

RESEARCH ARTICLE

Assortative Mating and Women's Working-Hours Decisions in Turkey

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Abstract

Wives' decisions regarding their working hours and their assortative mating levels with respect to income affect the main determinants of family-income inequality in any given country. In this paper, I estimate the degree of sorting between both husbands' earnings and wives' working hours and between husbands' earnings and wives' earnings in Turkey. For the analyses I have used the Turkish Statistical Institute's Labor Force Surveys conducted from 2004 to 2017, estimated the assortative mating coefficient for each year separately, and then pooled the data. The results indicate that positive assortative mating in terms of earnings exists for all the analysed years. The results further suggest that a negative relationship exists between a husband's income and his wife's working hours in Turkey.

Keywords

Assortative mating • Gender • Labor • Turkey • Demography • Economic sociology

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Turkey has a very long history of secular marriage practices; for instance, the Young Turks introduced a family code that declared marriage a secular contract for the first time in a Muslim country (Koker, 2010). However, a large knowledge gap exists that must be filled in order to fully understand both the effects of and reasons for marriage decisions in Turkey. Obviously, in order to have better knowledge about this we need to follow the demographic transitions in Turkey, as they affect and are affected by both society and the economy. Aysan (2014) highlighted that demographic transformations in Turkey had occurred faster than in the rest of Europe due to the rapid changes in economic and social structures and the demographic diversity among Turkey's regions. Aysan also stated that Turkey had passed into the second and third stages of demographic transition during the mid-1940s and in 2013, respectively. A strong relationship has also been shown to exist between countries' demographic trends and economic conditions. For example, Jaimovich and Sui (2009) showed this in their investigation of the relationship between populations' age composition and the business-cycle volatility for the Group of Seven (G7) economies. In addition, Dumon (1991) revealed that family policies play a critical role in determining Europe's welfare policies.

One of the most important economic variables related to demographic and cultural trends is women's labor-force decisions. Tansel (2002) defined the female labor-force participation rate as the ratio of female labor, which includes all women who are either employed or unemployed and seeking work, to the female population in a given country. Previous literature has suggested a U-shaped relation to exist worldwide between the female labor participation rate and economic development, as both the effect of income and fertility rates change during demographic transformations (Tam, 2011). Akyol and Okten (2019) mentioned in the Organization for Economic Cooperation and Development (OECD) that Turkey's female labor-force participation rate is the lowest at 30%, despite many public-policy changes made to counteract this. For example, the compulsory schooling law changed in both 1997 (from five to eight years) and 2012 (from eight to twelve years), and new tax incentives for hiring female employees were introduced in 2008. Therefore, although Turkey has experienced many sociological and economical changes over the last three decades, the urban female labor force participation has quite interestingly been almost stagnant during those years (Dayioglu & Kirdar, 2010; Karamollaoglu & Soybilgen, 2019). Both sociologists and economists have tried to explain this phenomenon, and the explanations vary from those that suggest it is due to discrimination to those suggesting it is due to preference (Ince Yenilmez, 2019; Korkmaz et al., 2013; Aksoy et al., 2019). However, another critical determinant in the female labor-force participation is marital status.

After Becker (1973; 1974) published his seminal papers on marriage, social scientists began viewing marriage as an institution from a market perspective. The effects of marriage on employment decisions and the economic determinants of marriage

decisions became major areas of interest. In addition, the characteristics of married people have become a crucial and fruitful research area. For example, several researchers have attempted to investigate the validity of the adage “opposites attract.” Although several studies have investigated the correlation between a husband’s earnings and his wife’s (e.g., Schwartz, 2010), the relationship between a husband’s income and his wife’s working hours has been less researched (Morissette & Hou, 2008). Understanding this relationship may help to elucidate the reasons for income inequality. Wives’ decisions regarding working hours may either reduce or increase a family’s income inequality. Therefore, more studies are needed that investigate assortative mating among couples in this regard.

