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Armagan Tuna Aktuna Gunes. Domestic activity patterns pertaining to households and informality in Turkey. Documents de travail du Centre d'Economie de la Sorbonne 2015.18 - ISSN : 1955-611X. 2015. <halshs-01161874>

HAL Id: halshs-01161874
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Submitted on 9 Jun 2015

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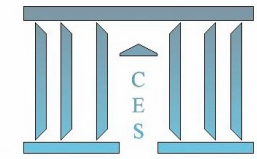

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http://centredeconomiesorbonne.univ-paris1.fr/
ISSN : 1955-611X

Domestic activity patterns pertaining to households and informality in Turkey

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February, 2015

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Documents de Travail du Centre d'Economie de la Sorbonne - 2015.18

Abstract

We investigate underlying determinants of informality by representing the Turkish Time Use Survey in 2006 and the Household Budget Surveys for the years from 2003 to 2006 conducted by Turkish Statistical Institute. Following the descriptive methodology proposed by Gronau and Hamermesh (2006), the main focus is to describe the household data by highlighting the main features and revealing the relative importance of expenditures of time and goods through an exhaustive set of commodities and assign time and goods inputs to each in order to measure their relative goods intensities. The analysis of the evolution of commodity per time spent during 2003, 2004, 2005 and 2006 reveals the fact that the average values for total expenditures per total time spent show increases in a decreasing trend (concave shape) over these years. Supposing that the average time spent among these years is constant on average (meaning that they did not really change from one year to another), the result of this accounting support the hypotheses that the amount of consumption present in household production during these years decreased. Our findings could be used as guides to better understanding the socio-economic conditions in developing countries and to obtain more accurate measurements of the size of informality, poverty and income inequalities.

Keywords: domestic activities, time use, goods intensity, informality
JEL Classification: D1,J22, E26

Résumé

Nous enquêtons sur les déterminants sous-jacents de l'informalité en représentant l'enquête Emploi du temps 2006 et les enquêtes Budget des familles de 2003 à 2006 menées par l'Institut Statistique de la Turquie. Conformément à la méthodologie descriptive proposée par Gronau et Hamermesh (2006), l'objectif principal est de décrire les données sur les ménages en mettant en évidence les principales caractéristiques et en révélant l'importance relative des dépenses du temps et des biens à travers un ensemble de produits et les entrées des biens et le temps assigné pour chacun afin de mesurer leurs intensités de biens relatifs. L'analyse de l'évolution des produits par les dépenses du temps pendant les années 2003, 2004, 2005 et 2006 révèle le fait que l'augmentation des valeurs moyennes pour les dépenses monétaires totales par celles temporelles baisse (en forme concave) au cours de ces années. En supposant que les dépenses du temps moyennes pendant ces années sont constantes (ce qui signifie qu'ils n'ont vraiment pas changé d'une année à l'autre), le résultat de cette analyse soutient l'hypothèse que la consommation actuelle de la production des ménages au cours de ces années a diminué. Nos résultats pourraient être utilisés comme guides pour mieux comprendre les conditions socio-économiques dans les pays en développement et pour obtenir des mesures plus précises de la taille de l'informalité, de la pauvreté et des inégalités de revenus.

Mots-clés : activités domestiques, utilisation du temps, intensités de biens, informalité
Classification JEL: D1,J22, E26

Introduction

Consumer behavior is still at the forefront of economic theory, a field of research that increasingly evolves towards theoretical ripeness. Interest has also centered, over the last few decades, on the implication time use has for various fields of economic analysis as the privileged concept. Becker (1965) introduces time in the economic analysis of household behavior. He argued for abandoning the pre-established roles of consumers and producers assumed in traditional neoclassical theory, by proposing for the first time, to consider households as production entities that combine time with market goods and transform them into final commodities. These final goods as production are represented in the households' utility function.

Integrating time assignment decisions into consumer behavior theory has been explored for more than 40 years by studies from many different perspectives, including those with an interest in either the analysis of domestic activities, leisure time with study of the labor market, or understanding travel behavior and so on[1]. Likewise, the various approaches to studying the phenomenon differ greatly in the way that they relate to macroeconomics, such as the relationship between household production and market output; the impact of taxes on time use and goods consumption; the determinant of international trade flows[2] and so on.

Viewed from a political standpoint, measuring the size of domestic production can prove to be an important tool for the design of public policy. On that point, households' productive activities are not desirable to governments since they are most likely to be non-observed, as is the case for underground, informal activities or those undertaken by households for their own final use (Andrews, 2011). Here, the term *non-observed* refers to those economic activities which should be included in the GDP but which, for one reason or another, are not accounted for in the statistical surveys or administrative records from which national accounts are constructed (Blades and Roberts, 2002). On the other hand, viewed from a theoretical standpoint, it would be impossible to reduce national account-based non-observed economy into budget constraint at individual optimization. This inconstancy is due to the fact that excluding certain expenditures because they are not part of intermediary goods and services, violates budget constraints defined in individual utility maximization (or cost minimization) programs (i.e. the complete demand system approach, see Deaton and Muellbauer, 1980). In other words, from the point of view traditional of neoclassical theory, it is meaningless to make such a distinction between types and amounts of goods preferred as intermediary goods in a household budget. Thus, Aktuna-Gunes et al. (2014, 2015) estimated the size of informal economy by taking into account both the monetary expenditures and time spent on domestic activities of households as a whole in Turkey for the years from 2003 to 2006 for the first time in the literature. The logic underpinning the interaction of these phenomena is that the substitution effect between income and time would depend on the relationship between working informally and domestic time-use decisions. Therefore, the existence of flexible market structures alongside low levels of deprivation among different social classes would imply a negative relationship between these activities. However, this argumentation may be false in the case of emerging markets. Transition inflexibilities in labor markets and insufficiencies of goods and services would reveal the fact that domestic time use may also increase participation in informal markets.

[1] See Johnson (1966); Oort (1969); DeSerpa (1971); Evans (1972); Pollak and Wachter (1975); Gronau (1977, 1986); Small (1982); Gronau, (1986, 1997) . Biddle and Hamermesh, (1990); Jara-Diaz (2006); Jara-Díaz and Guevara (2003); Jara-Díaz et al. (2013). The last work of this chain of studies is that of Gardes (2013). It measures the cost of child through the new full cost method assuming that it is associated to the family structure, and the substitutions between monetary and non monetary costs.

[2] See Benhabib *et al.*,(1991); Greenwood *et al.*, (1995); Boskin, (1975) ; Markusen, (1986).

Market goods and services necessarily combined with time input would not suffice to produce enough final goods to satisfy needs for developing economies. The objective of this paper is to analyze this argument by investigating the combined pattern of goods and time in generating commodities in Turkey covering the years from 2003 to 2006. To this end, two methodologies have been employed. Looking at the first analysis, the rate of time use and the actual average income meeting average total expenditures for different sub-populations has been calculated respectively by using the 2006 Time Use Survey and the 2003, 2004, 2005 and 2006 Household Budget Surveys conducted by the Turkish Statistical Institute (TURKSTAT). The second analysis is devoted to revealing the relative importance of time use in household production decisions. Following the descriptive methodology proposed by Gronau and Hamermesh (2006), the ratio of consumption goods to time inputs is calculated by creating a consistent set of broadly defined commodities and assigning time and goods inputs to each one. Finally, we examine how these relative goods intensities vary from one year to the next for different sub-populations in order to better identify the households that are more inclined to work in the informal sector.

1. Overview of Time Use and Consumption Decisions in Turkey

The main objective of this section is to represent the detailed description of the Time Use Survey (TUS) 2006 and Household Budget Survey (HBS) for the years between 2003 and 2006. The main focus is to describe the data by highlighting the main features of economic activities in households.

1.2. Time Use Survey (2006)

The first national time use survey of Turkey was completed in 2006 by TURKSTAT. The Turkish time use survey was designed to be a part of the Harmonized European Time Use Study (HETUS) and utilized EUROSTAT (2000a, 2000b) activity classifications and coding as its basis. The design specifications reflected the effort to obtain comparable data to other European countries. It consisted of a 24 hour diary with follow-up interviews with 5 070 households. The sampling method was quantitative stratified multi-stage sampling. Starting from December 2005, each month approximately 390 households, totalling 5 070 households, were selected to implement the TURKSTAT Time Use Survey. 11 815 members of households aged 15 years and over were interviewed and were asked to complete two diaries - one for a weekday and one for a weekend day- by recording all of their daily activities during 24 hours at ten minute intervals. Design specifications of the time use survey in Turkey (2006) is represented in **Table 1**.

