

Why Do Women Prefer Part-Time Employment In Turkey?

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Abstract

Female part-time employment among female total employment has increased substantially in Turkey between 2005 and 2011. Part-time employment accounted for 13%, 22% and 27% of female employment in 2005, 2008 and 2011, respectively. The main objective of this paper is to outline some stylized facts concerning the key characteristics of female part time employment and to assess the reasons behind the increase in part-time employment for females in Turkey. We present general profile and labor status profile of part-time female workers via rich descriptive analysis by using Turkstat Household Labor Force Surveys for the period 2005 and 2011. Moreover we estimate two probit models to assess the reasons of the substantial increase in female part-time employment. The main findings can be summarized as the following: Part-time employment is higher among older, low educated females living in rural areas. Moreover part-time employed female are highly concentrated in agriculture activities informal sector and blue collar occupations and approximately half of female part-time workers are unpaid family workers. Both working hours and hourly wages are lower for females than that of males. Composition of female part-time employment by different aspects varies greatly by geographic distribution. Furthermore estimation results of the first specification shows that aging and higher levels of education decreases the probability of part-time employment with respect to full-time employment. On the other hand, estimation results of the second specification reveals that probability of female part-time employment with respect to being out of the labor force increases with age. Additionally medium and high education decreases the probability of part-time employment in all age groups. Finally, regional unemployment rates increase the probability of being part-time employed in the first specifications where as it decreases the probability of part-time employment in the second specification.

1. Introduction

The growing share of part time employment in the 21st century has been a main feature of Turkish labor market as well as of a number of developed and developing economies. Female part time employment, which has been increasing as a share both within female employment and total employment since 2005, is an important aspect of female employment in Turkey. Part time employment accounted for 13%, 22% and 27% of female employment in 2005, 2008 and 2011, respectively.¹ The main objective of this paper is to outline some stylized facts concerning the key characteristics of female part time employment and assess the reasons behind the increase in female part-time employment in Turkey. We analyze the effects of demographic characteristics and education on part time employment at aggregate and regional level by using Turkish Household Labor Force Surveys (HLFS) for the period 2005 and 2011. Furthermore we estimate a probit model to determine the reasons of the substantial increase in female part time employment.

Fundamental aspects of female part-time employment are of interest in this study. First, the composition of employment shifts away from full time employment to part time employment which makes identifying the driving forces behind the increase in part time employment essential. Second, since females might be considered as among the most disadvantaged groups in the Turkish labor market, female employment has implications for government policy settings. In other words, considering the growth of part time employment as a factor contributing to the engagement of women in labor market activities, driving factors behind the rise is of importance for policymakers. Moreover the growth in the share of part time employment may be considered as increasing labor market flexibility and it is important to understand the role of part time employment in providing this flexibility. Finally, female part-time employment contributes to many household budgets, therefore to consider the overall welfare of households that contain part time workers would be useful.

¹ Although the extent and the form of part time employment by gender vary across countries, part time employment is higher for females universally. For international comparisons of part time employment, please refer to Thurman and Trah (1990), Lemaitre et al. (1997), OECD (1999), Buddelmeyer et al. (2004) and Reilly and Fagan (2002).

Structure of part-time employment and the reasons underlying the growth in it has been studied in a wide range of perspectives. Part time employment has been mostly criticized for the quality of jobs and providing limited career prospects for workers. Pocock et al. (2004) evaluates part time jobs as yielding inferior wages, conditions and employment security.

The main determinants of the increase in part time employment can be grouped as structural, demographic, institutional and business cycle factors.² Long and Jones (1981), Delsen (1998) and Euwals and Hogerbrugge (2004) concentrate on structural and demographic factors. Institutional factors are also considered as possible determinants of the growth in part time employment which may include employment protection legislation, unemployment benefits, part time specific regulations, unionization and so on. Smith et al. (1998), Genre et al. (2003) and Houseman (2001) claim that institutional factors are the driving forces behind the increase in part time employment. Finally, movements in the share of part time employment are affected by business cycles. Maloney (1991), Hart and Vecchi (2001) and Farber (1999) focus on the effects of business cycles on the share of part time employment.

The paper is organized as follows: Section 2 describes the data used for the analysis and presents the basic descriptive results based on demographic profile, education profile, skill profile and regional profile. We observe that part time employment is higher among older, low educated females living in rural areas. Moreover part time employed females are highly concentrated in agriculture activity, informal sector and blue collar occupations. Furthermore both working hours and hourly wages are lower for females than for males. Section 3 uses a probit model to analyze and quantify the effect of structural and demographic factors on female part time employment. We make two different specifications. In the first specification we analyze the change in probability of part-time employment with respect to full-time employment and in the second specification we examine the change in probability of part-time employment

²In this paper we mainly focus on structural and demographic factors as determinants of the increase in female part time employment. However we also include regional unemployment rate in the estimation in order to cover business cycles

with respect to being out of the labor force. Additionally we repeated the same estimation methodologies for different age groups in order to cover the relationship between part-time employment, demographic characteristics, education, and macro indicators in different periods of life. Lastly section 4 concludes.

2. Data and Profile of Female Part-Time Employment in Turkey

2.1 Data

Data we use is from the Turkstat Household Labor Force Survey for the period 2005-2011. The survey provides information about those employed; economic activity, occupation, employment status and working hours. Additionally it comprises all the population excluding the residents of dormitories of universities, orphanage, rest homes for elderly persons, special hospitals, prisons and military barracks etc.

The time period of the data we use in this study is between 2005 and 2011 and the structure is pooled cross sections. Since we are interested in the female part-time employment framework and its determinant we only include data for employed individuals in our analysis. Moreover we conduct our analysis on 278,567 females who are aged between 15 and 64.

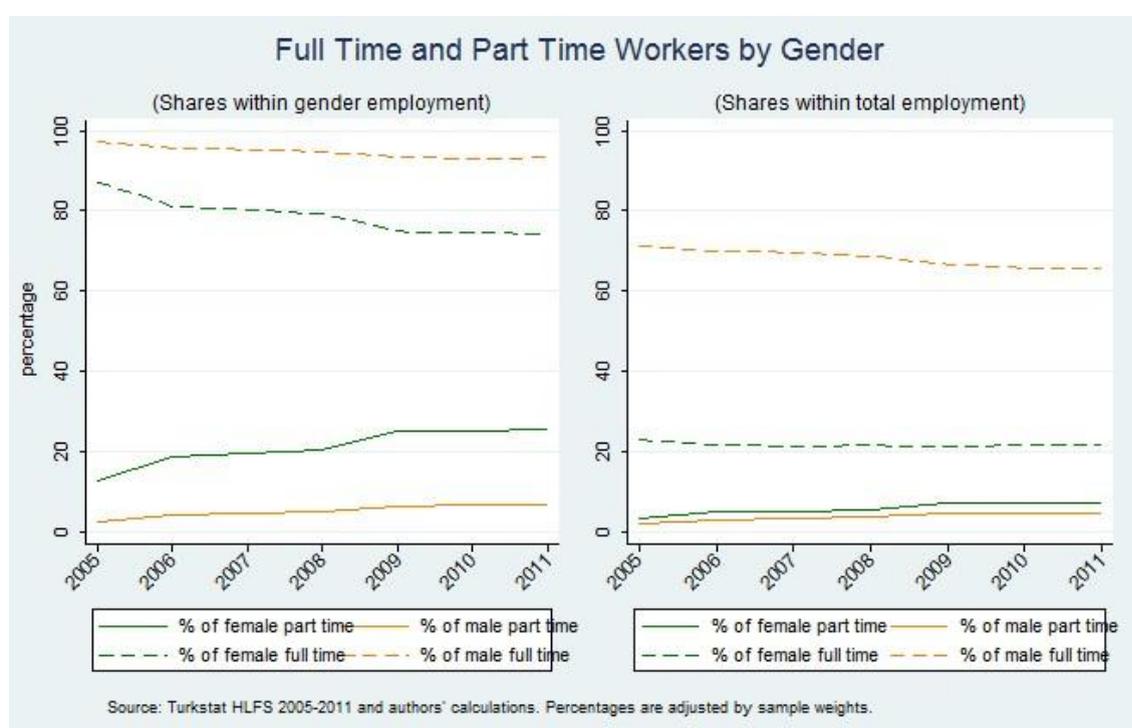
Main structural variables we focus on are demographic characteristics such as gender, age and region. We also include education as one of the main structural variables in assessing the profile of female part-time employment. Furthermore we analyze occupational groups, industries, formality of the sectors, working hours and income quartiles of part-time workers in order to cover the labor profile of female part-time employment.

2.2 General Profile of Female Part-Time Employment

In this section we present some basic descriptive statistics in order to cover the general profile of female employment in Turkey. The left panel of Figure 1 shows the shares of full time and part time workers by gender and the shares of workers are given within

their own gender employment. It is observed that there has been a shift away from full-time employment to part-time employment both for males and females. While growth has been a feature of part-time employment for both males and females, the share of part time employment among female workers remains higher than that of males. Moreover, the gap between full-time and part-time workers is shrinking more for female workers. Part-time employment accounted for 13%, 22% and 27% of female employment in 2005, 2008 and 2011 respectively; 3%, 6% and 8% of male employment in 2005, 2008 and 2011 respectively.³

Figure 1: Percentage of Part-Time and Full-Time Workers by Gender



The shares of full-time and part-time employment within total employment by gender are given in the right panel of Figure 1. Both males and females experienced a rise in part-time employment as a share within total employment. It is observed that the share of female part-time workers within total employment is higher than the share of male part

³ Although the share of part time employment has increased substantially, the rate is still low relative to most OECD countries.

time workers for all years, both following slightly increasing trends through the period. Female part-time employment as a share of total employment has grown from 3.3% in 2005 to 7.5% in 2011 and male part-time employment as a share of total employment has grown from 2.1% in 2005 to 4.7% in 2011. The increase in the share of part-time employment within total employment is associated with a fall in the share of full-time employment within total employment.

