WOMEN AND OCCUPATIONAL SEX SEGREGATION IN TURKISH LABOR MARKET, 2004- 2010

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ABSTRACT

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The effects of occupational sex segregation on wage differentials and poverty, and the factors behind the differentiation on occupational choices are analyzed in various studies. There are also recent studies analyzing Turkish case. However, there are limited attempts combining both segregation and occupational decision in Turkish labor market. This thesis wants to fill this gap and as well as contribute the literature of Turkish labor market and OSS, with analyzing the most current data of Household Labor Force Survey (HLFS) 2004-2010. It is expected to find stability in segregation in the period under consideration as verified by the thesis. It is found that the contribution of different occupations to the extent of segregation also differs. In addition, differentiation with regard to factors on occupational choices of men and women are also found. Further analysis should be carried to make relevant and effective policies to reduce occupational sex segregation.

Keywords: Occupational Sex Segregation, Occupational Choice, Turkish Labor Market

ÖZ

TÜRKİYE İŞGÜCÜ PİYASASINDA KADIN VE CİNSİYETE BAĞLI MESLEKİ KATMANLAŞMA, 2004- 2010

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Yüksek Lisans, İktisat Bölümü
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Cinsiyete bağlı mesleki katmanlaşmanın yoksulluk ve gelir farklılıkları üzerindeki etkisi, ve meslek seçiminde görülen farklılıkların sebepleri değişik çalışmalarda ele alınmınmıştır. Bunların arasında Türkiye üzerine güncel çalışmalar da bulunmasına rağmen Türkiye iş gücü piyasasında mesleki katmanlaşmayı ve meslek seçimini birlikte analiz eden çalışma sayısı kısıtlı. Bu tezin amacı bu alandaki eksikliği tamamlamak ve en güncel Hanehalkı İşgücü verilerini kullanarak, Türkiye işgücü piyasası ve mesleki katmanlaşma yazınına katkıda bulunmaktır.Tezde beklendiği gibi, bahsedilen dönemde mesleki katmanlaşmanın sabit olduğu; fakat farklı meslek gruplarının katkılarında zamana bağlı olarak değişmeler bulunmuştur. Bunun yanı sıra, kadının ve erkeğin meslek seçimlerinde katkısı olan etkenlerin iki grubun kararlarını farklı şekilde etkilediği bulunmuştur. Cinsiyete bağlı mesleki katmanlaşmayı azaltmak amacı ile daha etkili politikaların hazırlanması için daha fazla çalışma yapılmalıdır.

Anahtar Kelimeler: Cinsiyete Bağlı Mesleki Katmanlaşma, Meslek Seçimi, Türkiye İşgücü Piyasası,

to Yağmur Gülen ALA…

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ÇSGB	Turkish Ministry of Labor and Social Security
DI	Dissimilarity Index
GII	Gender Inequality Index
GWG	Gender Wage Gap
HLFS	Household Labor Force Survey
LFP	Labor Force Participation
NAUE	Non-agricultural Unemployment
OA	Legislators
OB	Professionals
OC	Technicians
OD	Clerks
OE	Sales and Service Workers
OF	Skilled Agriculture Workers
OG	Crafts
OH	Operators
OI	Elementary Workers
OSS	Occupational Sex Segregation
UE	Unemployment
UNDP	United Nations Development Program

CHAPTER 1

INTRODUCTION

Men and women have different motivations and patterns in their relations with labor market. Referring to sexual division of labor and caring role attributed to women, many early studies subject women as the wife and mothers[1]. Absentee of women in labor market and ignorance in early literature have also discussed by many contemporary studies[2]. However, ancestral economic studies were interested in market, where production of economic goods and services has taken place. The inequality, subordination, discrimination or disadvantageous position of women was left to other branches like sociology, psychology etc… After a long passivity of labor market and silence of literature of economics about women, World Wars and Great Depression brought them up[3]. There are an increasing number of studies interested in women and their decisions about labor market since mid-1900s. Pioneering studies focused on the factors affecting labor force participation of

[1] Naturality of women in housework and men in market is mentioned in Xenophon "Economists" Chapter 7-11, pp.27-54; Aristotle, "Politics",Book 1, Chapter 12, pp. 19; Book 7, Chapter 9, pp.164. Even by Enlightened intellectuals: ie. incapability of women: Rousseau (1755:9, 1762:358). Efficiency of such division of labor discussed by Classical Political Economists: Smith (1766) by the discussion of the specialization, Ricardo (1817) by discussion of the comparative advantage, Mill (1848) by the discussion of comparative advantage of mothers on housework and Marshall (1890) by discussion on the nececessity of discouragement of women from work.

[2] Edgeworth (1922,1923) by discussion on the under-subordination of women by implemented policies. Discouragement of women by welfare policies ie. Grant (2009:339), Mısra et al. (2007:808) and Mandel et al.(2005: 953). The effect of early intellectuals ie. The effect of Marshall by Pujol (1984). For economic development and subordination of women: Clark (1917) and Boserup (1970).

[3] The reasons of improvement of female labor force participation at time of crises (occupational strucuture of female) and wars(scarcity of labor) see: Deborah(1998:185), Milkman (1976) and Kahne and Kohen (1975:1249-50).

married women and dominated by American studies [4]. However, raised female labor force participation has not secured improvement of women's status. The desolated fields; discrimination, inequality, subordination of women etc.., come into the picture of economists.