A couple’s levels of similarity are measured by assortative mating estimates. Even though couples have positive assortative mating for many characteristics, such as education and IQ, Becker (1973) highlighted that a negative correlation between a husband’s income and that of his wife maximizes total household production because the labor-division gain is maximized. However, he also pointed to the possibility of overall positive sorting, as sorting from all traits aside from income tended to be positive. Finding negative assortative mating for income has since become a challenge for researchers, and no one who uses a nationally representative dataset has achieved this goal.

Although a significant number of studies have investigated the degree of assortative mating in developed countries (e.g., Nakosteen & Zimmer, 2001), few studies are found specific to Turkey. A few notable exceptions to this trend are the studies by Dayioglu and Baslevent (2006), Duygan-Bump and Guner (2006), and Mercan (2012). However, no study has investigated the relationship between husbands’ incomes and wives’ working hours in Turkey. In this regard, the current study is the first to date.

As Aysan (2014) mentioned, recent government policies in Turkey have prioritized creating opportunities for women to work and have kids simultaneously. Therefore, knowing all the possible effects of marriage on women is important for policy makers. In this study, I have used the Turkish Statistical Institute’s (TurkStat) Labor Force Surveys (LFS) from 2004 to 2017 to calculate the degree of sorting between husbands’ incomes, wives’ working hours, and wives’ incomes in Turkey. I estimated the assortative mating coefficients from 2004 to 2017 for each year separately and then pooled the data. The results indicate that positive assortative mating for earnings exists for all the analyzed years. They also suggest a negative relationship to exist between husbands’ incomes and wives’ working hours in Turkey.

This paper proceeds as follows: After the introduction, the second section describes the previous literature on assortative mating, the third section describes the dataset and presents the current methodology used, the fourth section describes the main results, and the fifth and final section summarizes and discusses the findings.

Literature Review

Even though several studies are found to have investigated the many aspects of demographic trends in Turkey (e.g., Özgür, 2013), only a few studies have focused on the effects of marriage. A notable exception to this trend is Koç et al. (2010), who found the difference between age of first birth and age of marriage for women to historically be around 1.6 years. Still, very few studies have estimated the level of assortative mating in Turkey.

The existing literature suggests several different approaches to estimating the level of assortative mating. Siow (2015) tested Becker's assortative mating theory in a stochastic environment with a 5% sample of the 2000 US Census for white married couples between 31 and 36 years. He found that the marriage matching distribution had satisfied the totally positive functions of order 2 (TP2). This means that positive assortative matching exists in the US with respect to white couples' education levels. Meanwhile, Maschie-Taylor (1987) demonstrated a positive correlation between spouses' weight and height in a British sample. Another approach depended on couples' earnings using the Panel Study of Income Dynamics (PSID, 1968-present). Overall, despite Becker's (1974) claim that a negative assortative mating should be present with regard to earnings, Nakosteen and Zimmer (2001) found positive assortative mating regarding earnings for a US sample. Although few exceptions have occurred in the previous literature (e.g., Zhang & Liu, 2003), most studies estimated positive assortative mating regarding earnings for both developed and developing countries.

Although a paucity of literature exists regarding assortative mating on earnings, even fewer studies are found to have investigated the relationship between a husband's income and his wife's working hours. Using the 1974 British Household General Survey, Arrufat and Zabalza (1986) found the overall elasticity of hours concerning a husband's income was -1.27 for married women. This means that a 1% increase in the husband's wages decreases the wife's working hours by 1.27%. This further suggests a strong negative relationship to exist between husbands' earnings and their wives' working-hour decisions. Furthermore, Morissette and Hou (2008) investigated the relationship between a husband's income and his wife's working hours in Canada. They estimated the cross-wage elasticities of unconditional hours based on the 1980, 1990, and 2000 censuses. After analyzing the microdata, they found the elasticities to have declined from -0.25 to -0.12 from 1980 to 2000. Their estimates suggest that, wives in Canada tend to decrease their working hours when their husbands' earnings increase. When Morissette and Hou (2008) grouped the data, their elasticity estimates also became larger. This means that the effect is stronger when compared to their ordinary-least-squares (OLS) estimates.