Table 1: Design Specifications of The Time Use Survey in Turkey (2006)

Title of survey	: 2006 Time-Use Survey
Reference period	: 1 December 2005 to 31 December 2006. 13 months
Source	: Turkish Statistical Institute (TURKSTAT)
Survey design	: Independent Survey
Survey objectives	: to measure the daily activity patterns of Turkish people; to identify differences in time-use patterns of different gender, age and socio-economic group; to collect data that improve GNDP estimates;
Method of data collection	: Self-completed 24 h diary with 10 min intervals
	Survey instrument
-Description	: Full time-diary and household questionnaire
-Recording of simultaneous activities	: One secondary activity
-Context variables collected (for what purpose, for whom, with whom, location, paid/unpaid etc.)	: For whom, with whom, location, transport mode
Activity classification	: Adaptation of EUROSTAT activity classifications
Time sample	: Covers 13 months, continuous on a weekly basis; household members provide data for specified two days one weekday, one weekend; all members of the household keep their diary on the same day, all days of the week surveyed in equal proportions, postpone
	Sample selection
-Reference population	: National, household population (excluding people living in institutions, i.e. hospitals, military barracks, jails, elderly homes), all household members aged 15 years or over
-Sampling procedure	: All eligible households, urban and rural (5070 households; 3380 urban, 1690 rural)
Response rate	: Above 80%

Source: Erkip F. and Mugan G. (2010)

Main Observations Taken from Descriptive Statistics of the Time Use Survey in Turkey (2006)

- The time spent in these various categories of personal and household production activities can be disaggregated by gender, education level, age group, marital status, labor force participation status, household size, income level, income type and location of residence (rural or urban).
- Four different types of question forms are filled out to enable the collection of detailed and accurate information: the household question form, the individual question form, the daily diaries and the working time table. All activities in a day are classified in the following 11 categories: 1. Eating and other personal care; 2. Working at a job and/or seeking a job; 3. Education; 4. Household and house care; 5. Voluntary work and meetings; 6. Social life and entertainment; 7. Sports; 8. Hobbies and games; 9. Mass media tools; 10. Travel and unidentified time usage; 11. Sleep.
- Household and house care accounts include a broad range of activities which are classified in nine groups, namely: 1. Food management; 2. House care; 3. Washing clothes, ironing, etc.; 4. Gardening and animal care; 5. Construction and repair; 6. Shopping and services; 7. Household management; 8. Child care; 9. Elder care.

- Individuals 15 years of age and over spend 8 hours and 32 minutes on sleeping in an average day –including working days and weekends- while they spend only 7 minutes on sports activities (TURKSTAT, 2007).
- If all activities of people aged 15 years and over in 24 hours are investigated; employed men spend 6 hours and 8 minutes on working in economic jobs while employed women spend 4 hours and 19 minutes in average working.
- The average amount of time spent by illiterate persons on household and family care which include activities related to cooking, childcare, garden care, house cleaning and maintenance is 4 hours and 10 minutes. It is 3 hours and 34 minutes for people who completed primary school, 2 hours and 17 minutes for people who completed secondary or high school and 2 hours and 8 minutes for people graduated from at least higher educational institutions. Furthermore, illiterate persons work for a gainful job for 1 hour and 14 minutes, while persons have higher education degree work for 3 hours and 39 minutes in average (TURKSTAT, 2007).
- When analyzing details of average time spent on household and family care activities by women aged 15 years and over, 45 % of this activity is used for cooking and washing dishes etc., 21 % is used for house cleaning and maintenance and 13 % is used for childcare. On the other hand, men spent 52 minutes in a day on household activities and 13 % of this amount is allocated for cooking, washing dishes etc. and 20 % is used for childcare.

Activity Classification at the Individual Level

As mentioned above in the previous section, accounting for the role of household production allows better understanding of participation in informal activities. In order to perform more accurate data analysis, we categorized all time spent in activities within 8 groups: Food Time; Personal Care and Health Time; Housing Time; Clothing Time; Education Time; Transport Time; Leisure Time; Other Time.

As underlined by Abraham and Mackie (2005), dealing with the general issues surrounding the differences between the consumption and the production aspects of household time is extremely complex. There of course exists substantial heterogeneity among individuals with regards to the extent that each of these commodities represents production or consumption. The details of these categories are as follows: Food Time includes household and family care as well as the administering of food.[3] Personal Care Time consists of personal care, commercial-managerial and personal services, or caring for a sick or elderly person in the household. Housing Time corresponds to household-family care such as home care, gardening and pet care, maintenance-construction work, such as the repair and administration of a household. Clothing Time consists of washing clothes and ironing. Education Time includes study (education) and childcare. Transport Time consists of travel and unspecified time use. Leisure Time corresponds to voluntary work and meetings, social life and entertainment as social life, entertainment-culture and resting-holiday, sports activities as physical exercise, hunting, fishing etc., sport, hobbies and games as art and hobbies, mass media as reading, TV/Video, radio and music. Other Time includes periods of employment and labor-seeking. The summary statistics for TUS is given in **Table 2**.

[3] The food time consists only of cooking. The reason is that it is not possible to separate eating activity from personal care time use data.

Table 2: Summary Statistics on Time Spent (for 8 Activities by Categorical Variables)

2006 TUS Average for Time (hrs/month)	Food	Health and Personal Care	Housing	Clothing	Education	Transportation	Leisure	Other	TOTAL
Age									
Age<30	57	106	40	19	47	48	220	78	616
Std. Dev.	71	132	66	40	92	77	294	155	718
29<Age<60	110	247	74	33	81	112	473	272	1402
Std. Dev.	62	137	72	42	95	81	289	214	602
59<Age	112	259	82	31	38	104	565	176	1367
Std. Dev.	68	163	85	46	81	92	290	259	736
Area									
Rural	121	247	96	37	60	109	511	243	1425
Std. Dev.	76	168	96	50	87	90	322	267	778
Urban	98	234	61	28	69	102	461	221	1273
Std. Dev.	58	139	60	39	96	83	290	211	625
Male Education									
Without Diploma	120	257	86	35	50	102	549	192	1391
Std. Dev.	77	184	82	49	86	101	336	269	829
Primary Education	115	260	82	35	65	113	513	257	1441
Std. Dev.	65	148	82	46	88	85	294	240	652
Secondary Education	97	225	60	25	87	103	436	249	1282
Std. Dev.	52	108	54	31	112	72	266	200	521
Superior Education	87	227	58	25	79	107	466	211	1260
Std. Dev.	48	110	53	32	99	73	234	166	421
Female Education									
Without Diploma	140	304	106	42	65	125	645	253	1681
Std. Dev.	79	181	97	56	99	99	333	302	822
Primary Education	112	252	77	33	74	113	488	259	1408
Std. Dev.	55	131	70	41	91	80	271	213	545
Secondary Education	92	229	60	26	85	105	434	247	1278
Std. Dev.	45	97	58	33	96	71	248	184	414
Superior Education	82	238	52	22	78	106	432	254	1264
Std. Dev.	41	110	36	23	90	67	206	187	333
Working Status									
Wage Earners	103	233	67	31	87	109	433	292	1355
Std. Dev.	57	119	61	39	97	73	259	182	521
Self Employed	126	272	91	37	64	116	527	322	1556
Std. Dev.	76	172	91	49	96	93	314	262	748
TOTAL	106	239	74	31	66	104	479	228	1327
Std. Dev.	66	150	76	43	93	86	303	232	687

Source: Authors' calculations from Time Use Survey data covering 2006.

The selected time spent activities in **Table 2** is performed by mean hours per month. Five categorical variables as age, location, husband's education level, wife's education level and two working status have been chosen. All time values are computed from the time diaries which are weighted so that the averages represent the seven days of the week equally. The final column shows the total average amount of time allocated by sub-populations. The final row in the **Table 2** gives average time spent values for each activity in the 2006 TUS.

