GAZİ İKTİSAT VE İŞLETME DERGİSİ
GAZİ JOURNAL OF ECONOMICS & BUSINESS

GJiD
GJEB

Determinants of Leisure Time Use in Turkey[*]

Almina Kızılırmak[a][**], Tekin Köse[b]

[a] Human Resource Assistant, EMAY International Engineering and Consultancy Inc., Ankara, TURKEY.
e-mail: almina.kizilirmak@tedu.edu.tr ORCID ID: https://orcid.org/0000-0003-1516-5820

[b] Dr., TED University, Faculty of Economics and Administrative Sciences, Department of Economics, Ankara 06420, TURKEY. e-mail: tekin.kose@tedu.edu.tr ORCID ID: https://orcid.org/0000-0002-0476-8872

ARTICLE INFO	ABSTRACT
  	Effective use of time is essential for productivity of individuals in labor force of a country. This study examines determinants of individuals' time spent on leisure activities such as cultural activities, sports activities and socializing in Turkey. Associations between amount of time devoted to leisure time activities and socio-demographic variables such as gender, age, education level, household income level, marital status, employment status, health status and child care time are explored. For this purpose, this study employs TurkStat Time Use Survey of 2014-2015 and estimates seemingly unrelated regression model for empirical analysis. Findings indicate that individuals spend more time in socializing in Turkey. Age, education level, marital status, health status, employment status, child care time and household income level display significant associations with time spent on different leisure activities in Turkey.

Türkiye'de Boş Zaman Kullanımının Belirleyicileri

MAKALE BİLGİSİ	ÖZ
  	Zamanın etkin kullanımı bir ülkenin iş gücünü oluşturan bireylerin üretkenliği için oldukça önemlidir. Bu çalışma, Türkiye'deki bireylerin kültürel etkinlikler, spor etkinlikleri ve sosyalleşme gibi boş zaman etkinliklerine harcadıkları zamanın belirleyicilerini incelemektedir. Boş zaman etkinliklerine ayrılan zaman ile cinsiyet, yaş, eğitim seviyesi, gelir düzeyi, medeni durum, istihdam durumu, sağlık durumu ve çocuk bakımına ayrılan zaman gibi sosyo-demografik değişkenler arasındaki ilişkiler araştırılmaktadır. Bu amaçla, bu çalışma 2014-2015 dönemindeki TÜİK Zaman Kullanım Anketi'ni kullanmaktadır ve ampirik analiz için görünürde ilişkisiz regresyon modeli tahmin etmektedir. Bulgular, Türkiye'deki bireylerin sosyalleşmeye daha fazla zaman harcadıklarını göstermektedir. Yaş, eğitim seviyesi, medeni durum, sağlık durumu, istihdam durumu, çocuk bakımı ve hanehalkı gelir düzeyi, Türkiye'de farklı boş zaman etkinliklerine harcanan zamanla anlamlı ilişkiler göstermektedir.

---

1. Introduction

Allocation of time is crucial for economic decision making due to its scarcity. Researchers study time use since the ways that individuals spend their time have significant implications on quality of human life. Accomplishment of a healthy life relies on the balance between the time devoted to working, social life and other needs (Juster & Stafford, 1991; Enke, 1968). Since technology affects living conditions and working life, there emerges a new decision making task: allocation of leisure time. According to Keynes' (2010) proposition, working hours will reach to 15 hours in a week in 2030 and people will face with leisure time allocation problem. On the other hand, intensive working hours and conditions may have unhealthy consequences such as increasing stress levels for individuals. Therefore, individuals are to learn how to cope with pressure and allocating their leisure time in order to keep a balanced life style.

Concept of leisure refers to the amount of time left for individuals after paid work, unpaid work (generally household work) and necessities that one must do for survival (such as eating and sleeping). Therefore, leisure time should not be considered as a free time that people do nothing but it should be rather considered as all activities that individuals can do without obligations. In other words, leisure time gives an opportunity for individuals to do whatever they like (Enke, 1968). Thus, if individuals are to maximize their satisfaction and have balanced life styles, they need to allocate their leisure time efficiently.

According to Karaküçük (2005), in developing countries such as Turkey, allocation of leisure time is more essential due to higher amounts of leisure time available for individuals in different regions. By active and effective utilization of leisure time, labor force will increase its productivity levels, which will benefit the whole public. In addition, efficient use of leisure will prevent individuals from being passive and lead individuals to be more active in the society. In an effort to explore individuals' preferences over leisure time activities and amounts of time devoted to them, this study considers the following question: What are the determinants of leisure time use in Turkey?

Earlier studies examine the factors affecting time allocation decisions of individuals in many countries. Although, leisure time allocation is not the main focus of prior literature, relatively recent studies specifically consider leisure time activities. Previous findings reveal that gender, age, education level, non-labor income, marital status, having children and living in urban areas are associated with participation frequencies and preferences over various leisure time activities (Artime, 2014; Humphreys & Ruseski 2011; Garcia et al., 2011; Gürbüz & Henderson, 2014). For instance, social values and norms may determine type of activities that women and men should do and limit their ability for making individual choices. Earlier research shows that females are attending more of cultural activities and less of sports activities compared to men (Christin, 2012; Artime, 2014; Gürbüz & Henderson, 2014). Additionally, level of education and non-labor income are positively correlated with utilization of leisure time activities whereas being married and having children are negatively associated with participating in leisure activities. Finally, individuals who live in big cities have more opportunities available for participating in leisure activities (Artime, 2014; Humphreys & Ruseski 2011; Garcia et al., 2011; Kurar & Baltacı, 2014).

