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Abstract

The degree of assortative mating shows the degree of similarity within couples. Many papers try to calculate earnings correlations between husbands and wives. This paper tries to calculate the earnings correlations for Turkey and consider the effect of the sample selection. Our results show that there is a weak positive assortative mating in Turkey, and the bias from the selection is small. In addition, we look at the assortative mating coefficients in different regions in Turkey. Akdeniz region has the biggest correlation coefficient. Karadeniz has the lowest coefficient which is almost zero.

I-Introduction

Assortative mating is one of the growing topics in Economics. The degree of assortative mating measures the degree of similarity within couples. It also may measure similarities on education; for instance, Rose (2001), earnings; for instance, Zhang and Liu (2003); and so on. According to Becker (1973 and 1974), knowing the relationship between husbands and wives is crucial to understanding the inequality of inheritable traits. It also helps us to understand the correlation between the traits of parents and children. Therefore, measuring assortative mating is crucial.

Becker (1973) points out a negative correlation between husbands' and wives' wages maximizes total output because the gain from the division of labor is maximized. In addition, his analysis predicts that many women have a weak attachment to the labor force. The reason of that is husbands' high wages discourage the wives who spend their times on the household production. Furthermore, his theory predicts a negative correlation between the wage rates, if we hold nonmarket productivity constant. However, he points out the sample selection leads to find a positive assortative mating.

However, Becker's theoretical conclusion about assortative mating created many controversies in literature. Even though he concluded there should be a negative assortative mating on wages as a result of the sexual division of labor, the majority of studies found a strong positive assortative mating. There are a few exceptions, like Zhang and Liu (2003). They considered the effect of the selection bias and found a weak negative assortative mating for Taiwan. In addition, Zimmer (1996) found a negative coefficient for North-American whites.

There are several studies that tried to measure assortative mating for several different countries. This paper is separated from those by its methodological approach. It is the first time in the literature we calculated assortative mating for Turkey while we were considering the effect of the selection problem. There was just one previous study, Dayioglu and Baslevent (2006), for Turkey; however, they did not consider the effect of the selection problem. In addition, for the first time, we used Income and Living

Conditions Survey (ILCS) 2006, 2007, and 2008 for the assortative mating analysis. ILCS is a nationally representative dataset. We found there is a weak positive assortative mating in Turkey, and the bias from the selection is small.

II-Turkish Marriage Market

In this part, we are going to give some information about the Turkish marriage market. According to Turkish Statistical Institute (TUIK) data, in 2009, 47.5 percent of the population were married. In addition, there were 591,742 new marriages. 84, 667 of them were married in July. This is 14.3 percent of all Turkish marriages in 2009. The average marriage age is 28.3 and 24.3 for grooms and brides, respectively. 95 percent of grooms have never married before and 93.6 percent of brides have never married before.

 In addition, the average age at the first marriage is 26.3 and 23.0 for grooms and brides, respectively. In 449,997 marriages, the groom is older than the bride. In 58.3 percent of them, the age difference is less than six years. 45 percent of first time married grooms are between 25 and 29 years old. 40 percent of first time married brides are between 20 and 24 years old.

Furthermore, 32.2 percent of illiterate grooms married a bride who was illiterate. 23.6 percent of grooms who did not complete any school married a bride who did not complete any school. In addition, 42 percent of grooms who graduated from the high school married a bride who graduated from a high school. 33.9 percent of university graduate grooms married a bride who graduated from a university. On the other hand, 49 percent of university graduate brides married a groom who graduated from a university.

According to ISCO-88, there are nine different occupation groups in our survey. 14.92 and 15.08 percent of couples worked in the same occupation in 2006 and 2007 respectively. In addition, according to NACE REV 1.1, there are fourteen different groups for the firms' economic activities in our survey. 17.64 and 18.67 percent of couples worked in firms which had the same economic activities in 2006 and 2007 respectively. Agriculture, hunting and forestry is the largest group in both years.

