

GENDER-BASED REGIONAL WAGE DIFFERENTIALS IN TURKISH LABOUR MARKET: QUANTILE REGRESSION APPROACH

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ABSTRACT

This study analyzes gender-based regional wage differentials in Turkey using Quantile regression approach. Twelve regions within the scope of the NUTS-1 in Turkey are combined into seven groups by considering the geographical conditions and income distribution. Region 1 (İstanbul) and Region 7 (Erzurum, Ağrı, Malatya, Van, Gaziantep, Şanlıurfa, Mardin) respectively qualified as the most and the least developed groups by Ministry of Development in SEGE (2011) are comparatively analyzed in terms of wage differences in this study. Regional-based wage differences between men and women are analyzed in this study by using data from Turkish Statistical Institute Household Labour Force Survey 2011. The results demonstrate that men and women employees in Region 1 take more wage than the ones in Region 7 and that wage differentials increase gradually in low-income groups.

Keywords: *Regional Wage Differentials, Labour Market, Gender, OLS, Quantile Regression Model.*

ÖZET

TÜRKİYE'DE İŞGÜCÜ PİYASASINDA CİNSİYETE DAYALI BÖLGESEL ÜCRET FARKLILIKLARI: KANTİL REGRESYON YAKLAŞIMI

Bu çalışma, Kantil Regresyon Yaklaşımı kullanılarak Türkiye'de bölgesel bazda cinsiyete dayalı ücret farklılıklarını analiz etmektedir. Türkiye'de Düzey-1 kapsamındaki 12 bölge, coğrafi şartları ve gelir dağılımı göz önünde bulundurularak 7 grupta toplanmıştır. Bu çalışmada, Kalkınma Bakanlığı'nın "Sosyo-Ekonomik Gelişmişlik Sıralaması (SEGE 2011)"na göre 7 grup içerisinde bölgesel olarak en gelişmiş olan Bölge 1 (İstanbul) ve en son grupta yer alan Bölge 7 (Erzurum, Ağrı, Malatya, Van, Gaziantep, Şanlıurfa, Mardin) ücret farklılığı bakımından karşılaştırmalı olarak analiz edilmiştir. Türkiye İstatistik Kurumu'nun hazırlanmış olduğu 2011 yılı Hanehalkı İşgücü Anketi verileri kullanılarak bölgesel bazda kadın ve erkekler arasındaki ücret farklılıkları ortaya konmuştur. Bu çalışmadan elde edilen bulgulara göre Bölge 1'deki erkek ve kadın

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çalışanlar; Bölge 7'deki çalışanlara göre daha fazla ücret elde etmekte ve alt düzey gelir gruplarından üst düzey gelir gruplarına doğru ücret farklılıkları giderek artmaktadır.

Anahtar Kelimeler: *Bölgesel ücret farklılıkları, İşgücü Piyasası, Cinsiyet, EKK, Kantil Regresyon Model.*

1. Introduction

In the Liberal Economics literature, the wage as a provision of labour, in fact, is not paid in the form of full equivalent of labour. The motive of profit maximization, which cannot be prevented in the market, market failures, wage discrimination are shown as the reasons of this situation. According to the results of research Kasnakoğlu & Dayıoğlu (1997) that approaches the men and women wage differentials from the perspective of market discrimination, 60% and 100% of the women and men wage differentials arises from the market discrimination. Hence, the women and men wage differentials results from the secondary position of women within the framework of equal status/occupation/education/work experience in Turkey (Özkaplan, 2010). On the other hand, also the other researchers explain different reasons of wage differentials between men and women employees. According to Bulutay (1995), the wage differential is explained with some factors. The first of these factors, women concentrated in less skill requiring and more low-paid jobs such as confection, food and beverage, service firms. The second is due to the fact that women's average characteristics are on low level. The reason of the women's low-level characteristics is that they have a lower level of education. Thirdly, women have less work experience and the source of this situation is child-rearing and raising child. As a fourth, the weight of the responsibilities of the house affects their performance at work. Finally, they are exposed to inequality in the labour market. Nonetheless, especially due to the structure of employment which is in developing countries such as Turkey, wage differentials between employees is getting more and more because of the desire to run employees with low-wage. The differentials in wages between employees are more salient on regional basis. Also they show more clearly the unbalanced structure in the labour market.

In this study, wage differentials, which are based on gender within the regional basis in Turkey, is analyzed by using Quantile regression model. Researches on the wage differentials between women and men by using Quantile Regression are limited in literature. In addition, a study on gender-based regional wage differentials by using Quantile Regression approach has not been dealt in the literature. In this study, gender-based regional wage differentials as a different ap-

proach from the literature are analyzed using Quantile regression approach. In addition, this study contributes to the regional labour literature.

The remainder of this study is organized as follows. Section 2 presents literature review. Section 3 presents gender-based regional wage differentials in Turkey. Section 4 includes the methods employed in getting the results. Section 5 is devoted to presentation of the data and variables used. The results obtained from the OLS and Quantile regression models are presented in Section 5. Finally, conclusions are drawn in Section 6.

2. Literature Review

Considered in this study, human capital model depend on individual product capacity, basic education and investment on vocational training. So, they provide increasing in high efficiency and ability. The increase in labour productivity ensure rise in earnings. The human capital theory supposes that the impact on income of the pre-vocational and vocational training takes years (Metin & Üçdoğruk, 1997).

In other words, the human capital model explain earnings as an individual's earnings depend on his/her human capital, which could be improved by taking education or acquiring skills during working (i.e. experience improves human capital). Hence, education and experience are the two important determinants of earnings. The human capital of an individual increases at a decreasing rate and reaches the peak sometime in his/her career. Eventually, the earnings-experience profile is concave, and therefore, earnings should be a function of education, experience, and square of experience. This model is the basis of many regression models that is used in labour economics, such as Mincer (1974) (Wong, 2008). These models describing the relationship between income distribution differences and education are covered by Jacob Mincer (1958), Gary Becker (1975), George Psacharopoulos (1973) and Barry R. Chiswick (1974).

Wage differentials are not only just a problem for Turkey. It can be seen as a huge problem worldwide. The result of the literature review related to gender-based regional wage differentials are presented below.

