WAGE EARNERS, SELF EMPLOYED AND GENDER IN THE INFORMAL SECTOR IN TURKEY

Aysit Tansel

Working Paper 0102

WAGE EARNERS, SELF EMPLOYED AND GENDER IN THE INFORMAL SECTOR IN TURKEY

Aysit Tansel*

Working Paper 0102

Abstract

This study considers covered and uncovered wage earners and the self-employed. The analysis is carried out for men and women workers separately. The 1994 Turkish Household Expenditure Survey is used first to examine how individuals are selected into the covered and uncovered wage earner, and the self-employed categories. Next, selectivity corrected wage equations are estimated to examine wage determination in these sectors. Oaxaca-Blinder decomposition of sector of work and male-female wage differentials are carried out. When controlled for the observed characteristics and sample selection, for men, covered wage earners earn more than the uncovered wage earners and the self-employed. For the covered wage earners, men's expected wages are about twice higher than women's wages. For the uncovered wage earners, men's wages are near parity with women's. These results suggest segmentation for men along the formal and informal lines and substantial discrimination against women in the covered private sector.1.

Introduction

Although the informal sector has been characterized by several attributes[1], non-compliance with the legal and administrative regulations is often regarded as its most important characteristic. Castells and Portes (1989: 12) state that the most central feature of the informal sector activities is that they are "unregulated by the institutions of society, in a legal and social environment in which similar activities are regulated". Portes (1994) and Assaad (1997) emphasize that it is the non-compliance with the legal and administrative regulations rather than social regulations that is important. The early development literature assumed that in the developing countries the informal sector will disappear overtime as it did in the developed countries. Turnham (1993: 147) estimated the proportion of informal employment for groups of countries at different levels of development and found that the share of such employment declines as the level of development rises. His definition of informal sector employment included the wage workers in small enterprises and the self employed excepting professionals and technicians. Recently, governments and international organizations emphasized the dynamic feature of the informal sector and its job creating aspect. Ranis and Stewart (1999) examined the informal sector in relation to the rest of the economy and divided it into two parts, a modernizing dynamic component and a traditional stagnant one.

The traditional view regards the informal sector as the disadvantaged segment of a dualistic labor market. This view is expressed in the Harris-Todaro (1970) model and by Mazumdar (1983) among others. According to an alternate view, dualism arises endogenously from efficiency wage type considerations which lead large firms to pay remuneration above market clearing levels. This is expressed by Stiglitz (1974), Esfahani and Salehi-Isfahani(1989) and Rosenzweig (1989). According to a more recent conceptualization of duality, large firms confronted by global competition subcontract to unprotected workers in order to reduce costs and gain flexibility. Such is the view of Portes, Castells and Benton (1989), and Portes and Schauffler (1993).

This study focuses on the gender earnings differential of the private sector wage earners and the self-employed. The wage earner in this study is defined to include regular employees as wage and salary earners and casual workers. Two groups of private sector wage earners are considered: those who are covered by a social security program and those who are not covered by any social security program. They are

sometimes referred to as protected and unprotected workers respectively. They will be referred to as covered and uncovered wage earners in this paper. They are parts of the formal and informal sectors respectively. The self-employed category is defined so as to include people who own their business and who are the sole workers of their enterprises. They do not hire labor or use services of unpaid family members. They do not include professionals and technicians, and as such they are part of the informal sector. In the survey used in this study no question was asked about the social security coverage of the self-employed. Thus, uncovered wage-earners and all of the self-employed (excluding professionals and technitions) are taken to form the informal sector. This may not be the general way in which the formal and informal sectors are identified in the literature. Magnac(1991) and Pradhan and van Soest (1995) both identified the total of the wage earners as formal sector workers and the total of the self-employed as informal sector workers.

Examining the earnings of the covered and uncovered wage earners, and the self-employed in Turkey is important for several reasons. First, although declining over time since after the establishment of the Social Insurance Organization (SSK), in 1964, the uncovered wage earners are still a sizeable segment of the labor force. Second, Turkey features a highly unequal distribution of income which is captured by the division between formal and informal sector work. One purpose of this paper is to show the extent of this income inequality.

In this paper, I first examine how individuals are selected into either non-participation or employment in different sectors. A five-way multinominal logit model included the following choices: non-participation, private sector covered wage work, uncovered wage work, self-employment and other employment. Next, I estimate the selectivity corrected wage equations in different sectors. These estimations are undertaken separately for men and women. The Oaxaca-Blinder decomposition of sector of work and male-female wage differentials are performed. Estimations are carried out with individual level survey data from the 1994 Turkish Household Expenditure Survey of the State Institute of Statistics. The differentials in employment sector selection and in wages are examined for the covered and uncovered wage earners and the self-employed along with the differentials in these processes. When controlling for observed characteristics and sample selection, male covered wage earners earn more than male uncovered and the self-employed. For the covered wage earners, men's expected wages are about twice higher than women's wages. For the uncovered wage earners, men's wages are near parity with women's. These results suggest segmentation for men along the formal and informal lines and substantial discrimination against women in the covered private sector.

---

[1] These determining attributes of the informal sector include ease of entry into the sector, size of establishment, style of production, type of technology used and whether or not there is compliance with various laws and regulations.

This paper is organized as follows. Section 2 presents background information about the institutional setting of the labor market in Turkey and the employment composition. Section 3 provides the theoretical framework and the empirical specification of the analysis. Section 4 introduces the main characteristics of the data used in this study. Estimation results are presented in Section 5. Conclusions appear in Section 6.

2. Labor Market in Turkey

Institutional Background

Wage earners who are not covered by any social security program are considered informal sector workers. Wage earners who are covered by social security are considered as formal sector workers. The Retirement Fund(ES) provides coverage for civil servants, while the Social Security Organization (SSK) provides coverage for workers at the state owned enterprises as well as private sector employees. Both the ES and the SSK supply health benefits and retirement benefits. It is well known that the quality of the benefits provided by the ES is superior to those provided by the SSK. *Bağkur* provides health and retirement benefits for the self-employed.

According to the 1994 Household Expenditure Survey used in this study, 34 percent of the male wage earners and 35 percent of the female wage earners do not have any social security coverage and thus work in the informal sector. Bulutay (1997: 275-276) calculates that about 35 percent of the wage earners are not under any social security coverage and thus are part of the informal sector according to the Household Labor Force Survey of April 1996. According to the same source, the number of uncovered workers is 2.3 million. The rate of social security non-coverage varies with the type of industry and the size of establishment. It is expected that uncovered workers are employed in small establishments and that temporary workers may be a sizeable portion of uncovered wage earners (Bulutay, 1997: 276). The casual workers are those wage earners whose jobs are not characterized by continuity. Casual workers comprised about 15 percent of the male covered wage earner sample, 59 percent of the male uncovered wage earner sample, 3 percent of the female covered wage earner sample and 52 percent of the female uncovered wage earner sample (Appendix Table). According to Assaad (1997: 25) uncovered workers accounted 59 percent of the total wage earners in Egypt in 1988. The Percentage of the self-employed who are not covered by social security is much higher than the percentage of the wage earners not covered. Tansel (1997) reports that 42 percent of self-employed men, and 82 percent of self-employed women have no social security coverage according to the 1989 Household Labor Force Survey.

Labor Law no 67 forbids employment of children under 15 years of age. However, it is possible to employ children who have completed 13 years of age in light jobs that will not interfere with their health, physical development and schooling or training programs[2]. These children can be covered by social security only in terms of health coverage. According to the Social Security Law no. 2422 which was promulgated in 1981, retirement benefits of social security can only accumulate after the individual completes 18 years of age.