Segregation can be defined as the physical and/or social separation of a group from others due to physically/socially outstanding features (Reskin and Hartmann, 1986:5). These physical/ social features are equalized with behaviors. *Sex* is one of the main distinctive features for stereotyping and segregation. Sex-roles are expected as behavioral norms. Sex- stereotypes and sex-roles become persuasive and reproduce themselves through *socialization* and are spread to all areas. By definition, segregation is *value-free.* In other words, segregation includes separation of two groups, and there is no necessary of ordering by distinctive characteristics. On the other hand, discrimination is *value-inclusive* concept which implies ordered valuation of two groups. The extreme case of discrimination is *stratification* which implies the systematic over-valuation of one group. *Concentration* is also *value-free* concept that shows high proportion of one group relative to other in an occupation. However, unlike segregation; concentration is not interested in other groups and not symmetric. In other words, segregation concerns distribution of two sexes among occupations; whereas concentration only interested in the representation of one sex in an occupation. Concentration can be explanatory with the labor force participation of that sex, however, segregation interested in the people who are already participated and their distribution in occupations.

Segregation has both horizontal and vertical dimensions defined based on whether there exists pure concentration or inequality and hierarchical ordering as well. *Horizontal segregation* occurs when members of a group (men/ women in this context) systematically concentrated in a horizontal line without ordering the bases (jobs, occupations, industries etc.). *Vertical segregation* occurs when members of

[4]ie. Durand(1946) for the effects of fertility rates, Long(1958) for the effects of industrial structure of country, technological developtment, family size, reduction in working hours, ratio of female to male earnings and education, Mahoney(1961) for family income and expenditures, age, experience, education, perceptions, having children.

groups systematically dominated in the hierarchy of mentioned bases. When "different levels with different wants matched with different groups with different capabilities", we observe horizontal segregation. Whereas when "same levels with same wants matched with different groups with same capabilities", we observe vertical segregation[5]. To sum up, horizontal segregation reflects difference dimension[6]; whereas vertical segregation reflects inequality dimension (Blackburn et al., 2001: 511 and Blackburn, 2009:2). In addition, concentration is not always a sign of segregation[7]. The main advantage of analyzing segregation is opportunity to carrying out both value-free (pure difference) and value-intensive (inequality) analysis. However, ILO's definition of discrimination implies that all acts based on differences end with discrimination in Turkey[8].

Occupational sex stereotyping is a set of assumptions about the duties, capabilities, interests, activities, responsibilities that are related to sex roles (Miller et al., 2004:26). Accordingly, *Occupational sex segregation (OSS)* is the separation or tendency of separation to employ men and women in different occupations or holding jobs with different status (Meulders et al., 2010:2; Anker et al., 2003:1; Blackburn et al., 1995:320). Differences in occupational structures and different proportions of sexes within occupations need not indicate subordination of one group. Although it is not a usual case, segregation may occur with sex equity as in Canada, Sweden and UK (Blackburn et al., 2001:517). Difference in task distribution is a significant problem when it comes with hierarchical ordering and valuation of sexes (Kremier, 2004: 226). Unfortunately, some occupations have monetary and status superiority over others and these are generally dominated by men.

[5] Vertical sex segregation is not identical in all labor markets. For instance glass ceiling, artificial barriers for promotion and career opportunities of women (Anker et al., 2003:3), is a kind of vertical segregation.However artificial promotion of low level jobs for women is also creates vertical segregation.

[6] Reskin (1984:2) describe horizontal segregtion as physical segregation and vertical one as functional segregation

[7] If 80% of all clerical workers are teachers, this means female are highly concentrated in teaching. However, if female are composing 80% of all occupations, then there is no segregation (James and Tauber, 1985: 2).

[8] ILO, C111 Discrimination (Employment and Occupation) Convention, 1958: Article 1. However Article2 limits the implementation of law; as announcing discriminatory acts are not exist if job necessitates "inherent" requirements

1.1 Motivation:

Many studies highlight the persuasive characteristics of sex segregation in workplace and some represent empirical analysis supports this claim (Weisskoff,1972). In addition, there is numerous studies work with the link between sex segregation in workplace and wage gap of sexes with analyzing whether personal and/or workplace characteristics completely explain wage differences of individuals. These studies focus on different bases like industries (Hodgson and England, 1986; Fields and Wolff, 1995); occupations (Macpherson and Hirsch, 1995), establishment/firm-level (Bielby and Baron, 1984; Carrington and Troske, 1998); occupational position within same establishment (Peterson and Morgan, 1995) and even work-groups in an occupation within establishment (Groshen, 1991). All these studies highlight the effect of sexual distribution within workplaces on wage gap. The limitations of data prevents any analysis with narrow categorization than occupations such as job or establishment level. Although there are studies on specific occupational groups ; these are limited to education , health or banking sector due to data problems. More significantly, high proportion of studies on OSS put it as a significant source of income inequality in labor market (Greogory, 2009: 288; Hartmann,1976; Whitehouse,2001:5910 and May and Watrel,2000:170). For instance, Treiman and Hartmann (1981:33-35), with using a 479 occupational categories, find that sex differences in occupations can explain 35-40% of the wage differences[9]. Sorenson (1989: 57) concludes that approximately 20% of the wage gap in US between white male and female can be explained by OSS, where 16% by industrial and regional differences and 26% by job and productivity characteristics. Bayard et al.(2003) find that approximately half of the sexual wage gap can be attributed to segregation of women to low paying occupations[10]. Furthermore, some studies show the depressing effect of OSS on female labor force participation (Weisskoff, 1972: 165). These are the

[9] Even more broad categorization of occupations are carriedout, 12 occupations, the proportion is approxiametly %10.

