.6	5.9	11.8
Only Read & Write	0.0	0.0	0.0
Primary School	58.8	50.0	54.4
Secondary School	11.8	32.4	22.1
Public High School	5.9	2.9	4.4
Technical School	2.9	8.8	5.9
University	2.9	0.0	1.5

In summary, the socio-economic characteristic of households can be summarized as follows:

- Average household size is 3.5 and the average number of workers is 1.4.
- Dominant livestock activities are cattle, sheep, and poultry.
- The main agricultural products are barley, wheat and chickpeas.
- Both land and livestock ownerships are unequally distributed
- Males are more educated than females.
- Main information channel is visual media.

3.3 Findings on Time Use Patterns

In this section, we turn our focus to the time use patterns of household and their relationship with the socio-economic characteristics of the households.

The study classifies activities taking place during a given period as agricultural economic activities, non-agricultural economic activities, activities for personal development, and other activities. A detailed list of these activities is presented in Annex A. This classification of activities is used to derive the descriptive statistics and also for testing the differences in time use patterns by socioeconomic characteristics of household members. The differences in time use patterns are tested using one-way ANOVA analysis for sex, age and education. Furthermore, differences between the villages for a given day as well as differences between bazaar days and ordinary days for a given village are also tested. The aggregated tables presented below are constructed by employing all the observations from the two villages and treating each visit as an independent observation.²

Figure 2 illustrates the average time use patterns for males, females and the total. On the average, the villagers spend over half of their non-sleeping time on non-economic activities including personal development. The time spent on agricultural and non-agricultural economic activities is about the same and constitute little less than half of their time spent. The males on the average spend more time on all activities than females except for personal development which is contrary to our expectations regarding the schooling by gender.

Table 5 presents the average times devoted to different activities by gender and the day (bazaar or ordinary). As it is evident from this table, there are no significant differences for average times spend on different activities between the days if gender groups are treated individually. The only exception is non-agricultural economic activities for females. In the case of females, there are statistically significant differences for mean time spent on non-agricultural economic activities between the two days in which the activity is realized. However, once the gender groups are aggregated the results change. The last column of the

² The detailed ANOVA tests and descriptive statistics for each activity, for each month, in different villages, for different days are available from the authors upon request.

table indicates that there are significant differences in average time devoted to both agricultural and non-agricultural economic activities between an ordinary and bazaar day.

Figure 2: Summary of Time Use Patterns by Gender and Activity

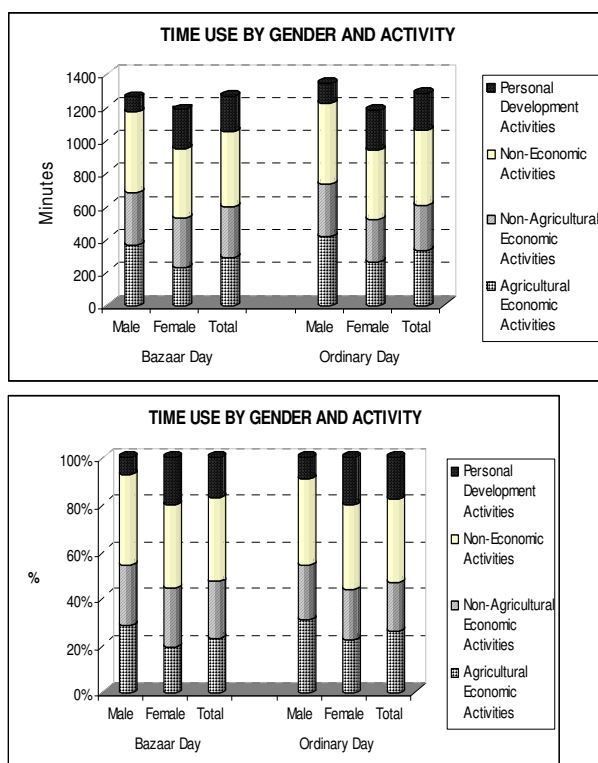


Table 6 introduces average time spent on different activities by gender and age groups. For all age intervals, average time spend on activities is higher for males, apart from “less than 25” and “more than 50” age groups for non-agricultural economic activities. For males, there are statistically significant differences in average time spent on all activities by age groups. On the other hand, the situation is slightly different for females. We do not observe any statistically significant differences between age groups in the case of agricultural economic activities. In otherwords females devote their time more or less equally on the agricultural economic activities independent of age. Finally, when all the observations are combined, a statistically significant differences for each activity category is observed by age groups.

Table 5: Average Time Devoted to Activities by Gender and Day (Bazaar or Ordinary)*

(Minutes)

Activities	Male			Female			Total		
	Bazaar	Other Day	Prob.>F	Bazaar	Other Day	Prob.>F	Bazaar	Other day	Prob.>F
Agricultural Economic Activities	363	416	0.14	227	265	0.13	288	332	0.05
Non-Agricultural Economic Activities	322	315	0.89	300	252	0.02	309	272	0.09
Non-Economic Activities	487	490	0.92	418	424	0.77	452	457	0.80
Personal Development Activities	90	120	0.90	240	238	0.99	215	221	0.94

*Prob>F column reports the probability values that there is no differences in means. Hence, a 0.00 value implies that the means are not equal statistically.