It is illegal for an employer to employ workers without social security coverage. If the investigators of the Social Security Organization (SSK) find out that the workers are employed without such coverage, they will fine the employer. According to SSK laws, this monetary penalty is twice the amount of the current monthly gross minimum wage for each uncovered worker. The current monthly gross minimum wage is about 160 US Dollars. Thus, the monetary penalty amounts to about 320 US Dollars per uncovered worker, which is a rather stiff penalty. However, we observe that this is not a prohibitive penalty and that the compliance rate with the law is rather low, possibly due to the low probability of being caught by the SSK inspectors.

Article 33 of the Labor Law stipulates that the minimum wage will be determined at least every two years by the Ministry of Labor. The Ministry of Labor establishes a minimum wage board consisting of the representatives of labor unions, employers and representatives from independent organizations such as universities. The minimum wages of the industrial and agricultural workers who have not yet attained 16 years of age is determined separately from those 16 years of age and over.

An employer may terminate a worker's employment either according to Article 13 or Article 17 of the Labor Law. Article 13 stipulates termination with a term of notice whether justified or not, while Article 17 stipulates termination based on a just cause with instant dismissal. In this case, termination reasons must be specified in the notification.

The employer can terminate an open ended contract with a written notification and must give the employee a notice period. The notice period varies from two to eight weeks depending on the length of employment. Those minimum notice periods specified in the Labor Law can be increased through agreements. The employer is liable to pay notice compensation if he/she does not comply with the notice period stipulation. A notice compensation will include the basic wage in addition to all wage

---

[2] For those children going to school, their work hours must not interfere with their school hours, and their schooling hours must be counted in the 7.5 hour work per day.

supplements. In addition, a worker dismissed according to Article 13 is entitled severance compensation.

A worker may resign from his/her job under Article 13 of the Labor Law. The worker must also observe the notice period or be liable to pay notice compensation. Under Article 13, a worker who resigns is not entitled to severance compensation. However, under Article 17 a worker terminating employment for a just cause is entitled to such compensation. The rule is that each year of employment at an establishment is rewarded with thirty days of pay in the severance compensation. The basis for the severance pay is the last daily gross wage plus wage supplements of a continuous nature.

Lastly, Article 26 of the Labor Law prohibits discrimination based on sex. According to this article, male and female workers performing jobs of the same nature and working with equal efficiency will receive equal wages.

Employment Composition

In developing countries, the self-employed constitute a relatively large proportion of the labor force compared to wage earners, while in the developed countries, wage earners form a relatively larger fraction of the labor force. In the development literature, the importance of self-employment is hypothesized to decline over time during the development process (Schultz, 1991). Kuznets(1971) was the first to point to this empirical regularity. Yamada (1996: 297) found a correlation coefficient of −0.85 between GDP per capita and the share of self employment in the urban labor force for a cross section of 31 countries at different stages of development. Fields (1994) reported that wage earners as a percentage of total employment increased from 47.3 in 1980 to 60.2 in 1990 in the Republic of Korea while it increased from 85.0 to 87.5 in Taiwan and 64.5 to 65.6 in China during the same period. In the urban labor markets in Turkey the fraction of the self-employed declined in favor of the wage-employed over time. According to the census data in Turkey, the proportion of self-employed males declined from about 44 percent in 1955 to about 31 percent in 1990, while the proportion of wage-earning males increased from about 21 percent in 1955 to about 50 percent in 1990 as predicted in the development literature. For women, the fraction of both self-employed and wage earners increased over time due to the increase in the paid labor force participation of women (Tansel, 1996)

Table 1 shows the employment composition for men and women by urban and rural regions in Turkey in 1998. The difference between urban and rural regions is striking. Wage earners (including casual employees) form the largest fraction of total employed for both men and women in the urban areas with 56 and 73 percent

respectively. However, in the rural areas about half of the working men are self employed and about one fifth are wage employed. For rural women the dominant form of employment is unpaid family work with about 84 percent of the total.

3. The Model

The framework used in this study is a joint model of employment sector choice and wage determination. Such a structure avoids the sector selection bias in the wage equations and controls for unobserved heterogeneity among workers.

In order to explain sector selection, individuals are assumed to face five mutually exclusive choices. These are: not working (j=0), covered private sector wage earner (j=1), uncovered wage earner (j=2), self-employed (j=3) and other employment (j=4). These choices are shown in Figure 1. The actual and perceived net differentials in the monetary and non-monetary compensations determine the choice of sector. Furthermore, worker's tastes, preferences, personal and human capital characteristics also influence their choice. I assume a conditional multinominal logit model for the probability that the individual chooses sector j as follows:

$$P_j = \exp(Z\alpha_j) / (1 + \sum_{j=1}^{4} \exp(Z\alpha_j))$$

Where Z is a vector of explanatory variables affecting sectoral choice such as human capital variables and α_j is the vector of unknown parameters of alternative j.

Alternatives

j=0	j=1	j=2	j=3	j=4
Not working	Covered Private Sector Wage Earner	Uncovered Wage Earner	Self Employment	Other

The traditional human capital framework (Becker, 1975; Mincer, 1958 and 1974) is employed in the specification of the wage equations. Log wages (ln W) are explained by personal and human capital characteristics and locational factors (X) as follows:

$$Ln\ W_j = \beta_j\ X_j + u_j$$

where β is a vector of unknown parameters and u is the random disturbance term; j stands for the covered and uncovered wage earners and the self employed.

In estimating the wage equations, if selection into different sectors is ignored, then the Ordinary Least Squares (OLS) wage equation estimates could potentially be biased and inconsistent (Heckman, 1974; Heckman and Hotz, 1986). To take this into account, I adopt the two-stage estimation method developed by Lee (1983) and Trost

and Lee (1984). In the first stage, I estimate the sectoral choice probabilities by the Maximum Likelihood Estimation (MLE) of the conditional multinominal logit model and construct the selection term for the alternative j (λj) as follows:

$$\lambda j = \phi\,(Hj)\,/\,\Phi(Hj)$$

where $Hj = \Phi{-1}(Pj)$,

and ϕ is the standard normal density function and Φ is the standard normal distribution function. In the second stage, the estimated λj is included among the explanatory variables of the wage equations. The implied wage equations which are then estimated by OLS are:

$$\ln Wj = Xj\beta j + \theta j\lambda j + \upsilon j$$

$$j = 1,2,3$$

where $\theta j = pj\ \sigma j$, provides consistent estimates of β and θ.

Empirical Specification

Education, experience and locational variables are included in both the multinominal logit and wage equations. Education is represented by the dummy variables indicating the different levels of diplomas achieved. The reference category is the illiterate and non-graduate group. The experience variable is computed as age minus the number of years of schooling minus six, the age of entry into school (Mincer, 1974). In order to take the non-linearities in the experience profile into account, a quadratic term in experience is also included. A dummy variable indicates whether the individual resides in an urban area. An urban area is defined as a location with a population of over twenty thousand. Regions of residence are represented by dummy variables, which are included to control for differentials in labor market opportunities among the regions. Interviews took place in different months throughout 1994. In order to control for seasonal factors, if any, I included seasonal dummy variables. Winter was the reference category.

The multinominal logit equation included the following additional variables: Unearned income of the individual, unearned income of the other household members and the amount of the land owned. These variables were suggested by Schultz(1990) to explain choices involving labor force participation. They are expected to reduce the probability of labor force participation by raising the shadow value of a person's time in non-market activities.