Leisure activities take the highest time amount. Therefore, some of the leisure activities are realized at home, thus it is quite hard to know the exact amount of time spent in the house. According to the press report by TURKSTAT (2007), non-working men and woman spend 1 hour + 12 minutes and 5 hours + 43 minutes on household and family care activities respectively. In addition, working women spend 1 hour and 34 minutes on watching TV, reading books, magazines etc. while non-working women spend 2 hours and 18 minutes. Also non-working men spend 3 hours and 12 minutes on watching TV, reading etc. We observe that the second largest time spent activity is health with personal care. This is followed by the time spent on other, food, transportation, housing education and clothing activities.

The major limitation of the 2006 TUS is the lack of family type data. Hence, it is not possible to envisage a family's average time use values for each activity. Instead, we could use marital status of the households that participated in the TUS. **Table 3** shows the share of couples that participated in the TUS.

Table 3: Marital Status Share by Sub-Population

Variables	Observations	Mean
Age<30	3463	1%
29<Age<60	3463	71%
59<Age	3463	28%
Rural	3463	37%
Urban	3463	63%
Husband		
Without Diploma	3463	11%
Primary Education	3463	62%
Secondary Education	3463	16%
Superior education	3463	10%
Wife		
Without Diploma	3463	27%
Primary Education	3463	55%
Secondary Education	3463	11%
Superior Education	3463	5%
Self Employed	3463	42%
Wage Earners	3463	26%

Source: Calculations from Time Use Survey data covering 2006.

Table 3 indicates that the married households fall mostly in between the ages of 29 and 60, living mostly in cities, with the husbands generally having primary and secondary education levels, while the wives have neither primary or secondary education, nor diploma, and work independently. The average total time spent values for each category of household in **Table 2** are generally coherent with the observations from **Table 3**. Total time spent for couples would necessarily equal to 1,440 hours per couple, per month (see Gronau and Hamermesh, 2006). Some of these total values exceeds this time limit due to the fact there are large families i.e. couples with children.

1.3. Household Budget Surveys (2003, 2004, 2005, 2006)

TURKSTAT has launched annual budget surveys since 2002. The 2003 Household Budget Survey (HBS) was conducted on a monthly total of 2160 and annually 25 920 sample households for a year-long period between 1st January and 31st December 2003. The 2004, 2005 and 2006 Household Budget Surveys were conducted on a monthly total of 720 and annually 8 640 sample households.

The concepts and definitions used within the household budget survey have remained unchanged over time. However, changes in sample size, sampling design, in the questionnaire, periodicity of data collection and publication, estimation levels etc. have occurred over time and are usually announced to the public at the same time that related term data are published.

3 basic groups of variables have been obtained from the survey:

1. Variables of socio-economic status between households (type of housing, status of property, heating system, housing facilities, premises and vehicles, etc.)
2. Variables related to the individual (age, gender, educational background), variables of employment status (occupation, economic activity, performance at work), income both available and unavailable for the activity in last year.
3. Consumption expenditures variables (food-non alcoholic beverages, alcoholic beverages with cigarette and tobacco, clothing, health, transportation, education services, etc.)

Main Observations from Household Budget Survey for the Years between 2003 and 2006 in Turkey

The summary statistics for Household Budget Survey for the years between 2003 and 2006 is given in **Table 4**.

- 27.1% and 25.9% of “housing and rent” and “food and non-alcoholic beverages” consumption expenditures are respectively attributed on average to households in Turkey. The urban and rural follow with rates of 29.1% and 22.8%, 21.7% and 33.9% respectively. According to the distribution of expenditure groups by classification for the years of 2003, 2004, 2005 and 2006, “housing and rent” and “food and non-alcoholic beverages” take relatively large shares of total expenditure in Turkey. Both for Turkey and urban the average share of “housing and rent” is bigger than “food and non-alcoholic beverages” while this is inverse for rural.

Table 4: Household Consumption Expenditure by Types of Expenditure, Turkey-Urban-Rural, 2003-2006

Survey year	Number of household	Food and non-alcoholic beverages	Alcoholic beverages, cigaratte and tobacco	Clothing and footwear	Housing and rent	Furniture, houses appliances and home care services	Health	Transportation	Communication	Entertainment and culture	Educational services	Restaurant and hotels	Various good and services
TURKEY													
2003	16 744 495	27,5	4,1	6,2	28,3	5,7	2,2	9,8	4,3	2,2	2,0	4,1	3,5
2004	17 096 537	26,4	4,3	6,5	27,0	6,6	2,2	9,5	4,5	2,5	2,1	4,5	3,9
2005	17 549 020	24,9	4,1	6,2	25,9	6,8	2,2	12,6	4,3	2,5	1,9	4,4	4,1
2006	17 689 552	24,8	4,1	5,9	27,2	6,2	2,2	13,1	4,2	2,2	2,1	4,2	4,0
URBAN													
2003	10 686 864	24,1	3,8	6,2	30,2	5,7	2,1	10,3	4,4	2,5	2,3	4,6	3,8
2004	10 928 455	23,1	4,0	6,5	29,1	6,5	2,2	9,6	4,6	2,8	2,4	5,0	4,2
2005	11 308 321	21,9	3,9	6,0	28,1	6,5	2,3	13,1	4,3	2,6	2,2	4,8	4,2
2006	11 398 002	22,3	3,8	5,8	29,2	5,8	2,1	13,2	4,2	2,3	2,5	4,5	4,2
RURAL													
2003	6 057 632	36,4	5,1	6,5	23,1	5,9	2,4	8,2	4,0	1,5	1,1	2,9	2,9
2004	6 168 082	35,4	5,3	6,5	21,4	6,9	2,2	9,2	4,1	1,5	1,2	3,2	3,1
2005	6 240 698	32,6	4,7	6,8	20,2	7,5	2,0	11,2	4,3	2,4	1,0	3,4	4,0
2006	6 291 550	31,2	4,7	6,1	22,1	7,1	2,3	12,7	4,1	1,8	1,3	3,2	3,4

Source: TURKSTAT Household Budget Survey data covering 2003-06.

- According to the results acquired from the data set of 2003, 2004, 2005 and 2006 Household Budget Surveys for Turkey, when looking at the distribution of consumption expenditures, “Transportation”, “Furniture, houses appliances and home care services”, “Clothing and footwear” respectively have the third, fourth and fifth highest shares with a rate of 11.2%, 6.3%, 6.2% whereas Turkey has the lowest shares, 2.0%, 2.2%, 2.3% respectively for “Education”, “Health” and “Entertainment with Culture” Expenditures.
- In rural, in the years 2003, 2004, 2005 and 2006 while spending on “Education”, “Entertainment with Culture”, the lowest shares with rate of 1.1%, 1.8% respectively, the share of expenditure on “Health” follows them with a rate of 2.2 %.
- While comparing the urban and rural in terms of shares of expenditures on “Food and non-alcoholic beverages”, “Alcoholic beverages, cigarette and tobacco” , “Clothing and footwear”, “Furniture, houses appliances and home care services” in total expenditure separately for the years between 2003 and 2006 inclusive, it is observed that rural has the relatively bigger portions than urban.
- In terms of percentage changes of the share of expenditures in total expenditure at rural and urban, only “Transportation” and “Furniture, houses appliances and home care services” have positive tendency. Therefore, both “Food and non-alcoholic beverages” and “Housing and rent” have negative tendency from 2003 to 2006.

Table 5, **Table 6**, **Table 7**, and **Table 8** represent the summary of statistics referring to expenditure and income variables for a selected sub-population for each year. The final columns of which show the proportion of the total average consumption in average income as a ratio for each sub-population.