Earlier studies on leisure time use in Turkey focuses on some specific activities or sub-samples of population (Gürbüz & Henderson, 2014; Kurar & Baltacı, 2014). This study extends the literature by analyzing all types of leisure activities with a nationally representative survey data in Turkey. This paper presents a comprehensive analysis of leisure time activities by employing Time Use Survey data from TurkStat (Turkish Statistical Institute). Leisure time activities are categorized into four groups to include cultural activities, sports activities, socializing and other types such as resting. Amounts of time spent in each category are considered as dependent variables of the empirical analysis. Similar to Artime (2014) and Garcia et al. (2011), seemingly unrelated regression (SUR) method is utilized. Simultaneous model estimation framework is required since leisure time activities are substitute for each other. If an individual prefers to attend cultural activities, then s/he has to spend less time for other leisure time activities. Therefore, preferences over leisure activities and error terms of models for each activity group are potentially correlated. SUR estimation framework accounts for these properties of data on leisure time use.

Since availability of leisure time would be crucially dependent on weekday and weekend classification, separate models are estimated for the weekday and the weekend day of the survey. According to empirical results, child care time is positively correlated with socializing activities whereas monthly household income level displays negative association with socializing during the weekday. Time spent on sports activities is negatively related with time spent on child care and being employed for the weekday. Time allocated on rest and other types of leisure activities are positively correlated with age level of 50-54 and negatively related with self-reported health level. Estimation results for the weekend day show that males and employed individuals spend less time on cultural activities. Males, elderly and married individuals are more likely to spend time on socializing during the weekend day. Elderly and more educated individuals allocate more time on rest and other types of leisure activities in a weekend day whereas child care time and health status are negatively correlated with leisure time use on rest. Finally, individuals with higher levels of self-reported health status are less likely to spend time on sports activities during the weekend day.

Second section analyses related literature on leisure time activities. Third section describes data and methodology. Then, empirical results are discussed. Final section presents conclusions.

2. Literature review

Most studies explore leisure time allocation by only considering sports activities (Garcia et al., 2011) or cultural activities (Christin, 2012) or both (Artime, 2014). Socializing, on the other hand, is examined as a part of cultural activities. Since cultural activities also have a social dimension in addition to entertainment and educational intentions, they also provide opportunities for interacting with other people. Therefore, this section summarizes literature on leisure time activities by categorizing them into two sections: i) sports activities; ii) cultural activities and socializing.

2.1. Sports activities

Earlier studies on leisure time use suggest that decision to participate in sports and frequency of participation are driven by various factors. According to Bittman (2002), gender is a predictor of individual preferences over leisure time use. Researchers build consensus on the fact that men attend sporting events more often than women (Alexandris & Carroll, 1997; Lera-Lopez & Rapun-Garate, 2011; Humphreys & Ruseski, 2006; Downward, 2007; Van Tuyckom, Scheerder & Bracke, 2010). Moreover, the gender gap is also found for children. Similarly, boys tend to participate more in sports activities than girls (Taks & Scheerder, 2006). These gender differences may be attributed social and cultural norms, which prioritize leisure time activities for males and females. Thus, these constraints limit the capacity of women and men to independently decide on allocation of their leisure time. (Sayer, 2005). Nonetheless, there are exceptions such as Norway in which women participate in exercising more than men (Fridberg, 2010).

Empirical investigations of socio-demographic characteristics suggest that age is negatively related with sports participation (Alexandris & Carroll, 1997; Eime et al., 2016; Fridberg, 2010; Van Tuyckom, Scheerder & Bracke, 2010). Although teenagers are more likely to engage in sports activities, participation declines during adulthood. Interestingly, some scholars find no relationship between physical activity and aging for females (Breuer & Wicker, 2009). Likewise, Farrell and Shields (2002) find that aging decreases sports participation of males more than females.

Household structure and family obligations are also associated with doing sports. Farrell and Shields (2002) reveal that marital status and presence of children are correlated with sports participation. For instance, presence of children has negative effects on attendance rates for activities such as running and aerobics while it stimulates participation in child-orientated sports such as football and swimming (Garcia et al. 2011). Moreover, married individuals are less likely to participate in sports and spend less time per week for physical activities (Alexandris & Carroll, 1997; Humphreys & Ruseski, 2006).

Literature emphasizes effects of education level and employment status on sports participation. It is argued that level of education is directly correlated with awareness of sport benefits (Lera-Lopez & Rapun-Garate, 2011). Empirical findings show that educated people tend to attend more in sports activities (Alexandris & Carroll, 1997; Downward, 2007; Humphreys & Ruseski, 2007). Although

educational attainment has a positive association with sport participation, relations between frequency of sport practice and education may be insignificant (Artime, 2004) or negative (Downward & Riordan, 2007; Humphreys & Ruseski, 2006). Employment status and income are significantly associated with sports participation and frequency of attendance. Some studies reveal that being employed is negatively associated with time spent in sports (Farrell & Shields, 2002; Lera-Lopez & Rapun-Garate, 2011) whereas others find the opposite (Humphreys & Ruseski, 2007). Humphreys and Ruseski (2011) discuss that individuals with higher income are able to afford necessary equipment for some types of activities and more likely to participate in them. Finally, health status is positively correlated with physical activity preferences of individuals (Aarnio et al., 2002; Humphreys & Ruseski, 2006).