4. Data

Individual level sample data are used in the estimation of the multinominal logit equations and the wage equations. The data comes from the 1994 Turkish Household Expenditure Survey conducted by the State Institute of Statistics[3]. I restrict the sample to individuals 15 to 65 years of age. Individuals engaged in agricultural activities are included in the category of "other employment" as explained in Figure 1. Covered wage earners are those private sector workers who are covered by SSK and the uncovered wage earners are not covered by any form of social security. The self-employed are the sole owners of their enterprise and do not employ paid or unpaid workers; professionals and technicians are excluded. This is taken to define the self-employed in the informal sector.

Wages are the sum of cash earnings, bonuses and the value of income in kind[4]. Fringe benefits are not included in the wage earner's reported earnings. The survey reported the net income of the self-employed by adding all revenues and subtracting all expenses. Strauss and Thomas (1995: 1960) elaborate on two problems often encountered in the work on the self-employed. The first problem is that although the value of material inputs are deducted from the gross earnings of the self-employed, returns to physical capital are not. Thus, some of the earnings of the self-employed are returns to their physical capital, managerial ability and risk taking. The second problem is that, some of the self-employed employ unpaid family labor and net income was not allocated among family members. In this study, in order to circumvent the second problem, the self-employed included are the sole workers of their business.

Information was collected on two kinds of earnings during the interviews: one for the month of the interview and the other for the previous year. The survey also asked about the usual hours of work per week. However, no information was collected on the number of weeks worked during a month or during a year. The monthly hours of work is imputed by multiplying the usual hours of work per week by 4.3. I obtained the hourly wage by dividing the reported monthly wage by the imputed monthly hours

of work. Hourly wages based on annual wages could not be computed without an assumption about the number of weeks worked during a year. In this paper, I used the hourly wage based on the monthly wage, rather than the hourly wage based on the annual wage, assuming that there may be less errors of measurement in the monthly wage[5].

The table in the Appendix shows the main characteristics of the covered and uncovered wage earners and the self-employed. Among male workers, the highest hourly wage reported is for the self-employed, while covered sector wages are markedly higher than those in the uncovered sector. Log hourly wages of the self-employed are 53 percent higher than those of the uncovered wage earners while log hourly wages of the covered wage earners are 35 percent higher than those of the uncovered wage earners. Among the female workers, the highest hourly wage is observed for the covered wage earners and the lowest for the uncovered wage earners. The log hourly wages of the self-employed are about 50 percent lower than those of the covered wage earners. The log hourly wage of the covered wage earners is about 80 percent higher than that of he uncovered wage earners. These percentages point to the fact that the differential between covered and uncovered log wages is much higher for women than for men. Tansel (1996) found that self-employed men and women had higher earnings than their wage-earning counterparts.

Self-employed males are 7-8 years older than the male wage earners. Similarly, Self-employed females are 6-7 years older than the female wage earners. Accordingly, the self-employed males have about nine years more experience than those who are wage-earners, and the self-employed females have about 11 years more experience than the covered wage earners and six years more experience than the uncovered wage earners. Tansel (1996) also found that the self-employed were older and had more experience than the wage earners according to the 1989 Household Labor Force Survey.

Years of schooling achieved is highest among the covered wage earners. Covered wage earner females have about one more year of schooling than the covered wage-earning males. Uncovered wage earners and the self employed men and women both have significantly less years of schooling than covered wage earners. Uncovered wage

---

earners and the self-employed have about the same years of schooling which is just over five years for men and just under five years for women. Five years was the compulsory level of schooling until recently. In August 1997, the compulsory level of schooling is extended from five to eight years. These patterns in educational attainment are also evident from the distribution of schooling attainment given in the Appendix Table. The covered female wage- earner group has about twice as much high school and university graduates as the male covered wage-earner. There are higher proportions of illiterates and non-graduates in the uncovered wage earner and self employed groups. The proportion of the illiterate and non-graduate group is in particular high among females who are uncovered wage earners women and self-employed (26-29 percent). Thus, the ones with the lowest educational achievements are observed among uncovered wage earner women and self-employed women.

When comparing the wages of men and women in the three sectors, I note the following observations: the gender wage gap is rather small among the covered wage earners but much larger among the uncovered wage earners. The log wages of men and women differ by about 0.27 points in favor of men among the covered wage earners while they differ by about 0.44 points in favor of men among the uncovered wage earners. The log wages of the men and women differ by about 0.90 points in favor of men among the self-employed. Thus, the gender wage gap is largest for the self-employed category.

Unearned income includes rental income, interest income and dividends. The table in the Appendix provides information about the unearned income of the individual, the unearned income of the other household members and the land holdings. Unearned incomes are adjusted for inflation as indicated in Note 5. The individual's unearned income is highest for self-employed men. Unearned income of the other household members is highest for male covered wage-earners, while female covered wage-earners have the greatest land holdings.

As expected the proportions of covered wage earners, uncovered wage earners and the self-employed are larger in urban areas than in rural areas for both men and women. An urban area is defined as a location with a population of over twenty-thousand. The distribution of the covered and uncovered wage earners and the self employed among the different regions of the country shows the expected patterns. The proportion of the covered wage earners is highest in the Marmara and the Aegean regions for men and women both. The proportion of uncovered wage-earners is highest for men in Southeast Anatolia and for women in the Mediterranean region. Self-employed men are somewhat evenly distributed across the different regions of the country, while the proportion of self-employed women is highest in the Black Sea region. I also note that

---

[5] The wages and unearned income figures were deflated with the local monthly consumer price index (CPI) since the households were interviewed at different months throughout 1994 during which the annual rate of inflation was about 90 percent. Households in the 16 major cities were assigned the monthly CPIs for those cities. Households in other locations were assigned either a rural or an urban monthly CPI for one of the five regions in which they are located according to whether they are in a rural or an urban location. A location is considered urban if its population is over twenty thousand. The base for the CPI figures was 1987. They are obtained from the State Institute of Statistics (1994).

in the Eastern Anatolia and the Southeastern Anatolia regions the proportions of women who are either wage-earners or self-employed are very low compared to other regions. This may possibly be due to social norms which are prevalent in these two regions and that are adverse to women's market employment.

Casual wage earners are those workers whose jobs do not entail continuity. The proportion of casual wage earners are much higher among the uncovered wage earners than among the covered wage earners: 59 percent of men and 51 percent of women are casual wage earners in the uncovered sector. A dummy variable indicates whether the self-employed own the location of their business. As the Appendix Table shows, 70 percent of self-employed men and 87 percent of self-employed women own their business location rather than rent it.

5. Estimation Results

Multinominal Logit Estimates

Multinominal logit estimates of the employment sector choice are shown in Table 2 for men and Table 3 for women. The five employment alternatives considered are non-participation, covered wage employment, uncovered wage employment, self-employment and other employment. The category of other employment includes public employment, employers, self-employed with unpaid family members as workers and the unpaid family workers. This category also includes individuals who are engaged in agriculture. The Tables 2 and 3 give the marginal effects of each variable on the probability of joining a particular sector and the associated asymptotic t-ratios. The marginal effects are calculated at the mean values of the variables.

The results in Table 2 for men indicate that the probabilities of covered wage employment and self-employment increase with experience at a decreasing rate, while the probability of uncovered wage employment decrease with experience at a decreasing rate. Attaining different levels of education all reduce the probabilities of covered and uncovered wage employment and self-employment. Increasing the level of education largely reduces the probability of uncovered wage employment. Thus, there is clear evidence that workers with greater education are less likely to be in the uncovered wage employment sector.