Even though several studies have focused on women's labor-force decisions in Turkey using a cohort analysis (e.g., Talas & Cakmak, 2013; Mercan & Karakas, 2015)

or married women (e.g., Tezcan & Coskun, 2004), limited studies are found regarding assortative mating or female working hours. Three studies have examined the assortative mating literature in Turkey: Dayioglu and Baslevant (2006), Duygan-Bump and Guner (2006), and Mercan (2012). Dayioglu and Baslevant (2006) estimated assortative mating with regard to earnings and found the non-zero female and male income-correlation coefficient to be 0.44 in Turkey. Duygan-Bump and Guner (2006) calculated the correlation of spouses' years of schooling and found it to be 0.55. Finally, Mercan (2012) estimated the earnings correlation between spouses using the Heckman correction, a two-step statistical approach. He found the coefficient to be around 0.1, suggesting a small positive assortative mating to exist in Turkey with respect to income. Furthermore, Karaoglan and Okten (2015) investigated the added-worker effect in Turkey. They suggested that a husband becoming involuntarily unemployed increases the probability of his wife's labor-force participation by 4%.

Data and Method

This study uses TurkStat's Household Labor Force Surveys taken from 2004 to 2017. LFS is a nationally representative annual dataset that includes approximately 150,000 households. Although the LFS has followed the European Union Statistical Office (Eurostat) standards since 2004, TurkStat made several changes over the years; thus, we cannot compare estimates from all years in our sample years. We will instead report results for four time periods: 2004, 2005-2008, 2009-2013, and 2014-2017. This allows us to compare the results accurately.

The dependent variables in our study are wives' working hours or wives' earnings, the primary independent variable is husbands' earnings, and the control variables are the years spent in educational institutions (determined by the degree of accomplishment for both wives and husbands), as well as their ages.¹ In the analysis, the variable of working hours has been based upon the answers to the survey question, "How many hours do you usually work per week in your main job?" for the given time period.

Additionally, the real earnings calculated by the TURKSTAT's Consumer Price Index for 2003 have been used as the base year for the analyses. Only a summary statistic from 2017, the most recent year, has been reported in this article. Table 1 lists the descriptive statistics for the variables and shows the average weekly working hours for wives to be around 40 (with a standard deviation of approximately 15.8 hours) in 2017. Even though the average monthly earnings for men and women were close—2,246 Turkish Liras (~\$615 US) for men and 2,010 Turkish Liras (~\$550 US) for women—the differences in standard deviation were not. The standard deviation for husbands' earnings was 2,206 Turkish Liras (about US \$604), while the standard deviation for

1 I've also added several other control variables for robustness checks, including a dummy for working in the public sector and occupation dummies for men and women. All checks resemble our results.

wives' earnings was just 1,527 Turkish Liras (about US \$418). The 2017 sample also indicated the average husband's age to be about four years older than their wife's age (47.2 years for men and 43.4 years for women). In addition, the standard deviation for both husbands' and wives' ages was around 13 years.

Table 1
2017 summary statistics

	Mean	SD	Min	Max
Wife's Work Hours	39.89	15.78	1	99
Husband's Earnings (TL)	2,246.33	2,206.22	0	184,000
Wife's Earnings (TL)	2,010.52	1,527.05	0	40,000
Wife's Age	43.36	13.65	15	107
Husband's Age	47.18	13.73	15	111
Husband's Education	11.53	4.87	0	18
Wife's Education	11.24	5.31	0	18
N	12,447			

The analysis uses the education categories from the LFS for each given year. For example, the education variable in the 2017 sample is based on the question, "What is the latest educational institution/level you graduated from?" The possible answers to this question sorted each respondent into one of seven categories: literate but completed no educational institution; primary school (5 years); lower secondary, vocational and technical secondary school, or primary education; upper secondary school (high school); vocational and technical high school; 2, 3, or 4 years of higher education/faculty; and master's degree (5-6 years faculty included) or doctorate. Thus, I decided to convert the variable of education from the 2017 LFS into a continuous variable for the summary statistics (I used the actual categorical values from the LFS for the analyses). Table 1 shows men to have had more education than their wives, with the average years of schooling being 11.5 for men and 11.3 for women.

