Chapter 7

Education and Time in Market Work in Turkey: Evidence from Time Use Surveys

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Abstract

This study aims to explore the link between education and the time spent in paid work by married and cohabiting couples in Turkey. By using individual-level data from the time-use surveys, findings support the persistence of gender-based disparities in time-use patterns of married men and women. Educational attainment is a significant factor contributing to increased time in paid work for both men and women. While the number of young children is not a significant factor for men's time in paid work, it reduces the time women devote to market work.

1. Introduction

An increasing number of development policies are relying on time-use data. A person's well-being is not only affected by their income or consumption but also by how they spend their time (Zuzanek and Zuzanek, 2015; Hoang and Knabe, 2021; Tomczyk et al., 2021). There has been a growing interest in gender disparities in the time use patterns in developed economies as more women started to join the labor force along with greater involvement of men in domestic tasks (Anxo et al., 2011; Goldsheider et al., 2015). Existing research findings are indicative of the persistence of gender-based disparities in time allocation (Doan et al., 2021; Maxwell and Wozny, 2021). While women in developed economies seem to be more actively engaged in household chores and child care and less in market work than men, this gap has been documented to shrink (Sayer et al., 2004; Craig, 2006; Craig and Mullan, 2011). The extent of gender imbalances in time use in developed nations varies across countries (Campaña et al., 2023). Evidence from developing economies indicates that despite substantial progress toward gender equality, disparities resulting from gender norms

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and unequal allocation of housework and childcare duties persist (Dong and An, 2015; Maurer-Fazio and Connelly, 2017; Rubiano-Matulevich and Viollaz, 2019).

The rising educational attainment of women is one of the key factors behind the increase in female labor force participation in both developed and developing countries (Heath and Jayachandran, 2017; Grigoli et al., 2018). Theoretically, the connection between education and time spent in market work and child care is unclear. On one hand, higher education implies greater investment in human capital; a greater opportunity cost of time, and a stronger attachment to the labor force. Thus, higher education implies more time in the market and less time taking care of children. On the other hand, higher education may lead to more attention to expert opinions on the importance of parental involvement in childcare and intensive parenting; hence more time in childcare and less attachment to the labor market. In addition, higher education also results in greater acceptance of gender equity in the household. Therefore, men with higher education are expected to dedicate more time to household chores and child care than those with less education.

It is well known that major life events such as marriage and parenthood have important implications on the time use patterns of individuals. Parenthood is one of the main factors influencing women's time use at peak productivity. For men, having children tends to lead to longer paid work hours, but for women, it tends to lead to shorter paid work hours (Anxo et al. 2011; Connelly and Kimmel, 2010).

By using data from the Time Use Surveys carried out by the Turkish Statistical Institute in 2006 and 2014-15, this book chapter has two goals. The principal aim is to describe time allocation for market work and child care among cohabiting parents in Turkish households, with a specific focus on their educational backgrounds. Secondly, it aims to assess the factors associated with time spent in market work. The case of Turkey is worthy of exploring on two levels. First, there has been a substantial rise in the educational attainment of the workforce in the last decades. The share of individuals with higher education degrees in the Turkish population rose from 7.5 percent in 1998 to 8.5 percent in 2006 and then to 10.9 percent in 2014. This share reached 34.3 percent in 2021 whereas the corresponding share in the OECD is 39.9 percent (OECD, 2023a). This increase was stronger among the 25-34-year-old population. The share of individuals aged between 25 and 34 years with tertiary education rose from 7.8 percent in 1998 to 39.9 percent in 2021 (OECD, 2023b). However, the increase

in educational attainment did not translate into an easier transition into the labor force for the Turkish youth as reflected by higher unemployment rates among the higher-educated youth (Susanlı, 2017). Secondly, the labor force participation of women in Turkey is historically low. In 2022, labor force participation of women in Turkey stands at 35.1 percent whereas the corresponding figure in the group of OECD countries is 56.4 percent. Keeping in mind that unpaid domestic work negatively impacts women's ability to find a job in the labor market (Floro and Komatsu, 2011), understanding the gender-based time use patterns in Turkey is a key step in developing suitable labor market policies.