[10] The study used matched employee-employer data of US to decompose average wage differentials of sexes in a traditional Oaxaca decomposition method. However they also announced that sex segregation can not fully explain the wage gap between sexes (Bayard et al., 2003:918)

main motivations analyzing sex segregation in occupational level. Women are highly subordinated with concentration on few occupations compatible with family responsibilities. Unfortunately, these occupations generally offer low wages and low status due to opportunities of flexibility and less skill demand they have. However, the contemporary conditions; necessity of second wage, increase in the rates of divorce force women to earn money. In such conditions, more women share the less proportion of income. In other words, the lowest stages of wage pyramid are crowded with women followed by increase in poverty among women. In addition, all women and men in these occupations also suffer from this *sexual-concentration* problem (Cohen and Huffman, 2003: 884). In the light of these, reduction of OSS is a significant source to eliminate inequality and poverty in a society. Moreover, Turkey is ranked at 122 among 153 countries with one of the highest Global Gender Gap Index (GGGI)[11] (WEF, 2011). The decomposition of the index shows that Turkey owes this place to failure on economic participation and opportunity component. Despite these, a small number of discussion passes beyond existence, persistence and extent of the OSS. This thesis wants to full this gap with producing some applicable policies based on the results of the analysis.

In addition, occupational decisions and structure of occupations affect current and future; material and moral conditions of people. Furthermore, these decisions and structures are past-binding and should be evaluated in *time* and *place* contexts. Although, the existence of OSS is observed at all times and in all societies (Anker et al., 2003:1); the extent, trends, factors effecting the segregation highly diverse. The studies on OSS are generally concentrated on US and European countries. However, the structure of all labor market has local characteristics[12] (Reskin and Hartmann, 1986:7) and Turkey is not an exception.

[11] GGGI is "...a framework for capturing the magnitude and scope of gender-based disparities... on economic, political, education-and health-based criteria... (WEF,2011: 3)."

[12] Although all countries experience OSS in a significant extent; the reasons behind the segregation are different. Dolado et al. (2002) analyses the patterns of OSS in US and European countries. Study shows that even within EU countries, there is high variation on segregation due to occupatinal structures (ibid. 2002:14-15).

1. Most of the studies constructed on the idea of increasing LFP rates of women. However, in Turkey, LFP of women is falling since 1980s(….).
2. In "equality/inequality" dimension, increase in participation rates might be meaningless. For instance, most of the women in US anticipate labor force as employee, whereas in most of the developing countries *(like Turkey)* or even in Japan women enter market as self-employed or family workers. Thus, increase in LFP of women may have positive impact for US women; but may not affect women of some other countries (Hill 1983:459)[13]. Many studies show that subordination of women is raised by increase in LFP of women (Barker 2005:2202 and Kremier 2004:223). Turkey is a kind of the country who experiences the latter case.

There are significant studies on Turkish women and labor market, and few on OSS in Turkey. This thesis wants to contribute the literature of Turkish labor market and OSS, with analyzing the most current data of Household Labor Force Survey (HLFS) 2004-2010. The main motivation on using the HLFS is the scope of the data. It is the most appropriate and consistent dataset to check trend over time and human capital variables as age, education and experience. In addition, some of the household characteristics like marital status and household size can be obtained from the dataset. Although the data and its limitations will be discussed in Chapter 4; the main reason to choose 2004 as the starting date is to provide consistency of occupational categorization among the years. Before 2000 ISCO68 was used as occupational categorization, whereas both ISCO68 and ISCO88, but for different questions, were used in the passing period between 200-2004

Second chapter reviews the literature on the existence, reasons and measurement of the OSS.

Third and fourth chapters aim to investigate OSS in Turkey. For this reason the structure of Turkish labor market will be analyzed in the third chapter. The importance of this review is to understand possible reasons and the outcomes of

[13] See Folbre (1991) to see how the women work renamed and recategorized by time in Census data and women has droven out of labor force in England and US.

the OSS experienced in Turkish labor market. Based on the main findings of this chapter, fourth chapter will investigate the existence and extent of segregation will be discussed. Micro data of 2004- 2010 HLFS conducted by Turkstat will be used. After a brief discussion on data and methodology, the extent of segregation will be calculated with segregation indices used in the literature. Then the factors effecting occupational choice of individuals will be analyzed based on the Maximum Likelihood Estimation through the use of multinomial logit (mlog) model. The main aim is analyzing whether the determinants of individual occupational choice show any diversity between the relative choice of men and women. In other words, whether being married make the possibility of choosing professionals to agricultural work higher for women but possibility to choose sales higher for men.

Chapter 5 will conclude with a brief summary of the findings.

CHAPTER 2

A RETROSPECT ON OCCUPATIONAL SEGREGATION

This chapter aims to investigate literature on the relevant issues: occupational choice and segregation, and measurement of occupational segregation.

2.1 Occupational Choice and Occupational Segregation

The difference between men and women in labor market is carried to literature of economics by mainstream economists. In this tradition, decision-making is a benefit-cost analysis between different alternatives. Accordingly, any choice differentiation in labor market is due to different characteristics, tastes and preferences of rational utility maximize individuals. In other words, individuals choose one occupation to another if the benefit of this occupation exceeds the cost of it. As in all markets; optimum decision is where labor supply and labor demand is coincide. In this respect, any undesirable outcome occurs due to demand side or supply side or combine of these two. External factors and imperfect functioning of institutions are also subject to review. Among all human capital approach links segregation capabilities or preferences of wage-earners. However, this approach is highly criticized by the economists. The imperfect functioning of the market, patriarchal structure of societies and segmented labor market structure are among the most challenging approaches. This sub-section will review bot human capital and challenging approaches coming from both within the traditional view and different background.