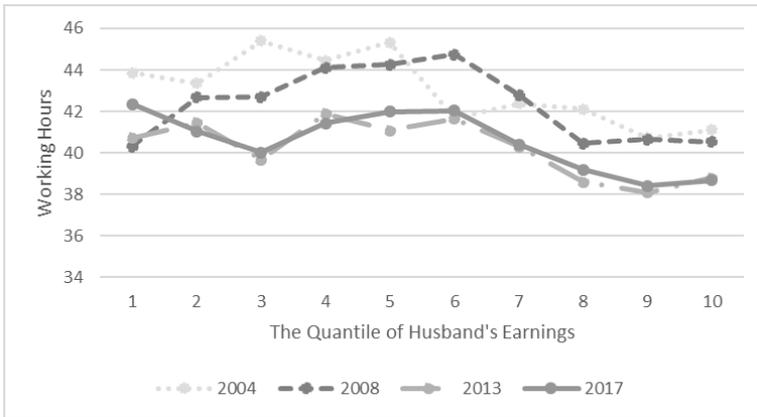


Figure 1. Wives' average work hours by husbands' quintile earnings.

Furthermore, I estimated wives' average working hours by husbands' quintile earnings for four years: 2004, 2008, 2013, and 2017. Figure 1 shows these estimates, and all years have inverted U-shapes, indicating that in Turkey, wives whose husbands are in the middle of the earnings distribution work the longest hours. Moreover, Figure 2 shows the percentage of wives who earned more than their husbands each year and illustrates a steady decline to have occurred for this percentage. Before 2009, it was around 21%, which means almost 80% of working women earned less than their husbands. The percentage then dropped to 18% in the 2010s.

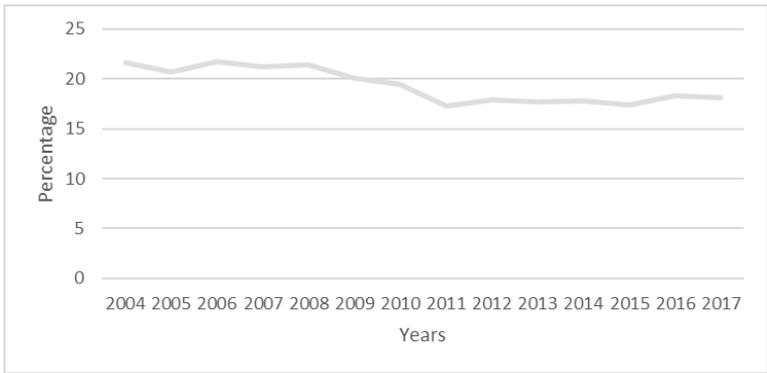


Figure 2. The percentage of wives who earn more than their husbands.

I simultaneously estimated the percentage of wives who work more hours than their husbands during these years. This trend was opposite the trend for the percentage of wives who earn more than their husbands. Figure 3 shows a steady rise. In 2004, for instance, only 11.4% of wives worked more hours than their husbands; this reached 14.2% in 2016.

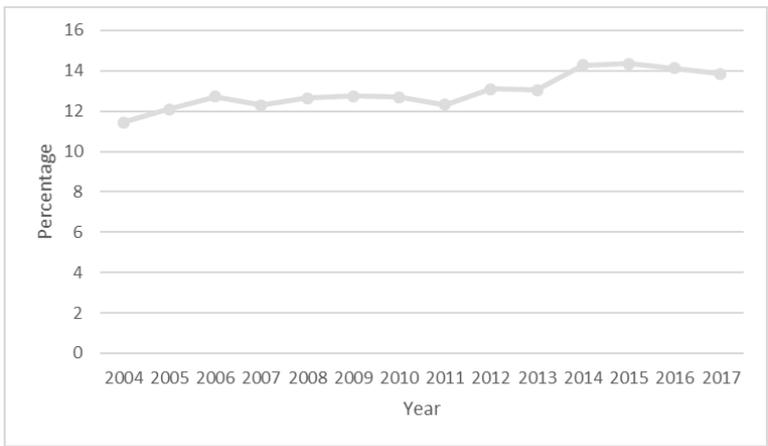


Figure 3. The percentage of wives who work more hours than their husbands.