No	Author	Country	Based Year	Data	Methodology
1	Francine D. Blau & Lawrence M. Kahn (1997)	U.S.A.	1979, 1988	Michigan Panel Study of Income Dynamics (PSID)	Human Capital Theory, Least Squares Method, Decomposition Method
Findings: Potential earnings of the women's relative wages have delayed because of increasing wage inequality and high level rewards to experienced people. Wage differences between men and women have decreased significantly.					
2	Veysel Eraslan (2012)	Turkey	2009	Household Labour Force Survey	Blinder-Oaxaca Decomposition Method
Findings: Hourly average wage of women was higher than men in Istanbul, Mid-West Anatolia and Mid-Southeast Anatolia regions. Women earn 0.5% more wage in terms of hourly wage compared to men in Turkey. Women are superior to men in terms of human capital					
3	Raziye Selim & İpek İlkaracan (2002)	Turkey	1994	Household Labour Force Survey	Mincer Human Capital Model, Oaxaca Decomposition Method
Findings: A large part of the gender-based wage differences can be attributed to the gender-based occupational and industrial differentials. The remaining unexplained of large parts causes discrimination in the labour market. A significant part of the gender-based wage differentials is caused by that women's education, experience and average job tenure is in low levels compared to men. However, only half of wage differentials are explained by human capital factors of the man/woman differences The remaining part can be explained by differences in labour productivity levels between the genders.					
4	Elisabeth Cudeville & Leman Yonca Gürbüz (2007)	Turkey	2003	Household Budget Survey	Basic Human Capital Theory, Oaxaca-Blinder Decomposition Method
Findings: The observed average gender-based wage differentials is approximately in favor of men 25.2% for the population with wage. 60% of this portion can be attributable to discrimination. European Union countries compared with in terms of wage differentials, respectively, It is seen that there are more differences in Portugal, Denmark, Italy, Greece, Turkey, France, Spain, Austria, Ireland, the United Kingdom and Germany.					
5	Rahmah Ismail & Idris Jajri (2012)	Menzya	2007/8	Households Survey	Basic Human Capital Theory, Oaxaca-Ransom Decomposition

					Method, Least Squares Method
<p>Findings: Individuals with higher education earn more wages than individuals with lower education. Also work experience is very important for determining the charge. This shows importance of human capital variables in the determination of the individual income power. Individuals who are taken education in the field of science and technology have the power of larger income. In addition, employees in the service sector earn more wage than employees in other sectors.</p>					
6	Matthew K. Kershner (1997)	U.S.A	1990	University of Minnesota Department of History Census of Population	Basic Human Capital Theory, Oaxaca Decomposition Method
<p>Findings: Women significantly charge fewer wages than men. Women's positions are negated and women are subject to discrimination during the hiring process. Women cashier more easily compared to men.</p>					
7	Elisabetta Magnani & Rong Zhu (2012)	China	2002	China Household Income Project (CHIP)	Least Squares Method, Oaxaca-Blinder Decomposition Method
<p>Findings: Women immigrants 66% earn more wage than men. Differences at the high-level groups are far greater than differences of the middle and bottom groups. Education's a year's return is with 4,1% more for man and woman immigrants. This return increases to 1,5%, in the 10% portion, 4,4% in the 50% portion and 10%, in the 90% portion for male immigrants. It remains relatively the same for women. (increases from 3,1% to the 5%)</p>					
8	Biwei Su & Almas Heshmati (2011)	China	2009	China Household Panel Studies (CFPS)	Mincer Income Equality, Least Squares Method, Oaxaca Decomposition Method
<p>Findings: Men employees earn more wage than the women. A large part of this difference cannot be explained. The characteristics of individuals and opportunities explain the vast majority of wage differences. On the other hand, education is a factor that contributes to discrimination in the labour market.</p>					
9	Fatma Duygu Güner (2009)	Turkey	1988, 2005, 2006	Revenue Structure Survey	Multiple Probit / Logit Estimates, Oaxaca-Blinder Decomposition Method
<p>Findings: The wage differences between men and women continue after controls of the variables that are related to productivity. Differences are increasing slightly during the baseline period. Human capital and other explanatory variables contribute to these differences vary over time. Experience and time of stay in work and social safety affect wages closely in both genders. The effect of education on wages is rapidly declining.</p>					

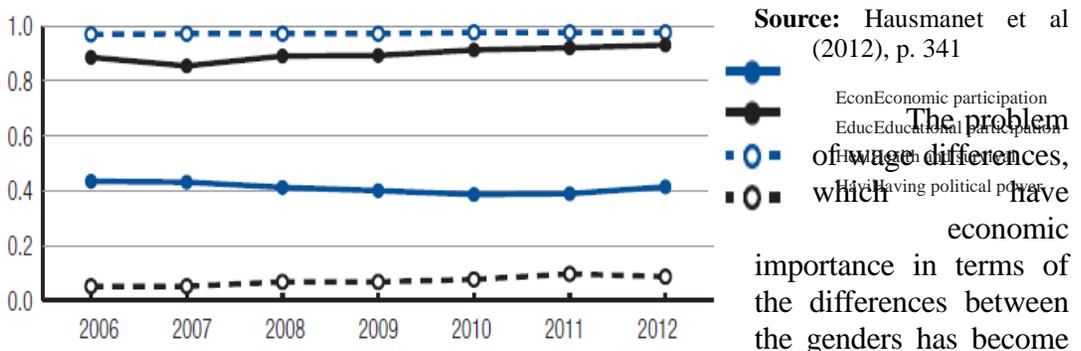
10	Roger Wahlberg (2008)	Sweden	2006	Panel Personal Data (LINDA)	Least Squares Method, Quantile Regression
Findings: Women earn lower wages than men on the distribution of wages. Gender-based wage differentials increase in the entire of the distribution. Especially, this difference is increasing rapidly in the public sector 75% of portion. Gender-based wage differentials are lower in the United States than the 11 EU countries in private sector. But this situation is opposite in the public sector.					
11	Rahmah Ismail (2011)	Menzya	2007/08	Survey of Information and Communication Technology (ICT)	Least Squares Method, Oaxaca-Ransom Decomposition Method
Findings: All of human capital variables have positive impact on wages of the women and men employees. These variables play an important role to decrease wage differentials between genders. Decomposition affects the huge amount of variables, which cannot explain wage differentials.					
12	Mona Said (2011)	Egypt	1990	Public Mobility and Statistics Survey	Quantile Regression (QR)
Findings: Gender based wage differential is lower in the public sector. However, premium of men employees is higher in private sector in the international standards. In public sector, wage premium can be seen in only in the low level of wage distribution. Gender-based wage discrimination is seen in the low-wage inexperienced employees and technical and managerial positions within the high-wage group in the private sector.					
13	Mehtap Hisarcıklılar & Hakan Ercan (2005)	Turkey	1988	Household Labour Force Survey	Mincer Human Capital Model, Oaxaca, Ransom, Neumark Decomposition Method, Least Squares Method
Findings: Human capital quality of women impacts the wage differentials to decline and decomposition which is in labour market is the reason of wage differentials					
14	Paul Kagundu & Olga Pavlova (2007)	Uganda	2002/03	National Household Survey (UNHS)	Least Squares Method, Heckman's Two-Step Rule, Oaxaca Decomposition Method