2.1.1 Human Capital Approaches

Although the effect of personal differences on income has a long standing history[14], the transmission of the issue to differentiation on occupational level has taken time until Mincer's (1958) study on human capital. By focusing on the human capital formation of individuals, the assumption of homogenous labor has dropped (Haley, 1973: 929). Mincer starts with a basic model of occupation decision for homogenous individuals in their ability and opportunity to enter occupation for heterogeneous occupations requires a specific amount of training. Any differentiation of individuals within a specific occupation occurs due to productivity differences depending on experience. As a result, training is introduced as the main cause of income differences among occupations and these differences became systematic with the ranking of occupations: occupations in the top requires higher training and higher training offers higher earning (ibid: 288). In short, Mincer concludes that inter-occupational differences are due to differences in training, whereas intra-occupational differences are due to differences in experience (ibid: 301). In the study with Polachek (1974), Mincer discusses the effects of human capital to earnings of women. Accordingly, the role of household, the expectations about future family or market behaviors in the investment decisions of individuals, process and depreciation of human capital, discontinuity of women working life and sex linked allocation of time and human capital formation are discussed. The difference between men and women is pointed as the effects of marriage, children and some other factors on the discontinuity of women's labor and enter-exit repetition of women more than once during their working life (ibid.80). As a result, expectation of short working period makes

[14] See Stahle (1943) for the discussion on ability differences of individuals and wages and the review of the literature on the roots this discussion.

women to invest less on job-skill training and limits their alternatives to occupations offering lower wages.

One of the contributions of Becker (1975: 232) is his focus on "special investment". "Specific investment" is investment on human capital which the costs and benefits are paid and get by third parties such as firms, countries etc. According to Becker it is the main reason behind more investment to skilled worker rather than employ more unskilled ones. A parallel differentiation may exist between men and women. "Specific investments" may be one of the reasons behind more on the job training of men relative to women. In a latter paper, Becker (1985) points to specialized human capital between men and women. He argues that women are less productive per hour due to the effort-intensive characteristic of household responsibilities she is responsible. This is pointed as the main reason behind lower hourly wages women get and job segregation (ibid.35).

Polachek (1981) is one of the leading economists who use human capital approach to explain OSS with analyzing the choice of occupations. The earnings of individuals are assumed to rise with increase in on-the-job training. In addition the earnings are subject to depress in the case of any discontinuity in labor market (ibid.62). After adjusted labor force participation rates of men and women, an increase in women participation in high status occupations like professionals and managers is observed whereas in low status ones this rate has decreased. This discontinuity makes women to choose low cost occupations which offering higher starting wages but includes less promotion possibilities.

In short, human capital approach is based on the differences in working path of men and women. Women are plan or expected to have discontinuity in labor supply; however men are expected to start working just after schooling and continue to work without any break. Accordingly, the decision of human capital investment, labor supply and the set of occupational choice differ.

2.1.2 Discrimination Approaches

The main motivation behind the discrimination is the claim that the market not only rewards the personal characteristics of individuals related with productivity, but also valued unproductive characteristics (Arrow, 1971:1). As a result this makes valuation some kind of subjective matter. The literature on discrimination is expanding since the pioneer work of Becker's study, The Economics of Discrimination, 1957 which mainly concern about racial discrimination. The study points the social and physical distance and differentiation in socioeconomic status of two groups as the main reason of discrimination (ibid.16). The book covers a wide range of issues on discrimination, from employer-based to market- based discrimination. According to Becker, differentials may be due to tastes for discrimination of third parties such as employers, coworkers and customers. Bergmann (1971) is one of the leading intellectual who carries Becker's discussion on occupational segregation with presenting "overcrowding hypothesis". Following the Becker's racial concern, Bergmann also interested in racial segregation in occupations. However, the study is significant to show the power of employer to force some groups to some occupations.

Phelps (1972) on the other hand, highlights the imperfect operation of market due to scarcity of information on the jobs and workers. Spence (1973) also points the incapability of employer to be sure on productivity of individuals in recruitment level. According to study, employer would have perception on the productivity of an individuals based on the past experiences who have equal unchangeable characteristics like sex and age. Based on these, the profit maximization behavior of employer is discrimination according to averages experienced in the past. This is so called, statistical discrimination. These theoretical claims are supported by Bielby and Baron (1986), who are observed the existence of statistical discrimination on establishment level in California. However, more market-

confiding economists reject the imperfection of market and claims that in any case of inefficiency market would clear discrimination since non-discriminatory employers could not compete with others (Norman 2003:626). On the other hand, following the discussion of Dollar et al. (1999) about efficiency of educational sex segregation; people may be ready to pay to compensate inefficiency. If this is true, discrimination is not a market failure but an optimal social decision.

The rationality of women and men in occupational choice is also pointed by many studies. Allison and Allen (1978), men and women are making their choices of occupations based on the economic cost- benefit analysis. However the main motivation behind the lower earnings and status of women is attributed to discriminatory acts. In a parallel sense Brief et al. (1979) indicate self-interest, opportunities, expected costs of choice, personal characteristics, and capacities of individuals and perceptions of society as the main driving force on individual's occupational choice. Unlike Allison et al., latter study focus on the self- selection due to differentiation in valuation, rather than discriminatory acts.

In short, both explanations are highly related. Some studies found evidence for demand- oriented explanations (Beller, 1982); some others support supply-side explanations (Polachek, 1981). However, these are not substitutes but complements to each other. As women get higher education, their occupational opportunity set will be expands, power of competition will rise. Men, status-quo, want to preserve the powerful position they have. They will react with discriminatory behaviors to raised competitiveness of women. On the other hand, as women realize, they will get lower money even they perform equally with men, they may not want to supply. Or if they know equal standing will be disadvantage for them in marring, they may undersupply their labor (Grossbard- Shrcttman et.al., 1988:1294 and Badgett et al., 2003:295).

However, it is not only neoclassical economics claims the importance of supply side characteristics. Evolutionary approaches relate difference to different cognitive skills men and women have (Browne, 2006:147-148). Liberal feminists

relate it with lack of human capital of women, who left *under-qualified* (England, 2001:5912; Bergmann, 1981, 1989 and Barker, 2005).

Other than these approaches, there exist some other critiques claiming the dominance of external factors on occupational choice that ends with segregation.