2.2. Cultural activities and socializing

Studies on cultural activities demonstrate that demand for cultural activities vary across sub-samples of the population. Many studies indicate women's participation in cultural activities are higher than men (Christin, 2012; Artime, 2014; Humphreys et al., 2006). Accordingly, Christin (2012) reveals gender differences in highbrow cultural participation such as visiting an art museum, opera, classical concert, live play, live ballet and live dance performances. Researchers suggest that the gender gap between sports and cultural activity participation emerges because of the differences in early socialization. For instance, beginning from early ages, parents encourage boys to attend sports activities whereas girls are driven to cultural activities (Christin, 2012). However, some studies display that women attend in high status cultural activities such as going to concerts and museums less than men (Green et al., 1990). Moreover, some researchers reveal that gender is not a predictor for individual's participation in cultural activities (Shelton, 1992; Bittman & Wajcman, 2000). Despite the mixed results, most findings indicate that women are more engaged in cultural activity consumption (DiMaggio, 1982; Katz-Gerro, 1999).

The seminal work of Katz-Gerro and Sullivan (2004) suggests that there is a curvilinear relationship between age and participation in leisure activities such as socializing, travel, sports, entertainment and home-based leisure. The middle aged individuals are more likely to attend in cultural activities. Moreover, Cheng and Wen (2011) find a non-monotonic relationship between age and attendance in performing arts. However, some studies report that attendance in various cultural activities are independent of aging (Artime, 2014). Empirical evidence suggests positive relationship between human capital and attendance in cultural activities. Studies reveal that education has a positive impact on participating in cultural activities (Seaman, 2005). Labor force participation and education levels are positively correlated with women's participation in cultural activities (Artime, 2014, Sullivan et al., 2002).

Sociologists emphasize that research on cultural consumption paid scarce attention to social networks such as marriage (Lizardo, 2006). However, marital status and presence of children limit the time devoted to leisure time activities both for females and males. Therefore, it is shown that being married and having children negatively effects participation rates for both cultural and sports activities (Artime, 2014). A recent exceptional study reveals that social infrastructure of spouses and their attitudes towards art determine attendance rates (Christin, 2012). Christin (2012) claims that women increase the level of participation for their spouses and thus, being married is to reduce the gender gap in attending art activities.

Income level is a significant determinant of attendance in cultural activities (Seaman, 2005; Cheng and Wen, 2011). Higher income levels enable individuals to attend more cultural activities. Moreover, non-labor income shows a positive correlation with cultural activities (Artime, 2014). On the other hand, being an employee is positively correlated with attendance in cultural activities (Katz-Gerro, 1999). Finally, researchers show that self-rated health status and attending cultural events are positively correlated (Johansson et al., 2001).

Considering many types of leisure time activities in a nationally representative survey, this study contributes to literature on determinants of leisure time use by presenting evidence from a developing country, Turkey. In line with earlier research, this study uses leisure time activity categories determined by Artime (2014) and adds a new category, socializing, for Turkey. Following literature

(Artime, 2014; Garcia et al., 2011) in terms of methodology, empirical models are estimated by employing SUR framework. This study is the first to analyze allocation of leisure time for Turkey by using Time Use Survey of TurkStat from the years 2014 and 2015.

3.   Data and methodology

Leisure time allocation of Turkish individuals is analyzed by using 2014-2015 wave of Time Use Survey data from TurkStat (Turkish Statistical Institute). The data set gathers information of 25 109 individuals above the age of 10 from 9073 households. Respondents specify their daily activities in 10-minute intervals for a weekend day and a weekday.

In the data set, all individuals are in the scope of non-institutional civilian population living in Turkey. Respondents answer various questions under many categories such as personal care, employment, education, household and family care, volunteer works and meetings, social life and entertainment, sports and nature sports, hobbies and games, mass communication tools, and travel and non-defined time use. Since this study focuses on leisure time activities, it specifically considers time devoted to social life, sports, cultural activities and rest. Table 1 presents decompositions and details of each activity group.

Total amount of time spent on social life activities, cultural activities, sports activities and rest are considered as dependent variables for empirical analysis. Demographic and socioeconomic variables such as gender, age, household income, education level, health status, employment status, marital status and child care time are available in the data set. Gender of individuals are controlled by an indicator variable for males. Age is recorded as a categorical variable in the data by 5-year intervals. This study considers individuals at the age of 15 or older. Empirical analysis employs 10-year age intervals which are indicated by dummy variables in regression models. Educational attainment is measured as a level variable under four categories: 0=No diploma; 1=Primary school; 2=Secondary school; 3=High school; and 4=Tertiary education. Marital status is measured by an indicator variable for being married. Unmarried portion of the sample include never married, divorced and widow individuals. Childcare time is measured as a continuous variable in minutes. Employment status of individuals are measured by a dummy variable for being employed which indicates that respondent has been working at least for a week during recording time of the survey. Household income level is a categorical level variable with respect to monthly income in Turkish Liras: 1=0-1080 TLs; 2=1081-1550 TLs; 3=1551-2170 TLs; 4=2171-3180 TLs; 5=3181+ TLs. Health levels of individuals are self-reported measures which are reflected via Likert scale variable ranging from 1=very poor to 5=very good.