Studies on time use in Turkey are limited as data was only available recently with the start of time use surveys in 2006 by the Turkish Statistical Institute, TUIK. Currently, only two waves of the survey are available: 2006 and 2014/15. Still, some studies explore this data for a number of topics in Turkey. Using data from the 2006 wave of the Time Use Surveys (TUS, hereafter), Susanlı (2014) examines the factors influencing the time devoted by parents to childcare. Also controlling for the number of sons and daughters younger than 15 years, the author finds that the number of sons and daughters is not significantly associated with the time fathers spend caring for children. However, mothers allocate significantly more minutes in childcare when there is one more child of either gender in the household, other things being constant. Kaya Bahçe and Memiş (2013) bring supportive evidence from the 2006 TUS data that preexisting disparities in work time (both paid and unpaid) between men and women got deeper with the economic downturn in 2008-2009. The authors estimate the impact of the spouse's job loss on the paid and unpaid work time. The analyses reveal that a one-percent rise in the spouse's likelihood of unemployment is linked to an increase in the amount of time dedicated to both paid and unpaid labor. More recently, based on data from the TUS 2006, Kongar and Memis (2017) investigate how married and cohabiting couples allocate their time and identify interesting insights. First, analyses confirm that the male breadwinner norm prevails. Second, the authors identify that parenthood leads to greater specialization along the cultural norms. In particular, mothers with preschool-age children are found to supply significantly fewer hours of paid work relative to the base category of employed women with no children. Third, concerning unpaid labor, an observable pattern emerges: mothers of preschool-age children allocate significantly greater time to unpaid work, including childcare.

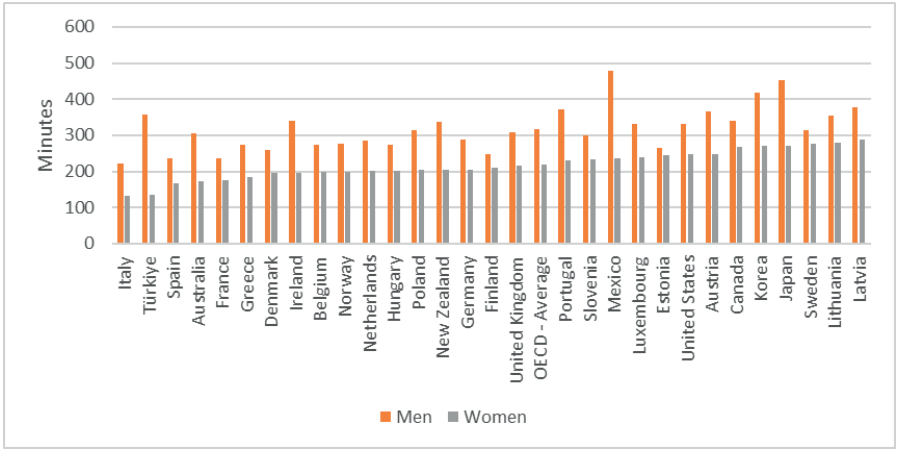
The rest of this chapter is organized as follows. The following part, Section 2, summarizes the time use profiles in Turkey. Section 3 recounts

the data used and gives an explanation of the empirical model; Section 4 evaluates the estimation results and Section 5 makes concluding remarks.