Findings: A significant portion of gender-based wage differences are sourced from employers differences in practice. This difference is more in rural areas. Unexplained rate of the gender -based wage differentials is between 78% and 61% in rural areas. In urban areas, this rate is between 41% and 68%. In urban areas, the gender -based wage differential's 24% part is a consequence of discrimination against men and 22% part is a consequence of discrimination against women.					
15	Ronald Oaxaca (1973)	U.S.A	1967	Economic Opportunity Research	Decomposition Method
Findings:. A significant portion of wage differentials between men and women is due to the impact of the discrimination.					
16	Raif Cergibozan & Yunus Özcan (2012)	Turkey	2010	Household Labour Force Survey	Oaxaca-Blinder and Reimers Decomposition Method
Findings: A significant difference in the wage between women and men is not found in Turkey. In İstanbul and Middle Anatolian Region, there are a wage differential in favor of women. However, the wage differentials is in favor of men in Black Sea and Marmara Region and a significant wage differential cannot be found in Eastern Anatolia and Aegean Region					
17	Hasan Şahin (2012)	Turkey	1994	Household Income Distribution Survey	Gini Coefficient Method
Findings: Gini Coefficient of Diyarbakır, Şanlıurfa and Adıyaman is lower than İstanbul. According to this, wages are more similar in the other cities than İstanbul.					
18	Stefan P.T. Groot, Henri L.F. de Groota & Martijn J. Smit (2011)	Holland	2000-2005	Labour Force Survey (EBB), NUTS-3	Marshall-Arrow-Romer (MAR) Externalities, Mincer Regression Model
Findings: Wage level in urban Randstad is higher than the rest of the Netherlands region.					
19	Adem Yavuz Elveren (2010)	Turkey	1980-2001	NUTS-1(Level 1), NUTS-2 (Level 2)	Theil's T statistic
Findings: Wage differentials started to increase in both of Level 1 and Level 2 regions in the private sector after 1980's.					

3. Gender-Based Regional Wage Differentials in Turkey

According to the gender gap report announced from The World Economic Forum, Turkey is located at 124th rank among the 135 countries for the year 2012. The factors like economic participation and opportunities, participation in education, health and maintaining the life, the existence of political power are taken into account in this ranking. In this report, development of Turkey in terms of these four factors illustrates in Figure 1 between the years 2006-2012. As can be seen in Graph1, the gender gap increased steadily in the field of the economic, social and health between the years 2006-2012 in Turkey.

Graph 1. The Development of Turkey in 2006-2012



The problem of wage differences, which have economic importance in terms of the differences between the genders has become an ongoing problem from the establishment of the Republic until today. When the difference in wages is examined from the time of establishment up to now in Turkey, the women employees in the enterprise are exposed to low cost compared with male employees. Since the establishment of Republic, when it is seen from the perspective of human rights in these cases, the social image is not pleasant at all despite the advances in status of women in the relationships between men and women. For example, although Law, Act no 5518, issued which is about the wage distinction was not to be applied on the basis of gender in Turkey in 1950, (Kale, 1996) even there are legal equality in working life. These starts with the hiring process and emerge as upgrade work and layoffs without charge, pension and retirement (Türk-İş Report, 2005).

There is a regional wage differences between men and women. Limitations of the interregional labour mobility and the difference between the interregional unemployment rates will create the interregional income difference.

There is a serious imbalance in the distribution of economic resources in

Turkey. This imbalance leads to political, social, and cultural issues. Existing development differentials between East and West is the main reason for migration from East to West. East has been neglected for many years and has not taken measures to prevent migration, to reduce unemployment and to accelerate economic development in the region. In the 21st century, elimination of regional differences in interregional and ensuring integration is necessary for the success of our country in the process of globalization (Baykal, 2010).

4. The Methodology

In this study, Quantile Regression method is used in the analysis of gender based regional wage differences. Firstly, Quantile regression is emerged as a robust regression method, which neglects normal distribution of the error terms from the classical assumptions (Chen & Wei, 2005). Quantile regression model is put forward by Koenker and Bassett (1978) and it allows examining the covariance effects of the dependent variable and it is more flexible than ordinary least squares (OLS) method (Koenker & Bassett, 1978). Quantile regression is useful especially for conditional Quantile in variability points (Çağlayan & Arıkan, 2011). Regression coefficients are estimated by Quantiles (Chen & Wei, 2005). Quantile regression models is used commonly in economy such as wage difference and income inequality topics and also Quantile regression model estimation is used for the conditional mean functions and conditional Quantile functions (Kurtoğlu, 2011). Quantile regression model are as follows.

$$Quant_{\theta}(W_t / X_t) = X_t \beta_{\theta} \quad (1)$$

Wage equation is

$$W_t = X_t \beta_{\theta} + \varepsilon_{\theta} \quad (2)$$

Here, W = the logarithm of wages or earnings of individuals, X = the vector of explanatory variables, β =vector of parameters, $Quant_{\theta}(W_t / X_t)$ =for the given values of X , shows the θ 'th conditional Quantile of W . θ ' th regression Quantile locates between 0 and 1. The Quantile regression is estimated by minimizing the sum of the absolute values of errors (Güriş et al., 2010).

When Quantile regression method is compared the other methods, Quantile regression has an advantage; Quantile shows detailed picture of the wage distribution based on different quartiles. The most important properties of Quantile regression are as follows (Leping, 2005). Quantile regression method is used to

characterize the distribution of all conditional of Y which gives the equality $X=x$ by looking at different values of θ . Quantiles is robust on outliers in Y . The average regression estimators may be more efficient than the average regression estimators with not normally distributed error term. Quantile regression determines whether variance is constant or not (Güriş et al., 2010).