Figure 2: Part Time Employment Through Time by Gender

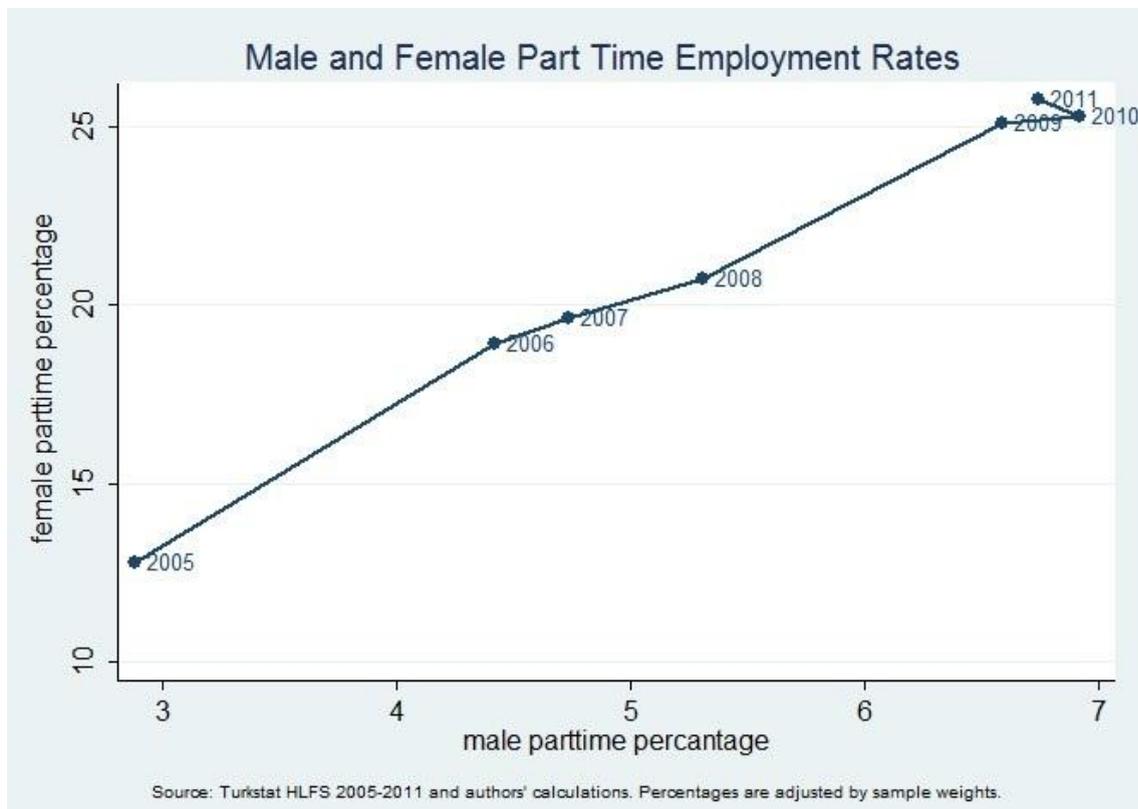


Figure 2 depicts the share of female and male part time workers across years. This figure presents the same information presented in Figure 1 at the beginning of the section. However in addition to information in Figure 1, Figure 3 presents the pace of increase in part-time employment for females is higher than men more explicitly. Moreover one interesting feature of the figure is that male part-time employment decreases between 2010 and 2011 whereas female part-time employment continues to rise through this period.

Figure 3: Percentage of Part Time Employment According to Years and Ages

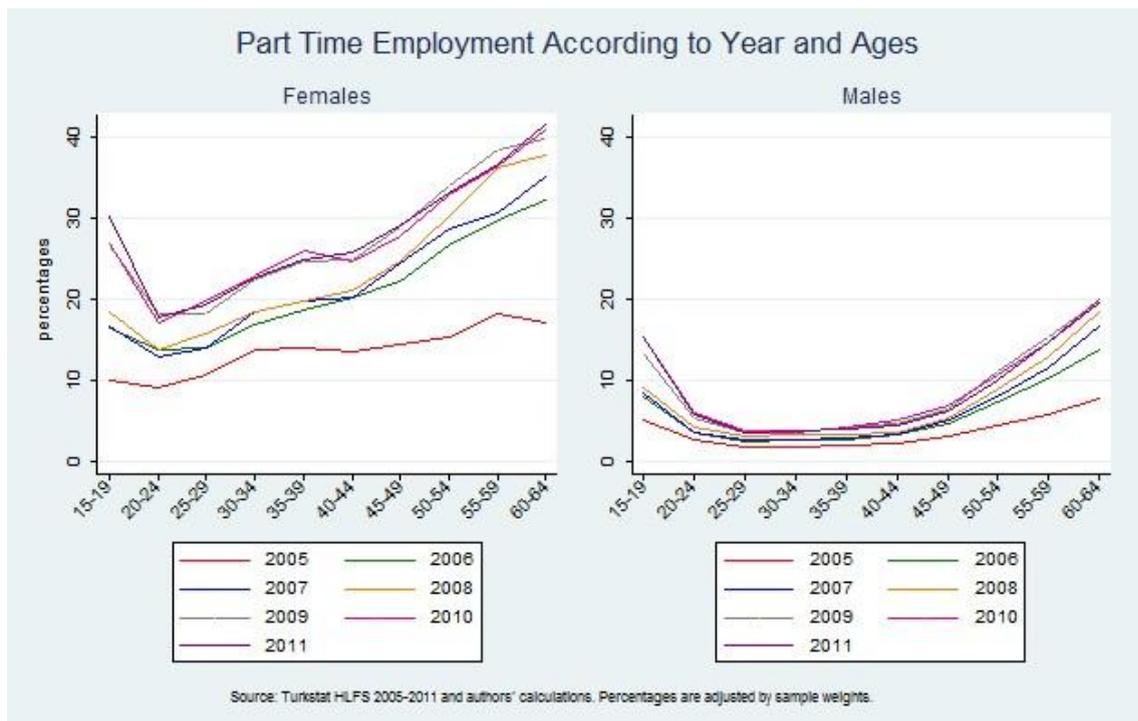
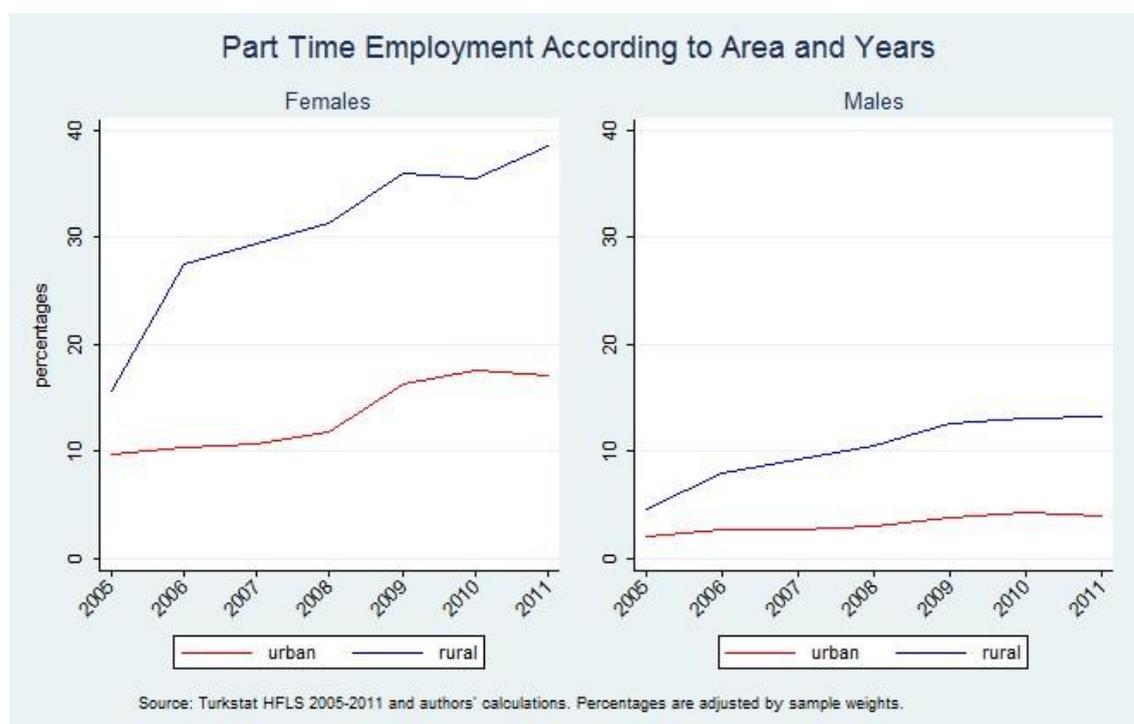


Figure 3 shows the share of part time employment according to years and ages for females and males respectively. The first striking feature of the graph is the increase in part-time employment for both males and females through recent years. However the share of part-time employment for women is always greater than men and the share of female part-time employment increases after the age of 24 almost every year between 2005 and 2011. On the other hand, share of male part-time employment immediately starts to decrease until it begins to increase after age group 45-49.

Figure 4 shows female and male part-time employment according to region and years. Female part-time employment changes between 10% and 18% between 2005 and 2011 in urban areas while this ratio is only between 2% and 5% for males. On the other hand, female part-time employment is between 17% and 39% in rural areas through the analyzed period. Furthermore, the pace of increase in part-time employment is greater for females both in urban and rural areas.