2. Time allocation profiles in Turkey

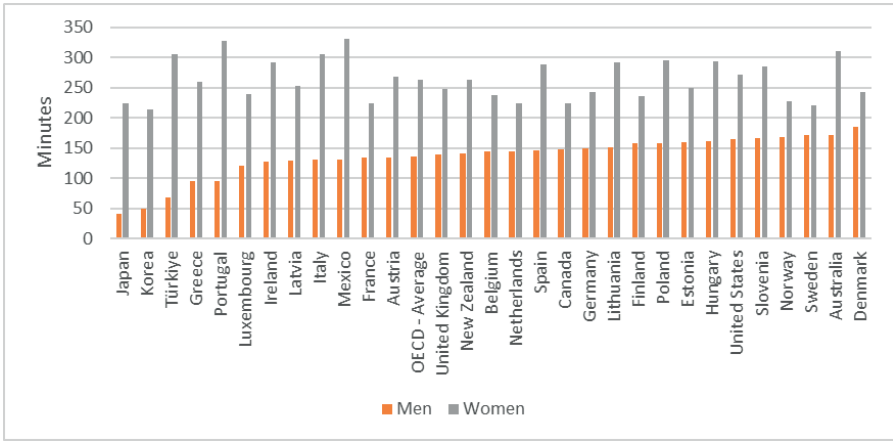
Figure 1 shows the time allocated (measured in minutes per day on weekdays and weekends) to paid work among the OECD countries. The data comes from the latest statistics available for each country covering individuals aged between 15 and 64. Among the OECD countries, time spent in paid work by women is lowest in Italy with 133 minutes, followed by Turkey with 133.9 minutes. As the figure shows, while men in Turkey work longer hours, (358 minutes), on average compared to the OECD average of 317.8 minutes, women in Turkey, together with Italy, supply the least time to paid work (133 minutes). This picture is consistent with the existing disparities between men and women in access to paid employment in Turkey.

Figure 1. Time spent in paid work in OECD countries.



Source: OECD Time Use Database, stats.oecd.org

Figure 2. Time spent in unpaid work in OECD countries.



Source: OECD Time Use Database, stats.oecd.org

Consistent with the picture in Figure 1, as shown in Figure 2, women in Turkey are among the top five when it comes to unpaid work, with an average of 305 minutes compared to the OECD average of 263. Women spend 331 minutes in unpaid work in Mexico, the most among the OECD countries. In contrast, Turkish men, on average, spend 67.6 minutes in paid work – the third country where men participate in unpaid work the least after Japan and Korea.

3. Data and Methodology

This study draws on individual-level data from two waves of the Time Use Surveys conducted by TUIK; 2006 and 2014-2015. In 2006, the Turkish Statistical Institute started conducting the internationally comparable time use surveys initiated by the European Union Statistics Office (EUROSTAT) for the first time in a total of 5,070 sample households randomly selected according to sampling techniques throughout Turkey, with an average of 390 households per month during the period of 1 January - 31 December 2006. The surveys were conducted with 11,815 individuals aged 15 and over in their households, and each of these individuals was asked to write down their activities at ten-minute intervals for 24 hours on two separate days, weekdays and weekends. A more recent wave of the survey was administered in 2014-2015 to 9,073 households with a total of 25,109 members aged 10 and above. These surveys intend to collect data to collect information on how people use their time throughout the day, uncovering the differences in the use of time in various groups according to gender, age, and employment

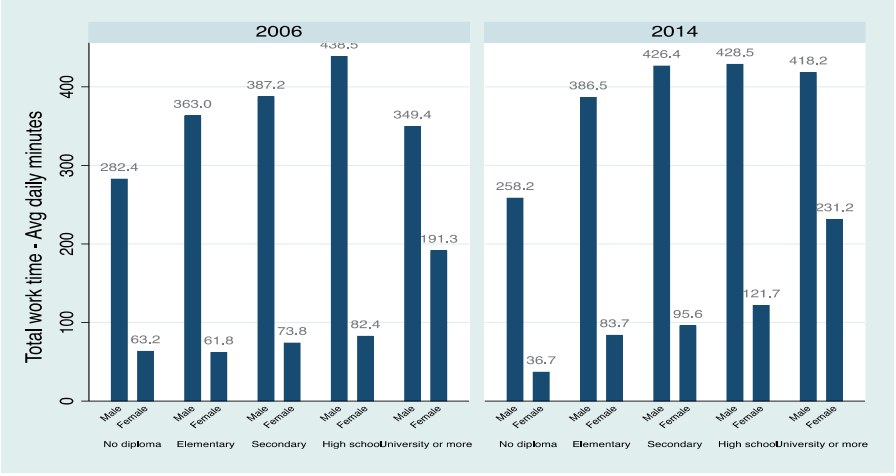
status as well as obtaining data to assist in the development of gross domestic product estimates in national accounts.