Table 1. Decomposition of Leisure Activities

	Included Activities (Activity Code)
Social Life (Activity code 51)	Socializing with Family (511)
	Visiting and Hosting (512)
	Celebrations (513)
	Telephone Calls (514)
	Others (519)
Cultural Activities (Activity code 52)	Cinema (521)
	Theatre and Concerts (522)
	Art galleries and Museums (523)
	Library (524)
	Others (529)
Sports Activities (Activity code 61)	Walking and Hiking (611)
	Jogging and Running (612)
	Cycling, Skating and Ice-skating (613)
	Ball-played Sports (614)
	Gymnastic and Fitness (615)
	Water Sports (616)
	Others (619
Rest and Other Leisure Time (Activity code 531)	Not Specified

Source: TurkStat 2016

Due to age restrictions and presence of missing observations for different variables, operating sample of this study covers 9,153 respondents. Table 2 presents descriptive statistics of leisure time use categories and child care time for the weekday and the weekend day. There are both similarities and differences between average time spent on leisure time activities on a weekend and a weekday. For instance, average time spent on sports activities by Turkish individuals is 2.69 minutes on the weekday and 2.49 minutes on the weekend day. Average time spent on cultural activities is less than a minute for both weekday (0.35) and weekend (0.87). On average, respondents spend 10 minutes more for child care during the weekend day. For social activities, Turkish individuals spend around half an hour on average for both weekday and weekend day. Finally, on average Turkish respondents dedicate 17.6 minutes during a week day and 15.7 minutes during a weekend day for resting and other leisure time use. It's worth to note that lower mean values for time spent on leisure time activities are also due to high number of zeros in the data which may be due to non-reporting and non-participation in these type of activities. In sum, most preferred activity for leisure time use is socializing in Turkey. Individuals spend almost half an hour in a week day to socializing whereas Turkish individuals allocate little time to cultural activities.

Table 2. Descriptive Statistics for Leisure Activities

| | **Weekday** | | | | | **Weekend** | | | | |
	N	*Mean*	*Std. Dev.*	*Min*	*Max*	*N*	*Mean*	*Std. Dev.*	*Min*	*Max*
Cultural Activities	9153	0.348	3.869	0	153	9,153	0.872	5.585	0	187
Sports Activities	9153	2.692	9.781	0	344	9,153	2.491	8.541	0	181
Social Activities	9153	31.596	53.369	0	880	9,153	33.01	51.131	0	500
Resting and Others	9153	17.631	32.353	0	650	9,153	15.73	28.757	0	589
Child Care	9153	13.32	37.390	0	630	9,153	23.61	64.376	0	720

Source: TurkStat 2016

Table 3 illustrates frequency distributions of explanatory variables used in empirical analysis. In the operational sample, females constitute 25.13 % of the sample whereas males correspond to 74.87 %. 29.59% of the sample are in middle ages between 35 and 44. 27.16% of respondents fall in age category of 25-34. 11.82 % of the sample are younger than 25 years old. 33.22 of the sample hold primary school degree whereas 4.51% of respondents do not have a diploma. Only 23.17% of Turkish respondents have a college degree. 74% of the sample are married. People who work during the data recording period are considered as employed if they have been working for at least a week. In the operating sample, 97.7% of individuals are employed. 47.38% of respondents have a monthly household income which is lower than 1080 TLs. Most respondents (63%) report good health status.

This paper uses seemingly unrelated regression (SUR) for empirical analysis. This framework accounts for time constraints that can oblige individuals devote less time to a particular leisure time activity since they devote more time for another type of leisure time activity. Each leisure time activity can be a substitute for the other and regression models are estimated simultaneously. Hence, error terms are assumed to be correlated across the equations and they are not independent from each other. SUR estimation also allows for the correlations among the residuals generated by each regression equation. The following equation system is separately estimated for the weekend day and weekday day.

$$Cultural\ Activities_i = X_i\beta_1 + \varepsilon_{1_i}$$
$$Social\ Activities_i = X_i\beta_2 + \varepsilon_{2_i}$$
$$Sports\ Activities_i = X_i\beta_3 + \varepsilon_{3_i}$$
$$Other\ Activities_i = X_i\beta_4 + \varepsilon_{4_i}$$

where X_i refers to control variables which are gender, age, education level, marital status, employment status, monthly household income, health status and child care time. Each equation has the same control variables. Social activities, sports activities, cultural activities and others correspond to types of leisure time activities. Finally, ε_{ji} are normally distributed error terms.

Table 3. Frequency Distributions of Explanatory Variables

	N	*Frequency (%)*
Gender		
Male	6853	74.87
Female	2300	25.13
Age		
15-24	1082	11.82
25-34	2846	27.16
35-44	2708	29.59
45-54	1877	20.51
55-64	767	8.38
65+	233	2.55
Education Level		
No diploma	413	4.51
Primary school	3041	33.22
Secondary school	1541	16.84
High school	2037	22.25
Tertiary education	2121	23.17
Marital Status		
Married	6772	73.99
Not Married	2381	26.01
Employment Status		
Employed	8943	97.71
Not Employed	210	2.29
Household Income		
0-1080	4337	47.38
1081-1550	1935	21.14
1551-2170	1096	11.97
2171-3180	1186	12.96
3181+	599	6.54
Health Status		
Very good	1478	16.15
Good	5812	63.50
Fair	1599	17.47
Poor	250	2.73
Very poor	14	0.15

Source: TurkStat 2016

4. Empirical results

Table 4 and Table 5 present SUR estimation results for the time devoted to cultural activities, sports activities, social activities and other leisure time activities during the week day and the weekend day, respectively. There are only few factors which are significantly correlated with time spent on different leisure time activities. Unlike earlier findings that report gender differences in leisure time allocation (Katz-Gerro, 1999; Christin, 2012; Farrell & Shields, 2002; Artime, 2014), this study finds no gender gap in time spent on leisure activities in Turkey. This result may be attributed to the fact that time spent on leisure activities is very low. Furthermore, due to data limitations, females are only 25% of the sample and this may lead results to be biased towards male behavior in leisure time allocation.