2.1.3 Labor Market Segmentation[15]

Some groups of economists, especially institutional economists, react to neoclassical theory about the assumptions on labor market structure. The main motivation behind such a criticism by this group is persistent poverty (Cain, 1976: 1218). "Job competition" model has critique to human capital theory parallel to demand-oriented discrimination approaches. Theory claims that it is jobs looking for suitable persons rather than persons looking for suitable jobs. This makes occupational analysis even more significant. In such a demand-based matching, the role of education is not a skill-sign rather shows whether a person has ability to be trained or shows the potential degree of worker (Throw, 1972:68). The necessary skill acquired on the job. As a result it is unchangeable characteristics like sex, age, previous experiences, diploma etc. of individuals which employers made their choices accordingly. The duality of labor market is pointed by various studies. According to this approach, labor market is divided into two as primary and secondary. Primary markets have their own rules and mechanisms of resource allocation and wage determination. Employers encourage specialized skill achievements and human capital is effective only in this segment of market. Since this segment is more costly to firm, continuity of working life, regular attendance and stable work habits are expected. As discussed above, these are assumed as missing characteristics for women due to family obligations. On the other hand, secondary labor markets demand less due to little responsibilities and substitutability. Absenteeism, unstable working behavior can be tolerated since replacement is not so costly. However, the costs of these tolerances are lower

[15] Although these hypothesis have some varities on the name and content such as dual labor market, hierarchical market structure, job competition etc.; following Cain (1976) they are collected in the name of labor market segmentation.

promotion possibilities and payments. This duality and the characteristics of these markets leads men concentrate to primary sector and women to secondary sector.

In a similar but stricter critics, radical theories of labor market more focus on history-matters, class-based behavior motivations of individuals. For instance accepting dual market structure, Reich et al. (1973: 361) claim that it is a divide and conquer strategy of capitalists.

In short, the common point of advocates of failure of traditional labor market structure is demand- determined allocation of jobs, the importance of on-the-job training and discrimination of employer rather than the importance of choice of supplier and formal education (Cain, 1976:1222). Accordingly occupational segregation is the outcome of concentration of women in lower segment and men in higher segment.

2.1.4 Patriarchy

Feminists or radical theories of labor market blame mainstream economists with undervaluation of social environment and factors to explain subordination of women in labor market. They explain segregation in a historical context and persistence with patriarchy (Hartmann, 1976). Breadwinner- caretaker model is pioneer model of contemporary sex segregation. The gendered environment, patriarchal culture and perceptions of society reproduce sexual stereotypes. These appreciate masculine values in market and feminine values in household; and depreciate feminine values in market and found men overqualified for housework. As a result, set of occupational choice is bounded in a parallel sense: women to occupations compatible with houses and resemble to housework; and men to more high-skilled and waged, physical and mental strength required occupations. The most radical critic comes from feminists is androcentric standardization of ideal type (England, 2001: 5912). The main tools to preserve OSS in labor market are marginalization and exclusion of women with *undesired* characteristics and

choices[16]. However, by using econometric methods, Lorence (1987) finds that family responsibilities and socialization are not explain low involvement of women in a job. Probably the main reason behind this outcome is the significant effect of these variables on the labor market participation decisions of women.Alternatively, characteristics of job settings, especially work autonomy, are determined as the main responsible of occupational choice.

2.1.5 Other institutions

Regulatory agencies and acts: The female protection measures in the form of legislations generally raise the cost of women. As a result, they make women undesirable alternative of men, even compared to lower skilled men. For instance, maternal leave is only right of women and this legitimizes discontinuity of them. In other words, "discontinuity" is binding only for women. Another example is regularity acts that limit the working schedule of women, (ie. forbidden of night works). In most cases, the working hours are equalized with the productivity of labor and such limitations raise the cost of women (Iverson and Rosenblut,2011:2). As a result these protective measures highly affect the opportunity set of women.

Technology: Marxist literature claims that industrial revolution; especially the technology it produced, is totally androcentric (Wajeman,2001:5976-5979). In other words, the separation emerges as the product of men. Machines are created for men usage and exclude women. Radical feminists indicate how Western technologies and its patriarchal features try to suppress women and nature. Ecofeminists evaluate military technology with a similar argument. Although there are some studies showing how the technology liberalize women from home (Dollar et al., 1999:13), the study of Cowan (1976) points that the time spent on household tasks by women has not decreased.

Organizations: Some studies claim that organizations itself are gendered (Mills, 1989: 39). Cultural barriers may be hidden within organizational arrangements. In

[16] Glass ceiling is some kind of preventing women access to specific places. See the discussion on others perspectives: identity theory (Akerlof and Kranton, 2000).

their book, Hearn et al. (1989) show how the all reasons above related and embedded to organizational arrangements, and not the individuals but the organizations are now gendered. Even daily life activities in organizations, suc as meetings after workday, are invisible hands that deny women to access some organizational networks (Mills, 1989:39). There are most recent studies on trade unions. Although the unionized women are better than other women, there is still a high segregation on unions (Jhabvala, 2001: 8190) point out how the women are excluded from trade unions.

2.2 Measurement of Occupational Sex Segregation[17]

There are various studies on measurement of segregation by indices before sex is in concern[18]. However, Dissimilarity Index, which is previously used to measure racial segregation too, developed by Duncan et al. (1955) is accepted as the pioneer work on sex segregation in workplace. DI is reacted by many studies and introduced various indices for segregation. Following the book of Flückiger et al. (1999), indices can be divided into four categories according to what they are based on: Dispersion of sex ratio from a central measurement, grouping the occupations by sex, concept of entropy and others.

2.2.1 Indices based on the Dispersion of Sex Ratio from a Central Measurement

These indices are rooted to distribution of sex ratio within the occupations. The central measurement differentiates according to which measure the dispersion of the sex ratio distribution will be analyzed: the mean deviation, mean differences or arithmetic mean (Flückiger et al., 1999:34).