5. Econometric Analysis

5.1. The Data and Variables

In this study, according to “Socio-Economic Development Ranking” (SEGE 2011) which is prepared by Ministry of Development, gender-based wage differentials are analyzed in the most developed regional group Region 1 (İstanbul) and the least developed regional group Region 7 (Erzurum, Ağrı, Malatya, Van, Gaziantep, Şanlıurfa, Mardin) in the seven groups. Household Labour Force Survey Micro Data set which has carried out by Turkish Statistical Institute in 2011 is used in the analysis. Analysis is performed for 13,020 individuals who earn income in Region 1 and 12,281 individuals in Region 7. The dependent variable is monthly wage as a logarithm in the reference period. Respectively, independent variables in this study are age, year of work, gender, sector type, education, marital status, location, individual administrative responsibility, social security, full day’s work, weekly working time and occupational groups. Descriptive statistics are presented for Region 1 and Region 7 in Table 1.

5.2. The Findings

The results of OLS and Quantile regression model for Region 1 and Region 7 is shown in Table 2-Table 5. Heteroscedasticity appear in this study because of the cross-sectional data. When including work experience and duration of education in the models as independent variables, variance of error term is expected to vary from observation to observation. In the case, when this assumption is fail, Huber-White estimator is used in OLS estimates.

In the process of examination of Region 1 and Region 7 models, in the Region 1, 36-45 age group men employees earn more wages. However, according to the Quantile regression results, 25-35 age group achieve the highest wage raising effect in the lowest wage group. The more wage level increases, the more wage of 36-45 age group increases. In terms of education, the impact on wage of university graduates is higher. According to the results of the Quantile regression, when the level of wage increases, the return of education increase gradually. Being married

creates a positive impact on wage, yet the impact creates differences in the field of wage level. Social security is more important for the age group 25-35 and when the level of wage increases, it is seen that wage-raising effect of the social security effect decreases. At professional perspective, legislators, senior officials and managers have the most high-income (see Table 2-Table 5). The wage difference increases gradually between this group and the other professional groups due to the rise of income level.

When OLS results are examined for women employees in the Region 1, the 36-45 age group has the maximum wage level. According to the results of the Quantile regression, while 25-35 age group has lower income in the lowest quantile group, 46 years and over has a higher income in the highest quantile group. Yield of married women employees to the level of wage is below the men employees. Discrimination and marginalization behaviors to married women can be shown as its reason. When the social security variable is examined, the variable has a feature to increase wage for women employees. However, this impact especially in age group 25-35 has an important role, yet this role is diminishing gradually with older ages (see. Table 2-Table 5). At professional perspective, legislators, senior officials and managers have the most high-wage.

For men employees in Region 7, age-income profile is as an increasing line. The wage level rises with age. Of course, that rise is at the low level in Region 7. Different from the men employees in Region 1, except the lowest quantile group, the highest wage level is gained by 46 years and older group. The reason of that can be shown as a lot of young people's not residing too much in the region. The wage raising effect of married men employees is similar to a wide U format. In terms of social security, this variable creates more wage raising effect in Region 1. In particular, because of the lack of job opportunities in this region, the social security for the employees is more necessary. Because of more work opportunities of individuals in Region 1, they are forced to work in several jobs without social security. Professional career members have the highest wage level.

When the OLS results are analyzed for women employees in Region 7, we see that the income effect of 36-45 age group is more. The highest income effect in the highest quantile group is 25-35 age group according to Quantile regression results. The wage raising effect of the graduates is decreasing more and more. Married employees have positive effect on wages. Single women employees have more wage at upper-level wage groups. The effect of social insurance on wages is more for women employees than men employees in Region 7. When the place of the women in work life was considered, importance of the situation was observed

actually. When the career groups were studied, wage differences of other career groups increasingly rise against the base category. Women employees in all career groups get fewer wages than legislators, directors and senior managers. Also, the wage level increases when the year of working and weekly working hours has increased.

Another finding derived from this study is that men working in public sector have more wage than the men working in private sector in Region 1 and Region 7. Similar results were found by Giordano et al. (2011) for Austria, Belgium, France, Germany, Greece, Ireland, Italy, Portugal, Slovenia, Nahees, Dougherty (2010) for Jordan, Azam and Prakash (2010) for India, Campos and Centeno (2012) for 15 EU countries, Christofides and Pashardes (2002) for Cyprus, Hartog and Ooesterbeek (1993) for the Netherlands, Chatterji et al. (2007) for Britain, Aminu (2011) for Greece, and Sanger (2011) for Canada. This situation is different for women. The women working in public sector have fewer wages than private sector in Region 1 and more wages in Region 7. In this study, the STATA 12 software package is used to obtain the results of the econometric model.

6. Conclusion

In this study, gender-based wage differences was analyzed at the Region 1 (İstanbul) which is the most developed group and the Region 7 (Erzurum, Ağrı, Malatya, Van, Gaziantep, Şanlıurfa, Mardin) which is the least developed group in seven groups according to socio-economic development alignment (SEGE, 2011) of the Development Ministry. When the results of this study are studied, the regional and gender-based differences on wages in labour market of Turkey will be emerged. That difference is shown more clearly between the most developed and the least developed two regions. The working situation without social guarantee causes more deep problems at wage differences. While the education effect on wages is significant for employees of Region 1, this significance decreases at the same wage with increasing at wages level in Region 7. So the more educated individuals are subjected of less wage levels in Region 7. From the gender perspective, the secondary structure of women at labour market is seen more clearly. Generally, women employees in both regions work at less income levels. Therefore, the importance of education should be attracted attention. Education has positive effect on wages. However, this effect supplies regional and gender-based differences. While the increase at education level brings in more wages for the men employees in Region 7, the same effect is not a subject for women employees.

Some measures should be taken against the gender-based regional wage differences problems in labour market of Turkey. The Regional Development Ministry that is established with the purpose of elimination of regional inequalities and developments at regional economy should assume a more active role. The education like free certificate programmers should be cared especially to provide individual development. The workings of the employees without social insurance should be prevented and the efficiency of control mechanism should be provided at that field. Especially, sanctions and penalties about the education of woman students should be aggravated and in that regard encourages should be given to low-incomed families. At the same time, the family support units should be created about the education of women and their families should be informed especially in Eastern and Southeastern regions.