Figure 4: Percentage of Part Time Employment According to Area and Years



Education level has always been an important aspect in terms of determining basic labor market outcomes. Figure 5 presents the distribution of part time workers across education categories. Low education includes illiterate individuals and primary education. Medium education incorporates secondary and high school education. Finally high education includes university graduates and higher degrees.

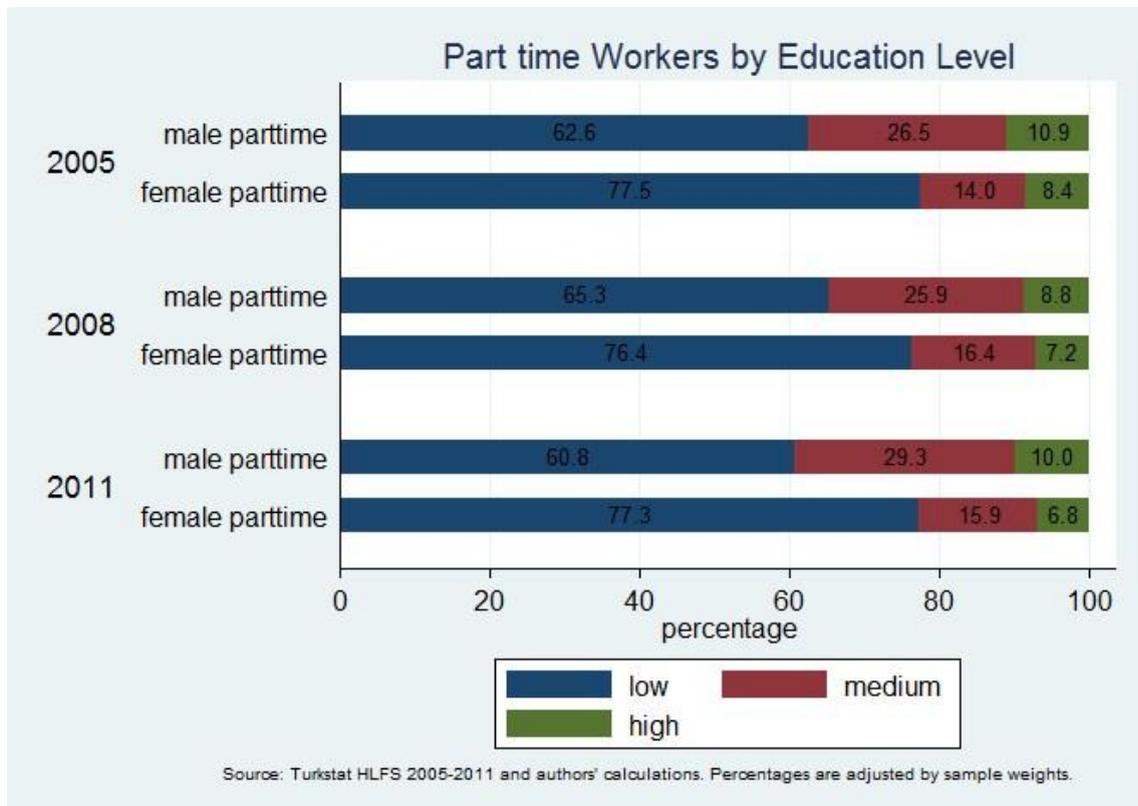
Both for males and females, low educated workers constitute the largest share among part time employment which is observed in Figure 4. Among male part-time workers, approximately 63% are low educated and this proportion is approximately 77% for female part-time workers.⁴

Figure 6 depicts the share of female and male part time workers across years for selected regions.⁵ Different regions display significantly varied levels and growth of male and female part time employment.

⁴When broader educational categories are taken into account, one striking point is that the share of primary school graduates among part-time female workers decreases from 63% in 2005 to 45% in 2011; whereas the share of illiterate among part time female workers increases from 12% in 2005 to 33% in 2011.

⁵We choose only one region across regions with similar patterns for simplicity

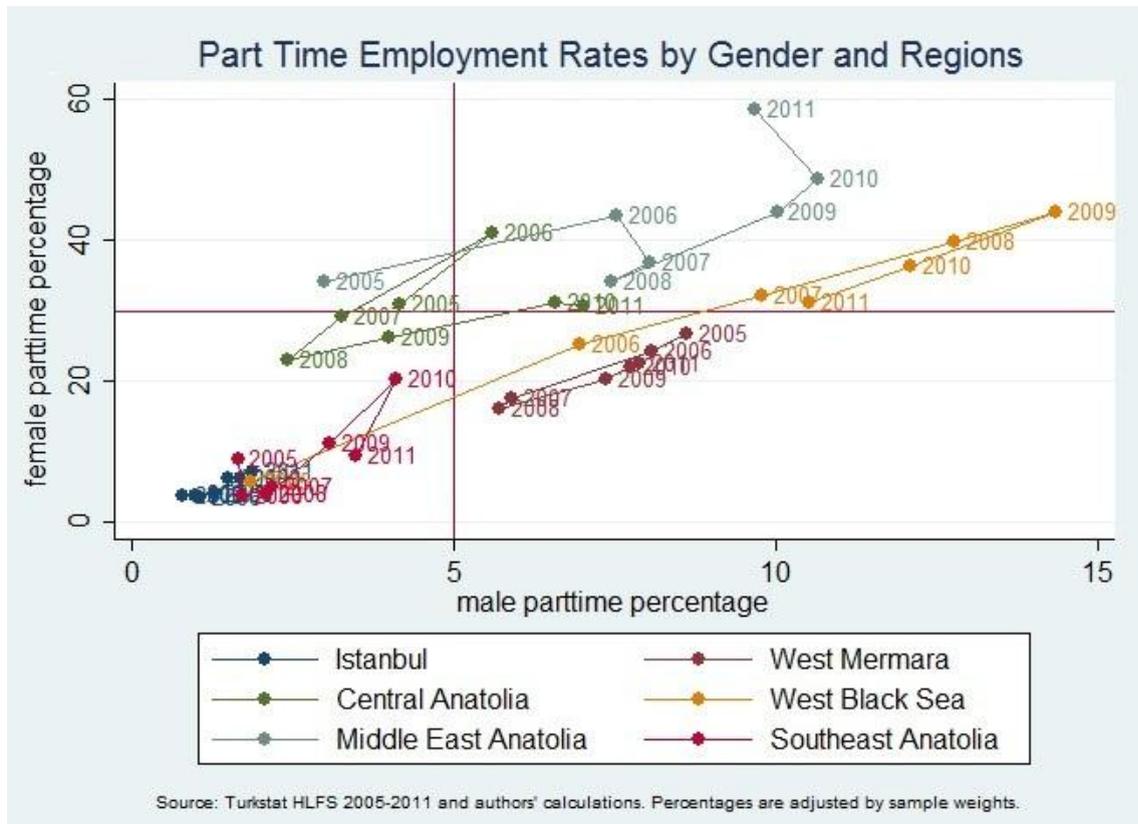
Figure 5: Percentage of Part Time Workers by Education Level



The share of part-time male and female workers is very low in Istanbul in comparison with other regions, yet the share of female part-time workers increases in Istanbul between 2005 and 2011. The share of female part-time workers is the highest in the Middle East and Anatolia among other regions and is followed by the Western Black Sea and Central Anatolia. The evolution and growth rate of the share of female part-time workers differ across regions as well. For instance, the share of female part-time workers in the Western Black Sea increases dramatically between 2005 and 2009, before it started to decrease in 2007. In Central Anatolia the share of female part-time workers falls between 2006 and 2008 and then increases until 2011.

The varying geographic distribution of part time jobs might be linked to the different industrial concentrations at different regions. In particular part time employment seems to be high in regions where there is high agricultural production and mainly low skilled occupations.

Figure 6: Part Time Employment Through Time by Gender and Regions



2.3 Labor Status Profile of Female Part-Time Employment

In this section we demonstrate how female part time employment is structured in labor status by including whether it is concentrated on formal and informal sectors, whether it is intensified in certain occupations, industries and etc. Before analyzing the labor structure we start with the transitions from unemployment and housework to part time employment.

Figure 7 presents transition probabilities of females from unemployment and housework to full-time and part-time employment. It is obvious from the figure that the probability of females moving both from unemployment and housework to part-time increases between 2005-2011; associated with a decreasing probability of moving to full-time employment. Moreover the probability of a female moving from housework to part-time employment increases faster than the probability of a female moving from unemployment to part-time employment which can be observed more clearly in Figure 8.