III-Theoretical Background

Becker (1974) points outs the method of selecting a mate as similar to the method of selecting any other consumer good designed to increase a person's level of utility. . In addition, Becker (1974) points out the positive mating on wages exist when he include caring into the model.

Lam (1988) expanded Becker's model and included household public goods into the model. Lam (1988) points out that there is positive assortative mating on spouses' wealth. After that simple analysis, he allowed for household public goods that are produced within the home instead of being purchased in the market. In that case, he found two opposite effects and the possibility of a negative assortative mating.

Nakosteen and Zimmer (2001) use Panel Study of Income Dynamics (PSID) and find evidence of positive assortative mating on the earnings for the US. In addition, Nakosteen et. all (2004) use a Swedish data and find the existence of positive assortative mating on earnings.

To date, the negative assortative mating on wages has been obtained by few studies like Zimmer (1996), with a negative coefficient for North-American whites. In addition, Becker (1993) cites two studies: unpublished negative coefficients obtained by Gregg Lewis, and a much weaker correlation obtained by Smith (1979).

Furthermore, Zhang and Liu (2003), who found a weak negative assortative mating, have similarities with this study. They also calculated the direction of the selection bias. They found that the simple regression coefficient between spouses' wages is 1.03. When they control the selection problem, the partial regression coefficient may become negative (-0.0004).

In addition, there is just one previous study for Turkey, Dayioglu and Baslevent (2006). They used the 2003 Household Budget Survey (HBS) in their analysis. Dayioglu and Baslevent (2006) found that the correlation coefficient between the husbands and the wives is 0.44. However, they did not consider the effect of the sample selection. One common approach is to use Heckman's (1979) procedure to

correct the model for potential selection bias. We also are going to pursue that method on this paper.

IV-Estimation Procedure and Data

To obtain an estimate of the partial correlation between spouses' earnings when we are controlling for spouses' other characteristics, we use the following equation

$$Earnings_h = \alpha_0 + \alpha_1\ Earnings_w + \alpha_2\ Age_h + \alpha_3\ Age_w$$

$$+ \alpha_4\ Education_h + \alpha_5\ Education_w + \varepsilon \qquad (1)$$

where subscripts h and w represent husbands and wives respectively. Our analysis will depend on Equation-1. However, in our data set, age and education are not continuous variables. The age has 14 intervals and the education has seven intervals and Table-1 shows those intervals. Therefore, we had to use dummy variables for those intervals. In that case, we have a total of 19 variables for age and education in the regression.

Table-2 reports the summary statistics of our sample. There are 692 and 745 couples in 2006 and 2007, respectively. In addition, there are 913 couples in 2008. For husbands, even though 2006 has higher the maximum earnings, the average earnings are higher in 2007. The difference between averages is less than 1,000TL. Wives' earnings are significantly lower than husbands' earnings. The wives' earnings are about 65 percent of the husbands' earnings in three years.

In the survey, we observe ages in brackets. When we looked at the age, we realize that the ages are pretty close in those three years. However, the husbands are older than wives. The average age bracket is 8.2 for husbands. The eight includes ages between 35 and 39. Besides, the average age of wives is around 7.6. The age bracket seven includes age between 30 and 34.

In addition, the education variable also has intervals, instead of having the actual number. There are seven brackets. 0 means illiterate and 6 means graduated from college or above. Husbands' and wives' averages are close, around 3, which means graduated from the middle school. It is like completing eight years of schooling.

V-Results

In this section, we will present nine different results from three different methods we have used. Our regressions depend on Equation-1. Table-3 shows all those results. First of all, the partial correlation is shown in the first row of Table-3. Results are pretty similar for two different samples. The partial correlations are 0.20, 0.25, and 0.36 for 2006, 2007, and 2008 samples, respectively. These results suggest that there is a weak positive assortative mating in Turkey.