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Variables	OLS						.10 Quantile			.25 Quantile		
	Coef.	t value	Prob.	Coef.	t value	Prob.	Coef.	t value	Prob.	Coef.	t value	Prob.
	Age groups											
26-35	0.183	15.92*	0.000	0.132	11.24*	0.000	0.131	10.30*	0.000	0.131	10.30*	0.000
36-45	0.238	17.11*	0.000	0.118	8.64*	0.000	0.139	9.39*	0.000	0.139	9.39*	0.000
46+	0.200	12.20*	0.000	0.065	4.06*	0.000	0.095	5.71*	0.000	0.095	5.71*	0.000
Sector												
Public	0.090	5.11*	0.000	0.312	19.56*	0.000	0.215	14.13*	0.000	0.215	14.13*	0.000
Education Level												
Elementary school	-0.013	-0.77	0.440	0.014	0.66	0.509	0.004	0.19	0.851	0.004	0.19	0.851
Secondary school	0.044	2.64*	0.008	0.019	0.95	0.340	0.042	2.01**	0.044	0.042	2.01**	0.044
High school	0.139	7.97*	0.000	0.080	3.79*	0.000	0.114	5.21*	0.000	0.114	5.21*	0.000
University	0.413	17.77*	0.000	0.217	8.9*	0.000	0.293	11.73*	0.000	0.293	11.73*	0.000
Marital Status												
Married	0.107	10.53*	0.000	0.079	8.43*	0.000	0.094	9.17*	0.000	0.094	9.17*	0.000
Other variables												
Individual administrative responsibility	0.192	7.60*	0.000	0.144	7.63*	0.000	0.163	8.80*	0.000	0.163	8.80*	0.000
Social security	0.101	10.22*	0.000	0.142	14.54*	0.000	0.092	8.76*	0.000	0.092	8.76*	0.000
Full day's work	0.515	9.62*	0.000	0.891	25.33*	0.000	0.685	18.61*	0.000	0.685	18.61*	0.000
Weekly working time	-0.001	-1.36	0.173	0.000	0.19	0.847	-0.001	-1.55	0.120	-0.001	-1.55	0.120
Years of work	0.008	10.24*	0.000	0.004	6.17*	0.000	0.006	8.74*	0.000	0.006	8.74*	0.000
Occupational groups												
Professionals	-0.093	-2.63*	0.000	0.034	1.46	0.143	-0.043	-1.80***	0.072	-0.043	-1.80***	0.072
Assistant professionals	-0.326	-10.54*	0.000	-0.146	-6.51*	0.000	-0.231	-10.36*	0.000	-0.231	-10.36*	0.000
Office and customer service employees	-0.489	-16.32*	0.000	-0.245	-10.57*	0.000	-0.349	-15.13*	0.000	-0.349	-15.13*	0.000
Service and sales workers	-0.475	-16.11*	0.000	-0.244	-10.39*	0.000	-0.339	-14.79*	0.000	-0.339	-14.79*	0.000
Skilled agricultural, animal husbandry, hunting, forestry and fishery workers	-0.612	-13.48 *	0.000	-0.277	-5.59*	0.000	-0.438	-8.67*	0.000	-0.438	-8.67*	0.000
Craftsmen and related trades workers	-0.468	-15.73*	0.000	-0.243	-10.14*	0.000	-0.331	-14.21*	0.000	-0.331	-14.21*	0.000
Plant and machine operators and assemblers	-0.494	-16.67*	0.000	-0.239	-9.88*	0.000	-0.347	-14.85*	0.000	-0.347	-14.85*	0.000
Unqualified workers	-0.641	-21.34*	0.000	-0.327	-12.92*	0.000	-0.467	-19.10*	0.000	-0.467	-19.10*	0.000
Constant	6.428	101.31*	0.000	5.519	120.03*	0.000	6.011	128.90*	0.000	6.011	128.90*	0.000
R ²	0.5312											
Pseudo R ²				0.2165						0.2441		
F stat. (Prob.)	333.61		0.0000									
Breusch-Pagan/ Cook-Weisberg heteroscedasticity test- χ^2 value (prob.)	1092.99		0.0000									

*, ** and *** denote the significance at 1%, 5% and 10% respectively.

Variables	.50 Quantile			.75 Quantile			.90 Quantile		
	Coef.	t value	Prob.	Coef.	t value	Prob.	Coef.	t value	Prob.
Age groups									
26-35	0.151	11.28*	0.000	0.173	8.63*	0.000	0.191	8.43*	0.000
36-45	0.184	11.72*	0.000	0.250	10.61*	0.000	0.290	10.80*	0.000
46+	0.155	8.83*	0.000	0.214	8.09*	0.000	0.278	9.21*	0.000
Sector									
Public	0.164	9.91*	0.000	0.148	5.65*	0.000	0.097	3.11*	0.002
Education Level									
Elementary school	-0.041	-1.87***	0.062	-0.034	-1.08	0.279	0.007	0.20	0.843
Secondary school	0.024	1.09	0.274	0.038	1.18	0.236	0.079	2.16**	0.031
High school	0.094	4.17*	0.000	0.138	4.22*	0.000	0.149	4.06*	0.000
University	0.346	13.54*	0.000	0.440	11.93*	0.000	0.563	13.57*	0.000
Marital Status									
Married	0.100	8.97*	0.000	0.100	5.88*	0.000	0.134	6.91*	0.000
Other variables									
Individual administrative responsibility	0.209	10.66*	0.000	0.160	5.42*	0.000	0.263	7.76*	0.000
Social security	0.082	7.34*	0.000	0.063	3.89*	0.000	0.068	3.73*	0.000
Full day's work	0.385	9.80*	0.000	0.414	7.09*	0.000	0.336	5.13*	0.000
Weekly working time	0.000	-0.83	0.407	-0.001	-0.83	0.406	0.000	-0.47	0.636
Years of work	0.010	13.31*	0.000	0.009	8.57*	0.000	0.008	6.56*	0.000
Occupational groups									
Professionals	-0.172	-6.77*	0.000	-0.164	-4.23*	0.000	-0.180	-4.03*	0.000
Assistant professionals	-0.369	-15.62*	0.000	-0.474	-13.39*	0.000	-0.422	-10.51*	0.000
Office and customer service employees	-0.539	-22.39*	0.000	-0.666	-18.84*	0.000	-0.661	-16.82*	0.000
Service and sales workers	-0.516	-21.91*	0.000	-0.641	-18.68*	0.000	-0.669	-17.99*	0.000
Skilled agricultural, animal husbandry, hunting, forestry and fishery workers	-0.625	-11.82*	0.000	-0.856	-10.96*	0.000	-0.892	-9.98*	0.000
Craftsmen and related trades workers	-0.514	-21.44*	0.000	-0.639	-18.24*	0.000	-0.635	-16.59*	0.000
Plant and machine operators and assemblers	-0.531	-22.23*	0.000	-0.674	-19.34*	0.000	-0.694	-18.27*	0.000
Unqualified workers	-0.673	-26.79*	0.000	-0.836	-22.92*	0.000	-0.896	-22.29*	0.000
Constant	6.630	137.05*	0.000	6.901	95.81*	0.000	7.115	88.24*	0.000
R ²									
Pseudo R ²	0.3066			0.3713			0.3953		
F stat. (Prob.)									
Breusch-Pagan/Cook-Weisberg heteroscedasticity test- χ^2 value (prob.)									