Figure 7: Percentage of Transition of Females from Unemployment and Housework to Full Time and Part Time Employment

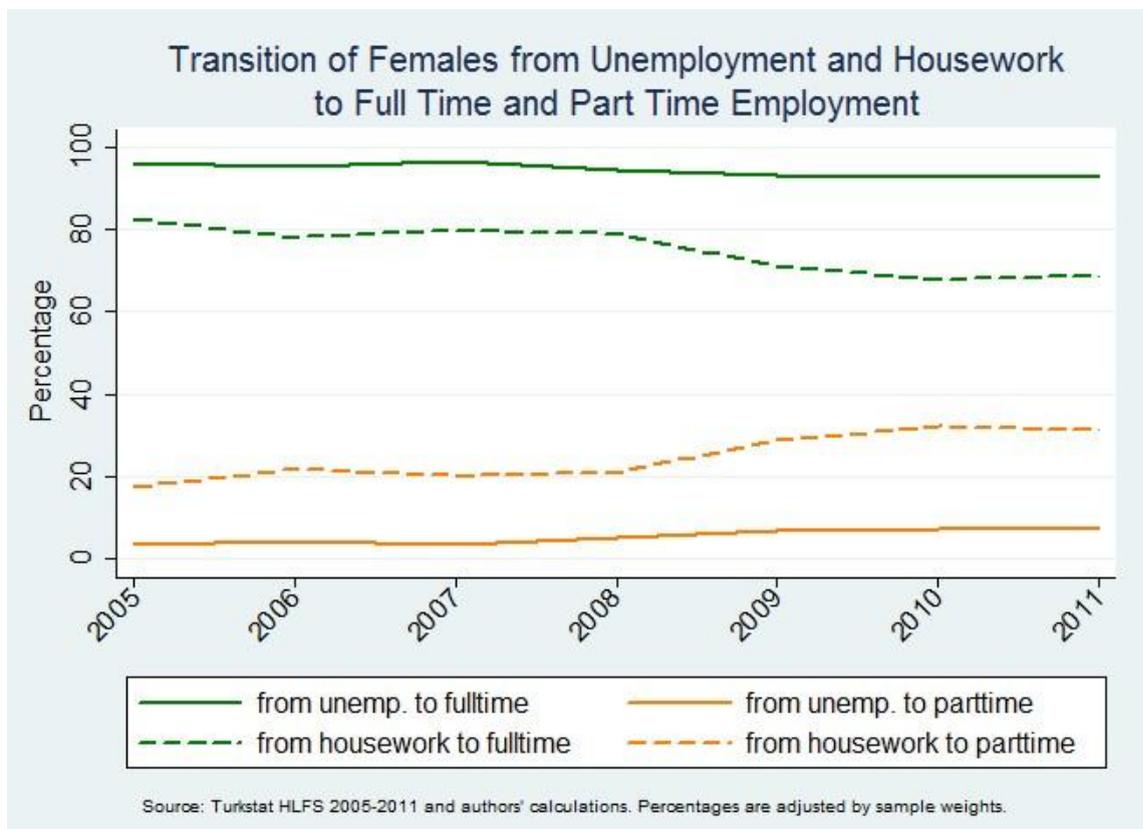
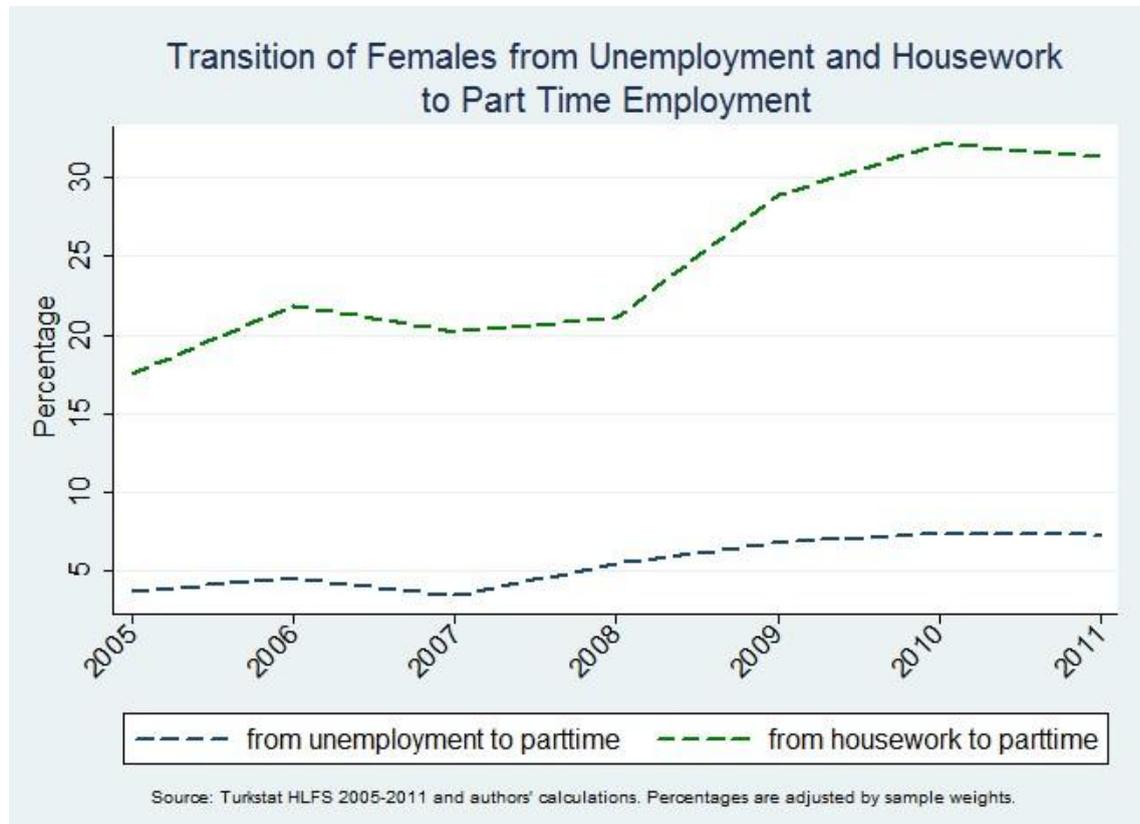


Figure 8 depicts the transition of females from unemployment and housework to part-time employment. The share of female moving from housework to part-time employment is higher than the share of female moving from unemployment to part-time employment. The share of female moving from unemployment to part-time employment starts to increase in 2007 and keeps increasing continuously. In 2011, approximately 8% of unemployed females move to part-time employment. The probability of females moving from housework to part-time employment increases strictly between 2008 and 2010 and reaches to 31% in 2011.

Figure 8: Percentage of Transition of Females from Unemployment and Housework to Part Time Employment



The distribution of part-time male and female workers according to formal and informal sectors is given in Figure 9. Most of male and female part-time workers are employed in informal sectors. However female part-time workers work in informal sectors more frequently than male counterparts. The informal sector accounts for approximately 90% of female part-time employment; whereas this proportion is approximately 75% for males. Moreover the distribution of the formal and informal sector in part-time employment almost stays the same through the period.

The gender composition of part time employment in formal and informal sectors is given in Figure 10. It is observed that the share of female part time workers, approximately 65%, is higher than the share of male part time workers in informal sector; whereas the opposite holds for the formal sector. Although the increase is slight, the share of female part time workers within formal sector increases from 32% in 2005 to 39% in 2011.