Table 4. SUR Estimation Results for Leisure Activities: Week Day

	Cultural Activities	Social Activities	Sports Activities	Other Activities
Male	-0.0738	1.501	-0.200	0.534
	(0.0979)	(1.345)	(0.247)	(0.817)
Age:				
15-24	-0.223	-1.481	-0.759*	0.285
	(0.174)	(2.398)	(0.441)	(1.456)
25-34	-0.0729	1.109	-0.215	1.398
	(0.113)	(1.557)	(0.286)	(0.945)
(Base Category) 35-44	-	-	-	-
45-54	0.0378	0.351	0.369	2.354**
	(0.117)	(1.612)	(0.296)	(0.979)
55-64	0.159	0.689	-0.406	-0.878
	(0.162)	(2.233)	(0.410)	(1.356)
65+	-0.240	-0.0158	-0.257	3.247
	(0.273)	(3.756)	(0.690)	(2.280)
Education Level:				
No diploma	-0.245	-5.328*	-0.427	1.046
	(0.227)	(3.123)	(0.574)	(1.896)
Primary school	-0.153	-0.362	-0.212	-0.299
	(0.132)	(1.819)	(0.334)	(1.105)
(Base Category) Secondary school	-	-	-	-
High school	-0.252*	-1.345	0.491	1.137
	(0.134)	(1.842)	(0.338)	(1.118)
Tertiary education	-0.147	-0.576	0.486	-0.527
	(0.150)	(2.066)	(0.380)	(1.254)
Married	-0.102	2.660*	-0.0839	0.488
	(0.117)	(1.602)	(0.294)	(0.973)
Employed	0.197	-9.848***	-1.713**	-3.540
	(0.271)	(3.731)	(0.686)	(2.265)
Household Income				
0-1080	-0.0181	3.958***	0.330	2.679***
	(0.111)	(1.520)	(0.279)	(0.923)
(Base Category) 1081-1550	-	-	-	-
1551-2170	0.191	1.178	0.359	1.290
	(0.148)	(2.033)	(0.374)	(1.234)
2171-3180	0.113	-2.087	0.0655	2.547**
	(0.155)	(2.138)	(0.393)	(1.298)
3181+	0.197	-4.382	0.466	0.349
	(0.197)	(2.712)	(0.498)	(1.647)
Health Status	-0.102	-0.235	-0.0888	-1.885***
	(0.0641)	(0.882)	(0.162)	(0.536)
Child Care Time	-0.00100	0.0917***	-0.00486*	-0.0114
	(0.00108)	(0.0149)	(0.00274)	(0.00904)
Constant	0.841**	36.90***	4.734***	25.13***
	(0.417)	(5.736)	(1.054)	(3.483)
N	9153	9153	9153	9153
R²	0.002	0.008	0.003	0.005

Notes: Robust standard errors are in parentheses. *** $p<0.01$, ** $p<0.05$, * $p<0.1$. Source: TurkStat 2016

According to Table 4, age level does not display significant relationships with time spent on cultural activities and social activities on weekdays. On the other hand, when sports activities are considered, respondents aged between 15 and 24 allocate 0.76 minutes less time for sports activities compared to reference group of 35-44 years old. Furthermore, individuals aged between 45 and 54 spend 2.35

minutes more on other activities than reference group. Table 5 implies that age is not correlated with time spent on cultural activities and sports on weekends. However, during the weekend day individuals aged between 55 and 64 spend 4.56 more minutes for social activities compared 35-44 age group. Similarly, respondents at age groups of 45-54 and 65+ are to spend more time on other leisure activities compared to reference group. Therefore, estimation results of this study add to mixed findings of the literature (Artime, 2014; Humphreys & Ruseski, 2006; Lera-López & Rapún-Gárate, 2011).