*, ** and *** denote the significance at 1%, 5% and 10% respectively.

Variables	OLS				.10 Quantile				.25 Quantile			
	Coef.	t value	Prob.	Coef.	t value	Prob.	Coef.	t value	Prob.	Coef.	t value	Prob.
	Age groups											
26-35	0.185	11.21*	0.000	0.105	4.99*	0.000	0.128	8.31*	0.000	0.128	8.31*	0.000
36-45	0.229	10.82*	0.000	0.095	3.96*	0.000	0.101	5.63*	0.000	0.101	5.63*	0.000
46+	0.194	6.63*	0.000	0.068	2.18**	0.029	0.041	1.77***	0.076	0.041	1.77***	0.076
Sector												
Public	-0.059	-2.38**	0.018	0.139	5.21*	0.000	0.079	4.31*	0.000	0.079	4.31*	0.000
Education Level												
Elementary school	-0.059	-2.62*	0.009	-0.017	-0.49	0.623	-0.013	-0.52	0.604	-0.013	-0.52	0.604
Secondary school	0.020	0.97	0.331	0.010	0.30	0.764	0.022	0.87	0.387	0.022	0.87	0.387
High school	0.181	7.34*	0.000	0.102	2.67*	0.008	0.126	4.46*	0.000	0.126	4.46*	0.000
University	0.425	14.79*	0.000	0.208	5.12*	0.000	0.297	9.93*	0.000	0.297	9.93*	0.000
Marital Status												
Married	0.045	3.04*	0.002	0.016	1.10	0.272	0.035	3.03*	0.002	0.035	3.03*	0.002
Other variables												
Individual administrative responsibility	0.207	5.69*	0.000	0.211	6.51*	0.000	0.260	10.70*	0.000	0.260	10.70*	0.000
Social security	0.105	6.27*	0.000	0.176	8.78*	0.000	0.123	8.13*	0.000	0.123	8.13*	0.000
Full day's work	0.609	10.92*	0.000	0.921	20.53*	0.000	0.823	25.10*	0.000	0.823	25.10*	0.000
Weekly working time	0.000	-0.26	0.797	0.001	0.54	0.591	0.000	-0.56	0.573	0.000	-0.56	0.573
Years of work	0.018	11.88*	0.000	0.014	8.38*	0.000	0.017	13.86*	0.000	0.017	13.86*	0.000
Occupational groups												
Professionals	-0.277	-5.61*	0.000	-0.091	-2.44**	0.015	-0.172	-6.16*	0.000	-0.172	-6.16*	0.000
Assistant professionals	-0.502	-10.56*	0.000	-0.266	-7.05*	0.000	-0.395	-14.02*	0.000	-0.395	-14.02*	0.000
Office and customer service employees	-0.594	-12.94*	0.000	-0.302	-8.14*	0.000	-0.444	-16.13*	0.000	-0.444	-16.13*	0.000
Service and sales workers	-0.616	-12.46*	0.000	-0.353	-8.40*	0.000	-0.463	-14.88*	0.000	-0.463	-14.88*	0.000
Skilled agricultural, animal husbandry, hunting, forestry and fishery workers	-0.798	-3.32*	0.001	-0.705	-8.56*	0.000	-0.995	-11.01*	0.000	-0.995	-11.01*	0.000
Craftsmen and related trades workers	-0.696	-13.83*	0.000	-0.433	-8.91*	0.000	-0.498	-13.96*	0.000	-0.498	-13.96*	0.000
Plant and machine operators and assemblers	-0.576	-11.77*	0.000	-0.260	-5.43*	0.000	-0.409	-11.72*	0.000	-0.409	-11.72*	0.000
Unqualified workers	-0.729	-14.85*	0.000	-0.362	-7.83*	0.000	-0.504	-14.96*	0.000	-0.504	-14.96*	0.000
Constant	6.327	82.85*	0.000	5.458	80.50*	0.000	5.852	119.37*	0.000	5.852	119.37*	0.000
R ²	0.6141											
Pseudo R ²				0.3565						0.3452		
F stat. (Prob.)	229.55		0.000									
Breusch-Pagan/ Cook-Weisberg heteroscedasticity test- χ^2 value (prob.)	238.03		0.000									

*, ** and *** denote the significance at 1%, 5% and 10% respectively.

Table 3. OLS and Quantile Regression Results for Women Employees in Region 1 (continued)

Variables	.50 Quantile		.75 Quantile		.90 Quantile	
	Coef.	t value	Coef.	t value	Coef.	t value
Age groups						
26-35	0.171	10.58*	0.218	13.02*	0.237	8.55*
36-45	0.175	9.16*	0.274	13.61*	0.336	9.70*
46+	0.110	4.50*	0.203	7.73*	0.363	8.34*
Sector						
Public	-0.011	-0.57	-0.067	-2.89*	-0.061	-1.47
Education Level						
Elementary school	-0.039	-1.46	-0.103	-3.70*	-0.086	-1.88**
Secondary school	0.014	0.51	0.003	0.12***	0.002	0.04
High school	0.148	5.10*	0.158	5.41*	0.233	4.95*
University	0.384	12.40*	0.436	13.80*	0.551	10.55*
Marital Status						
Married	0.012	0.97	0.021	1.53	0.045	1.90***
Other variables						
Individual administrative responsibility	0.237	8.92*	0.214	7.41*	0.245	5.16*
Social security	0.062	3.86*	0.048	2.76*	0.044	1.54
Full day's work	0.721	19.81*	0.522	12.66*	0.318	4.73*
Weekly working time	-0.001	-1.46	-0.002	-2.12**	0.000	-0.29
Years of work	0.018	14.89*	0.017	13.34*	0.018	8.39*
Occupational groups						
Professionals	-0.259	-8.44*	-0.397	-11.74*	-0.511	-8.93*
Assistant professionals	-0.466	-15.11*	-0.617	-18.49*	-0.765	-13.69*
Office and customer service employees	-0.516	-17.24*	-0.712	-22.38*	-0.877	-16.46*
Service and sales workers	-0.544	-16.30*	-0.760	-21.49*	-0.901	-14.90*
Skilled agricultural, animal husbandry, hunting, forestry and fishery workers	-0.428	-3.68*	-0.893	-11.25*	-1.254	-12.99*
Craftsmen and related trades workers	-0.631	-16.58*	-0.858	-21.44*	-1.044	-15.53*
Plant and machine operators and assemblers	-0.530	-14.46*	-0.740	-19.58*	-0.925	-14.68*
Unqualified workers	-0.645	-18.26*	-0.890	-24.11*	-1.081	-17.59*
Constant	6.256	121.33*	6.845	125.08*	7.258	76.94*
R ²						
Pseudo R ²	0.4102		0.4386		0.4342	
F stat. (Prob.)						
Breusch-Pagan/ Cook-Weisberg heteroscedasticity test- χ^2 value (prob.)						