Table 5: 2003 Summary Statistics on Expenditure (by Activity as Categorical Variable)

2003 HBS Expenditures (Mean) (Monthly TL)	Food	Health and Personal Care	Housing	Clothing	Education	Transpor-tation	Leisure	Other	Income (Mean) (Monthly TL)	Total(Mean) Expenditure/ Income
Age										
Age<30	133,887	64,186	194,335	34,970	1,864	50,126	36,458	7,228	562,635	0,930
Std. Dev.	84,177	126,012	149,588	67,392	17,294	128,813	63,475	61,607	1696,184	
29<Age<60	182,581	57,211	243,226	49,072	16,718	78,009	47,477	15,572	670,382	1,029
Std. Dev.	108,053	105,172	243,753	102,996	163,622	253,322	110,759	77,940	751,059	
59<Age	177,544	40,323	228,426	31,035	2,813	38,624	30,402	9,461	476,295	1,173
Std. Dev.	118,303	89,020	245,689	84,714	27,248	129,654	54,661	90,212	574,206	
Area										
Rural	183,739	36,527	151,860	34,260	5,515	44,913	26,925	7,681	532,700	0,923
Std. Dev.	117,537	91,215	172,152	73,689	113,157	180,052	47,586	59,140	643,137	
Urban	174,925	61,749	270,690	48,386	15,630	77,165	49,778	16,094	659,630	1,083
Std. Dev.	105,537	108,441	252,319	105,207	148,502	241,410	112,660	86,224	915,635	
Family Status										
Couple Without Children	156,731	44,465	246,380	33,095	4,882	51,729	34,506	8,878	581,453	0,999
Std. Dev.	99,178	132,152	269,446	92,457	159,450	180,059	69,615	66,668	667,667	
Couple With Children	176,840	57,539	239,205	48,224	16,571	76,228	46,931	15,018	668,189	1,013
Std. Dev.	102,069	100,191	234,791	99,553	146,641	230,112	100,149	73,079	719,040	
Single	96,507	34,461	229,434	22,530	0,864	22,378	26,744	5,605	440,522	0,995
Std. Dev.	67,532	83,584	218,433	70,030	10,159	70,951	48,462	38,914	479,215	
Monoparental Family	141,194	45,091	219,197	37,224	22,930	38,556	42,427	12,536	425,432	1,314
Std. Dev.	84,281	146,395	192,130	67,690	259,560	124,601	140,596	58,922	502,213	
Other Family*	217,372	57,887	226,051	45,953	6,298	69,435	41,030	14,582	598,461	1,134
Std. Dev.	129,749	84,959	239,213	103,039	39,498	271,500	105,522	109,137	1294,528	
Male Educaton										
Without Diploma	165,002	32,719	151,364	27,251	3,046	24,371	19,737	6,660	336,344	1,279
Std. Dev.	111,004	104,667	148,703	60,740	33,605	80,893	34,442	54,587	354,082	
Primary Education	173,642	45,668	204,881	36,694	7,097	48,720	32,343	10,705	540,062	1,036
Std. Dev.	108,093	74,505	185,883	86,783	62,181	161,035	49,267	75,348	804,651	
Secondary Education	180,897	67,387	291,063	56,192	19,294	98,115	57,670	18,547	787,023	1,003
Std. Dev.	106,460	82,212	266,144	99,252	160,421	296,054	75,535	85,357	730,477	
Superior Education	213,565	118,265	458,769	96,048	50,838	198,053	119,980	33,754	1248,445	1,033
Std. Dev.	111,794	219,144	391,480	160,294	365,238	432,792	263,370	112,274	1302,505	
Female Educaton										
Without Diploma	190,424	37,668	170,245	34,154	4,146	36,706	25,408	10,690	456,755	1,115
Std. Dev.	116,852	69,280	197,069	77,982	33,150	126,474	40,456	110,851	423,327	
Primary Education	177,206	50,913	226,938	41,899	10,057	61,785	38,199	12,128	625,528	0,990
Std. Dev.	108,656	78,297	211,220	92,453	83,066	195,784	65,113	60,627	901,561	
Secondary Education	184,850	90,335	352,033	67,536	33,555	139,571	80,911	23,741	994,683	0,978
Std. Dev.	98,435	146,383	265,215	117,393	285,517	343,444	158,257	82,263	1029,247	
Superior Education	220,588	159,354	538,577	124,372	60,845	273,811	152,645	41,522	1368,272	1,149
Std. Dev.	112,724	266,357	435,771	201,816	367,012	519,703	288,975	118,306	1537,598	
Working Status										
Wage Earners	168,361	68,719	246,991	49,559	16,945	79,071	48,094	13,968	645,929	1,071
Std. Dev.	96,069	103,444	227,880	90,260	174,892	205,674	100,371	59,731	535,453	
Self Employed	192,287	38,051	167,623	36,634	5,734	43,273	29,808	10,461	599,425	0,874
Std. Dev.	116,503	85,105	176,381	83,184	46,564	137,277	48,887	97,687	530,136	
TOTAL	177,486	54,420	236,163	44,282	12,691	67,794	43,138	13,650	649,624	1,000
Std. Dev.	109,231	104,360	238,090	97,320	139,234	225,782	98,842	79,404	611,388	

Source: Authors' calculations from Household Budget Survey data covering 2003

Table 6: 2004 Summary Statistics on Expenditure (by Activity as Categorical Variable)

2004 HBS Expenditures (Mean) (Monthly TL)	Food	Health and Personal Care	Housing	Clothing	Education	Transpor-tation	Leisure	Other	Income (Mean) (Monthly TL)	Total(Mean) Expenditure/ Income
Age										
Age<30	173,293	76,840	256,692	54,922	12,075	54,837	53,331	12,922	677,161	1,026
Std. Dev.	102,115	102,129	236,272	111,423	238,581	96,514	104,602	68,754	660,465	
29<Age<60	238,844	73,374	300,783	63,395	19,787	94,628	64,447	21,044	801,463	1,093
Std. Dev.	130,228	114,673	306,223	107,217	106,497	282,440	163,518	133,599	881,054	
59<Age	224,614	44,839	270,089	36,367	7,063	42,512	35,889	13,034	513,161	1,314
Std. Dev.	142,812	92,902	267,149	75,699	85,209	130,150	55,959	144,738	544,218	
Area										
Rural	228,353	79,517	337,917	63,454	21,300	91,542	67,856	22,170	801,842	1,138
Std. Dev.	130,781	122,787	317,693	112,129	137,766	268,825	168,945	146,038	886,188	
Urban	238,020	41,682	183,413	43,924	6,221	58,739	35,510	11,287	585,930	1,056
Std. Dev.	134,618	67,167	193,327	75,033	45,960	201,460	56,826	91,554	612,180	
Family Status										
Couple Without Children	207,403	55,676	293,880	42,493	1,017	59,134	42,858	14,914	717,956	0,999
Std. Dev.	118,937	122,293	265,729	88,944	14,092	201,468	73,367	126,940	775,827	
Couple With Children	231,896	73,208	297,551	63,042	20,637	94,794	64,712	20,860	806,161	1,075
Std. Dev.	121,708	111,605	306,627	109,172	111,708	287,223	174,437	146,411	876,671	
Single	126,509	41,304	263,625	33,074	17,514	23,046	39,064	6,834	528,378	1,043
Std. Dev.	86,670	112,599	247,087	82,705	323,497	65,848	123,029	40,612	705,945	
Monoparental Family	192,239	54,068	309,776	54,234	24,551	51,460	54,975	17,693	563,615	1,347
Std. Dev.	111,964	76,641	346,603	89,846	171,082	123,878	82,992	62,660	818,185	
Other Family*	277,559	69,749	272,710	56,515	13,115	74,932	52,422	18,258	614,449	1,359
Std. Dev.	161,869	102,962	268,540	95,358	69,200	194,147	80,558	110,712	633,090	
Male Education										
Without Diploma	205,335	32,946	182,927	34,141	3,775	28,735	23,627	11,573	357,368	1,464
Std. Dev.	129,267	60,375	171,681	67,173	33,974	125,867	40,471	169,611	364,255	
Primary Education	227,372	60,968	255,827	48,888	9,187	63,080	46,139	15,152	642,680	1,131
Std. Dev.	132,504	102,287	214,150	84,420	55,355	180,125	103,138	119,246	606,336	
Secondary Education	235,566	83,643	358,085	67,897	27,743	106,795	74,501	18,101	924,113	1,052
Std. Dev.	118,668	101,523	287,806	100,904	180,895	274,053	86,117	65,850	750,106	
Superior Education	282,489	132,276	539,959	124,977	61,796	223,816	150,072	54,011	1495,577	1,049
Std. Dev.	142,129	178,385	580,827	187,887	249,788	519,394	358,262	214,558	1623,672	
Female Education										
Without Diploma	244,501	47,074	203,941	44,069	6,598	45,322	33,009	13,582	510,630	1,250
Std. Dev.	144,551	95,568	205,892	74,340	49,760	154,394	66,838	160,887	460,242	
Primary Education	229,532	65,675	279,948	53,269	13,697	79,597	52,764	16,707	739,834	1,069
Std. Dev.	125,143	94,720	226,320	88,285	77,268	230,204	107,367	115,040	631,166	
Secondary Education	253,140	102,858	412,427	86,863	37,712	138,591	102,196	35,141	1177,500	0,993
Std. Dev.	134,700	131,958	442,174	151,882	163,206	291,561	261,259	173,991	1266,017	
Superior Education	292,998	179,886	648,378	141,976	59,481	308,258	187,015	53,902	1587,745	1,179
Std. Dev.	134,813	212,236	569,420	188,218	222,852	690,245	365,516	191,727	1877,313	
Working Status										
Wage Earners	222,246	86,190	299,678	64,218	19,058	99,609	63,341	16,918	776,819	1,122
Std. Dev.	118,871	111,122	271,511	104,485	101,397	261,093	134,253	79,532	573,920	
Self Employed	250,875	46,109	226,316	51,166	11,376	55,062	43,848	20,756	749,844	0,941
Std. Dev.	141,161	89,850	244,128	92,220	67,649	157,264	73,709	197,831	803,887	
TOTAL	231,248	68,185	291,642	57,605	16,784	81,717	58,168	18,911	824,259	1,000
Std. Dev.	132,008	110,507	294,782	102,823	118,214	250,994	145,530	132,187	724,403	