Unearned income of the individual reduces the probability of both covered and uncovered wage-employment, but increases the probability of self-employment. Unearned income of the other household members increases the probability of covered wage employment but reduces the probability of uncovered wage employment and the self-employment. The amount of land owned reduces the probability of the covered and uncovered wage-employment and self-employment.

The probabilities of covered and uncovered wage-employment as well as self-employment are higher in urban than in rural areas. The regional coefficients indicate the following patterns: The probability of covered wage employment is lower in all regions as compared to Marmara. The probability of uncovered wage employment is lower in all regions than in Marmara, but higher in the Mediterranean and the Southeast Anatolia regions. Mediterranean and Southeastern Turkey may have more temporary workers and less large establishments as compared to Marmara. The probability of self-employment is higher in all regions than in Marmara, but lower in the Central Anatolia, and is not significantly different in the Black Sea than in the Marmara region.

The multinominal logit estimation results for women are shown in Table 3. These results indicate that the probability of covered wage-employment decreases with experience at a decreasing rate. The probability of uncovered wage- employment decreases with experience at an increasing rate, and the probability of self-employment increases with experience at a decreasing rate. Attaining different levels of education increases the probability of covered wage employment at increasing rates with the increase in education levels. Thus, higher levels of education increase the probability of covered wage employment. Attaining different levels of education decreases the probability of uncovered wage employment and contributes positively to the probability of self-employment except at the university level. The individual's unearned income increases the probability of covered wage employment, but reduces the probability of uncovered wage employment and the self-employment. The unearned income of the other household members reduces the probabilities of covered and uncovered wage employment and the self-employment. The amount of land owned increases the probability of covered wage employment but reduces the probabilities of uncovered wage employment and self-employment. The probabilities of the covered and uncovered wage employment and the self-employment are higher in urban than in the rural areas. The probability of covered wage employment is higher in the Aegean region than in Marmara, but lower in all other regions than in Marmara. The same relationship is true for the probability of uncovered wage employment: higher in the Aegean, lower in all other regions than in Marmara. The probability of self-employment is lower in all regions than in Marmara except in the Black Sea region.

The Wage Equations

Mincearian wage equations are estimated with selectivity correction using the results of the multinominal logit employment sector selection equations. These wage equations for the covered and uncovered wage earners and the self-employed are

given in Table 4 for men and Table 5 for women. All the wage equations are overall statistically significant except for the equation for self-employed women which has very low R-square and F statistic values indicating poor fit. This may be due to the small number of observations for the self-employed women. The wage equation for the female uncovered wage earners should be interpreted with caution as well, in particular the educational attainment coefficients, since some of these cells have very few observations.

Selection terms for the equations for males who are covered and uncovered wage earners are negative and statistically significant, while for the self-employed men the selection term is statistically insignificant. As for the women's wage equations, the selection term is statistically significant only for the uncovered wage earners. Gindling (1991) finds statistically insignificant, while Pradhan and van Soest(1995) find statistically significant sectoral selectivity terms in explaining wages of the formal and informal sectors. Rees and Shah (1986) and Gill (1988) find no selection bias in their self-employed samples.

The linear and quadratic terms in experience are statistically significant with positive and negative signs as expected. Wages peak at 34 years of experience for the covered wage earning males, at 32 years of experience for the uncovered wage earning males and at 31 years of experience for those who are self-employed. Wages peak at 23, 33 and 28 years of experience for the covered and uncovered wage earning and self-employed women. The effects of education levels on wages are all positive except in the case of self-employed women where they are all statistically insignificant. Self-employed men have smaller education coefficients for high school and university levels than the covered and uncovered wage earners. This is not implausible given that the earnings of the self-employed contain returns to physical capital as well, which may not proportionately increase with education. Similarly, Rees and Shah (1986), and Soon (1987) and Gill (1988) find smaller schooling coefficients for the self-employed than for the wage employed. Evans and Jovanovic (1989) and Tansel (1996) find opposite results in this regard. In the wage equations of the self-employed it was not possible to include a variable on the ownership of physical capital. The dummy variable "owner" indicates whether the self-employed own the location of his/her business which could serve as a proxy for physical capital. This variable was insignificant for self-employed men and had a negative sign for self-employed women. Furthermore, the lack of data on physical capital was a problem in several other studies such as Rees and Shah (1986).

Urban and rural wages are not statistically different from each other for the covered and uncovered wage earning men, while urban wages are significantly higher than

rural wages for the self-employed. For women, urban and rural wages are not statistically different from each other for the covered wage earners and the self-employed, while urban wages are significantly higher than rural wages for the uncovered wage earners. There are regional differentials in wages. For men, regional wage differentials are statistically significant in the case of covered and uncovered wage earners but not for the self-employed. For women regional wage differentials are mostly statistically insignificant in all cases.

The estimate of the variance of log income is much larger for both male and female uncovered wage earners and self-employed than for those who are covered wage earners. This may possibly be due to the heterogeneity of uncovered wage earner activities and self-employment activities. Similar results were found by other researchers as well (Pradhan and van Soest, 1995).

Table 6 compares the expected wages for men and women at different levels of experience and educational attainment among the three groups of workers. For men, at all levels of experience and educational attainment, the highest wages are found for the covered wage earners while the lowest wages are those of the self-employed. For women, covered and uncovered sector wages are similar, but the lowest wages are observed for the self-employed. However, this result is not reliable due to the poor wage equation estimate for the self-employed women. It is noteworthy that in all cases, there are no additional substantial wage gains after 25 years of experience. Furthermore, a comparison of the expected wages of men and women leads to the following patterns. For the covered wage earners, men's expected wages are about two times higher than the women's, while for the uncovered wage earners men's wages are near parity with those of women. This indicates that there is substantial wage discrimination against women in the covered private sector. Similar results are presented in Tansel (1998 and 1999a). In the literature on dualism, higher formal sector earnings are taken to be evidence of segmentation (Rosenzweig, 1988). In a market with no distortions informal sector earnings will be above those of the formal sector to compensate for the value of benefits formal sector jobs provide. In this study, the substantial difference in the wages between the covered and uncovered male wage earners and those self-employed indicate segmentation along formal and informal lines for men. However, for women the difference between the two sectors is not substantial. Marcouiller, Ruiz and Woodruff (1997) found higher mean earnings in the Mexican informal sector than in the formal sector, while in El Salvador and Peru the mean earnings in the formal sector were higher than in the informal sector. Bernhardt (1994) found higher potential earnings for the wage earners than for the self-employed in Canada.

Oaxaca-Blinder Decompositions

This section presents the Oaxaca(1973) and Blinder(1974) decompositions of the wage differentials. Table 7 shows the decomposition of the total mean log wage differential between covered and uncovered wage earners and the self-employed into four components including the selectivity bias (Idson and Feaster, 1990) as follows:

$$LnW_j - lnW_i = (\beta_{oj} - \beta_{oi}) + 0.5\ (\beta_j + \beta_i)\ (X_j - X_i) + 0.5\ (X_j + X_i)\ (\beta_j - \beta_i) + (\theta_j \lambda_j - \theta_i \lambda_i)$$

where the variables are evaluated at their sample means; and j denotes the covered or the uncovered wage earners and i denotes the self employed. The first component is the difference in the constant terms. This differential is often interpreted as the premium or pure rent from being in a given sector (Terrell, 1993). The second component is due to the difference in endowments of workers. The third component is due to the difference in the coefficients or due to the market returns to the endowments. The final component is due to the difference in the selection terms. The sum of the difference in the constant terms and the difference in the coefficients is often referred to as the unexplained differential. The decomposition in Table 7 indicates that the positive covered-uncovered sector wage differential in favor of the covered sector. In the case of men, this is partly due to the constant term and partly due to the higher levels of human capital endowments of covered wage earners. In the case of women, it is partly due to higher levels of human capital endowments of covered wage earners and partly due to the large positive selection differential.