*, ** and *** denote the significance at 1%, 5% and 10% respectively.

Variables	OLS				.10 Quantile			.25 Quantile		
	Coef.	t value	Prob.	Coef.	t value	Prob.	Coef.	t value	Prob.	
	Age groups									
26-35	0.112	8.52*	0.000	0.154	10.55*	0.000	0.103	10.99*	0.000	
36-45	0.123	8.31*	0.000	0.162	9.50*	0.000	0.102	9.34*	0.000	
46+	0.125	7.20*	0.000	0.142	7.07*	0.000	0.111	8.74*	0.000	
Sector										
Public	0.411	30.17*	0.000	0.393	21.45*	0.000	0.418	41.26*	0.000	
Education Level										
Elementary school	-0.042	-2.72*	0.007	-0.004	-0.20	0.843	-0.023	-2.14**	0.033	
Secondary school	-0.012	-0.72	0.469	0.001	0.03	0.972	-0.012	-1.10	0.271	
High school	0.135	8.14*	0.000	0.093	4.72*	0.000	0.113	9.60*	0.000	
University	0.450	20.58*	0.000	0.332	12.70*	0.000	0.395	26.36*	0.000	
Marital Status										
Married	0.127	10.71*	0.000	0.204	15.34*	0.000	0.116	13.61*	0.000	
Other variables										
Individual administrative responsibility	0.102	5.98*	0.000	0.049	2.48**	0.013	0.062	5.03*	0.000	
Social security	0.221	23.11*	0.000	0.342	29.79*	0.000	0.293	40.97*	0.000	
Full day's work	0.356	10.76*	0.000	0.666	21.71*	0.000	0.427	22.86*	0.000	
Weekly working time	0.004	11.30*	0.000	0.002	3.90*	0.000	0.002	7.57*	0.000	
Years of work	0.005	7.33*	0.000	0.007	7.59*	0.000	0.006	10.46*	0.000	
Occupational groups										
Professionals	0.238	7.49*	0.000	0.954	33.34*	0.000	0.209	11.70*	0.000	
Assistant professionals	0.149	4.29*	0.000	0.815	25.24*	0.000	0.112	5.59*	0.000	
Office and customer service employees	0.053	1.61***	0.108	0.784	25.26*	0.000	0.071	3.70*	0.000	
Service and sales workers	0.040	1.23	0.219	0.769	27.24*	0.000	0.026	1.51	0.132	
Skilled agricultural, animal husbandry, hunting, forestry and fishery workers	0.012	0.23	0.821	0.470	9.07*	0.000	-0.004	-0.12	0.908	
Craftsmen and related trades workers	0.162	4.68*	0.000	0.783	26.08*	0.000	0.116	6.28*	0.000	
Plant and machine operators and assemblers	0.125	3.60*	0.000	0.800	25.44*	0.000	0.098	5.17*	0.000	
Unqualified workers	0.077	2.24**	0.025	0.734	24.03*	0.000	0.069	3.74*	0.000	
Constant	5.515	107.83*	0.000	4.101	88.06*	0.000	5.342	191.33*	0.000	
R ²	0.5625									
Pseudo R ²				0.3537						
F stat. (Prob.)	705.67		0.000							
Breusch-Pagan/ Cook-Weisberg heteroscedasticity test- χ^2 value (prob.)	364.60		0.000							

*, **, and *** denote the significance at 1%, 5% and 10% respectively.

Variables	.50 Quantile			.75 Quantile			.90 Quantile		
	Coef.	t value	Prob.	Coef.	t value	Prob.	Coef.	t value	Prob.
Age groups									
26-35	0.077	7.26*	0.000	0.067	4.16*	0.000	0.097	3.93*	0.000
36-45	0.096	7.89*	0.000	0.075	4.05*	0.000	0.101	3.59*	0.000
46+	0.101	7.29*	0.000	0.102	4.80*	0.000	0.135	4.22*	0.000
Sector									
Public	0.551	55.43*	0.000	0.539	34.80*	0.000	0.416	16.39*	0.000
Education Level									
Elementary school	-0.031	-2.75*	0.006	-0.029	-1.73**	0.084	-0.068	-2.73*	0.006
Secondary school	-0.002	-0.14	0.889	0.020	1.12	0.261	-0.009	-0.35	0.728
High school	0.117	9.50*	0.000	0.118	6.50*	0.000	0.104	3.90*	0.000
University	0.388	25.00*	0.000	0.407	16.99*	0.000	0.415	11.49*	0.000
Marital Status									
Married	0.086	8.91*	0.000	0.090	6.08*	0.000	0.094	4.12*	0.000
Other variables									
Individual administrative responsibility	0.090	7.04*	0.000	0.106	5.41*	0.000	0.155	5.40*	0.000
Social security	0.182	24.16*	0.000	0.135	12.22*	0.000	0.087	5.38*	0.000
Full day's work	0.242	12.06*	0.000	0.241	7.98*	0.000	0.259	5.77*	0.000
Weekly working time	0.003	13.18*	0.000	0.004	11.38*	0.000	0.004	6.95*	0.000
Years of work	0.004	6.66*	0.000	0.002	3.10*	0.002	0.003	2.84*	0.004
Occupational groups									
Professionals	0.106	5.45*	0.000	0.120	4.01*	0.000	-0.024	-0.55	0.582
Assistant professionals	0.037	1.74***	0.082	0.047	1.46	0.143	-0.084	-1.77***	0.077
Office and customer service employees	-0.036	-1.77***	0.076	-0.074	-2.42**	0.016	-0.288	-6.34*	0.000
Service and sales workers	-0.050	-2.71*	0.007	-0.054	-1.89***	0.059	-0.243	-5.74*	0.000
Skilled agricultural, animal husbandry, hunting, forestry and fishery workers	-0.050	-1.45	0.146	-0.072	-1.35	0.176	-0.311	-3.97*	0.000
Craftsmen and related trades workers	0.070	3.68*	0.000	0.088	2.98*	0.003	-0.012	-0.28	0.779
Plant and machine operators and assemblers	0.020	1.04	0.298	0.005	0.17	0.862	-0.160	-3.56*	0.000
Unqualified workers	-0.035	-1.85***	0.064	-0.049	-1.71***	0.086	-0.212	-5.03*	0.000
Constant	5.808	204.01*	0.000	6.013	139.84*	0.000	6.469	102.27*	0.000
R ²									
Pseudo R ²	0.3852			0.4078			0.3383		
F stat. (Prob.)									
Breusch-Pagan/ Cook-Weisberg heteroscedasticity test- χ^2 value (prob.)									