Figure 9: Percentage of Part Time Workers by Formal/Informal Sector

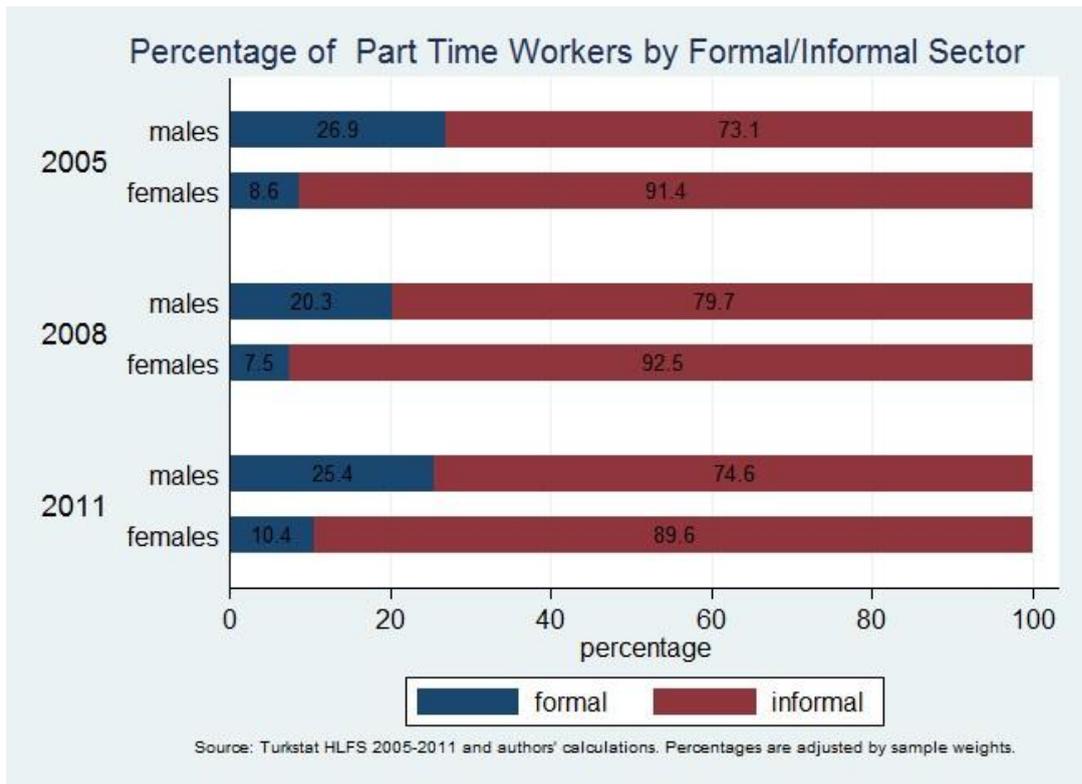


Figure 10: Percentage of Formal/Informal Sector of Part Time Workers by Gender

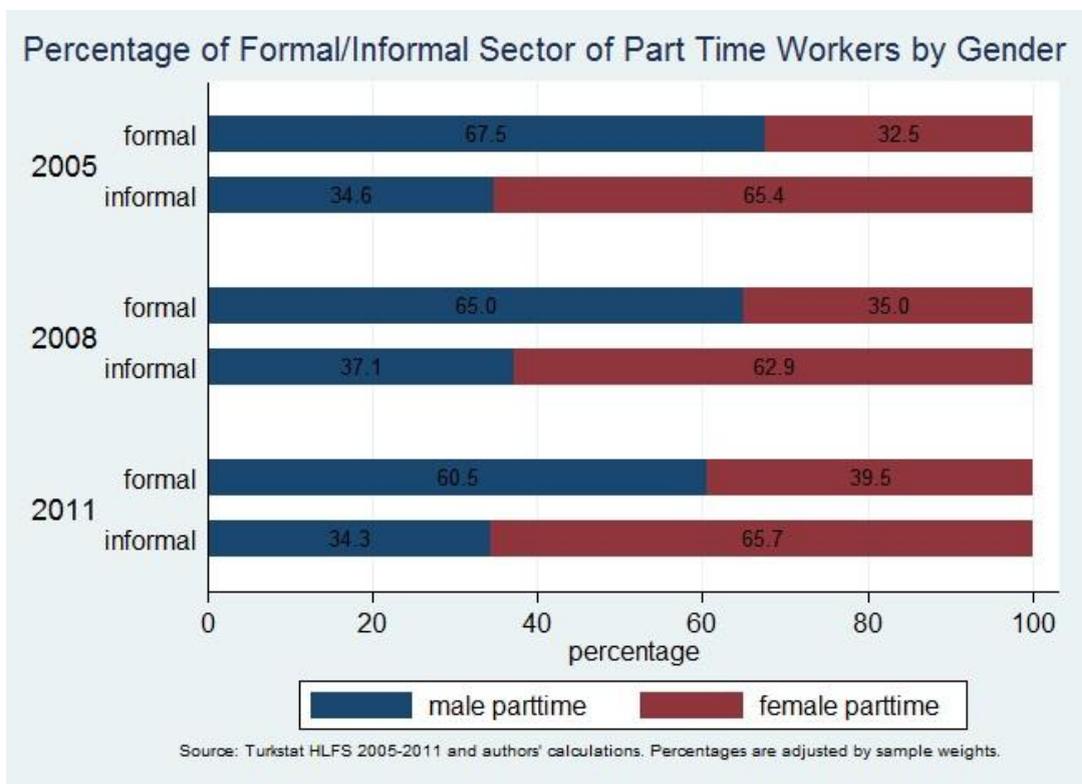


Figure 11 depicts the share of part-time employment by employment status and gender for the years 2005 and 2011. Self-employed workers constitute the largest share with 50% followed by regular or casual workers with 30% for males. On the other hand, the distribution is quite different for females; unpaid family workers constructing more than half of the female part time workers followed by self-employed status. The distribution for males almost remains the same, while the proportion of unpaid family workers among female part time workers increases from 51% in 2005 to 58% in 2011.

Figure 11: Share of Female Part Time Workers by Employment Status

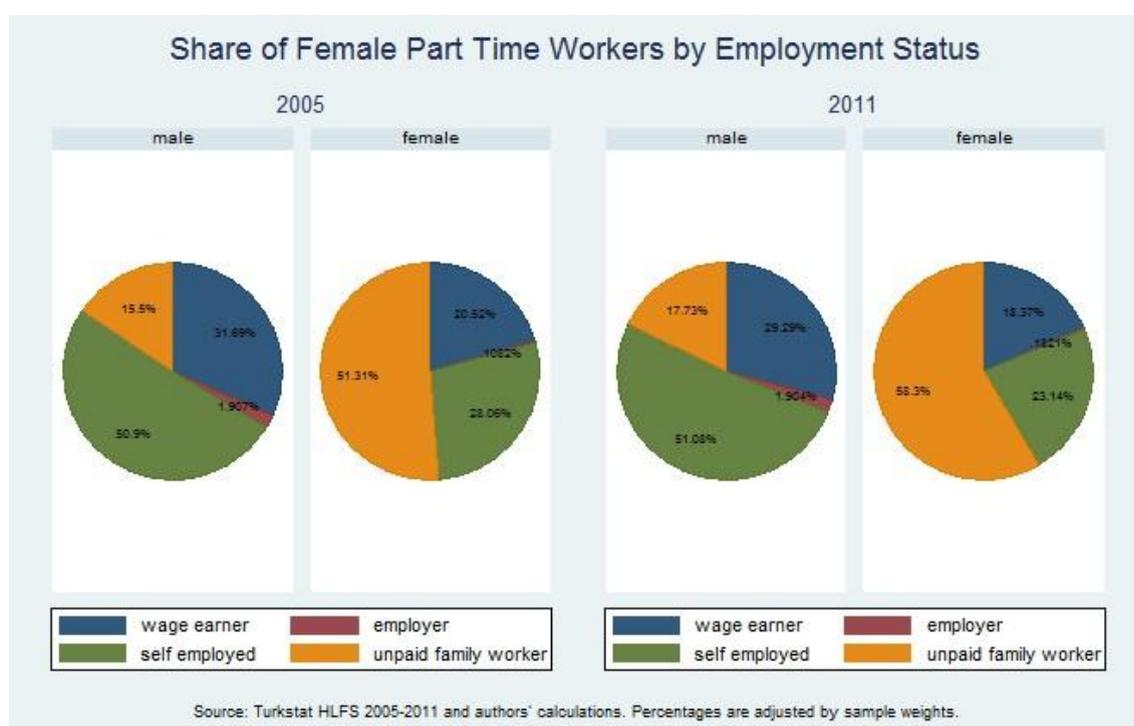


Table 1 and Table 2 present the distribution of part time workers by industry for selected years. A very high fraction of both male and female part-time workers are employed in agriculture, the fraction of females is always higher than the fraction of males. Approximately 67% of female and 55% of male part-time workers are employed in agriculture. There is a jump in the share of part-time workers working in agriculture in 2008. Services and manufacturing follow agriculture for female part-time workers; whereas services and wholesale and retail trade follow agriculture for male part-time workers in 2005 and 2008.

Table 1: Percentage of Part Time Employment According to Gender and Industries (2005 and 2008)

	2005		2008	
	Females	Males	Females	Males
Agriculture	67.40	52.10	72.13	59.15
Services	13.66	14.46	11.92	11.30
Construction	0.10	6.62	0.08	6.37
Electricity, Gas, Water	0.03	0.07	-	-
Finance, Insurance	1.63	1.69	1.17	1.53
Manufacturing	11.39	3.91	7.68	3.30
Mining and Quarrying	0.00	0.07	0.02	0.17
Transportation, Communication	0.18	7.17	0.43	6.29
Wholesale and Retail Trade	5.61	13.92	6.58	11.89
Total	100	100	100	100

Source: Turkstat HLFS 2005-2011 and author's calculations
 Percentages are adjusted by sample weights.

Table 2: Percentage of Part Time Employment According to Gender and Industries (2011)

	2011	
	Females	Males
Accommodation, Food	1.29	2.94
Activities of Households as Employers	5.57	0.30
Administration Activities	0.95	0.64
Agriculture	68.06	55.81
Arts Entertainment	0.22	1.41
Construction	0.15	7.12
Education	5.38	5.84
Electricity, Gas	0.01	0.05
Financial Activities	0.11	0.19
Health, Social Work	0.65	0.35
Information, Communication	0.08	0.45
Manufacturing	9.72	3.63
Mining and Quarrying	0.02	0.12
Other Services	0.65	2.51
Professional, Scientific Activities	0.61	1.00
Public Administration	0.19	0.97
Real Estate	0.45	0.46
Transporting, Storage	0.36	6.54
Water Supply	0.13	1.04
Wholesale and Retail Trade	5.39	8.64
Total	100	100

Source: Turkstat HLFS 2005-2011 and author's calculations
 Percentages are adjusted by sample weights.

In 2011 we observe that manufacturing is the second most frequent activity for female part-time workers with a share of 9%, followed by activities of households as employers, wholesale and retail trade and education, each of which have shares of approximately 5%.⁶ For male part-time workers, wholesale and retail trade, construction, transportation and storage and education can be listed as the most frequent economic activities with fractions between 5% and 8% respectively in 2011.