Of particular interest for this study is the data collected in the surveys regarding time allocated to paid work. In both of the surveys, this information is collected under the following categories (i) time at the main and/or secondary job, (ii) time spent taking breaks during work, (iii) other work-related activities (e.g., job interviews, going through vacancy listings, preparing documents to take to work, etc. as specified in the time diaries of the 2006 survey). The variable that captures time spent in paid work is constructed as the sum of these categories in the diaries. Based on the structure of the surveys, paid work is defined as time spent in market work and associated tasks including the commute to the workplace, breaks at work, and job search activities. For the unemployed individuals, this total would capture time spent in job search activities, hence the search intensity. Accordingly, unpaid work comprises total household chores such as cooking, cleaning, washing the dishes, laundry, ironing, grocery shopping, and similar tasks linked with home production. The surveys also collect data on time devoted to childcare activities. While the time diary in the 2006 survey collects information on childcare under the general category of household care, the 2014/15 diary has more detail collected under the subheadings of physical care, education, reading and playing, accompanying the child in activities, and others. Hence, the total childcare variable constructed from the 2014/15 sample is the sum of all responses under these activities. The surveys also collect self-reported information regarding the labor market status of individuals. Respondents choose from the following categories: employed, unemployed, at school, retired or quit working, senior or not suited to work, occupied with housework, and others. Respondents also report about their sector of employment, status at work, and public-private status of their jobs. In addition, the surveys also contain rich information regarding household characteristics such as the number of members, the largest source of household income, homeownership, and ownership of amenities.

Based on the data from TUS, Figure 3 presents the average time individuals spend in work-related activities for the entire sample including both employed and unemployed individuals by gender and education. Men, on average, spend more time on work-related activities than women at all education levels. For both men and women, time allocated to work-related activities seems to increase with education. Between 2006 and 2014, women appear to increase their time in work-related activities at all education levels except for the lowest level, no diploma. University-educated women display

the strongest attachment to the labor force, looking at the markedly higher time spent in market work. Consistent with studies on other developing countries, the gender gap in time in paid work declines with education.

Figure 3. Time in paid work on weekdays - all sample

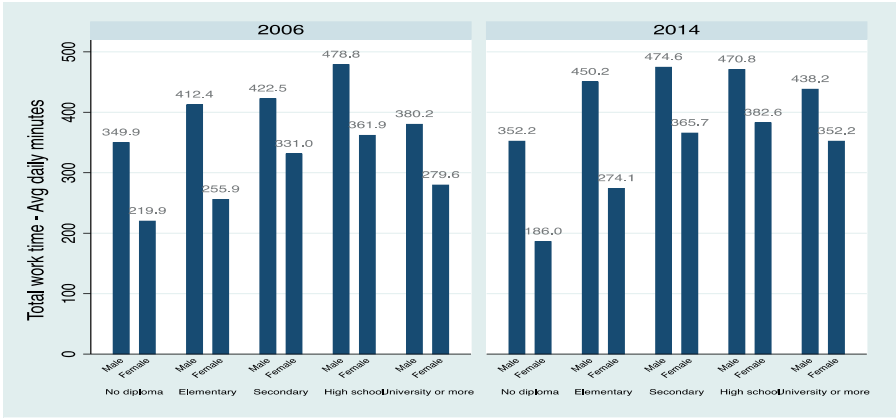


Source: Authors calculations using TUS.

As for men, time in paid work increases continuously with education until high school in both years. In 2006, men with higher education degrees appeared to put in less time in market work than men with elementary school education (349.4 vs. 363 minutes). In 2014, men with higher education devote less time to market work than those with high school degrees, but the difference seems to be less pronounced. Taking into account that Figure 3 is drawn for the employed and unemployed individuals together, this may be a manifestation of greater unemployment rates among individuals with higher education degrees (Susanlı, 2017).