*, **, and *** denote the significance at 1%, 5% and 10% respectively.

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Variables	OLS			.10 Quantile			.25 Quantile		
	Coef.	t value	Prob.	Coef.	t value	Prob.	Coef.	t value	Prob.
	Age groups								
26-35	0.072	2.69*	0.007	0.079	1.73***	0.083	0.022	1.39	0.164
36-45	0.107	2.68*	0.007	0.097	1.51	0.131	0.042	1.92***	0.055
46+	0.100	1.81**	0.070	-0.008	-0.11	0.913	-0.017	-0.62	0.538
Sector									
Public	0.496	14.77*	0.000	0.457	8.33*	0.000	0.458	23.96*	0.000
Education Level									
Elementary school	-0.057	-0.92	0.357	0.025	0.31	0.754	0.009	0.34	0.733
Secondary school	0.098	1.95**	0.051	0.332	4.91*	0.000	0.102	4.05*	0.000
High school	0.239	4.01*	0.000	0.422	4.92*	0.000	0.159	5.53*	0.000
University	0.454	7.11*	0.000	0.605	6.35*	0.000	0.332	10.16*	0.000
Marital Status									
Married	0.055	2.46*	0.014	0.153	4.22*	0.000	0.061	4.58*	0.000
Other variables									
Individual administrative responsibility	0.134	2.91*	0.004	0.014	0.21	0.836	0.014	0.58	0.564
Social security	0.456	13.45*	0.000	0.492	9.91*	0.000	0.530	29.58*	0.000
Full day's work	0.348	7.36*	0.000	0.762	13.67*	0.000	0.617	29.68*	0.000
Weekly working time	0.009	8.39*	0.000	0.007	4.63*	0.000	0.005	9.44*	0.000
Years of work	0.005	2.02**	0.044	0.013	3.18*	0.001	0.009	6.62*	0.000
Occupational groups									
Professionals	-0.025	-0.34	0.731	-0.070	-0.66	0.507	-0.020	-0.52	0.602
Assistant professionals	-0.300	-4.01*	0.000	-0.320	-2.89*	0.004	-0.299	-7.70*	0.000
Office and customer service employees	-0.331	-4.35*	0.000	-0.302	-2.92*	0.004	-0.341	-9.04*	0.000
Service and sales workers	-0.285	-3.54*	0.000	-0.273	-2.53*	0.012	-0.308	-7.64*	0.000
Skilled agricultural, animal husbandry, hunting, forestry and fishery workers	-0.287	1.92***	0.055	-0.273	-1.43	0.154	-0.439	-6.07*	0.000
Craftsmen and related trades workers	-0.672	-6.94*	0.000	-0.904	-7.88*	0.000	-0.730	-16.95*	0.000
Plant and machine operators and assemblers	-0.285	-2.78*	0.005	-0.145	-0.97	0.334	-0.306	-4.74*	0.000
Unqualified workers	-0.238	-2.74*	0.006	-0.294	-2.52*	0.012	-0.312	-7.18*	0.000
Constant	5.318	47.01*	0.000	4.364	30.52*	0.000	5.097	97.59*	0.000
R ²	0.7507		0.000						
Pseudo R ²				0.5595			0.5364		
F stat. (Prob.)	224.46		0.000						
Breusch-Pagan/ Cook-Weisberg heteroscedasticity test- χ^2 value (prob.)	219.60		0.000						

*, **, and *** denote the significance at 1%, 5% and 10% respectively.

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Table 5.OLS and Quantile Regression Results for Women Employees in Region 7 (continued)

Variables	.50 Quantile		.75 Quantile		.90 Quantile	
	Coef.	t value	Coef.	t value	Coef.	t value
Age groups						
26-35	0.044	1.57	0.103	4.75*	0.042	1.29
36-45	0.057	1.48	0.103	3.39*	0.020	0.45
46+	0.045	0.90	0.099	2.45*	0.036	0.60
Sector						
Public	0.559	16.80*	0.532	19.21*	0.484	10.85*
Education Level						
Elementary school	-0.021	-0.46	-0.045	-1.28	-0.105	-2.04**
Secondary school	0.051	1.14	0.048	1.35	0.068	1.34***
High school	0.213	4.32*	0.211	5.68*	0.209	4.05*
University	0.372	6.67*	0.456	10.59*	0.475	7.43*
Marital Status						
Married	0.052	2.16**	0.031	1.58	0.115	1.38
Other variables						
Individual administrative responsibility	0.094	2.11**	0.208	5.89*	0.377	7.29*
Social security	0.393	11.64*	0.305	11.74*	0.264	7.84*
Full day's work	0.146	3.57*	0.132	4.00*	0.170	3.49*
Weekly working time	0.007	6.98*	0.006	8.42*	0.006	5.38*
Years of work	0.004	2.08**	0.005	2.96*	0.008	3.34*
Occupational groups						
Professionals	-0.018	-0.27	-0.087	-1.60	-0.124	-1.50
Assistant professionals	-0.334	-4.76*	-0.294	-5.24*	-0.193	-2.26**
Office and customer service employees	-0.311	-4.47*	-0.332	-5.78*	-0.350	-4.04*
Service and sales workers	-0.281	-3.77*	-0.237	-3.81*	-0.244	-2.51*
Skilled agricultural, animal husbandry, hunting, forestry and fishery workers	-0.185	-1.41	-0.275	-2.69*	-0.451	-3.07*
Craftsmen and related trades workers	-0.550	-6.77*	-0.449	-6.64*	-0.398	-3.78*
Plant and machine operators and assemblers	-0.298	-2.56*	-0.339	-3.58*	-0.319	-2.57*
Unqualified workers	-0.197	-2.50*	-0.205	-3.20*	-0.297	-2.99*
Constant	5.688	60.44*	5.944	78.29*	.000	55.37*
R ²						
Pseudo R ²	0.5502		0.5018		0.4332	
F stat. (Prob.)						
6203683						