Source: Authors' calculations from Household Budget Survey data covering 2004

Table 7: 2005 Summary Statistics on Expenditure (by Activity as Categorical Variable)

2005 HBS Expenditures (Mean) (Monthly TL)	Food	Health and Personal Care	Housing	Clothing	Education	Transpor-tation	Leisure	Other	Income (Mean) (Monthly TL)	Total(Mean) Expenditure/ Income
Age										
Age<30	173,293	76,840	56,692	54,922	12,075	4,837	3,331	2,922	724,822	0,549
Std. Dev.	102,115	102,129	36,272	111,423	38,581	6,514	4,602	8,754	540,802	
29<Age<60	238,844	73,374	0,783	3,395	9,787	4,628	4,447	1,044	881,849	0,412
Std. Dev.	130,228	114,673	306,223	7,217	106,497	82,440	63,518	33,599	869,170	
59<Age	224,614	44,839	270,089	6,367	0,063	2,512	35,889	3,034	574,210	1,049
Std. Dev.	142,812	92,902	67,149	5,699	5,209	30,150	5,959	44,738	570,859	
Area										
Rural	79,517	37,917	3,454	21,300	91,542	7,856	2,170	7,681	653,197	0,411
Std. Dev.	122,787	17,693	12,129	137,766	68,825	68,945	46,038	59,140	658,524	
Urban	41,682	83,413	3,924	0,221	8,739	5,510	1,287	16,094	876,723	0,206
Std. Dev.	67,167	93,327	5,033	5,960	1,460	6,826	1,554	86,224	853,444	
Family Status										
Couple Without Children	55,676	93,880	2,493	0,017	9,134	2,858	4,914	8,878	763,508	0,255
Std. Dev.	122,293	265,729	8,944	4,092	1,468	3,367	26,940	66,668	801,284	
Couple With Children	73,208	97,551	3,042	0,637	4,794	4,712	0,860	15,018	881,717	0,257
Std. Dev.	111,605	6,627	9,172	11,708	87,223	74,437	46,411	73,079	849,359	
Single	41,304	63,625	3,074	7,514	3,046	9,064	0,834	5,605	603,386	0,250
Std. Dev.	112,599	47,087	2,705	23,497	65,848	23,029	0,612	38,914	664,020	
Monoparental Family	54,068	9,776	4,234	4,551	1,460	4,975	7,693	12,536	544,902	0,221
Std. Dev.	76,641	46,603	9,846	71,082	23,878	2,992	2,660	58,922	569,316	
Other Family*	69,749	72,710	6,515	3,115	4,932	2,422	8,258	14,582	711,014	0,286
Std. Dev.	102,962	68,540	5,358	9,200	94,147	0,558	10,712	109,137	703,438	
Male Education										
Without Diploma	32,946	182,927	34,141	3,775	28,735	23,627	11,573	6,660	378,626	0,857
Std. Dev.	60,375	171,681	67,173	33,974	125,867	40,471	169,611	54,587	318,353	
Primary Education	60,968	255,827	48,888	9,187	63,080	46,139	15,152	10,705	729,570	0,699
Std. Dev.	102,287	214,150	84,420	55,355	180,125	103,138	119,246	75,348	679,161	
Secondary Education	83,643	358,085	67,897	27,743	106,795	74,501	18,101	18,547	1068,687	0,707
Std. Dev.	101,523	287,806	100,904	180,895	274,053	86,117	65,850	85,357	927,224	
Superior Education	132,276	539,959	124,977	61,796	223,816	150,072	54,011	33,754	1494,596	0,884
Std. Dev.	178,385	580,827	187,887	249,788	519,394	358,262	214,558	112,274	1197,958	
Female Education										
Without Diploma	47,074	203,941	44,069	6,598	45,322	33,009	13,582	10,690	549,909	0,735
Std. Dev.	95,568	205,892	74,340	49,760	154,394	66,838	160,887	110,851	473,020	
Primary Education	65,675	279,948	53,269	13,697	79,597	52,764	16,707	12,128	857,426	0,669
Std. Dev.	94,720	226,320	88,285	77,268	230,204	107,367	115,040	60,627	767,073	
Secondary Education	102,858	412,427	86,863	37,712	138,591	102,196	35,141	23,741	1248,696	0,752
Std. Dev.	131,958	442,174	151,882	163,206	291,561	261,259	173,991	82,263	1140,779	
Superior Education	179,886	648,378	141,976	59,481	308,258	187,015	53,902	41,522	1603,357	1,011
Std. Dev.	212,236	569,420	188,218	222,852	690,245	365,516	191,727	118,306	1365,793	
Working Status										
Wage Earners	86,190	299,678	64,218	19,058	99,609	63,341	16,918	13,968	875,077	0,758
Std. Dev.	111,122	271,511	104,485	101,397	261,093	134,253	79,532	59,731	677,907	
Self Employed	46,109	226,316	51,166	11,376	55,062	43,848	20,756	10,461	391,200	1,189
Std. Dev.	89,850	244,128	92,220	67,649	157,264	73,709	197,831	97,687	308,520	
TOTAL	265,393	82,991	348,244	67,515	21,344	136,852	70,340	25,069	1017,390	1,000
Std. Dev.	154,544	138,819	328,740	114,565	152,828	390,648	158,195	160,775	867,803	

Source: Authors' calculations from Household Budget Survey data covering 2005

Table 8: 2006 Summary Statistics on Expenditure (by Activity as Categorical Variable)