Figure 4 presents the time in paid work by gender and education for the employed individuals. Men, on average, allocate more time to market work than women at all education levels. Employed women at all levels of education except those with no diploma, on average, increased their time in market work between 2006 and 2014. This is stronger for the university-educated group.

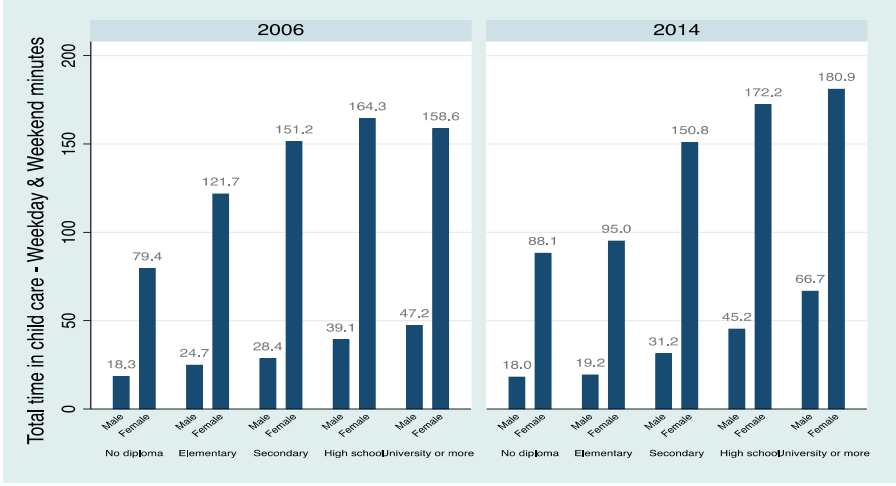
Figure 4. Time in paid work – employed individuals



Source: Author's calculations using TUS.

Figure 5 shows the total amount of time spent in childcare by men and women based on their educational levels considering the weekdays and weekends. At all educational levels, women spend substantially more time caring for children than men. A higher-educated woman spends 180.9 minutes on childcare whereas a higher-educated male spends 66.7 minutes. There is an interesting finding across the two years in the sample regarding the increased childcare time devoted by men and women with higher education degrees. As education increases, childcare time increases for men and women, except women in 2006.

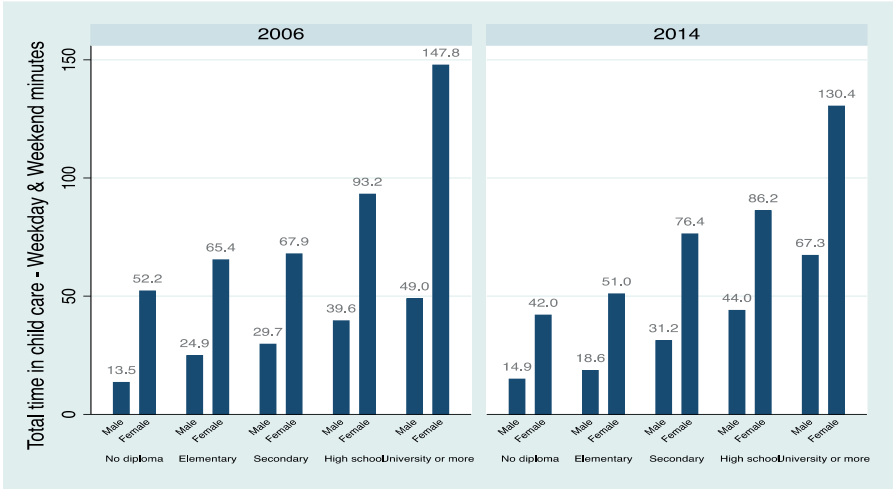
Figure 5. Total time in childcare on weekdays & and weekends - all sample



Source: Author's calculations using TUS.