Table 5. SUR Estimation Results for Leisure Activities: Weekend Day

	Cultural Activities	Social Activities	Sports Activities	Other Activities
Male	0.0984	-0.417	-0.214	0.0565
	(0.141)	(1.289)	(0.216)	(0.726)
Age:				
15-24	-0.135	0.249	-0.454	0.795
	(0.252)	(2.298)	(0.385)	(1.294)
25-34	0.126	0.527	-0.371	0.901
	(0.163)	(1.492)	(0.250)	(0.840)
(Base Category) 35-44	-	-	-	-
45-54	0.0969	2.020	-0.0796	1.810**
	(0.169)	(1.545)	(0.259)	(0.870)
55-64	-0.226	4.569**	-0.483	0.471
	(0.234)	(2.140)	(0.358)	(1.205)
65+	-0.156	6.800*	-0.192	4.510**
	(0.394)	(3.600)	(0.602)	(2.027)
Education Level:				
No diploma	-0.0146	-9.133***	-0.505	0.684
	(0.328)	(2.993)	(0.501)	(1.685)
Primary school	-0.0695	-0.266	-0.152	0.125
	(0.191)	(1.744)	(0.292)	(0.982)
(Base Category) Secondary school	-	-	-	-
High school	0.108	-0.151	0.612**	0.767
	(0.193)	(1.765)	(0.295)	(0.994)
Tertiary education	0.215	-0.411	0.828**	-1.305
	(0.217)	(1.980)	(0.331)	(1.115)
Married	-0.0788	1.975	-0.107	1.628*
	(0.168)	(1.536)	(0.257)	(0.865)
Employed	-0.136	-11.07***	-0.0737	-1.605
	(0.391)	(3.576)	(0.598)	(2.014)
Household Income				
0-1080	-0.0984	3.997***	0.480**	0.681
	(0.160)	(1.457)	(0.244)	(0.821)
(Base Category) 1081-1550	-	-	-	-
1551-2170	0.0978	0.0816	0.902***	0.0812
	(0.213)	(1.948)	(0.326)	(1.097)
2171-3180	0.264	-0.167	0.219	2.105*
	(0.224)	(2.049)	(0.343)	(1.154)
3181+	0.712**	-3.138	0.132	-1.585
	(0.285)	(2.599)	(0.435)	(1.464)
Health Status	-0.0180	-0.0601	-0.378***	-1.151**
	(0.0925)	(0.845)	(0.141)	(0.476)
Child Care Time	-0.0000949	0.0418***	-0.00204	-0.00956**
	(0.000910)	(0.00832)	(0.00139)	(0.00468)
Constant	0.951	39.74***	3.924***	19.49***
	(0.602)	(5.498)	(0.920)	(3.097)
N	9153	9153	9153	9153
R^2	0.003	0.008	0.005	0.005

Notes: Robust standard errors are in parentheses. *** $p<0.01$, ** $p<0.05$, * $p<0.1$ Source: TurkStat 2016

Education level is a covariate of time allocation for leisure activities as indicated by the related literature (Christin, 2012; Artime, 2014; Garcia et al., 2011). Empirical findings for weekday estimations reveal that high school graduates spend less time on cultural activities compared to secondary school graduates. Respondents with no official diploma spend 5.3 less minutes on social activities than the reference group in a week day and a weekend day. However, education level is not correlated with time spent on sports and other activities in a weekday. According to Table 5, high school graduates and college graduates spend more time on sports than primary school graduates on weekends. Education level is not significantly associated with time spent on cultural and other activities on weekends for Turkish individuals.

Married individuals spend 2.66 more minutes on social activities during a week day. On the other hand, being married does not display correlations with time spent on cultural, sports and other activities on a week day. For weekend results, being married is positively correlated with time spent on other leisure activities. According to Table 5, marital status is not related with time spent on cultural, social and sports activities during a weekend day. Artime (2014) suggests that cultural activities have also a social dimension because they maintain interaction with others. Therefore, social activities can be included into cultural activities. Regarding to this approach, this paper's findings about married individuals and attendance on social activities contradicts with Artime (2014)'s and Katz-Gerro (1999)'s estimations. They claim that married couples allocate less time on those activities due to family responsibilities. Findings of this paper are consistent with the idea that married individuals are more likely to attend social events with their spouses.

Table 4 reveals that employed individuals spend less time on social activities and sports during a week day. Cultural and other leisure time uses are not associated with employment status during a week day in Turkey. Employment status is also negatively correlated with time spent on social activities during a weekend day. Table 5 displays that being employment is not correlated with time spent on cultural, sports and other leisure time activities. Being employed diminishes the time left for other type of activities. Findings on sports activity confirm the literature results for the week day (Artime, 2014; Lera-Lopez & Rapun-Garate, 2011).

Monthly household income level does not display correlations with cultural and sports activities in a week day for Turkish individuals. Table 4 also reveals that the poorest group spend more time on social activities and other activities compared to middle income group in a week day. Moreover, upper middle income group spend more time on other leisure activities than middle income group for the week day. During a weekend day, the richest portion of the sample spend more time on cultural activities. Table 5 indicates that the lowest income group spend more time on sports compared to reference income group in a weekend day. With higher household income level, individuals participate less often in social activities and sports. Individuals have to work more in order to earn more, the availability of time may be a barrier to spend time on leisure time activities. Findings of this study are not consistent with earlier studies (Artime, 2014; Garcia et al., 2011; Lizardo, 2006) since other studies use other measures such as non-labor income and wage rates.

Considering Table 4, health status is not a determinant of participation in social, cultural and sports activities but it is significantly associated with other activities during a week day for Turkish individuals. A higher level of health status is associated with 1.88 minutes decline in time spent in other leisure activities. This finding is not consistent with literature (Humphreys & Ruseski, 2006; Artime, 2014). Similarly, health statuses of Turkish individuals do not correlate with time spent on social and cultural activities on a weekend day. However, better health status is negatively associated with time spent on sports and other leisure time activities on a weekend day. Healthier Turkish individuals are less likely to spend time on some leisure activities.

Table 4 and Table 5 indicate that individual's time spent on child care do not correlate with time spent on cultural activities. Surprisingly, child care time is positively and significantly associated with social activities. Individuals' interaction with other people increases when they spend time with their children. On the other hand, similar to Artime (2014), child care time is significantly and negatively related to sports activities on a week day. In other words, individuals devote less time to sports activities when they take care of their children. According to Table 5, individuals who devote more

time to their child are to spend less time on leisure other activities. Socializing consists of activities such as family interactions and visiting or hosting guests. Thus, this finding is consistent with the idea that married couples with children spend more time on socializing since grandparents also involve in the child care activity.