Note: Averages are based on the persons reporting that activity and the numbers of activities in the groups vary.

Table 6: Average Time Devoted to Activities by Gender and Age Groups*

(Minutes)

Activities	Male				Female				Total			
	25-49	<25	>50	Prob>F	25-49	<25	>50	Prob>F	25-49	<25	>50	Prob>F
Agricultural Economic Activities	423	447	339	0.04	263	257	225	0.34	333	350	276	0.02
Non-Agricultural Economic Activities	419	297	231	0.00	295	301	240	0.03	341	300	236	0.00
Non-Economic Activities	396	404	601	0.00	396	356	486	0.00	396	374	548	0.00
Personal Development Activities		105				239				218		

*Prob>F column reports the probability values that there is no differences in means. Hence, a 0.00 value implies that the means are not equal statistically.

Note: Averages are based on the persons reporting that activity. and the numbers of activities in the groups vary.

Next we look at the time use patterns by level of education, namely less than primary school, primary school and more than primary school (Table 7). In all categories, except less than primary case for non agricultural economic activities, the averages of time spent by males are higher than those of females. In case of male education groups, we only find statistically significant differences for non-economic activities. For females, the analysis produces statistically significant results for non-agricultural economic and other non-economic activities. However, when all activities are summed by gender, we notice that there are statistically significant differences in the average time devoted to activities by education groups except for personal development activities..

Table 7: Average Time Devoted to Activities by Gender and Education Groups*
(Minutes)

Activities	Male				Female					All			
	Less than Primary	More than Primary	Primary	Prob>F	Less than Primary	More than Primary	Primary	Prob>F	Less than Primary	More than Primary	Primary	Prob>F	
Agricultural Economic Activities	289	393	409	0.13	245	163	259	0.14	253	348	324	0.01	
Non-Agricultural Economic Activities	215	334	333	0.27	241	313	286	0.05	237	325	303	0.01	
Non-Economic Activities	623	415	510	0.00	447	344	429	0.01	492	394	469	0.00	
Personal Development Activities		105				285	117	0.08		249	117	0.15	

*Prob>F column reports the probability values that there is no differences in means. Hence, a 0.00 value implies that the means are not equal statistically.

Note: Averages are based on the persons reporting that activity, and the numbers of activities in the groups vary.

Furthermore, the following generalizations can be drawn from detailed results³ which are also based on the averages of the persons reporting a specific activity:

- In Karacaören, there are statistically significant differences in the average time spend between males and females for agricultural economic activities on the bazaar day in October and August. Males tend to devote more time on those activities in October and August. Only females are engaged in agricultural economic activities on the bazaar day in May.
- In Hacıömerli, more or less the same trend is observed, but the periods of the year change. We only observe statistically significant differences for agricultural economic activities on the bazaar day in October and May.
- In Hacıömerli statistically significant differences in time use for agricultural economic activities exist in October and August like in Karacaören.
- Both during the bazaar day and the ordinary day, no statistically significant differences exist among the males or females of the two different villages, except for non-economic activities in bazaar day in August.

³ Detailed tables are available from the authors upon request

4. Concluding Remarks and Directions for Further Research

The generalizations above are based on the averages reporting the activity in questions. In a following paper, we will consider the average time use based on the total persons in the sample and we will try to test the following further hypothesis suggested by the findings of this paper:

- Time use patterns change during different days of the week and months of the year: The differences in time use patterns between the bazaar day and an ordinary day has been clearly demonstrated by the findings of this study which are based on average time use of the persons reporting the activity in question.
- Time use patterns change by socio-economic characteristics of the household and by age, gender, and education of the individuals.
- Time use patterns show variations between regions both in terms of economic activities and in terms of socio-economic characteristics.
- Time use patterns differ by the type of activity and the time use for different activities differ by household and individual characteristics.
- Significant differences exist in the time use patterns of different genders rather than time spent magnitudes.
- Women contrary to expectations do not spend more time in agricultural economic activities although differentiation of men's and women's roles is observed in agriculture.

To the best of our knowledge, this is the first attempt to study rural time use behavior in Turkey. The methodology proposed in this study can be applied in the future to different regions of Turkey to gather a larger set of time use data to draw a clearer picture of regional differences in time use patterns together with different socio-economic characteristics of each region. Such a study might provide valuable insights in the formulating regional as well as national policies.