The first group of indices are used the mean deviation. Pioneer study on the distribution of sex ratios using the dispersion of mean deviations of female and

[17] In all indices: F=women, M=men, T=total, subscripts shows the occupation (ie. İ=ith occupation, f=female occupation etc...). Other expressions will be defined when they are necessary.

[18] Most of them measures the residentual segregation by race, ie. Jahn et al. (1947), Williams (1948), Cogwill et al. (1951)

male is summarized in the study of Duncan et al. (1955). The very used one among the others is Dissimilarity (or displacement) Index that is application of fourth index of Jahn et al. (1947) or "Negro Section Index" of Williams (1948)[19]. However, the reason why the index is called as the name of Duncan's (but not Williams or Jahn's) is the generalization of the term as dissimilarity or displacement to analyze other than white-nonwhite segregation and pointing the failure of indices on analyzing the progress or pattern of the segregation depend on time and other variables (ibid.216). In addition all other indices of previous studies can approximately be obtained with given DI, proportion of nonwhites to total (or treatment group to total) and additional assumption for the segregation curve (ibid. 214).

$$DI=1/2 \sum_{i=1}^{n} \frac{M_i}{M} - \left(\frac{F_i}{F}\right) \quad [20] \qquad (2.1)$$

In the sex/occupation context; it takes zero when women employment distributed exactly same with men; and one when occupational distribution of women and men is totally different.

However Cortese et al. (1976:634-35) focus more on sex segregation and "exchange/redistribution" rather than "displacement". They modify DI to determine the proportion of people to be exchanged to get identical sex ratio with the overall division in the total labor force. The variations of DI are given below:

1. (1-a)DI shows the proportion of female that have to be exchanged,; aDI shows the proportion of male that have to be exchanged and 2a(1-a)DI shows the proportion of total labor force to be redistribute Cortese et al. (1976: 635),

[19] "...If we ask "What proportion of the Negroes would have to be rehoused in white neighbourhoods, if segregation were to be abolished?", Negro section index provides the answer..." Williams (1948: 303)

[20] See Flückiger et al. (1999) to see how DI and its variations are computed.

2. DI_z=a(1-a)2DI,when the dispersion measured mean deviation about the mean of the ratio of female and total worker in an occupation, instead of male ones,

where $a=(F_i-R_i)/T_i$.

However, DI and its variations are failed to abolish the effects change in female LFP rate and structure of the occupations on the index while measuring the segregation. Various studies introduce extensions of DI to eliminate these failures:

1. To get rid of differences in size of occupations, especially for cross national analysis, size standardized dissimilarity index is introduced (Charles and Grusky, 1995: 935).

$$Ds = \sum_{i=1}^{n} \frac{\frac{F_i}{T_i}}{\sum_{i=1}^{n} \frac{F_i}{T_i}} - \frac{\frac{M_i}{T_i}}{\sum_{i=1}^{n} \frac{M_i}{T_i}} \qquad (2.2)$$

   It shows what will be the segregation index if occupation sizes remain unchanged (Fuchs, 1975: 108). However, unlike DI it is not size invariance[21] anymore.

2. a. Analyzing the Australian industrial segregation, Moir and Selby-Smith (1979) modifies DI, by highlighting failure of DI as taking the men distribution as ideal. They compare female labor force distribution with actual distribution of total labor force over industries.

$$I_{MSS}=1/2 \sum_{i=1}^{n} \frac{T_i}{T} - \left(\frac{F_i}{F}\right) \qquad (2.3)$$

   Actually it is equivalent what Cortose et al. (1976) suggests above; I_{MSS}=(1-a)DI

   Index takes zero in case of complete integration and 2(M/N) in complete segregation. When the female share is equal to the share of male in employment, than I_{MSS} will be equal to DI.

[21] If an index is invariance, it is unaffected by simple multiplicative transformations of the sex ratio. Comparison of countries and time periods is possible due to ineffectiveness of this index by the rate of female LFP.

However, index again depends on the factors other than the segregation such as the share of the men and women employment (Emerek et al., 2003:7).

b. In a parallel sense, it is also possible to compute the deviation of male distribution from total employment (Lewis, 1982).

$$I_L = 1/2 \sum_{i=1}^{n} \frac{T_i}{T} - \left(\frac{M_i}{M}\right) \quad (2.4)$$

And it is equal to I_L=aDI.

c. Karmel and Machlachlan (1988) combine Moir et al. 's (1979) and Lewis's (1982) studies and construct a new index with the purpose of keeping occupational structure constant. It measures the proportion of people who should be exchanged to get equivalent distribution of women and men.

$$I_{KM} = (1/T) \sum_{i=1}^{n} aM_i - (1-a)F_i \quad (2.5)$$

It is also equal one of the indices offered by Cortese (1976):

I_{KM}= DI_t=2a(1-a)DI

In the case of complete integration I_{KM} takes zero; and in case of complete integration it takes 2*(M/N)*(F/N).

Although it eliminates the problem of dependency to occupational structure (Reskin, 1993:244), the women's shares in labor force still highly affect the results (Emerek et al., 2003:8).

3. OECD (1980) developed two-stage index. First stage computes the ratio of female representation in an occupation to total labor force. Then, it is aggregated by computing a weighted average of the deviation of absolute coefficient from unity:

$$WE = \sum_{i=1}^{n} \frac{T_i}{T} C_i - 1 \text{ , where } C_i = \frac{\frac{F_i}{T_i}}{\frac{F}{T}} \quad (2.6)$$

By some computations (Flückiger et al., 1999:59), it is equal to WE= 2I_{MSS}= 2(1-a)DI.

In short, these variations and extensions are weighting DI with some functions to get another measure. Although the measurements may change, for well-defined problems the trends of all indices above expected to be same.