The total unexplained differential is positive in case of covered versus uncovered sectors for men but negative for women. This differential is mostly due to the differential in the constant terms in case of men. And in the case of women, it is due to the coefficients which are the result of the higher returns to worker characteristics for the covered wage earners. In the case of the covered wage earner versus self-employed differential for men, the total unexplained differential is positive and large. Furthermore, in the case of the uncovered wage earner versus the self-employed differential for men the unexplained differential is positive and large as well. In these two cases, the positive and large differentials in the constant terms indicate a large unexplained premium attributable to being a covered wage earner. Although the self-employed women's wage equation had a poor fit and for this reason the decompositions pertaining to the self-employed women in Table 7 are not reliable, the following pattern can be seen. For women, in the case of the covered wage earner versus the self-employed differential and in the case of the uncovered wage earner versus self-employed differential, the unexplained differentials are positive and large. Both of these are due to the positive and large differential in the constant terms that

indicate unexplained premiums pertaining to being covered and uncovered wage earners.

Table 8 presents the decomposition of male-female wage differentials. The results indicate that there are positive male-female wage differential in favor of men in all of the three sectors of employment. In the case of covered wage earners, the positive male-female wage differential is partly due to the constant term and partly due to the higher levels of market returns to the males. The total unexplained differential is positive and large indicating an unexplained premium attributable to being male. In the case of the uncovered wage earners, the positive male-female wage differential is partly due to the higher levels of human capital endowments of men, and partly due to the large positive selection differential. In the case of the self-employed, the positive male-female differential is partly due to the constant term and partly due to the higher levels of market returns to men. The case for the self-employed is not reliable due to the poor wage equation estimates for women. The total unexplained differential is positive and large indicating an unexplained premium attributable to being male. The negative selection term for covered wage earners and for the self-employed means that the type of women drawn into the two employment sectors help reduce the observed wage differential between men and women in those sectors. The negative constant term for uncovered workers could be interpreted as due to the presence of unobservable factors in the determination of wages in that sector working to reduce the differential between men and women in that sector.

6. Conclusion

This study addresses the gender differentials in compensation for the private sector covered and uncovered wage earners and the self-employed. Uncovered wage earners and the self-employed are defined to be part of the informal sector, while covered wage earners are defined to be part of the formal sector. The analysis is carried out for men and women workers separately. For this purpose, the 1994 Turkish Household Expenditure Survey is used. I examine the factors that determine the employment sector choice and the determinants of wage differentials for the covered and uncovered wage earners and the self-employed. The employment sector choice is explained with a five-way multinominal logit model with non-participation as the base choice. There is evidence that workers with more education are less likely to be uncovered wage earners. For men, the probability of uncovered wage employment is found to be higher in the Mediterranean and the Southeast Anatolia regions than in the Marmara region, possibly because these regions have more temporary and migrant workers and Southeastern Turkey has less large establishments as compared to Marmara.

Using the sector selection results wage equations are estimated for covered and uncovered wage earners and the self-employed. Oaxaca-Blinder decomposition of sector of work and male-female wage differentials are carried out. When controlled for the observed characteristics and sample selection, male covered wage earners earn more than the uncovered wage earners and the self-employed. For women covered and uncovered sector wages are similar. These results indicate substantial earnings differences between formal and informal sectors for men. This could be one of the factors contributing to the inequality in income distribution in Turkey. The substantial earnings difference also implies segmentation in the labor market along formal and informal lines. For the covered wage earners, men's expected wages are about two times higher than the women's wages. For the uncovered wage earners, men's wages are near parity with those of women. These results suggest segmentation for men along the covered-uncovered lines as well as substantial discrimination for women in the covered private sector. Furthermore, the uncovered wage earner jobs not only pay less and do not provide retirement and health benefits, but may also lack a number of desirable non-pecuniary job attributes[6].

---

[6] These attributes may include job security, work contract, paid vacations and leaves and other fringe benefits. Formal sector jobs are more likely to involve a work contract than the informal sector jobs. Uncovered wage work are more likely to be temporary. Uncovered wage work environment may also be unregulated and hence may involve poor and unhealthy working conditions. Further, wage employment and self-employment may differ in hours worked, degree of risk taken and degree of independence.

References

Assaad, R. 1987. "Explaining Informality: The Determinants of Compliance with Labor Market Regulations in Egypt," Paper presented at the Economic Research Forum, Fourth Annual Conference in Beirut, Lebanon, 7-9 September, 1997.

Blinder, A.S. 1974. "Wage Discrimination: Reduced Form and Structural Estimates," *Journal of Human Resources,* 8 (4): 436-455.

Becker, G.S. 1975. *Human Capital*, Second edition, National Bureau of Economic Research, New York: Columbia University Press.

Bernhardt, I. 1994. "Comparative advantage in Self-Employment and Paid Work," *Canadian Journal of Economics,* 27: 273-289.

Bulutay, T. 1997. "İşgücü Piyasası Bilgi Danışma Kurulu Raporu," (Report of the Information Commission on Labor Market) in T. Bulutay (ed.) İmalat Sanayiinde İstihdam (Employment in the Manufacturing Sector), Ankara: State Institute of Statistics.

Castells, M. and A. Portes, 1989. "World Underneath: The Origins, Dynamics and Effects of the Informal Economy," in A. Portes, M. Castells and L.A. Benton (eds.), The Informal Economy: Studies in Advanced and Less Developed Countries, Baltimore: The Johns Hopkins University Press.

Esfahani, H.S. and D. Salehi-Isfahani, 1989. "Effort Observability and Worker Productivity: Towards an Explanation of Economic Dualism," *Economic Journal*, 99: 818-836.

Evans, D.S. and B. Jovanovic 1989. "An Estimated Model of Enterpreneurial Choice under Liquidity Constraints," *Journal of Political Economy*, 97(4): 808-827.

Fields, G.S. 1994 "Changing Labor Market Conditions and Economic Development in Hong Kong, the Republic of Korea, Singapore, Taiwan and China," *The World Bank Economic Review*, 8 (3): 395-414.

Harris, J.R. and M.P. Todaro 1970. "Migration, Unemployment and Development: A Two-Sector Analysis," *American Economic Review*, 60(1): 126-142.

Gill, A.M. 1988. "Choice of Employment Status and the Wage Employees and the Self-Employed: Some Further Evidence," *Journal of Applied Econometrics*, 3: 229-234.

Gindling, T.H. 1991. "Labor Market Segmentation and the Determination of Wages in the Public, Private-Formal and Informal Sectors in San Jose, Costa Rica," *Economic Development and Cultural Change*, 39(3): 585-605.

Heckman, J.J. 1974 "Shadow Prices, Market Wages and Labor Supply," *Econometrica*, 42: 679-694.

Heckman, J. and V.J. Hotz 1986. "The Sources of Inequality for Males in Panama's Labor Markets," *The Journal of Human Resources*, 21(4): 507-542.

Idson, T. and D. Feaster. 1990. "A Selectivity Model of Employer-Size Wage Differentials," *Journal of Labor Economics*, 8(1): 99-122.

Kuznets, S. 1971. *Economic Growth of Nations, Total Output and Production Structure*, Cambridge, Massachusetts: Harvard University Press.

Lee, L.F. 1983. "Generalized Econometric Models with Selectivity," *Econometrica,* 51: 507-512.

Magnac, T.H. 1991. "Segmented or Competitive Labor Markets," *Econometrica,* 59: 165-187.