Figure 6 underscores the impact of job demands on women's time. The positive correlation between education and time spent in childcare becomes more evident for employed women. In both sample years, higher educated women devote 50 percent or more time to child care than women with high school education. Employed men's time in childcare also rises with their level of education.

Figure 6. Total time in child care on weekdays and weekends - employed individuals



Source: Author's calculations using TUS.

The dependent variables in time-use research are limited to be within a certain range. Therefore, to address the censoring of the dependent variable, researchers analyzing time-use data also estimate a Tobit model employing maximum likelihood techniques. This choice is based on the argument that the Tobit model addresses the high proportion of "zeros" in the dependent variable and fitting a linear model using ordinary least squares (OLS) would result in inconsistent estimates of the parameters. Attributing the large number of zeros assumed by the outcome variable to measurement error, other researchers prefer the OLS estimation. Foster and Kalenkoski (2013) document that the choice of OLS when using time-use data produces qualitatively similar results to Tobit although some degree of censoring is real. Therefore, this paper relies on OLS estimation although alternative Tobit estimations yielded qualitatively similar results[2].

2 The results are not presented here for brevity but they are available upon request.

Following Gimenez-Nadal and Molina (2014), the determinants of the time in paid work will be estimated by :

$$y_i = x_i'\beta + \varepsilon_i, i = 1, 2, \ldots, n \quad (1)$$

where y_i is the total number of minutes put into paid work by individual *i* on a weekday; X_i captures individual and household characteristics that are potentially correlated with time spent on paid work such as age, gender, level of education, individual's health status, number of children younger than 15 years, household size (not available for 2014), a dummy variable for whether unearned income is the largest source of total income in the household and a dummy variable for homeownership. The error term, ε, captures all factors other than those in X. The individual's health status is constructed from the survey question on his/her general status of health with choices: (i) Very good, (ii) Good, (iii) Average, and (iv) Bad or very bad. Lastly, the dummy variable for unearned income equals one if the household's main source of income is unearned which excludes wages, salaries, and incomes from self-employment in agricultural and nonagricultural enterprises. In other words, this last variable captures the nonlabor income in the form of incomes from rent, securities, government transfers, and transfers from private individuals, institutions, and abroad. This leaves 12,966 observations on married and cohabiting couples between the ages of 25 and 54 with a complete set of covariates. Table 1 presents the summary statistics of the variables used in the analyses. Over the two sample periods, men and women increased their time in market work. On average women's time in market work increased from 73.6 minutes to 105.1 minutes in 2014. This is from 375.8 minutes to 403.5 minutes for men. As for employment, in 2006 and 2014 about 89 and 88 percent of men were employed, respectively. The share of women in employment increased from 27 percent in 2006 to 33 percent in 2014.

Table 1. Summary statistics

				Women								
Variables	Mean	Min.	Max.	Mean	Min.	Max.	Mean	Min.	Max.	Mean	Min.	Max.
Time in market work	375.8 (247.6)	0	1,240	73.6 (171)	0	1,160	403.5	0	1,320	105.1 (197.1)	0	1,140
Employed (%)	0.89	0	1	0.27	0	1	0.88	0	1	0.33	0	1
Health status												
Very good	0.13	0	1	0.11	0	1	0.14	0	1	0.12	0	1
Good	0.64	0	1	0.61	0	1	0.63	0	1	0.62	0	1
Average	0.18	0	1	0.23	0	1	0.19	0	1	0.22	0	1
Bad or very bad	0.04	0	1	0.06	0	1	0.04	0	1	0.04	0	1
Age												
Aged between 25 and 34	0.23	0	1	0.40	0	1	0.20	0	1	0.34	0	1
Aged between 35 and 44	0.41	0	1	0.38	0	1	0.42	0	1	0.43	0	1
Aged between 45 and 54	0.35	0	1	0.22	0	1	0.38	0	1	0.23	0	1
Education												
No diploma	0.04	0	1	0.18	0	1	0.03	0	1	0.13	0	1
Elementary school	0.50	0	1	0.57	0	1	0.42	0	1	0.46	0	1
Secondary school	0.15	0	1	0.06	0	1	0.14	0	1	0.11	0	1
High school or equivalent	0.19	0	1	0.13	0	1	0.22	0	1	0.17	0	1
University or more	0.12	0	1	0.06	0	1	0.19	0	1	0.13	0	1
Homeownership (%)	0.61	0	1	0.61	0	1	0.56	0	1	0.56	0	1
Largest source of income is unearned												

Source: Author's calculations using TUS.