Finally, Table 6 displays the correlation matrices of residuals for week day and weekend day estimations, respectively. Results indicate that correlation coefficients are jointly significant for week day and weekend day models. Error terms of single equations are not independent. Therefore, this result justifies choice of SUR estimation framework for this paper.

In sum, results reveal that weekend and week day estimations display differences. For weekday results, only high school education affects participation in cultural activities. However, highest income level has positive association with cultural activities for weekend day model. Education, employment, household income, child care time and income are significant predictors for social activities for both weekends and weekdays. Age, employment and child care time have significant relations with sports time for weekday. For weekends, education, income level and health status are correlates of time spent on sports activities. One should note that this study is not without limitations. First, this study uses self-reported survey data which are prone to reporting biases and measurement errors. Variables such as monthly household income and employment status include many missing variables that may bias empirical results of the paper. Gender distribution of the sample is not balanced and include relatively more Turkish males. Finally, findings of the study should be interpreted as correlations since the nature of the data and empirical model do not enable for identification of causal mechanism between variables of interest. Thus, findings of this study should be considered as exploration of potential determinants of leisure time allocation in Turkey. Future studies should focus on identification of causality directions for covariates of time allocated to different types of leisure time activities in Turkey.

Table 6. Correlation Matrix of Residuals

Panel A: Week Day Models				
	Cultural Activities	**Social Activities**	**Sports Activities**	**Other Activities**
Cultural Activities	1.0000			
Social Activities	0.0168	1.0000		
Sports Activities	0.0854	0.0529	1.0000	
Other Activities	0.0077	0.2125	0.1169	1.0000
	Breusch-Pagan test of independence: chi2(6)=633.831***			
Panel B: Weekend Day Models				
	Cultural Activities	**Social Activities**	**Sports Activities**	**Other Activities**
Cultural Activities	1.0000			
Social Activities	0.0255	1.0000		
Sports Activities	0.0873	0.0543	1.0000	
Other Activities	0.0247	0.1993	0.0729	1.0000
	Breusch-Pagan test of independence: chi2(6)=633.831***			

Source: TurkStat 2016

5. Conclusion

The time remained after paid work, unpaid work and other necessities of individuals is categorized as leisure time. Utilization of leisure time plays crucial role in forming productivity and efficiency of labor force. This paper explores the determinants of time devoted to leisure activities such as sports activities, cultural activities, socializing and relaxing in Turkey. For this purpose, this paper employs 2014-2015 Time Use Survey of TurkStat which records daily activities of individuals in a 24-hour basis for a week day and a weekend day. Since leisure time activities are substitutes for each other, this paper utilizes a simultaneous equation framework. Seemingly Unrelated Regression (SUR) model is used to quantify determinants of time spent on cultural, social, sports and other leisure activities.

Empirical findings show that age, education level, marital status, child care time, self-reported health level, education level and monthly household income are associated with individual's time spent on various leisure time activities. However, there is heterogeneity in correlates of different leisure time activities. For instance, time spent on cultural activities is associated with only education level and household income level. Social activity time, on the other hand, is significantly correlated with age, education level, marital status, employment status and child care time. Considering sports activities, younger, employed and healthier individuals spend less time in sports whereas education level is positively correlated with doing sports. Older and married spend more time on other leisure activities such as relaxing and spare time. Conversely, child care time and health status is negatively associated with time spent on other activities.

This study reveals insights on determinants of leisure time allocation in Turkey and complements the existing literature by providing empirical evidence from a developing country perspective. However, there are limitations of this study. First, survey data is prone to reporting biases and measurement errors. Moreover, variables such as income level and employment level display high levels of missing or unrecorded data. This property of the data reduces the operating sample size and leads to unbalanced sample distribution with respect to demographics. The data set does not allow for distinction of non-labor income and labor income at individual level. Finally, properties of the data set and estimation framework only permits exploration of correlations rather than causation among variables of interest. Further research may consider identifying causal pathways between certain factors and time spent on leisure time activities. Additionally, exploration of gender differences in leisure time allocation has potential to provide crucial insights for public policy applications.

Overall, empirical analysis indicate that time spent on leisure activities are at low levels, especially for cultural activities, in Turkey. As formation and maintenance and human capital depends crucially on optimal use of time for various activities, policy makers may develop strategies for increasing attendance rates of Turkish individuals for certain cultural, social and sports activities.

References

Artime, C. M. (2014). *Time allocation to leisure activities in Spain: Empirical evidence on individual involvement in sport and cultural activities* (PhD Thesis). University of Oviedo, Spain.

Aarnio, M., Winter, T., Kujala, U. & Kaprio, J. (2002). Associations of health related behaviour, social relationships, and health status with persistent physical activity and inactivity: A study of Finnish adolescent twins. *British Journal of Sports Medicine, 36*(5), 360-364.

Alexandris, K. & Carroll, B. (1997). Demographic differences in the perception of constraints on recreational sport participation: Results from a study in Greece. *Leisure Studies, 16*(2), 107-125.

Bittman, M. (2002). Social participation and family welfare: The money and time costs of leisure in Australia. *Social Policy & Administration, 36*(4), 408-425.

Bittman, M., & Wajcman, J. (2000). The rush hour: The character of leisure time and gender equity. *Social Forces, 79*(1), 165-189.