Marcoiller, D.V., R. de Castilla and C. Woodruff, 1997. "Formal Measures of the Informal Sector Wage Gap in Mexico, El Salvador and Peru," *Economic Development and Cultural Change*, 45: 711-749.

Mazumdar, D. 1983. "Segmented Labor Markets in LDC's," *American Economic Review,* 73(2): 254-259.

Mincer, J. 1958. "Investments in Human Capital and Personal Income Distribution," *Journal of Political Economy,* 56: 281-302.

Mincer, J. 1974. "Schooling, Experience and Earnings," National Bureau of Economic Research. New York: Columbia University Press.

Oaxaca, R. 1973. "Male-Female Wage Differentials in Urban Labor Markets," *International Economic Review,* 14 (3): 693-709.

Portes, A., M. Castells and L.A. Benton (eds.), 1989. *The Informal Economy: Studies in Advanced and Less Developed Countries*, Baltimore: The Johns Hopkings University Press.

Portes, A. and R. Schauffler 1993. "Competing Perspectieves on the Latin American Informal Sector," *Population and Development Review,* 19(1): 33-49.

Portes, A. 1994. "The Informal Economy and its Paradoxes," in N. Smelser and R. Swedberg (eds), *The Handbook of Economic Sociology*, Princeton, N.J.: Princeton University Press.

Pradhan, M. and A. van Soest 1995. "Formal and Informal Sector Employment in Urban Areas of Bolivia," *Labor Economics*, 2: 275-297.

Ranis, G. and F. Stewart 1999. "V-Goods and the Role of the Urban Informal Sector in Development," *Economic Development and Cultural Change,* 47(2): 259-288.

Rees, H. and A. Shah 1986. "An Empirical Analysis of Self Employment in the U.K," *Journal of Applied Econometrics,* 1: 95-108.

Rosenzweig, M.R. 1988. "Labor Markets in Low Income Countries," in H. Chenery and T.N. Srinivasan, (eds.), *Handbook of Development Economics*, Vol. 1, New York: North Holland.

Schultz, T.P. 1991. "International Differences in Labor Force Participation in Families and Firms," Economic Growth Center Discussion Paper no: 634. New Haven: Yale University.

Soon, L.Y. 1987 "Self-Employment vs Wage Employment: Estimation of Earnings Functions in LDCs," *Economics of Education Review*, 6(2): 81-89.

State Institute of Statistics (SIS) 1994 *Monthly Bulletin of Statistics*, Ankara: SIS.

State Institute of Statistics (SIS) 1997. Household Consumption Expenditures Survey Results, 1994. Ankara: SIS.

State Institute of Statistics (SIS) 1998. Household Labor Force Survey, April 1998. Ankara: SIS:

Stiglitz, J.E. 1974. "Alternative Theories of Wage Determination and Unemployment in LDC's: The Labor Turnover Model," *Quarterly Journal of Economics*, 88: 194-227.

Strauss, J. and D. Thomas 1995. "Human resources: Empirical Modelling of Household and Family Decisions," in J. Behrman and T.N. Srinivasan, eds. *Handbook of Development Economics*, Volume III, Amsterdam: Elsevier Science B.V.

Tansel, A. 1994. "Wage Employment, Earnings and Returns to Schooling for Men and Women in Turkey," *Economics of Education Review,* 13(4): 305-320.

Tansel, A. 1996. "Self Employment, Wage Employment and Returns to Education for Urban Men and Women in Turkey," in T. Bulutay, ed. *Education and the Labor Markets in Turkey*, Ankara: State Institute of Statistics.

Tansel, A. 1997. "Informal Sector Earnings Determination in Turkey," ERF, Regional Trade, Finance and Labor Markets in Transition, Conference Proceedings, 7-9 September, 1997, Beirut, Lebanon: 153-161.

Tansel, A. 1998. "Public-Private Employment Choice, Wage Differentials and Gender in Turkey," Economic Growth Center Discussion Paper No. 797. New Haven: Yale University.

Tansel, A. 1999a. "Formal versus Informal Sector Choice of Wage Earners and Their Wages in Turkey,". Working paper 9927, Economic Research Forum, Cairo.

Terrell, K. 1993. "Public-Private Wage Differentials in Haiti. Do Public Servants earn a rent?" *Journal of Development Economics*, 42: 293-314.

Trost, R. and L.F. Lee 1984. "Technical Training and earnings: A Polytomous Model with Selectivity," *Review of Economics and Statistics,* 66: 151-156.

Turnham, D. 1993. Employment and Development: A New review of Evidence, Development Center Seminars, Paris: Organization for Economic Cooperation and Development.

Yamada, G. 1996. "Urban Informal Employment and Self-Employment in Developing Countries: Theory and Evidence," *Economic Development and Cultural Change,* 44 (2): 291-314.

Table 1: Employment Composition by Gender and Region, Turkey, 1998 (%)

	Urban		Rural	
Employment Status	**Men**	**Women**	**Men**	**Women**
Wage and Salary Earner	56.0	73.2	20.7	5.9
Casual Employee	11.1	5.9	7.6	1.9
Employer	12.3	2.3	3.1	0.2
Self Employed	17.1	7.7	47.9	9.2
Unpaid Family Workers	3.5	11.1	20.7	83.7
Total	100.0	100.0	100.0	100.0

Source: State Institute of Statistics (1998: 126 and 184).

Table 2: Maximum Likelihood Multinominal Logit Estimates of Employment Sector Choice of Men, Turkey, 1994.

	Covered Wage Earners		Uncovered Wage Earners		Self-Employed		Other	
	Marginal Effect	t-Ratio[a]	Marginal Effect	t-Ratio[a]	Marginal Effect	t-Ratio[a]	Marginal Effect	t-Ratio[a]
Constant	-0.0803	20.1	0.0505	15.3	-0.1519	47.8	-0.1311	5.96
Experience	0.0085	48.6	-0.0022	10.6	0.0064	59.2	0.0411	29.2
Experience Square(x10^{-3})	-0.2367	70.3	-0.0058	1.8	-0.0972	48.7	-0.6294	27.2
Educational Attainment:								
Primary School	-0.0001	0.04	-0.0406	18	-0.0059	3.59	0.0134	0.92
Middle School	-0.0345	10.8	-0.1145	37	-0.0213	10.6	0.0699	3.93
High School	-0.0339	9.93	-0.1412	39.3	-0.0194	9.13	0.2582	12.8
Voc-High School	-0.0016	0.28	-0.1452	27	-0.0338	9.27	0.2772	8.5
University	-0.0481	10	-0.2024	38.3	-0.0804	24.3	0.525	17.9
Unearned Income(x10^{-5})	-0.4592	2.48	-11.788	43.7	0.4151	3.74	4.3553	4.69
Unearned HH Income(x10^{-5})	1.1488	6.05	-0.3504	1.63	-2.1605	11.8	-4.1986	2.71
Land (x10^{-3})	-0.4256	20	-0.8903	39.9	-0.4774	32.1	0.0017	14.5
Urban Location	0.0814	30.5	0.0472	23.3	0.0186	13.8	-0.3322	26.1
Regions:								
Aegean	-0.009	3.1	-0.0097	3.95	0.0111	6.1	0.0566	3.52
Mediterranean	-0.0795	27.7	0.0103	4.68	0.0114	6.98	0.0531	3.67
Central Anatolia	-0.0638	23.6	-0.016	7.46	-0.0041	2.57	0.0491	3.52
Black Sea	-0.0966	31.2	-0.0346	14.9	-0.0007	0.41	0.163	10.9
East Anatolia	-0.1532	41.9	-0.0371	15.7	0.0103	6.34	0.1884	12.5
Southeast Anatolia	-0.1264	38.6	0.015	6.61	0.0123	7.33	0.0491	3.31
Seasons:								
Spring	-0.0086	4.4	0.0057	3.46	-0.0007	0.59	0.0119	1.11
Summer	-0.007	3.55	0.0118	7.15	-0.0012	1	0.0232	2.14
Fall	0.0001	0.04	0.0078	4.73	0.0017	1.37	-0.0148	1.37
- Log Likelihood	42,043							
Chi-Squared (80)	16,695							
Sample Size	35,849							

Notes: a: The absolute value of the asymptotic t-ratios associated with the marginal effects

Table 3: Maximum Likelihood Multinominal Logit Estimates of Employment Sector Choice of Women, Turkey, 1994.