On the other hand, we also examined the effect of sample selection. To do so, firstly we estimated an OLS regression, then we used Heckman's selection model to find the direction of the selection bias. The second row of Table-3 shows that the estimates are 0.33, 0.29, and 0.39 for 2006, 2007, and 2008, respectively. The OLS results are also proving there is a weak positive relation between husbands' and wives' earnings. After OLS analysis, we focused on the selection problem. We ran a Heckman's selection model and estimates became 0.36, 0.33, and 0.38 for 2006, 2007, and 2008, respectively. It means that the direction of the bias is toward zero. However, the possible bias is small. We also tried to use several different regression forms for the selection. All of those gave small biases and are available upon request.

Furthermore, we also calculate the partial correlations for seven different regions in Turkey. For that, we used Income and Living Conditions Survey (ILCS)-2008. Table-4 shows those estimates. In addition, Akdeniz has the highest coefficient that is 0.61. Dogu and Guney Anadolu has the second highest coefficient. Both of those are higher than Turkey's overall coefficient which is 0.36. In these two regions, there is a strong positive assortative mating. Karadeniz has the lowest coefficient which is almost zero. Istanbul and Ege have 0.34 which is close to the Turkey's overall coefficient.

Finally, we also tried to replicate Dayioglu and Baslevent (2006)'s results. Our correlation coefficients are 0.49 and 0.53 for 2006 and 2007, respectively. Our results are slightly larger than their 0.44.

VI-Conclusion

This study is the first attempt to investigate assortative mating and the selection problem simultaneously for Turkey. Our results reveal that assortative mating is small in Turkey. Even though we could not find a negative assortative mating, our results show that there is a weak positive assortative mating in Turkey.

In addition, we also calculated regional assortative mating. Akdeniz region has the biggest correlation coefficient. Karadeniz has the lowest coefficient which is almost zero. Istanbul and Ege have 0.34 which is close to the Turkey's overall coefficient.

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Table-1: Intervals

Education

0	Illiterate
1	People who can read without holding a degree
2	Elemantary School
3	Middle School
4	High School
5	Vocational School
6	College

Age

1	between 0 and 4
2	between 5 and 11
3	between 12 and 14
4	between 15 and 19
5	between 20 and 25
6	between 25 and 29
7	between 30 and 34
8	between 35 and 39
9	between 40 and 44
10	between 45 and 49
11	between 50 and 54
12	between 55 and 59
13	between 60 and 64
14	65 or older

Table-2:Summary Statistics

	2006					2007					2008			
	Mean	Std. Error	Min	Max		Mean	Std. Error	Min	Max		Mean	Std. Error	Min	Max
Husbands														
Earnings	8720.56	9360.58	50	144000		9705.10	8835.47	100	80000		10758.70	9156.24	120	95000
Age	8.26	1.66	5	14		8.22	1.76	4	14		8.20	1.69	4	14
Education	3.61	1.81	0	6		3.65	1.76	0	6		3.60	1.79	0	6
Wives														
Earnings	5585.89	5972.10	20	43000		6208.60	6922.21	45	58800		7062.84	8211.21	20	90000
Age	7.66	1.62	4	14		7.57	1.72	4	12		7.52	1.68	4	13
Education	3.37	1.98	0	6		3.40	1.93	0	6		3.37	1.92	0	6
N		692					745					913		

Table-3: Estimates

	Partial Correlation				OLS				Heckman's		
	2006	2007	2008		2006	2007	2008		2006	2007	2008
	0.20	0.25	0.36		0.33***	0.29**	0.39***		0.36***	0.33***	0.38***
					[0.11]	[0.14]	[0.06]		[0.10]	[0.13]	[0.06]
N	692	745	913		692	745	913		5578	5383	5457

Notes: *** It is significant at 99% significance level.

** It is significant at 95% significance level.

* It is significant at 90% significance level.

Table-4: The Partial Correlations

Region	Coefficient
Istanbul	0.34
Marmara	0.22
Ege	0.34
Ic Anadolu	0.24
Akdeniz	0.61
Karadeniz	0.05
Dogu and Guney Anadolu	0.52
Turkey	0.36