Breuer, C. & Wicker, P. (2009). Decreasing sports activity with increasing age? Findings from a 20-year longitudinal and cohort sequence analysis. *Research Quarterly for Exercise and Sport, 80*(1), 22-31.

Cheng, T. C. & Wen, W. J. (2011). Determinants of performing arts attendance in Taiwan: a multivariate probit analysis. *Applied Economics Letters, 18*(15), 1437-1442.

Christin, A. (2012). Gender and highbrow cultural participation in the United States. *Poetics, 40*(5), 423-443.

DiMaggio, P. (1982). Cultural capital and school success: The impact of status culture participation on the grades of US high school students. *American Sociological Review, 189*-201.

Downward, P. (2007). Exploring the economic choice to participate in sport: results from the 2002 General Household Survey. *International Review of Applied Economics, 21*(5), 633-653.

Downward, P., & Riordan, J. (2007). Social interactions and the demand for sport: An economic analysis. *Contemporary Economic Policy, 25*(4), 518-537.

Eime, R. M., Harvey, J. T., Charity, M. J., Casey, M. M., Westerbeek, H. & Payne, W. R. (2016). Age profiles of sport participants. *BMC Sports Science, Medicine and Rehabilitation, 8*(1), 6.

Enke, S. (1968). On the Economics of Leisure. *Journal of Economic Issues, 2*(4), 437-440.

Farrell, L., & Shields, M. A. (2002). Investigating the economic and demographic determinants of sporting participation in England. *Journal of the Royal Statistical Society: Series A (Statistics in Society), 165*(2), 335-348.

Fridberg, T. (2010). Sport and exercise in Denmark, Scandinavia and Europe. *Sport in Society, 13*(4), 583-592.

García, J., Lera-López, F., & Suárez, M. J. (2011). Estimation of a structural model of the determinants of the time spent on physical activity and sport: Evidence for Spain. *Journal of Sports Economics, 12*(5), 515-537.

Green, E., Woodward, D., & Hebron, S. (1990). *Women's Leisure, What Leisure?: A Feminist Analysis*. London, UK: Macmillan International Higher Education..

Gürbüz, B., & Henderson, K. A. (2014). Leisure activity preferences and constraints: Perspectives from Turkey. *World Leisure Journal, 56*(4), 300-316.

Humphreys, B. R., & Ruseski, J. E. (2006). Economic determinants of participation in physical activity and sport. *Working Paper Series of the International Association of Sports Economics (IASE), 06-13*, 1-25.

Humphreys, B. R., & Ruseski, J. E. (2007). Participation in physical activity and government spending on parks and recreation. *Contemporary Economic Policy, 25*(4), 538-552.

Humphreys, B. R., & Ruseski, J. E. (2011). An economic analysis of participation and time spent in physical activity. *The BE Journal of Economic Analysis & Policy, 11*(1).

Johansson, S. E., Konlaan, B. B., & Bygren, L. O. (2001). Sustaining habits of attending cultural events and maintenance of health: a longitudinal study. *Health Promotion International, 16*(3), 229-234.

Juster, F. T., & Stafford, F. P. (1991). The allocation of time: Empirical findings, behavioral models, and problems of measurement. *Journal of Economic Literature, 29*(2), 471-522.

Karaküçük, S. (2014). *Rekreasyon: boş zamanları değerlendirme*. Ankara: Gazi Kitabevi.

Katz-Gerro, T. (1999). Cultural consumption and social stratification: leisure activities, musical tastes, and social location. *Sociological Perspectives, 42*(4), 627-646.

Katz-Gerro, T., & Sullivan, O. (2004). Leisure, Tastes and Gender in Britain: Changes from the 1960s to the 1990s. *Sociologie Et Societes, 36*(1), 165-186.

Keynes, J. M. (2010). *Economic possibilities for our grandchildren. In Essays in persuasion* (pp. 321-332). London: Palgrave Macmillan.

Kurar, I., & Baltacı, F. (2014). Halkın boş zaman değerlendirme alışkanlıkları: Alanya Örneği. *International Journal of Science Culture and Sport, 2*(Special Issue 2), 39-52.

Lera-López, F., & Rapún-Gárate, M. (2011). Determinants of sports participation and attendance: differences and similarities. *International Journal of Sports Marketing and Sponsorship, 12*(2), 66-89.

Lizardo, O. (2006). How cultural tastes shape personal networks. *American Sociological Review, 71*(5), 778-807.

Sayer, L. C. (2005). Gender, time and inequality: Trends in women's and men's paid work, unpaid work and free time. *Social Forces, 84*(1), 285-303.

Seaman, B. A. (2005). Attendance and public participation in the performing arts: A review of the empirical literature. *Andrew Young School of Policy Studies Research Paper Series*, No. 06-25.

Shelton, B. A. (1992). *Women, men, and time: Gender differences in paid work, housework, and leisure* (No. 127). New York: Greenwood Press.

Taks, M., & Scheerder, J. (2006). Youth sports participation styles and market segmentation profiles: evidence and applications. *European Sport Management Quarterly, 6*(2), 85-121.

TurkStat. (2016). *Time Use Survey of Turkey for 2014-2015*. Turkish Statistical Institute. Available at: http://www.turkstat.gov.tr/MicroVeri/ZKA_2014/english/index.html

Van Tuyckom, C., Scheerder, J., & Bracke, P. (2010). Gender and age inequalities in regular sports participation: A cross-national study of 25 European countries. *Journal of Sports Sciences, 28*(10), 1077-1084.