The estimates are based on Poisson regression, which has been well established in the literature for having several advantages as a tool for counting data. To obtain an estimate of the relationship between husbands' earnings and wives' working hours or earnings, I controlled for the spouses' other characteristics and used the following equations:

$$Earnings_w = \alpha_0 + \alpha_1 Earnings_h + \alpha_2 Age + \alpha_4 Education + \alpha_4 Region + \varepsilon \quad (1)$$

and

$$WorkHours_w = \alpha_0 + \alpha_1 Earnings_h + \alpha_2 Earnings_w + \alpha_3 Age + \alpha_4 Education + \alpha_4 Region + \varepsilon \quad (2)$$

In these equations, the subscript h represents husbands and w represents wives. I used a logarithmic form for both wives' and husbands' earnings for $Earnings$.² Age includes both the husband's and wife's ages and their squares. $Education$ includes the husband's and wife's education levels, and $Region$ includes the Nomenclature des Unités Territoriales Statistiques (NUTS) for Level-2 regions in Turkey.

Results

This study uses both tables and figures to show the estimates. Tables 2 and 3 display the coefficients from the Poisson regressions with standard errors (SE) being given in parentheses. The results from four different time periods (2004, 2005-2008, 2009-2013, and 2014-2017) have been reported. Furthermore, I have reported separate estimates from Equations 1 and 2 for each survey year.

Table 2 shows the results for a wife's earnings, helping to see the level of assortative mating in Turkey. In 2004, the incidence rate for husbands' income was 1.029, which means a statistically significant positive relationship was found between husbands' and wives' incomes. This is the weakest relationship estimated in the analysis. From the pooled data for 2005 and 2008, I estimated the incidence rate for husbands' incomes to be 1.077. Between 2009 and 2013, the incidence rate continued to increase, reaching its peak in 2012 at 1.168. Between 2014 and 2017, the estimate based on the pooled data showed the incidence rate to be 1.094, which suggests a statistically significant relationship to continue to exist between husbands' and wives' incomes. The results strongly suggest that men with higher incomes tend to have wives with higher earnings, and men with lower incomes tend to have wives with lower incomes.

2 I added 1 to each of the earnings so that zero earnings would be included in the sample.

Table 2
The Poisson Results for the Wives' Incomes

Year	Husband's Earnings		
	Coefficient	SE	n
2004	1.029***	(0.000)	112,152
2005	1.096***	(0.006)	115,324
2006	1.071***	(0.007)	117,748
2007	1.076***	(0.006)	115,188
2008	1.068***	(0.005)	115,702
2005-2008	1.077***	(0.003)	463,962
2009	1.144***	(0.062)	120,635
2010	1.055***	(0.005)	126,184
2011	1.146***	(0.022)	9,433
2012	1.168***	(0.024)	10,544
2013	1.123***	(0.003)	11,064
2009-2013	1.196***	(0.021)	277,860
2014	1.115***	(0.025)	11,255
2015	1.122***	(0.003)	11,772
2016	1.073***	(0.009)	12,110
2017	1.082***	(0.007)	12,447
2014-2017	1.094***	(0.008)	47,584
Age and Age ²		Yes	
Education Dummies		Yes	
Region Dummies		Yes	
Year Dummies		Yes	

Note: The standard errors are in parentheses. *** $p < 0.01$; ** $p < 0.05$; * $p < 0.10$

Furthermore, Table 3 shows the results for wives' working hours, highlighting the relationship between husbands' incomes and wives' decisions regarding working hours. In 2004, the incidence rate for husbands' incomes was 0.998, indicating a statistically significant and negative relationship between husbands' incomes and wives' working hours. This is a small effect, however, and the weakest estimated relationship in our analysis. From the pooled data for 2005–2008, we estimated the incidence rate for husbands' income to have become 0.990, which suggests the negative relationship between husbands' earnings and wives' working hours to have become stronger. Between 2009 and 2013, the incidence rate remained at a similar level (~0.990). Between 2014 and 2017, the estimate from the pooled data shows the incidence rate to be 0.992, meaning that the statistically significant negative relationship between husbands' incomes and wives' working hours had continued. Our results strongly suggest that wives tend to work less hours as their husband's income increases.