The second group of distribution analysis is used mean differences. Gini Index is used to measure the dispersion of sex ratio distribution from the mean distributions. Occupations are ordered by decreasing sex ratios.

$$G_s=(1/2(F/M)) \sum_{i=1}^{n} \sum_{j=1}^{n} F_i M_j - F_j M_i$$

or equivalently (2.7)

$$G_s= (1/2) \sum_{i=1}^{n} \sum_{j=1}^{n} f_i m_j - f_j m_j$$

where $f_i=(F_i/F)$ and $m_i=(M_i/M)$.

It takes zero in the case of full integration and one in the case of full segregation.

The last group uses the arithmetic mean as the central measurement. The standard deviation of the sex ratio is one way to measure the variation between sexes in an occupation.

$$CV^2= \sum_{i=1}^{n} \frac{M_i}{M} \left[\left(\frac{\frac{F_i}{F}}{\frac{M_i}{M}} - 1\right)\right]^2 \quad (2.8)$$

It has a lower bound of zero and no upper bound.

2.2.2 Indices Based on Grouping of the Occupations

The departure point of these indices is separating the occupations as female and male, instead of using the dispersion of sex ratio in an occupation.

In the first group, occupational grouping is done based on a cut point and unordered. Hakim's sex ratio index (SR), motivated from the overrepresentation of

female in some occupations and underrepresentation in others. The cut point of the grouping is the ratio of female employment to total employment.

Index measures the difference between the level of women in typically female jobs and the level of underrepresentation in typically male jobs.

$$SR = \frac{((F_f/T_f)/-(F_m/T_m))}{(\frac{F}{T})} \quad (2.9)$$

Index is criticized due to weighting by ratio of female to total. Siltanen (1990) standardized SR with eliminating the weightings.

$$SR_s = ((F_f/T_f)/-(F_m/T_m)) \quad (2.10)$$

Both SR and SR_s have zero as the lower limit. SR does not have any upper bound, but SR_s can take at most one (Flückiger, 1999:77-78).

In the scond category, grouping has an order[22]. Marginal Matching Index (MM) is computed by ordering the occupations in a decreasing M_i/F_i rate.

The main motivation behind this index is eliminating sex composition problem with keeping the marginal matched (Blackburn et al.,1995). Instead of behaving separately to all occupations like Gini, MM groups the occupations as female and male. The boundary lies where the total numbers of male workers equal to, total workers in *male occupations*. The main assumption of the index is the total number of workers in female (male) occupations is equal to total number of females (males):

$$MM=[(F_fM_m)-(F_mM_f)]/FM \quad (2.11)$$

Index can be rewrite using the assumption: $MM=(F_f/F)- (F_m/M)$

MM takes the value of zero in complete integration and one in complete segregation. However difficulty in computations makes it less preferable.

[22] Gini index is also order the occupations, but index not groups them; instead behave all occupations seperately.

Although all occupations are sensitive to occupational classification; SR and mostly MM is highly effected by any small change in categorization (Emerek et al.,2003:12).

2.2.3 Indices Based on Concept of Entropy

Entropy within the economic is used by Theil (1967) for the first time to measure inequality. It is applied to segregation by Theil and Finizza in 1971 to measure school segregation (Mora et al., 2009: 6). Then, Fuchs (1975:107) used it to study segregation by sex. Index takes zero in case of total integration, but the upper bound is undefined .

Fuchs used entropy in his study on professional occupations (Fuchs 1975:107[23])

$$I_f = H_D - H_s$$

H_D: sex mixing the professional group as a whole and equal to

$$H_D = \frac{M}{T} \log \frac{T}{M} + \frac{F}{T} \log(\frac{T}{F})$$

H_s: weighted sum of the "sex mix" in any occupations equal to

$H_s = \sum_i w_i H_i$ where $w_i=T_i/T$ and H_i , sex mix in occupation i, equals to

$$H_i = \frac{M_i}{T_i} \log \frac{1}{\frac{M_i}{T_i}} + \frac{F_i}{T_i} \log \frac{1}{\frac{F_i}{T_i}} \quad (2.12)$$

In a parallel manner, Hutchens (2004) suggests another index based on entropy and measures the inequality of the gender ratios.

$$I_H = \sum_i \frac{F_i}{F} \log[\frac{\frac{F_i}{F}}{\frac{M_i}{M}}] \quad (2.13)$$

[23] See Flückger et al. (1999:66-67) for extra and further discussion.

2.2.4 Other Indices

There are other various ways and indices used to measure sex segregation.

Charles' Association index is based on log multiplicative model (Charles and Grusky, 1995).

$$C=\exp\{(1/n) \quad \sum_{i=1}^{n}[\ln(F_i/M_i) - ((\frac{1}{n}) \quad \sum_{i=1}^{n}\ln(\frac{F_i}{M_i}))]^2\} \qquad (2.14)$$

C is the unweighted standard deviations of sex ratios in logarithmic. Giving a weight of 1/n prevent any effect of occupational composition of the labor force to index. The logarithms of the sex ratio are used instead of direct standard deviations, since using unweighted means make arithmetic mean meaningless which is used to compute standard deviation. Index takes the value of one in the case of total integration and upper boundary is not defined. However if there is no women in an occupation, this index cannot be computed.

Kakwani Index is a class of segregation index, $S_{\beta,}$ based on the F distribution. It measures whether sex segregation increased or decreased over two periods or between two countries (More et al., 2005:3).

In general it is defined as:

$$S_{ß}=[(a^{ß}(1\text{-}a)^{ß}) \quad \sum_{i=1}^{m}(f_i - m_i{}^{ß+1}/ \quad {}_{i}^{ß})] \qquad (2.15)$$

where: $f_i=(F_i/F)$; $m_i=(M_i/M)$; $a=F/T$; $_i$:$af_i+(1\text{-}a)m_i$ and $ß\geq 0$

If $\beta=0$, it is equal to DI $\beta=1$ is used to test hypothesis that sex segregation is zero. The lower bound of index is zero. Kakawani index is maximum if either f_i of m_i equal to zero.