Figure 12: Percentage of Part Time Workers According to Working Hours

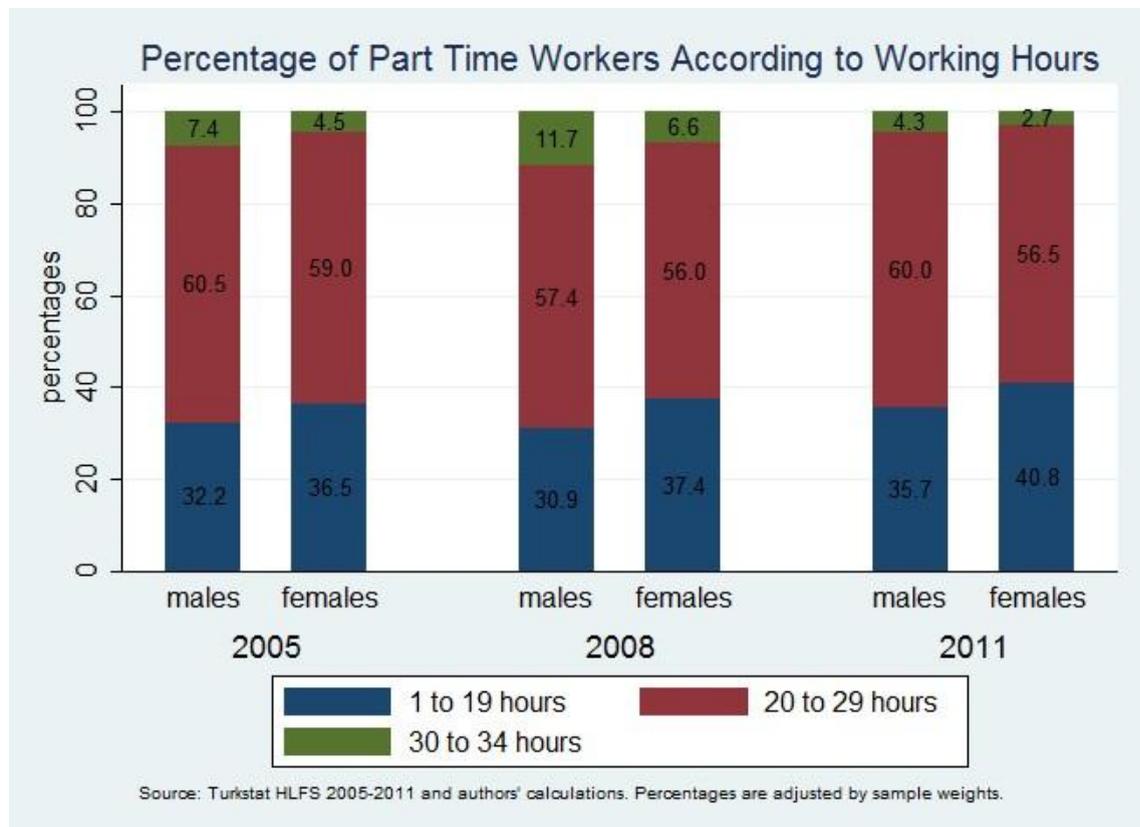


Figure 12 depicts the weekly working hours by female and male part time workers. The first observation is that there is not a significant difference in the distribution of weekly working hours for males and females and the distribution almost stays the same through the period. More than half of the part time workers work between 20 and 29

⁶The definition of industries is according to NACE1 in 2005 and 2008 and according to NACE2 in 2011.

hours per week followed by the category 1 and 19 hours. Approximately 30% of part time workers work between 1 and 19 hours per week except for the percentage of female part time workers in 2011. Part-time workers working between 30 and 34 hours a week constitute a very tiny fraction and this fraction is the smallest in 2011, which falls to 4% for males and 3% for females.

Figure 13: Income Quartiles of Part Time Workers According to Years and Gender

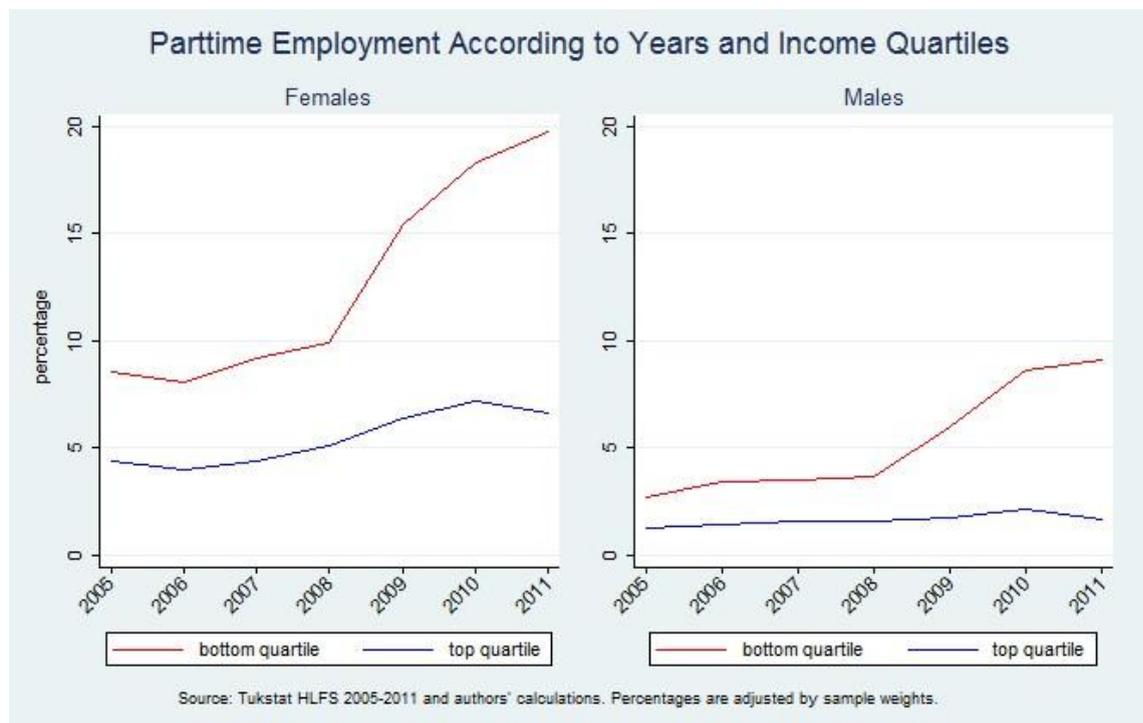


Figure 13 shows the percentages of part-time workers according to years and income quartiles.⁷ We only depict top and bottom income quartiles since the movements of the second and the third quartiles are similar. The first striking feature of the figure is that the percentage of part-time workers intensifies in the bottom income quartile for both males and females although the shares are different. For example in 2008 10% of females employed part-time are in the bottom income quartile whereas this ratio is 4% for males. Another compelling observation is the rapid increase in bottom

⁷Incomes are in 2005 prices.

income quartile in the figure especially after 2008. On the other hand, top income quartile for females rises moderately while it falls for males between 2010 and 2011.

Figure 14: Average Hourly Wages and Weekly Working Hours by Selected Regions

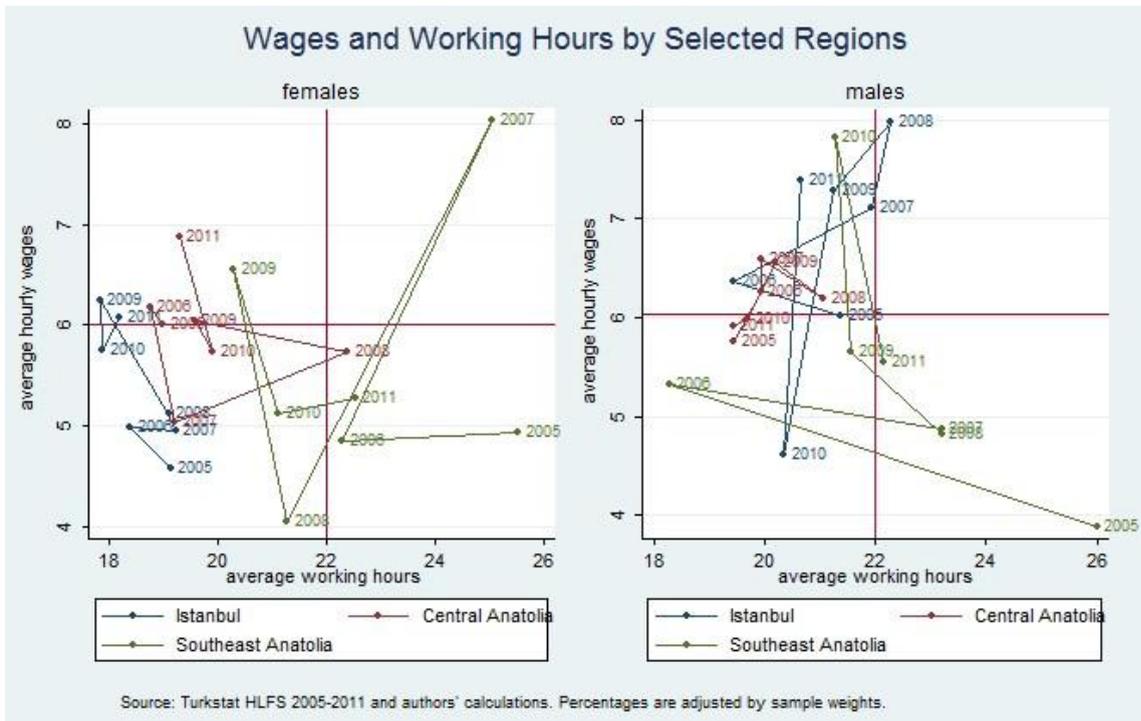


Figure 14 indicates wage and working hour differentials across regions and gender.⁸ Average working hours for part-time female workers are the lowest in Istanbul and highest in Southeast Anatolia; whereas average wage lies within the same interval in all regions except for the wages in Southeast Anatolia in 2007 and 2008. In contrast with the finding for female part-time workers, working hours are similar among males except for working hours in 2005 and 2006 in Southeast Anatolia. Average wages seem closer to each other for part-time male workers. In other words, average wages and working hours behave very divergent for males and female part-time workers at different regions.

⁸3 regions with different wage and working hour characteristics are selected from different parts in Turkey.

Figure 15 presents shares of part-time employment according to years and skill levels of workers. Highly skilled blue collar workers form the biggest share in part-time employment for both males and females and followed by low skilled blue collar workers. For instance, in 2011 about 43% of female part-time workers are highly skilled blue collar workers whereas this ratio is about 12% for males. Moreover, there is a steady increase in high and low skilled blue collar workers throughout the years studied. However both the movements and the shares of low and high skilled white collar workers are similar to each other.