Standard deviations of continuous variables in parentheses.

Over the sample years, the educational attainment of individuals displayed a notable rise. The proportion of men with a high school education or more increased from 31 percent to 41 percent between 2006 and 2014. This increase was from 19 percent in 2006 to 30 percent in 2014 for women. Looking at the receipt of unearned income, about 10 percent and 8 percent of the households in the sample received unearned income as the main source of total income in 2006 and 2014, respectively.

On average, an employed individual in the working sample reports spending 385 minutes on weekdays in 2006 and 486 minutes in 2014 on work-related tasks. The average time allocated to market work by employed women increased from 268 minutes in 2006 to 314 minutes in 2014. The corresponding increase for employed men was 420 minutes in 2006 to 453 minutes in 2014 (not shown in Table 1).

4. Results

Table 2 shows the estimation results from using the daily time in paid work on weekdays as the dependent variable in equation (1) with robust standard errors clustered at the household level to account for the correlation between the error terms within households. The sample is restricted to individuals in employment.

Findings in column (1) indicate that women, on average, work significantly less than men in 2006 -139.9 fewer minutes. Age and health do not appear to be significantly associated with time in market work. Looking at education, only secondary school and high school education appear to be significantly positively correlated with time in market work relative to the base category of no education. The coefficient on university education is negative and it is imprecisely estimated. Homeownership is found to be linked with less time in market work. Individuals in households where the main source of income is unearned work significantly less than those that are not. An additional member in the household seems to reduce the time in market work by about 10.6 minutes. Estimation results for 2014/15 presented in column (2) display qualitatively similar findings. Women, on average, put about 130 fewer minutes into market work than men. Having bad or very bad health is linked with less time in market work. Looking at the impact of education, all coefficients are positive and statistically significant. Homeownership and unearned income as the largest source of income seem to be inversely associated with time devoted to market work.

Estimating equation (1) separately for men and women reveals interesting insights. Columns (3) and (4) show that age is not a significant factor for

women's time in market work. For men, being aged between 45 and 54 is associated with less time in market work relative to the base category of being aged between 25 and 34. Being in bad or very bad health has a significant and negative impact on men's time in market work. As for education, education seems to be positively linked with time in market work for men; and this rises with the level of education. Education at the university level or more is an exception. Both men and women in households with nonlabor income as the largest source of income, on average, devote less time to market work than those with no nonlabor income. Homeownership is linked with significantly less time in market work for men. The number of children younger than 15 years has a negative and significant effect on the time allocated to market work only for women. Lastly, household size is negatively correlated with time in market work.