Variables	Covered Wage Earners Marginal Effect	t-Ratio[a]	Uncovered Wage Earners Marginal Effect	t-Ratio[a]	Self-Employed Marginal Effect	t-Ratio[a]	Other Marginal Effect	t-Ratio[a]
Constant	-0.0239	227	-0.0172	116	-0.0357	316	-0.107	10.8
Experience(x10^{-3})	-0.0542	12.9	-0.9074	118	1.0546	270	7.0649	14.7
Experience Square(x10^{-3})	-0.0062	87.4	0.0087	70.6	-0.0188	275	-0.1053	13.1
Educational Attainment:								
Primary School	0.0027	59.5	-0.0069	90	0.001	28.8	-0.0056	1.15
Middle School	0.0038	40	-0.0177	109	0.0043	58.2	-0.0578	5.62
High School	0.011	136	-0.0108	79.9	0.0007	12.2	0.1185	13.1
Voc-High School	0.0106	73.3	-0.0181	72.6	0.0025	22.6	0.1961	12
University	0.0186	180	-0.0034	17.9	-0.0036	39.4	0.433	28
Unearned Income(x10^{-5})	0.0298	2.31	-0.0378	160	-0.0302	3.04	2.7333	1.99
Unearned HH Income(x10^{-5})	-0.1287	350	-1.18	378	-0.1397	360	0.1964	45.5
Land (x10^{-3})	0.0034	27.6	-0.1823	342	-0.0941	347	0.08	6.09
Urban Location(x10^{-3})	4.9144	93.2	1.5503	20.9	1.9845	53.5	-326.8	34.4
Regions(x10^{-2}):								
Aegean	0.1366	21.6	0.3816	36.4	-0.0908	18.4	5.0093	7.31
Mediterranean	-0.7678	119	-0.0141	1.41	-0.2412	50.9	0.9871	1.53
Central Anatolia	-1.1567	174	-0.8843	87	-0.2023	43.4	-1.2733	1.99
Black Sea	-1.0204	150	-0.5028	50	0.1045	23.1	10.4	15.2
East Anatolia	-2.1649	252	-1.9608	168	-0.515	103	5.4784	8.2
Southeast Anatolia	-2.247	263	-1.9639	165	-0.7884	145	-4.3697	6.07
Seasons(x10^{-3}):								
Spring	0.0325	0.69	4.3124	55.2	-1.3044	35.6	25.65	5.08
Summer	-0.218	4.61	4.361	56	-0.4283	11.8	28.93	5.73
Fall	-0.5014	10.6	3.3405	42.6	1.5068	41.3	15.31	3.04
- Log Likelihood	3,074							
Chi-Squared (80)	12,865							
Sample Size	38,098							

Notes: See Table 1.

Table 4: Selectivity Corrected Estimates of Wage Equations of Men, Turkey, 1994.

Variables:	Covered Wage Earners Coefficient	t-Ratio[a]	Uncovered Wage Earners Coefficient	t-Ratio[a]	Self-Employed Coefficient	t-Ratio[a]
Constant	1.0541	6.97	0.7458	7.9	1.1307	3.7
Experience	0.077	16.7	0.0822	30.5	0.0345	4.46
Experience Square(x10^{-3})	-1.1383	10.5	-1.2956	23.8	-0.5506	4.47
Educational Attainment:						
Primary School	0.1029	2.04	0.1692	4.46	0.1606	2.82
Middle School	0.3338	5.65	0.4866	7.6	0.3259	4.16
High School	0.7379	12.5	0.7457	10.4	0.531	6.72
Voc-High School	0.7706	9.58	0.8226	6.82	0.1675	1.06
University	1.5583	22	1.3527	10.8	0.7876	5.17
Urban Location	0.0068	0.16	0.0493	1.56	0.1422	3.17
Owner	-	-	-	-	-0.0029	0.08
Regions:						
Aegean	-0.2327	7	-0.1129	2.72	0.0912	1.37
Mediterranean	-0.096	2.12	-0.1596	4.4	0.1051	1.69
Central Anatolia	-0.1045	2.63	-0.1456	3.84	0.0211	0.34
Black Sea	-0.169	3.44	-0.2168	5.24	0.0523	0.83
East Anatolia	0.0343	0.5	-0.1208	2.87	0.1608	2.51
Southeast Anatolia	-0.0707	1.12	-0.137	3.69	-0.0371	0.56
Seasons:						
Spring	-0.2045	6.92	-0.1777	6.02	-0.1888	4
Summer	-0.2187	7.39	-0.1401	4.77	-0.1153	2.43
Fall	-0.309	10.6	-0.2186	7.46	-0.2192	4.71
Selection Term	-0.2939	4.05	-0.3137	5.21	-0.0191	0.18
R-Square	0.3254		0.1982		0.0685	
F (K, N-K-I)	103.7		66.28		9.06	
SER	0.6356		0.7057		0.805	
Sample Size	3,889		4,846		2,359	

Notes: a) Absolute value of the asymptotic t-ratios. They are corrected for the use of the estimated selection term as a regressor. K is the number of independent variables, N is the sample size.

Table 5: Selectivity Corrected Estimates of Wage Equations of Women, Turkey, 1994.

Variables:	Covered Wage Earners Coefficient	t-Ratio[a]	Uncovered Wage Earners Coefficient	t-Ratio[a]	Self-Employed Coefficient	t-Ratio[a]
Constant	0.841	1.36	0.8655	2.21	-1.076	0.44
Experience	0.0606	8.84	0.0376	4.44	0.0905	1.92
Experience Square(x10^-3)	-1.3098	72.3	-0.5622	4.29	-1.6346	1.96
Educational Attainment:						
Primary School	0.1157	1.14	0.2	2.31	-0.0753	0.48
Middle School	0.1801	1.52	0.522	3.16	0.2132	0.79
High School	0.5376	3.26	0.4776	3.47	0.4051	1.45
Voc-High School	0.7963	4.05	0.982	3.01	0.5081	1.02
University	1.4064	7.56	1.3318	6.36	-0.7576	0.91
Urban Location	0.0255	0.22	0.2501	3.75	0.2219	0.97
Owner	-	-	-		-0.4314	2.63
Regions:						
Aegean	-0.2313	4.04	-0.0938	1.19	-0.2952	1.41
Mediterranean	-0.2572	2.26	0.0291	0.39	0.0271	0.13
Central Anatolia	-0.1295	0.83	0.0916	0.87	0.029	0.14
Black Sea	-0.2104	1.42	-0.1492	1.75	-0.0836	0.49
East Anatolia	-0.3643	1.27	0.0464	0.29	-0.1483	0.48
Southeast Anatolia	0.4454	1.47	0.4619	2.87	0.2071	0.51
Seasons:						
Spring	-0.2027	3.37	-0.2168	2.92	-0.2056	1.19
Summer	-0.1726	2.87	-0.1773	2.37	-0.0355	0.22
Fall	-0.1711	2.81	-0.1746	2.33	-0.2187	1.39
Selection Term	-0.0364	0.14	-0.3618	1.7	0.5055	0.72
R-Square	0.3553		0.1081		0.0796	
F (K, N-K-I)	22.35		7.12		1.67	
SER	0.5803		0.767		1.0823	
Sample Size	749		1,077		387	

Notes: See Table 3.