Figure 15: Part Time Employment According to Years and Skill Level

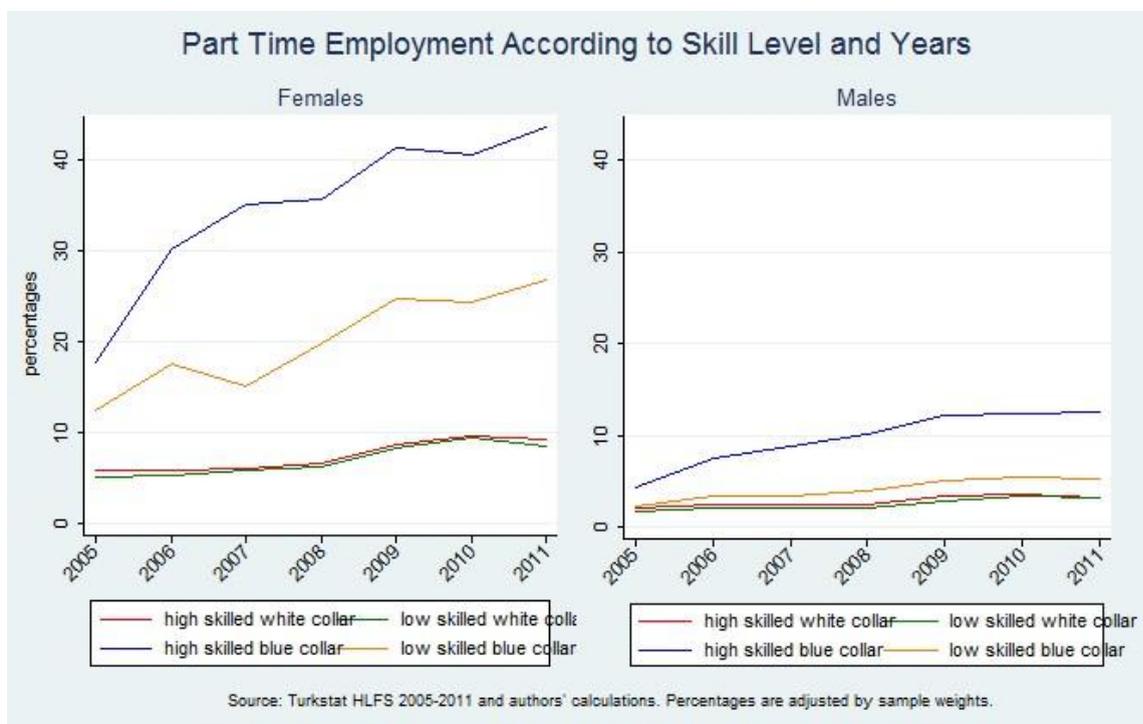


Figure 16 gives more detailed information about the occupations, thus the skill levels of the workers. Agricultural workers constitute the biggest share in part-time employment for both males and females followed by crafts and elementary occupations and . these shares are higher for females. The share of agriculture workers among female part-time workers in 2011 is about 45% while this share is 22% for males. Moreover, the shares of white collar occupations such as managers, professionals and office clerks forms the smallest shares in both female and male part-time employment.

Figure 16: Part Time Employment According to Years and Occupations

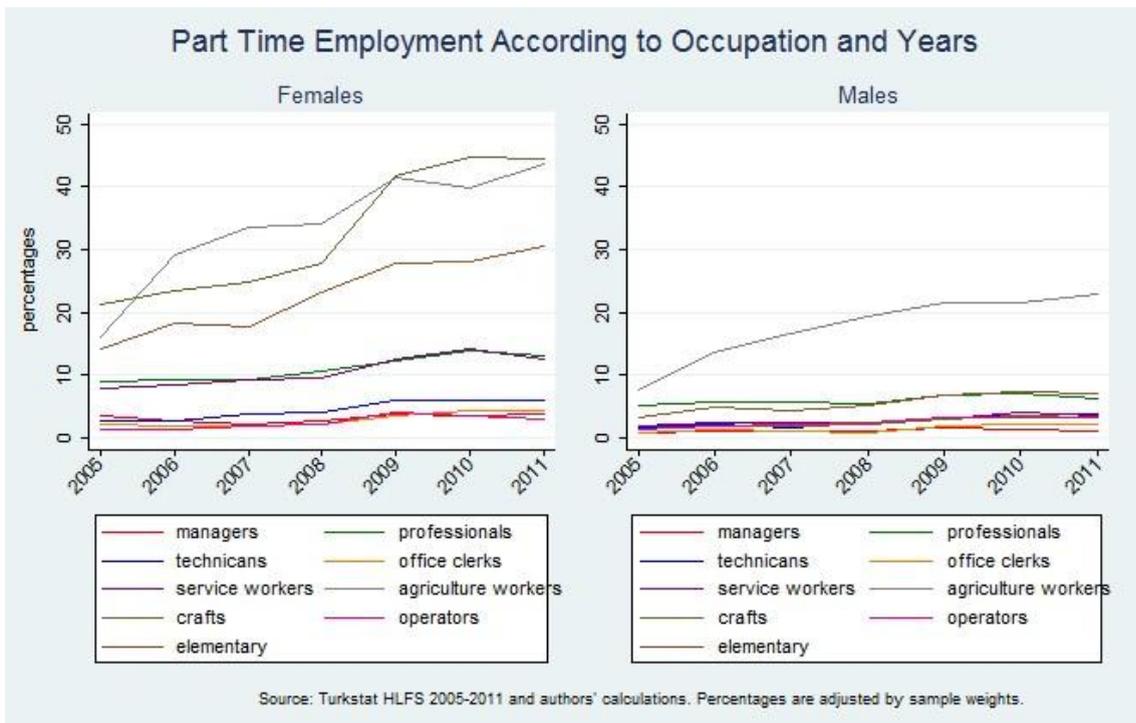
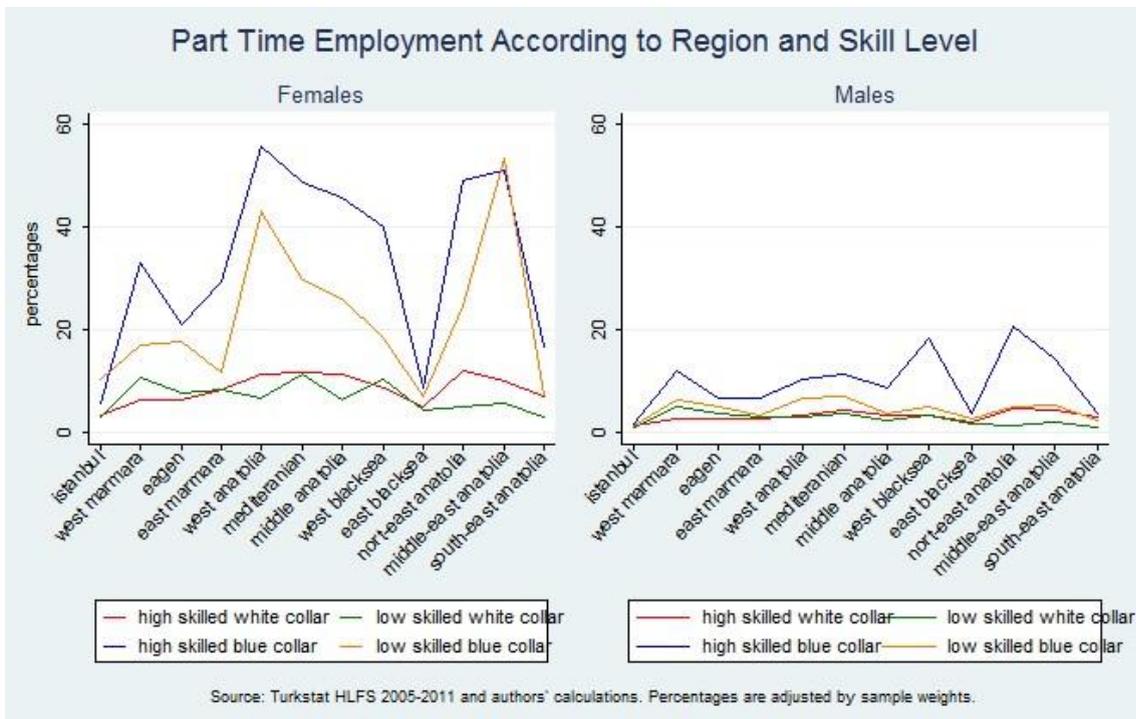


Figure 17: Part Time Employment According to Skill Level and Region



Finally, Figure 17 shows the shares of part-time employment according to skill levels and regions. High skilled blue collar workers form the biggest share in all regions for

both males and females. West Anatolia forms the biggest share in highly skilled blue collar workers for females followed by Middle-East Anatolia and North-East Anatolia. On the other hand, North-East Anatolia constitutes the largest share in highly skilled blue collar workers for males.

3. Estimation Results on Determinants of Female Part-Time Employment

In this section we try to assess the structure of the relationship between demographic characteristics, macro indicators and female part-time employment. In other words we try to identify the role of demographic characteristics and some macro indicators such as unemployment to the development of female part-time employment.

The data used in the estimation is a pooled cross section from Turkstat HLFS 2005-2011. We conduct the estimation within two specifications; first we try to determine how females prefer part-time employment to full-time employment. Second we try to identify how females prefer part-time employment to staying out of labor force.

In Equation [1] $PT_{i,t}^1$ is equal to 1 if a female works part-time and is equal to 0 if she works full-time. The variable $educ_{i,t}$ is an education level dummy in which low education is the reference category. The variable $marital_{i,t}$ is a marital status dummy showing whether a female is married, divorced or widowed and the reference category is being single. The variable $region_{i,t}$ is a region dummy; 1 for urban, 0 for rural areas. The variable $child_{i,t}$ shows the number of children under 15 living in the household. Variable $child_{i,t}$ can also be regarded as a proxy for fertility rate. Finally $unemp_{i,t}$ shows the regional unemployment rate in order to cover the macro structure of the Turkish economy.

$$[1] \quad PT_{i,t}^1 = f(educ_{i,t}, marital_{i,t}, region_{i,t}, child_{i,t}, unemp_{i,t}) + \epsilon_{i,t}$$

Table 3 shows the marginal effects from probit estimation. The dependent variable is a binary variable that is equal to 1 if a female is employed part-time and is equal to 0 if she is employed full-time. Estimation results show that probability of part-time employment with respect to full-time employment for females decreases with age. Education level dummies also present that the probability of being part-time

employment declines with education level. In other words, the probability of part-time employment is higher for low educated females. School attendance has a positive effect on part-time employment which is about 20%. Furthermore, females living in rural areas have a higher probability of being part-time employed with respect to full time employed. Being married, divorced and widowed has a higher probability of part-time employment than being single. Finally regional unemployment rate increases the probability of part-time employment for females.