2006 HBS Expenditures (Mean) (Monthly TL)	Food	Health and Personal Care	Housing	Clothing	Education	Transpor-tation	Leisure	Other	Income (Mean) (Monthly TL)	Total(Mean) Expenditure/ Income
Age										
Age<30	221,359	100,861	328,025	63,880	6,508	118,937	60,868	12,704	812,670	1,124
Std. Dev.	135,618	111,659	206,862	94,315	43,119	334,084	78,573	49,662	706,510	
29<Age<60	306,048	96,543	426,309	80,026	33,565	181,204	84,239	33,261	1018,276	1,219
Std. Dev.	178,437	155,654	361,409	134,058	159,985	500,613	112,302	157,507	1055,247	
59<Age	293,505	71,228	380,648	50,858	9,214	111,986	52,493	20,102	703,118	1,408
Std. Dev.	200,389	153,976	347,165	95,740	94,287	419,272	123,989	139,247	780,762	
Area										
Rural	301,718	67,218	267,973	59,381	10,701	116,719	52,583	19,541	782,287	1,145
Std. Dev.	188,678	127,660	322,086	126,947	61,808	374,916	73,414	130,152	761,199	
Urban	294,707	103,169	472,634	79,378	33,938	183,745	86,930	33,376	1013,382	1,271
Std. Dev.	177,770	161,185	343,495	124,174	167,216	512,613	125,281	155,680	1071,929	
Family Status										
Couple Without Children	266,539	74,423	416,491	47,472	1,944	144,115	57,095	22,478	899,611	1,146
Std. Dev.	170,053	123,122	452,385	97,345	22,331	484,454	92,641	172,704	950,073	
Couple With Children	294,232	95,736	420,886	80,890	36,842	175,953	84,275	32,763	1021,666	1,196
Std. Dev.	166,992	152,090	343,652	134,898	175,108	485,970	123,676	144,515	1042,849	
Single	155,035	45,250	333,623	30,126	1,559	47,762	32,051	11,966	624,395	1,053
Std. Dev.	108,651	74,452	257,674	70,910	16,057	189,240	57,929	80,646	610,948	
Monoparental Family	223,636	65,354	357,009	62,541	21,672	118,160	68,600	17,499	618,765	1,510
Std. Dev.	116,713	111,008	230,572	89,302	85,298	496,533	83,610	78,552	547,536	
Other Family*	363,891	105,803	392,852	76,207	17,424	164,206	73,918	27,232	833,063	1,466
Std. Dev.	220,406	182,828	316,880	119,916	88,218	465,690	97,805	160,438	936,833	
Male Education										
Without Diploma	263,116	51,155	270,812	48,047	9,446	59,924	35,807	16,251	478,778	1,576
Std. Dev.	185,908	94,768	255,424	83,159	59,701	259,758	55,336	92,194	455,148	
Primary Education	292,151	83,320	372,894	61,880	16,663	128,481	64,690	25,028	839,688	1,245
Std. Dev.	180,855	138,834	315,792	111,099	86,903	390,203	104,259	145,399	872,903	
Secondary Education	303,231	111,633	494,323	92,231	40,088	204,038	101,050	31,869	1178,316	1,170
Std. Dev.	168,050	137,746	351,901	139,448	131,129	490,935	118,523	133,485	1077,575	
Superior Education	357,907	166,041	674,097	144,763	90,548	443,275	159,460	66,635	1772,280	1,186
Std. Dev.	184,655	255,621	471,964	185,933	355,435	877,046	155,175	223,676	1402,081	
Female Education										
Without Diploma	309,458	65,616	304,012	56,241	10,421	89,203	46,756	20,936	668,145	1,351
Std. Dev.	193,199	134,724	301,826	91,286	77,898	276,807	62,716	153,220	567,377	
Primary Education	302,818	91,963	412,311	71,606	24,270	154,284	76,769	28,928	992,933	1,171
Std. Dev.	184,392	135,510	337,730	125,023	105,979	425,356	118,752	140,039	1014,889	
Secondary Education	305,987	145,335	569,678	110,477	60,552	321,998	125,263	41,689	1426,435	1,178
Std. Dev.	161,969	207,833	390,931	162,351	247,843	725,444	136,712	165,409	1256,508	
Superior Education	363,721	201,111	763,462	164,733	110,177	559,005	186,986	90,271	1790,265	1,363
Std. Dev.	167,418	292,888	490,219	212,035	413,106	1009,352	168,383	281,868	1588,673	
Working Status										
Wage Earners	287,155	110,338	420,490	81,802	31,584	176,769	86,334	31,905	1019,684	1,203
Std. Dev.	164,725	149,402	319,532	124,143	170,276	444,955	129,330	156,941	773,202	
Self Employed	456,914	74,380	464,104	87,463	0,000	598,574	104,064	62,708	429,500	4,303
Std. Dev.	272,103	65,132	208,396	91,441	0,000	1255,090	79,968	190,005	490,526	
TOTAL	296,860	92,131	409,796	73,238	26,804	163,166	76,384	29,129	1167,234	1,000
Std. Dev.	181,207	152,579	350,020	125,365	143,745	475,589	113,054	148,440	960,805	

Source: Authors' calculations from Household Budget Survey data covering 2006

In parallel with disaggregated approach proposed by Dilnot and Morris (1981), we are able to show the rate of actual average income meets average total expenditure by using **Table 5**, **Table 6**, **Table 7** and **Table 8**, in **Table 9**. Disaggregated method argues that inflation results in people holding more cash and, specifically, larger denominations (see O'Higgins, 1989). Therefore, we additionally suppose in **Table 9** that negative deviation values could be assumed to represent saving part or not spending parts mainly due to making debt payments. Positive deviation shows an overbalanced area of expenditure relative to actual income.

Table 9: The Rate of Actual Average Income Meeting Average Total Expenditures (As the Deviation from Unity)

Total Expenditure/ Income (as the deviation from the weighted mean =1)	**2003**	**2004**	**2005**	**2006**
Age				
Age<30	-0,07	0,03	-0,45	0,12
29<Age<60	0,03	0,09	-0,59	0,22
59<Age	0,17	0,31	0,05	0,41
Area				
Rural	-0,08	0,14	-0,59	0,15
Urban	0,08	0,06	-0,79	0,27
Family Status				
Couple Without Children	0,00	0,00	-0,74	0,15
Couple With Children	0,01	0,08	-0,74	0,20
Single	0,00	0,04	-0,75	0,05
Monoparental Family	0,31	0,35	-0,78	0,51
Other Family*	0,13	0,36	-0,71	0,47
Male Education				
Without Diploma	0,28	0,46	-0,14	0,58
Primary Education	0,04	0,13	-0,30	0,24
Secondary Education	0,00	0,05	-0,29	0,17
Superior Education	0,03	0,05	-0,12	0,19
Female Education				
Without Diploma	0,12	0,25	-0,26	0,35
Primary Education	-0,01	0,07	-0,33	0,17
Secondary Education	-0,02	-0,01	-0,25	0,18
Superior Education	0,15	0,18	0,01	0,36
Working Status				
Wage Earners	0,07	0,12	-0,24	0,20
Self Employed	-0,13	-0,06	0,19	3,30

Source: Calculated from Household Budget Survey data covering 2003-06.

The year of 2005 results in a total decrease in consumption, except for individuals who are older than 59 years old and for the self-employed. At the beginning of 2006, the proportions of expenditures collectively exceed actual income level. One of the unexpected results in 2006 for the self-employed where we see consumption is 3 and 30 percent times bigger than actual income, which brings the source of their disposable income into question. The simple fact could be that the change seen in yearly disposable income part of total income for the self-employed decreased by 0.7 and 4.5 percent respectively for 2005 and 2006. Additionally, there was increase around 3 point in the part of total wage earnings in total income in 2006. As a matter of fact, it has been known for some time that wage earners have the same tendency as the self-employed to earn income gathered from informal activities. According to the research conducted by the Republic of Turkey social security institution in 2011, 75% of

wage earners declared the minimum wage which is lower than their real wage rate. The part of disposable income of regular and casual employees rests at on average 55% for the years between 2000 and 2013 (TURKSTAT database). However, according to the real net wage rate index and real change over the previous year's statistics seen in **Table 10**, public wages and minimum wages decrease by 31 and 0.8 percent respectively, in 2006. In fact, in 2005, real net wage change for public workers reached its highest level at 6.7 points higher than rates in 2004.

Table 10: Real Net Wage Rate Index (1994=100) and Real Change Over the Previous Year (%)

	2003	**2004**	**2005**	**2006**
Worker*				
Public	86,8	88,3	95	92,1
real change (%)	-2,7%	1,7%	7,6%	-31,0%
Private	93,9	97,1	97,7	
real change (%)	-0,4%	3,5%	0,5%	-
Civil Servant	109,9	112,7	115,7	123
real change (%)	-0,9%	2,6%	2,6%	6,3%
Minumum Wage **	127,6	158,6	165,3	164
real change (%)	3,7%	24,3%	4,2%	-0,8%

Source : Public Sector Employer Unions, Turkish Confederation of Employer Association, Ministry of Finance

(*)The data is provided by Public Sector Employer Unions and Turkish Confederation of Employer Association

(**)The figures are annual average net minumum wage for 16 age and over in industry and services sectors.