Table 6: Expected Wages per Hour in T.L. by Sector and Gender, Turkey, 1994.

	Men			Women		
Variables	Covered Wage Earner	Uncovered Wage Earner	Self-Employed	Covered Wage Earner	Uncovered Wage Earner	Self-Employed
Experience:						
Five Years	3.91	2.55	1.9	3.43	3.7	0.36
Ten Years	5.33	3.46	2.35	4.21	4.28	0.51
Fifteen Years	6.83	4.41	2.78	4.84	4.82	0.65
Twenty Years	8.24	5.26	3.14	5.21	5.26	0.77
Twentyfive Years	9.35	5.86	3.41	5.25	5.6	0.83
Thirty Years	9.99	6.12	3.54	4.96	5.79	0.84
Thirtyfive Years	10.05	5.98	3.52	4.38	5.82	0.77
Educational Attainment:						
Nongraduate	5.08	3.3	2.48	2.73	3.61	0.66
Primary School	5.6	3.76	2.91	3.07	4.4	0.62
Middle School	6.99	4.78	3.33	3.27	6.08	0.82
High School	10.5	6.07	4.09	4.67	5.81	0.99
Voc. High School	10.96	6.5	2.7	6.05	9.63	1.1
University	23.54	10.29	4.51	11.14	13.66	0.31
Sampe Size	3,889	4.846	2,359	749	1,077	387

Notes: In the computation of the expected wages the selection terms are ignored. Therefore, they represent the expected wages in each sector for a randomly drawn individual from the population. For each category the expected wages are computed at the means of the variables. The results for self-employed women are not reliable due to poor wage equation estimates for this group.

Source: Author's calculations based on wage equation estimates in Tables 4 and 5.

Table 7: Decomposition of Sector of Work Wage Differentials by Gender, Turkey, 1994.

Wage Differential	Men Log Wage Differential Between Covered and Uncovered Wage Earners (%)		Mean Log Wage Differential Between Covered Wage Earners and Self-Employed(%)		Mean Log Wage Differential Between Uncovered Wage Earners and Self-Employed (%)	
	Men	Women	Men	Women	Men	Women
Total Mean Differential	40.68	58.17	-20.34	43.03	-61.03	-15.14
Component Attributable to:						
Constant Term	40.59	-2.45	87.55	191.7	46.96	194.1
Endowments	21.43	21.56	-3.27	10.27	-17.97	-3.75
Coefficients	-7.36	-31.78	-1.47	-24.01	-0.85	0.22
Selection	-13.98	70.84	-103.2	-134.9	-89.17	-205.8
Unexplained Differential	33.24	-34.23	86.08	167.7	46.11	194.3

Notes: Results for self-employed women are not reliable due to poor wage equation estimates.
Source: Author's calculations based on the wage equation estimates in Tables 4 and 5. Each of the components are evaluated at the sample means of the variables.

Table 8: Decomposition of Male-Female Wage Differentials by Sector of Work, Turkey, 1994.

Wage Differential	Mean Log Wage Differential Between Male and Female Workers (%)		
	Covered Wage Earners	Uncovered Wage Earners	Self Employed
Total Mean Differential	26.59	44.08	89.97
Components Attributable to:			
Constant Term	11.11	-31.93	115.3
Endowments	7.39	12.29	3.87
Coefficients	36.62	7.42	31.13
Selection	-28.53	56.29	-60.29
Unexplained Differential	47.73	-24.5	146.4

Notes: Results for self-employed women are not reliable due to poor wage equation estimates.
Source: Author's calculations based on the wage equation estimates in Tables 4 and 5. Each of the components are evaluated at the sample means of the variables.

Appendix **Table: Means and Standard Deviations of Variables by Sector and Gender, Turkey, 1994**

Variables	Men			Women		
	Covered Wage	Uncovered Wage	Self - Employed	Covered Wager	Uncovered Wage	Self-Employed
Hourly Wage[a]	6.785	4.627	8.835	5.016	3.092	4.506
	-8.57	-7.32	-14.9	-5.56	-5.39	-8.22
Log Hourly Wage	1.568	1.161	1.771	1.302	0.72	0.871
	-0.77	-0.79	-0.83	-0.71	-0.81	-1.1
Age	32.33	31.02	39.47	27.59	29.41	35.45
	-9.58	-12.3	-11.8	-9.02	-12.5	-9.81
Years of Schooling	6.74	5.325	5.6	7.802	4.755	4.68
	-3.2	-2.78	-2.97	-3.89	-3.59	-3.06
Experience	18.59	18.7	26.87	12.79	17.65	23.78
	-10.4	-13.4	-12.9	-10.5	-14.5	-11.2
Experience Squared	454.6	528.7	889.1	273.7	521.7	691
	-491	-672	-779	-410	-708	-629
Educational Attainment[b]:						
Nongraduate	0.048	0.142	0.14	0.072	0.285	0.264
Primary School	0.601	0.66	0.624	0.413	0.514	0.548
Middle School	0.126	0.1	0.102	0.116	0.07	0.109
High School	0.143	0.077	0.107	0.272	0.104	0.062
Voc. High School	0.032	0.009	0.012	0.032	0.007	0.013
University	0.05	0.011	0.015	0.095	0.02	0.005
Unearned Income[a]	43.17	14.56	60.66	15.59	2.14	11.57
	-362	-186	-492	-80.4	-20.6	-75
Unearned HH Income[a]	3020	34.91	13.9	103.1	42.67	69.15
	-186631	-416	-96.2	-533	-191	-448
Land (dekars)[c]	3.57	3.466	4.027	6.461	3.273	2.232
	-30.8	-21.8	-21.1	-80.9	-18.7	-13.2
Urban Location[b]	0.844	0.785	0.772	0.866	0.765	0.84
Weekly Hours of Work	52.25	51.75	53.19	49.16	43.69	34.53
	-14.5	-18.2	-20.4	-12.6	-18.2	-22.8
Casual Worker[b]	0.147	0.593	-	0.039	0.515	-
Owner[b]	-	-	0.702	-	-	0.866
Regions[b]:						
Marmara	0.276	0.15	0.134	0.324	0.197	0.199
Aegean	0.184	0.099	0.12	0.275	0.182	0.121
Mediterranean	0.127	0.187	0.164	0.144	0.226	0.137
Central Anatolia	0.17	0.143	0.141	0.104	0.129	0.163
Black Sea	0.118	0.111	0.144	0.112	0.153	0.251
East Anatolia	0.058	0.104	0.153	0.024	0.056	0.083
Southeast Anatolia	0.067	0.206	0.144	0.016	0.058	0.047
Selection Term	1.51	1.453	1.837	2.099	2.169	2.518
	-0.37	-0.35	-0.24	-0.43	-0.28	-0.27
Sample Size	3.889	4.846	2.359	749	1.077	387

Notes: a: Measured in 1987 Turkish Liras(TL). b: These are dummy variables. Their standard deviation(sd) are not reported for brevity but may be computed from their reported means (m) as sd=(m(1-m))1/2 c: One dekar is thousand square meters or 0.247 acres.