Table 2. Time devoted to market work - Employed individuals

VARIABLES	(1) 2006	(2) 2014	(3) Men 2006	(4) Women 2006	(5) Men 2014	(6) Women 2014
Female	-139.90+	-129.93+				
	(11.11)	(6.51)				
Age group						
Aged between 35-44	-0.68	9.52	-3.38	-1.27	-6.18	48.77+
	(11.57)	(7.94)	(12.94)	(22.52)	(8.92)	(14.51)
Aged between 45-54	-22.93	-11.71	-28.14*	-4.08	-34.06+	56.64+
	(14.75)	(8.87)	(15.66)	(31.72)	(9.60)	(17.66)
Health						
Good	-1.43	-11.90	-10.89	46.60	-11.80	-15.53
	(13.91)	(8.85)	(15.14)	(29.60)	(9.47)	(18.34)
Average	-0.59	-48.86+	-1.37	22.44	-45.05+	-59.50+
	(17.12)	(10.87)	(19.09)	(34.32)	(12.07)	(22.14)
Bad or very bad	-28.03	-40.24*	-55.34*	56.24	-17.76	-95.53**
	(26.30)	(22.88)	(31.18)	(51.72)	(26.98)	(39.17)
Education						
Elementary	27.68	92.00+	51.14**	-8.23	94.14+	77.56+
	(18.34)	(16.98)	(25.68)	(28.66)	(26.45)	(21.91)
Secondary school	38.26*	126.25+	53.82*	50.37	111.10+	168.88+
	(22.09)	(18.74)	(28.02)	(50.03)	(27.36)	(30.22)
High school or equivalent	86.94+	125.03+	103.65+	73.71*	105.23+	180.00+
	(20.71)	(17.80)	(26.93)	(43.59)	(26.74)	(25.39)
University or more	-9.87	94.20+	1.47	-5.72	68.80**	149.44+
	(22.06)	(17.61)	(28.82)	(38.07)	(26.83)	(23.17)
Homeownership	-27.42+	-22.86+	-29.80+	-18.07	-15.13**	-43.47+
	(9.97)	(6.46)	(10.58)	(22.23)	(7.02)	(12.22)
Largest source of income is unearned	-78.53+	-87.13+	-66.77**	-108.77+	-101.60+	-54.31**
	(25.05)	(18.66)	(26.63)	(41.04)	(21.84)	(26.35)
Number of children <15 years	-7.38	-2.34	-1.56	-25.35**	2.04	-10.97
	(5.52)	(5.20)	(6.19)	(9.94)	(5.86)	(9.83)
Household size	-10.63**		-10.02**	-11.87*		
	(4.26)		(4.88)	(7.01)		
Constant	470.60+	384.88+	451.71+	330.66+	403.45+	220.28+
	(29.12)	(19.73)	(34.86)	(54.44)	(27.74)	(30.07)
Observations	2,471	5,256	1,888	583	3,825	1,431
R-squared	0.12	0.11	0.04	0.08	0.03	0.09

Notes: OLS results from estimating equation (1). The dependent variable is daily time in market work on weekdays (measured in minutes). Base categories are men, aged between 25 and 34, in very good health, no education, not a homeowner, and the largest source of income is not unearned. Robust standard errors clustered at the household level in parentheses. + p<0.01, ** p<0.05, * p<0.1

Results based on the 2014/15 sample indicate that while men's time in market work falls with age for those aged between 45 and 54, this is the opposite for women. The coefficients on the health variables carry the expected signs, reflecting less time in market work by individuals reporting

bad health. Men with more education allocate more time to market work. For women, the coefficients on the education levels are positive. However, the magnitude of the coefficient on the "University or more" variable is smaller than that on "High school or equivalent" for both men and women. Both men and women in households where nonlabor income is the largest source of income tend to devote significantly less time to paid work.

5. Concluding remarks

This paper aims to contribute to the understanding of the link between education and time in market work in Turkey by exploring individual-level data from the time-use surveys. Findings indicate that women, on average, devote less time to market work than men. The time women devote to paid work increases with the level of education, with the highest impact at higher education. While the number of young children in the household does not appear to be a significant factor for men's time in paid work, it reduces women's time in paid work in the 2006 analyses. This reflects the persistence of imbalances in the distribution of childcare and household chores.

The difference between the amount of time men and women put into market work and caring for children narrows as their education level rises. However, while women tend to devote less time to childcare when they work more hours in paid work, men do not typically raise their time in childcare. This results in women working a total of more hours in paid and unpaid care work and ending up having less time left for personal care and leisure activities. Supporting women's attachment to the labor force is a key component of addressing gender-based inequalities. However, it is also well-known that women in countries with unequal distribution of unpaid care and household chores tend to participate less in the workforce. Therefore, as an avenue for future research exploring the link between unpaid work and institutional factors would provide valuable inputs for policymaking aimed at assisting the participation of women in the labor force.

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