Table 3: Probit Estimation Results (First Specification)

	(1)
age 25-34	-0.206*** (0.0103)
age 35-44	-0.237*** (0.0110)
age 45-54	-0.191*** (0.0117)
age 55-64	-0.0979*** (0.0134)
medium education	-0.421*** (0.00831)
high education	-0.690*** (0.0102)
school attendance	0.205*** (0.0145)
urban	-0.314*** (0.00632)
married	0.447*** (0.00970)
divorced	0.185*** (0.0196)
widowed	0.405*** (0.0180)
regional unemp.	0.434*** (0.0121)
nr. of child	0.0147*** (0.000844)
Observations	278,567

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Marginal effects are reported, sample weights applied

Table 4: Probit Estimation Results According to Age (First Specification)

	(1)	(2)	(3)	(4)	(5)
	age 15-24	age 25-34	age 35-44	age 45-54	age 55-64
medium education	-0.163*** (0.0156)	-0.628*** (0.0195)	-0.502*** (0.0169)	-0.503*** (0.0280)	-0.569*** (0.0744)
high education	-0.426*** (0.0279)	-0.779*** (0.0216)	-0.766*** (0.0188)	-0.738*** (0.0337)	-0.652*** (0.0731)
school attendance	0.545*** (0.0193)	-0.179*** (0.0319)	-0.338*** (0.0552)	-0.216 (0.144)	-4.490 (180.0)
urban	-0.727*** (0.0148)	-0.243*** (0.0136)	-0.214*** (0.0119)	-0.199*** (0.0154)	-0.0836*** (0.0242)
married	0.469*** (0.0159)	0.496*** (0.0181)	0.329*** (0.0263)	0.256*** (0.0454)	0.467*** (0.110)
divorced	-0.00693 (0.0905)	0.0165 (0.0384)	0.0140 (0.0385)	0.215*** (0.0560)	0.458*** (0.130)
widowed	0.892*** (0.215)	0.310*** (0.0739)	0.228*** (0.0419)	0.180*** (0.0512)	0.497*** (0.113)
regional unemp.	-0.820*** (0.0287)	0.380*** (0.0253)	0.330*** (0.0238)	0.925*** (0.0281)	0.845*** (0.0418)
nr. of child	0.0102*** (0.00202)	0.0222*** (0.00176)	0.0184*** (0.00163)	0.00869*** (0.00197)	0.00512* (0.00280)
Observations	55,555	79,430	73,456	47,308	22,818

Standard errors in parentheses
 *** p<0.01, ** p<0.05, * p<0.1
 Marginal effects are reported, sample weights applied

Table 4 presents marginal effects from probit estimation according to 5 age groups. We repeated the same estimation methodology for different age groups in order to cover the structure of part-time employment in different periods of life. The effect of education on part-time employment is the smallest at the 15-24 age group which could be due to ongoing education or school attendance. Medium and high education decreases the probability of part-time employment in all age groups. For instance being highly educated for females at age group 35-44 decreases the probability of part-time employment about 76%. Moreover the effect of school attendance is positive only at the 15-24 age group.

Living in urban areas decreases the probability of part-time employment in all age groups, however, the magnitude of the impact is greatest at the 15-24 age group which is about 72%. Being married increases the probability of part-time employment in all age groups, however, being divorced is insignificant at young and early middle ages. Furthermore, the number of children living in the household increases the probability of part-

time employment although the effect is small. Finally the regional unemployment rate has a positive effect on part-time employment at all ages and the size of the effect increases with age.

Second specification of the estimation is given by equation [2]. The only difference in variables is $P T_{i,t}^2$. $P T_{i,t}^2$ is still a binary variable and takes value 1 if a female is employed part-time and 0 if she is out of labor force.

$$[2] \quad P T_{i,t}^2 = f(\text{educ}_{i,t}, \text{marital}_{i,t}, \text{region}_{i,t}, \text{child}_{i,t}, \text{unemp}_{i,t}) + \varepsilon_{i,t}$$

Table 5 shows the marginal effects from probit estimation of the second specification. The first striking feature of the results in Table 5 is the change in signs of age dummies. Now coefficients of age dummies are positive indicating that probability of part-time employment increases with age. For example the probability of part-time employment at the 45-54 age group is about 40% higher than being out of labor force.

Another difference from Table 3 is the change in the sign of high education dummy. Middle education decreases the probability of part-time employment whereas high education increases the probability. This variation in education could be due to that highly educated females prefer to work part-time than being out of labor force. Furthermore now regional unemployment increases the probability of being out of labor force probably by creating discouraged workers.

School attendance and living in an urban area decreases the probability of part-time employment. Moreover being married and widowed decreases the probability of part-time employment whereas being divorced increases the probability. Lastly number of children in the household has a positive effect on female part-time employment.

Table 6 repeats the estimation according to age groups. Similar to the previous results, medium education decreases the probability of part-time employment while high education decreases the probability of being out of labor force in all age groups but age group 55-64. School attendance has a negative effect on part-time employment in 15-24 and 55-64 age groups whereas the effect is positive in other age categories.

Table 5: Probit Estimation Results (Second Specification)

	(1)
age 25-34	0.364*** (0.00691)
age 35-44	0.500*** (0.00702)
age 45-54	0.397*** (0.00730)
age 55-64	0.252*** (0.00804)
medium education	-0.118*** (0.00632)
high education	0.572*** (0.0104)
school attendance	-0.0955*** (0.0119)
urban	-0.850*** (0.00441)
married	-0.0208*** (0.00761)
divorced	0.0991*** (0.0170)
widowed	-0.380*** (0.0106)
regional unemp.	-0.648*** (0.0911)
nr. of child	0.00574*** (0.000631)
Observations	1,061,471

Standard errors in parentheses

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Marginal effects are reported, sample weights applied

Table 6: Probit Estimation Results According to Age (Second Specification)

	(1)	(2)	(3)	(4)	(5)
	age 15-24	age 25-34	age 35-44	age 45-54	age 55-64
medium education	-0.0345*** (0.0119)	-0.234*** (0.0127)	-0.186*** (0.0138)	-0.251*** (0.0190)	-0.474*** (0.0421)
high education	0.609*** (0.0280)	0.702*** (0.0191)	0.860*** (0.0226)	0.241*** (0.0263)	-0.0177 (0.0444)
school attendance	-0.285*** (0.0137)	0.0566* (0.0322)	0.324*** (0.0619)	0.705*** (0.149)	-0.685 (0.599)
urban	-0.760*** (0.0106)	-0.710*** (0.0121)	-0.814*** (0.00913)	-1.024*** (0.0102)	-1.034*** (0.0182)
married	0.0468*** (0.0119)	0.0823*** (0.0154)	0.245*** (0.0248)	0.207*** (0.0379)	0.557*** (0.0768)
divorced	0.189** (0.0797)	0.298*** (0.0381)	0.433*** (0.0378)	0.436*** (0.0470)	0.609*** (0.0892)
widowed	0.406*** (0.148)	0.0831 (0.0608)	0.255*** (0.0369)	0.0631 (0.0421)	0.317*** (0.0779)
regional unemp.	-0.503*** (0.0207)	-0.830*** (0.0212)	-0.800*** (0.0196)	-0.658*** (0.0223)	-0.411*** (0.0295)
nr. of child	-0.00234 (0.00152)	0.00967*** (0.00134)	0.00420*** (0.00132)	0.00516*** (0.00152)	0.00565*** (0.00192)
Observations	235,101	203,237	185,212	169,423	124,612

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Marginal effects are reported, sample weights applied

4. Conclusion

One of the most significant changes to the Turkish female workforce over the last years is the increase in part time employment. Part-time employment accounted for 13%,22% and 27% of female employment in 2005, 2008 and 2011, respectively. This change in female part-time employment generated many policy implications since female labor force participation and employment is a controversial issue in Turkey. In this respect we try to analyze the structure of female part-time employment and the underlying reason that cause rise in female part-time employment in Turkey by using pooled cross section data for the period 2005-2011.

Descriptive analysis provides good information about the structure of female part-time employment. Both males and females experienced a rise in part-time employment as a share within total employment and the pace of increase is higher for females. Part time

employment is higher among older, low educated females living in rural areas. Furthermore part time employed female are highly concentrated in agriculture activity, informal sector and blue collar occupations and approximately half of female part time workers are unpaid family workers. Average working hours and hourly wages are lower for females than their male counterparts. Composition of female part time employment by different aspects extremely varies by geographic distribution.

In order to determine the underlying mechanisms behind the increase in female part-time employment we estimate two specifications. First one assesses the probability of part-time employment with respect to full-time employment and the second specification determines the probability of part-time employment with respect to being out of labor force.

Estimation results show that probability of part-time employment with respect to full-time employment for females decreases with age in the first specification. Probability of part-time employment is higher for low educated females and school attendance has a positive effect on part-time employment. Moreover regional unemployment rate increases the probability of part-time employment for females. On the other hand, in the second specification coefficients of age dummies are positive indicating that probability of part-time employment increases with age. Middle education decreases the probability of part-time employment whereas high education increases the probability. Furthermore now regional unemployment increases the probability of being out of labor force probably by creating discouraged workers.

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