References

- Acharya, M., and Bennett, L. 1981, "The Rural Women of Nepal. The Status of Women in Nepal", *Vol. II: Field Studies, part 9*. Tribhuvan University, Centre for Economic Development and Administration, Kathmandu. Nepal.
- Acharya M., 1999, "Time-Budget Studies for Measurement of Human Welfare", *Integrating paid and unpaid work into national policies: Selected papers*, UNDP.
- Alexander, P. and Baden, S., 2000, "Glossary on Macroeconomics from a Gender Perspective", *BRIDGE report no. 48*, Brighton, U.K.: Institute of Development Studies.
- Apps, P. 2003, "Gender, Time Use and Models of the Household", *IZA Discussion Paper*, no.796.
- Bachman, S.L., 2000, "A New Economics of Child Labor: Searching for Answers Behind the Headlines", *Journal of International Affairs*, 53, 545-72.
- Boserup, E, 1970, *Women's Role in Economic Development*, London: Allen&Unwin.
- Cain, M.T., 1991, "The Activities of the Elderly in Rural Bangladesh", *Population Studies*, 45, 189-202.
- Collier, P., 1993, "The Impact of Adjustment on Women" in Demery, L., Ferroni M. and Grootaert C.(eds.) *Understanding the Effects of Policy Reform*, The World Bank, Washington D.C.
- Deere, C.D., 1995, "What Difference Does Gender Make? Rethinking Peasant Studies", *Feminist Economics*, 1, 53-72.
- Deere, C. D. and León, M., 1982, *Women in Andean Agricultura: Peasant Production and Rural Wage Employment in Colombia and Peru*. Geneva: International Labour Office.
- Eikeland, S., 1999, "New Rural Productivity? Household Strategies and Rural Renewal in Norway", *Sociologica Ruralis*, 39, 359-76.
- Elson, D., 1999, "Labour Markets as Gendered Institutions: Equality, Efficiency and Empowerment", *World Development*, 27, 611-27.
- Guyer, J., 1991, "Female Farming in Anthropology and African History", in M.di Leonardo (ed.) *Gender at the Crossroads of Knowledge: Feminist Anthropology in the Postmodern Era*. Berkeley: University of California Press.
- Jacoby, H.G., 1993, "Shadow Wages and Peasant Family Labor Supply: An Econometric Application to the Peruvian Sierra", *Review of Economic Studies*, 60, 903-22.
- Kasnakoğlu, Z., Dayıoğlu, M., and Erdil, E., 1996, "Time Use and Estimation of Value of

- Household Production”, *ERC Working Papers*, no. 96/07.
- Kasnakoglu, Z. And Dayioglu, M., 2002, “Measuring the Value of Home Production in Turkey” in T. Bulutay (ed.), *New Developments in National Accounts*, 73-97.
- Kevane, M. And Wydick, B., 2001, “Social Norms and the Time Allocation of Women’s Labor in Burkina Faso”, *Review of Development Economics*, 5, 199-29.
- Kim J. And Zepeda L., 2004, “When the Work is Never Done: Time Allocation in US Family Farm Households”, *Feminist Economics*, 10, 115-39.
- Pagán, J.A, 1998, “Gender Differences in Labor Market Decisions in Rural Guatemala”, Unpublished Manuscript, The University of Texas Pan-American.
- Reardon, T., 1997, “Using Evidence of Household Income Diversification to Inform: Study of the Rural Non Farm Labor Market in Africa”, *World Development*, 25, 735-47.
- Rose, E., 2000, “Gender Bias, Credit Constraints and Time Allocation in Rural India”, *The Economic Journal*, 110, 738-58.
- Ruben, R. and Ruiters A. De, 2002, “Labor, Leisure and Household Income in Rural Settlements: An Empirical Assessment in the Atlantic Zone of Costa Rica”, *Leisure Studies*, 21, 201-20.
- SIS, 1996, *Time Use Pilot Study Report*.
- Stephens, L., 1991, *Zapotec Women*, Austin: University of Texas Press.
- Thorsen, D., 2002, “‘We Help our Husbands!’ Negotiating the Household Budget in Rural Burkina Faso”, *Development and Change*, 33, 129-46.
- Tibaijuka, A., 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, 69-81.
- Turner, M.D., 2000, “Drought, Domestic Budgeting and Wealth Distribution in Sahelian Households”, *Development and Change*, 31, 1009-35.
- UNDP, 1995, *Platform for Action, Report from the Fourth World Conference on Women*, Beijing, United Nations.
- Whitehead, A, 1999, “‘Lazy Men’, Time Use, and Rural Development in Zambia”, *Gender and Development*, 7, 49-61.

ANNEX A

Classification of Activities

AGRICULTURAL ECONOMIC ACTIVITIES

Land Preparation
Fertilizing
Sowing
Planting
Pruning
Hoing
Chemical Application
Irrigation
Greenhouse Work
Harvesting,
Tractor Driving
Fruits and Vegetables Harvesting
Packaging
Transporting Vegetables and Fruits
Transportation of Wheat
Marketing and Selling
Gardening
Weeding
Beekeeping
Animal care
Grazing Animals
Milking
Processing Products

NON-AGRICULTURAL ECONOMIC ACTIVITIES

Cooking, Food
Cooking Bread
Washing Dishes
Knitting
Washing
Child Care
Child Training
Repairing and Maintenance
Shopping (Durables)
Shopping (Food and Clothing)
Cleaning,
Painting
Construction
Cutting Firewood, Preparing Fuels
Fetching Water
Ironing
Domestic Animal and Flower Care

PERSONAL DEVELOPMENT ACTIVITIES

Studying

OTHER NON-ECONOMIC ACTIVITIES

Transportation
Social Visits
Religious Activities
Eating
Watching Television
Other Cultural Activities
Personal Care
Daytime Sleeping