On the one hand, deposit and credit statistics provided by the Central Bank of the Republic of Turkey, in **Table 11**, show that consumer credits stayed quite stable during these years. Therefore, it is surprising to observe for the year 2005 that both demand deposits and consumer credits decreased. Furthermore, increases in total deposits and a decrease in consumer credits in 2006 imply an inverse scenario, observed from **Table 9**

Table 11: Deposits and credits (% change over the previous year)

	2003	**2004**	**2005**	**2006**
Deposits (% change over the previous year)				
Saving Deposits-Demand	-4,14	1,26	-3,41	0,92
Saving Deposits-Time	-13,24	1,93	1,97	1,49
Credits (% change over the previous year)				
Consumer (House and Vehicle)	-0,06	-0,08	-0,04	-0,02
Other	0,05	0,08	0,03	0,02

Source : Central Bank of the Republic of Turkey

In the context of our findings, the question awaiting an answer is in which way households financed their expenditures while wages, deposits and credit using indicators show an inverse scenario. In order to better identify the condition of the Turkish economy for the years from 2003 to 2006, we propose to look first at household production using our TUS and HBS dataset.

2. The Relative Goods Time Intensity Measure for 2003 to 2006

The domestic production plays an important role in the daily life of Turkish households. According to Ilkkaracan and Gunduz (2009) this production accounts for values as much as 25 percent to 45 percent of GDP in 2006. The part accounted for by women changes between 79% or 86 %. Following the methodology proposed by Gronau and Hamermesh (2006), the production of goods as the ratio of goods to time inputs is represented in **Table 12**.

Table 12: Evolution of Commodity Per Time Spent During 2003, 2004, 2005 and 2006

Relative Goods/Time Intensity *	Food				Health and Personal care				Housing				Clothing				Education				Transportation				Lesiure				Other				TOTAL			
Age	2003	2004	2005	2006	2003	2004	2005	2006	2003	2004	2005	2006	2003	2004	2005	2006	2003	2004	2005	2006	2003	2004	2005	2006	2003	2004	2005	2006	2003	2004	2005	2006	2003	2004	2005	2006
Age<30	2,33	2,78	3,01	3,00	0,60	0,66	0,72	0,74	4,83	5,88	1,40	6,34	1,83	2,65	2,87	2,60	0,04	0,24	0,26	0,11	1,05	1,05	0,10	1,93	0,17	0,22	0,02	0,21	0,09	0,15	0,04	0,13	0,85	1,04	0,55	1,15
29<Age<60	1,66	2,00	2,17	2,17	0,23	0,27	0,30	0,30	3,28	3,73	0,01	4,46	1,50	1,79	0,10	1,90	0,21	0,23	0,12	0,32	0,70	0,78	0,04	1,26	0,10	0,13	0,01	0,14	0,06	0,07	0,00	0,09	0,49	0,58	0,22	0,69
59<Age	1,59	1,85	2,00	2,04	0,16	0,16	0,17	0,21	2,78	3,03	3,28	3,60	1,00	1,08	0,20	1,27	0,07	0,17	0,00	0,19	0,37	0,38	0,02	0,84	0,05	0,06	0,06	0,07	0,05	0,07	0,02	0,09	0,41	0,45	0,38	0,56
Area																																				
Rural	1,52	1,74	0,66	1,94	0,15	0,30	0,15	0,21	1,58	3,24	0,04	2,17	0,93	1,59	0,58	1,26	0,09	0,33	1,51	0,14	0,41	0,77	0,07	0,83	0,05	0,12	0,00	0,08	0,03	0,08	0,03	0,06	0,34	0,59	0,16	0,49
Urban	1,79	2,24	0,42	2,34	0,26	0,16	0,35	0,34	4,41	2,75	0,06	5,98	1,73	1,45	0,01	2,21	0,23	0,08	0,13	0,38	0,76	0,53	0,05	1,40	0,11	0,07	0,00	0,15	0,07	0,05	0,07	0,12	0,56	0,45	0,12	0,79
Male Education																																				
Without Diploma	1,37	1,57	0,27	1,70	0,13	0,12	0,71	0,15	1,76	1,96	0,40	2,45	0,78	0,90	0,11	1,06	0,06	0,07	0,57	0,15	0,24	0,26	0,23	0,46	0,04	0,04	0,02	0,05	0,03	0,06	0,03	0,07	0,31	0,35	0,20	0,42
Primary Education	1,50	1,81	0,53	1,96	0,18	0,22	0,98	0,25	2,50	2,87	0,59	3,53	1,06	1,30	0,26	1,39	0,11	0,13	0,96	0,20	0,43	0,51	0,41	0,88	0,06	0,08	0,03	0,10	0,04	0,05	0,04	0,08	0,39	0,46	0,30	0,56
Secondary Education	1,87	2,24	0,86	2,44	0,30	0,34	1,59	0,39	4,86	5,51	1,13	6,41	2,26	2,51	1,11	2,88	0,22	0,29	1,22	0,36	0,95	0,95	0,72	1,53	0,13	0,16	0,04	0,18	0,07	0,07	0,07	0,10	0,62	0,70	0,50	0,84
Superior Education	2,46	3,00	1,52	3,20	0,52	0,54	2,37	0,57	7,87	8,53	2,14	8,98	3,88	4,65	2,49	4,54	0,65	0,72	2,83	0,89	1,86	1,93	1,40	3,23	0,26	0,30	0,12	0,27	0,16	0,24	0,16	0,24	1,02	1,15	0,89	1,30
Female Education																																				
Without Diploma	1,36	1,60	0,33	1,71	0,12	0,14	0,67	0,17	1,61	1,78	0,42	2,24	0,81	0,97	0,16	1,04	0,06	0,09	0,69	0,12	0,29	0,33	0,26	0,55	0,04	0,05	0,02	0,06	0,04	0,05	0,04	0,06	0,30	0,35	0,20	0,42
Primary Education	1,58	1,89	0,58	2,10	0,20	0,24	1,11	0,28	2,97	3,37	0,69	4,18	1,26	1,47	0,41	1,67	0,14	0,17	1,08	0,26	0,55	0,65	0,47	1,06	0,08	0,10	0,03	0,12	0,05	0,06	0,05	0,09	0,44	0,52	0,35	0,64
Secondary Education	2,00	2,53	1,11	2,58	0,40	0,41	1,80	0,49	5,84	6,30	1,44	7,34	2,63	3,11	1,46	3,34	0,39	0,41	1,62	0,55	1,33	1,22	0,97	2,39	0,19	0,22	0,08	0,22	0,10	0,13	0,10	0,13	0,76	0,84	0,63	1,02
Superior Education	2,70	3,31	2,20	3,46	0,67	0,69	2,71	0,66	10,46	11,59	2,75	11,51	5,62	5,90	2,68	5,78	0,78	0,70	3,93	1,10	2,58	2,67	1,75	4,08	0,35	0,40	0,12	0,34	0,16	0,20	0,16	0,28	1,24	1,36	1,09	1,50
Working Status																																				
Self Employed	1,64	1,99	0,83	2,17	0,29	0,34	1,28	0,37	3,69	4,12	0,95	4,87	1,61	1,92	0,62	2,06	0,20	0,20	1,15	0,28	0,73	0,84	0,58	1,26	0,11	0,13	0,04	0,15	0,05	0,05	0,05	0,08	0,51	0,59	0,42	0,70
Wage Earners	1,53	1,83	0,36	2,81	0,14	0,16	0,83	0,21	1,83	2,28	0,56	3,94	0,98	1,26	0,30	1,82	0,09	0,16	0,86	0,00	0,37	0,44	0,38	3,99	0,06	0,08	0,04	0,15	0,03	0,06	0,03	0,15	0,34	0,42	0,25	0,92
TOTAL	1,67	2,01	2,13	2,18	0,23	0,26	0,30	0,30	3,21	3,65	4,02	4,32	1,43	1,71	1,85	1,83	0,19	0,24	0,28	0,32	0,65	0,72	1,12	1,21	0,09	0,11	0,13	0,12	0,06	0,08	0,09	0,10	**0,49**	**0,57**	**0,65**	**0,68**

*All expenditures are indexed by 2003 bases prices / 2006 time use bases

Source: Authors' calculations from Time Use Survey and Household Budget Survey data covering 2003–06.