Table 3
The Poisson results for wives' working hours

Year	Wife's Income		Husband's Income		n
	Coefficient	SE	Coefficient	SE	
2004	1.001***	(0.000)	0.998***	(0.000)	23,112
2005	1.007***	(0.001)	0.989***	(0.001)	23,209
2006	1.016***	(0.001)	0.992***	(0.001)	23,906
2007	1.020***	(0.001)	0.991***	(0.001)	23,033
2008	1.021***	(0.001)	0.991***	(0.001)	23,934
2005-2008	1.017***	(0.001)	0.990***	(0.000)	94,082
2009	1.030***	(0.001)	0.990***	(0.001)	26,594
2010	1.033***	(0.001)	0.989***	(0.001)	30,670
2011	1.046***	(0.001)	0.990***	(0.003)	9,433
2012	1.037***	(0.001)	0.992***	(0.003)	10,544
2013	1.039***	(0.004)	0.991***	(0.003)	11,064
2009-2013	1.036***	(0.001)	0.991***	(0.001)	88,305
2014	1.033***	(0.003)	0.991***	(0.002)	11,255
2015	1.032***	(0.003)	0.992***	(0.002)	11,772
2016	1.035***	(0.003)	0.993***	(0.002)	12,110
2017	1.036***	(0.003)	0.992***	(0.002)	12,447
2014-2017	1.035***	(0.001)	0.992***	(0.001)	47,584
Age and Age ²	Yes				
Education Dummies	Yes				
Region Dummies	Yes				
Year Dummies	Yes				

Note: The standard errors are in parentheses; ***p < 0.01; **p < 0.05; *p < 0.10

Even though the crude marriage rate (CMR), which is defined as the number of marriages given per year per 1000 people, has declined all around the world (in 2001 the $CMR_{US} = 8.4$ and $CMR_{Turkey} = 8.2$ but dropped respectively to 6.8 and 6.9 in 2017), marriage is still a very important social institution for all societies. In this paper, we have investigated the possible relationships between wives' labor-market decisions and their husbands' earnings, while at the same time measuring assortative mating based on income in Turkey. I used TurkStat's Labor Force Surveys conducted between 2004 and 2017 for the analysis.

The regression results suggest a positive relationship to exist between couples' incomes; this is similar for all years according to the estimates. I also estimated a negative relationship to exist between husbands' incomes and wives' working hours, which suggests that these two factors have different effects on wives' labor-force decisions.

The results have several sociological and economic conclusions. First of all, they suggest the biggest burden of work for women in Turkey falls on those in the middle-class. One possible reason why middle-income wives work the longest hours might be in order to "keep up with the Joneses," which has been shown to be common

phenomenon (Bowles & Park, 2005; Huang & Shi, 2015). In addition, traditions might play a role in the determinants for assortative mating levels. For example, according to TurkStat's Family Structure Survey conducted in 2016, 47.8% of married couples met as a result of arranged marriages in which their opinions had been considered while 12.1% of married couples met as a result of arranged marriages in which their opinions had not been considered. This suggests that most marriage decisions in Turkey have been affected by traditional values. Furthermore, the percentages for arranged marriages decline with education level, which may also have an impact on assortative mating levels.

This the first empirical attempt to calculate the relationship between husbands' earnings and wives' working hours for Turkey, and it does have some shortcomings. First, the sample is based only on the pooled data from cross-sectional datasets as opposed to any longitudinal datasets. The results may differ when long panel datasets are considered. Second, the results are based on the variable of income, which was self-reported and may cause some estimate measurement errors. Finally, previous studies have suggested that female labor-force participation may decrease men's wages (e.g., Acemoglu et al., 2004). Even though, female labor-force participation in Turkey has not undergone rapid changes historically, highly-educated women have high labor-force participation rates, and this may affect the estimates.

In conclusion, I firmly believe that more studies are needed in this area. Future research must focus on the mechanism behind assortative mating, because we need to understand what specifically causes assortative mating and why the percentage of wives who work more hours than their husbands has increased while the percentage of wives who earn more than their husbands has decreased. I believe that the answers to these questions can help create better employment and welfare policies in Turkey.

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