The relative goods as the nominator in **Table 12** are recomputed through the expenditures in **Table 5**, **Table 6**, **Table 7** and **Table 8** by inflating with the rate of change in twelve months, moving averages between 2003 and 2006 within the base year of 2003. The denominator is simply equal to time spent amounts derived from the TUS 2006, shown in **Table 2**. Finally, in **Table 12,** relative goods/ time intensity is obtained by dividing the indexed monetary values to the corresponding monthly time spent amounts. For each activity and sub-population, we calculate the ratio of goods to time inputs relative to the ratio of the total amount of goods and time allocated to commodity production.

As expected, housing for all population categories is relative to goods intensive production, which itself takes relatively large shares of total expenditure compared to the time inputs for home maintenance. By contrast, commodity amount per time spent on education, transport, leisure and other expenditures takes lower values relative to clothing and food. One of the interesting findings from this statistics summary is that good intensity of health with personal care time spending is very low. Even if average monthly time spent for health with personal care activities takes the second highest values (such as 239 hours) among other activities, average monetary expenditure amount took very low values.

Finally, we observe from looking at the bottom right of this table that the average values for total expenditures per total time spent show increases in decreasing tendency (concave shape) during these years. Supposing that the average time spent among these years is constant (meaning that they did not really change from one year to another) on average, the reason behind this negative tendency could be understood only by assuming that the amount of consumption used in household production during these years decreased.

3. Conclusion

In developing economies more than in developed economies domestic activities may play an important role due to existing lower living standards and lower use of market services, which in turn may also influence the size of the informal economy due to the motivation for compensating extra expenditures or even minimizing certain monetary costs with the help of this activity. Working trends are potentially influenced by domestic production and the effect of domestic activities on consumption-saving propensities becomes significant, especially when we know that the ease of access to quasi-bank money, such as long term consumption loan possibilities, quickly raises the demand for goods and services (Kasnakoglu and Dayioglu 2002).

We believe that in Turkey's case, one of the most important issues is to identify where the choice between engaging in domestic activity and informal activity lies. Therefore, the ability to grasp the underlying logic behind the interaction of these phenomena is not yet possible since the given socio-economic conditions for developed and non-developing economies differ significantly. Viewed from a theoretical standpoint, formal and domestic activities seem to reveal alternative options for decision makers. The substitution effect between income and time would depend on the relationship between working informally and domestic time-use decisions. Therefore, the existence of flexible market structures alongside low deprivation levels among different social classes would imply a negative relationship between these activities. However, this argumentation may be false in the case of emerging markets. Transition inflexibilities in labor markets and insufficiencies of goods and services would reveal the fact that domestic time use could also increase participation in informal markets. Nevertheless, this section reveals that for Turkey, market goods and services necessarily combined with time input would not suffice to produce enough final goods to satisfy needs. Thereby, it could be argued that an increase in informal activities is probably caused by a lack of expenditure on goods and services that would be necessary to satisfy needs by means of

domestic production. A shortage of sources of income combined with low levels of opportunity cost of time result in an increase in the participation rate in informal activities to obtain necessary goods and services.

References

Abraham, K. and Mackie C., (2005), *Beyond the Market: Designing Nonmarket Accounts for the United States*, National Academies Press, Washington, DC.

Aktuna-Gunes, A.T., Gardes, F. and Starzec, C., 2014 (2015), " The Size of Informal Economy and Demand Elasticity Estimates Using Full Price Approach: A Case Study for Turkey ", *Documents de Travail du Centre d'Economie de la Sorbonne* (CES).

Aktuna-Gunes, A.T., Starzec, C. and Gardes, F.. (2014), "Une évaluation de la taille de l'économie informelle par un système complet de demande estimé sur données monétaires et temporelles", *Revue Economique*, 65/4, p. 567–590.

Andrews D., Sánchez A.C. and Johansson. A., (2011), "Towards a Better Understanding of the OECD Informal Economy", *OECD Economic Department Working Papers*, No.873

Becker, G. (1965), "A Theory of the Allocation of Time", *The Economic Journal*, 75, p.493–517.

Benhabib, J., Rogerson, R. and Wright R., (1991), "Homework in Macroeconomics: Household Production and Aggregate Fluctuations," *Journal of Political Economy*, 99, 1166–87.

Biddle, J. and Hamermesh D.S., (1990), "Sleep and the Allocation of Time," *Journal of Political Economy*, 98, 922–43.

Blades, D.W. and Roberts, D., (2002), "Measuring the Non-Observed Economy", *OECD Statistics Brief*, No 5. Paris.

Boskin, M., (1975), "Efficiency Aspects of the Differential Tax Treatment of Market and Household Economic Activities," *Journal of Public Economics*, 4, 1–25.

Deaton, A. and Muellbauer, J., (1980), "An Almost Ideal Demand System", *The American Economic Review*, 70/3, p.312–326.

De Serpa, A. (1971), "A Theory of the Economics of Time", *The Economic Journal*, 81, p. 828- 846.

Dilnot, A. and Morris, C.N., (1981), "What Do We Know About the Black Economy ?", *Fiscal Studies*, 2/1, p.58–73

Erkip, F. and Mugan, G., (2010), "Increasing the Effectiveness of Time Use Survey with Qualitative Methods: The Analysis of Time–Space Interaction" *Innovation: The European Journal of Social Science Research*¸ 23/3, p. 181-198.

EUROSTAT. (2000a), Survey on Time Use: Activity Coding List. Final draft. Luxembourg: European Commission.

EUROSTAT. (2000b), Guidelines on Harmonized European Time Use Surveys. Luxembourg: European Commission.

Evans, A. (1972),. "On the Theory of the Valuation and Allocation of Time.", *Scottish Journal of Political Economy*, 19, p.1-17.

Gardes, F. (2013), "Full price elasticities and the Opportunity Cost of Time", *Working Paper*, Centre d'Economie de la Sorbonne (CES).

Greenwood, J., Rogerson, R. and Wright, R. (1995), "Household Production in Real Business Cycle Theory," in Thomas Cooley (ed.), *Frontiers of Business Cycle Research*, Princeton University Press, Princeton, NJ, 157–74.

Gronau, R., (1977), "Leisure, Home Production, and Work - The Theory of the Allocation ofTime Revisited", *Journal of Political Economy*, 85/6, p.1099-1123.

Gronau, R., (1986), "Home Production – A Survey", In Handbook of Labour Economics (O. Ashenfelter and R. Layard, eds.), Vol. 1, North Holland, Amsterdam, p. 273-304.

Gronau, R. and Hamermesh, D.S., (2006), "Time vs Goods: The Value of Measuring Household Production Technologies", *Review of Income and Wealth*, 52/1,p.1–16.

Ilkkaracan, A. I. and Gunduz, U. (2009), "Time-use, the Value of Non-Market Production and its Interactions with the Market Sector: The Case of Turkey", Paper presented at International Conference on Inequalities and Development in the Mediterranean Countries, *Mimeo*.

Jara-Diaz, S.R, Munizaga, M.A., Greeven, P. and Axhausen K.W., (2013), "Estimating the value of work and leisure", ETH E-Collection.

Jara-Díaz, S.R. and Guevara, C., (1999), "On the subjective valuation of travel time savings", European Transport Conference, Proceedings of Seminar F, PTRC, London, pp. 225-236.

Johnson, M., (1966), "Travel Time and the Price of Leisure.", *Western Economic Journal*, Spring, p .135-145.

Kasnakoglu, Z. and Dayioglu, M., (2002), "Measuring the Value of Home Production in Turkey" in T. Bulutay (ed.), *New Developments in National Accounts*, Ankara, p. 73-97.

Markusen, J., (1986), "Explaining the Volume of Trade: An Eclectic Approach," *American Economic Review*, 76, 1001–011.

O'Higgins, M., (1989), "Assessing the Underground Economy in the United Kingdom", in Feige, E.L., p. 175-195.

Oort, O., (1969), “The Evaluation of Travelling Time.”, *Journal of Transport Economics and Policy*, 3, p. 279-286.

Pollak, R. and Wachter, M., (1975), “The Relevance of the Household Production Function and Its Implications for a Allocation of Time”, *Journal of Political Economy*, 83, p. 255–277.

Small, K., (1982), “Scheduling of Consumer Activities: Work trips”, *American Economic Review*, 72, p. 467-479.

Turkish Statistical Institute (2006,2005,2004,2003), Household Budget Survey

Turkish Statistical Institute (2006), Time Use Survey

Turkish Statistical Institute (2007), Results of Time Use Survey 2006, Press Release