James and Tauber (1985: 29) introduce Atkinson Indices to measure segregation. The calculations based on a parameter determined according to believe that whether women dominated occupations or men dominated occupations contribute more on segregation.

$$A = 1 - \frac{F/T}{1-(\frac{F}{T})} \quad (1 - \frac{F_i}{T_i})^{1-e} \quad \frac{F_i}{T_i}^{\ e} T_i/F^{\ 1/(1-e)} \qquad (2.16)$$

where e assumed as $0<e<1$ for the purpose of getting well defined and chosen by analyst. e should be between 0.5 and 1 if the women dominated occupations is considered to contribute more on segregation; and should be set between 0 and 0.5 if male dominated occupations are considered as more contribute to segregation. If someone thinks they have equal contributions, e should be set as 0.5.

2.3 Empirical Studies

Table 2.3summarize some of the studies interested in OSS and its extent. All the studies agree on the persistence of the problem and its nation-based characteristics. There are three common points of these empirical studies. First, segregation should be analyzed country based. Even there are differences between European countries; the developing ones perceive the divergence deeper. Second, different indices may result with different ends. Lastly, the occupational categorization is significant if the study interest in the extent of the OSS.

There are some studies showing the characteristics any proper index should have[24]. Any extended discussion on these characteristics is out of the scope of this study. However, all have advantageous and disadvantageous. The important thing in the use of any index is consistency of tools and analysis. In other words, what index measures should be understood and outcome should be presented accordingly. Indices are expected to present permanency of sex segregation in Turkish labor market. However, they are focusing on the comparison of proportions and lack of any direct income analysis. Thus they will be calculated for different groups according to income levels[25].

[24] There are significant studies on the necessary requirements an index should have: see Flückiger et a.,l 1999, Blackburn et al., 2009, Mora and Ruiz- Castillo, 2005

[25] Except the equations 2.3,2.4 (I_{KM} combines both), 2.9 (Standardized version is used instead) and 2.12 (Fuchs use the index for professional groups, as a case study in a narrow sense. It is calculated but the outcomes are too small, may be due to broadness of categorization).

Table 2.1: Empirical Studies on OSS

Study	Measure	Data	Findings
Emerek et al. ,2003	I_{KM}, ID, WE	EU between. 1995- 2000	1. Overall segregation decreased but occupational structure and participation rates of female are changing. However, countries show different trends. 2. Exclusion of part time: Netherlands, UK, Germany, Belgium better of; Italy, Greece, Finland, Spain and Portugal worst off. 3. Exclusion of self-employment: Denmark, UK, Ireland better of; Portugal, Spain worst of 4. Agricultural exclusion:worst of Portugal and Ireland although they have high share of agriculture.
Blackburn et al.., 2001	Pay differ.& Cambridge scale.	British LFS 1991& 1995	1. When all employers in concern, women is disadvantageous but the horizontal component found more contributor than vertical component 2. Part time is more segregated than full time works. 3. Manual sector more segregated than non-manual sector.
Blackburn et al.., 1995	SR, ID, I_{KM}, MM	English and Wales data between 1951 and 1981	1. SR differs for female segregation and male segregation (not symmetric) 2. SR* is increasing, DI is decreasing, MM fluctuated but same for 1951 and 1981 3. Same level of segregation does not mean nothing changes. Segregated integration is in act.
Swanson, 2005	ID	ILO, calculated for 29 countries. Also regression analysis for explain components of D.	1. Mean is 52.2 for developing countries, 56.9 for Eastern European countries, 53.3 for developed countries * 2. $D = \beta_0 + \beta_1\ per\ capita\ GDP\ + \beta_2\ urban\ population\ \% + \beta_3(infant\ mortality)$ found that as GDP increases or infant mortality decreases (says country developed) ID increases; as urban population % increases (developed) DI decreases.
Charles and Grusky, 1995	ID, ID_s, C (Association Index)	8 Nations from ILO- non agricultural sectors.	1. The results are given in Table 2, pp.944 2. The trends of ID, ID_s differs from C: Switzerland is highest with C, bur middle in ID; Turkey and Japan are outliers in ID and ID_s, but not under C. 3. Same occupations can dominate by different sexes in different countries. 4. Turkey and Greece have top heavy segregation patterns 5. Two nation disaggregated analysis show Japan has higher segregation index.
Fuchs, 1975	ID, ID_s, I_f (Theil's entropy index)	US Census data 1950,1960,1970	1. All indices show significantly decline between 1960-1970. 2. Between 1960- 1970, most contributor to decline is elementary school teachers and registered nurses
Hakim, 1992	SR	Britain 1901-1990	1. As female share increases, sex segregation decreases over time especially in 1980s.

Table 2.1 continued

Hutchens, 2004	Square root index	1980- 1990- 2000, 21 occupations	1. Women increase the share in male- dominated occupations 2. Segregation reduced in aggregate occupations 3. With categorizing them according to wage levels (high- medium- low), most of the segregation found in the intermediate sectors 4. The declining segregation mainly due to declining contribution of high sectors. 5. Link between occupational segregation and earnings became weaker through time.
Anker et al., 2003	DI and DI adjusted (pp.10)	ILO Segregat databases around the year 2000	1. Found lowest in Asia and highest in middle East. 2. DI values are converging all over the world 3. Calculated in non-agricultural labor force, Dı found decreased. 4. Levels are higher in Transition economies than developed countries.
Meulders et al. ,2010	DI and I_{KM}	European countries	1. Segregation found high and little change from 1900s 2. On average it is found as 25.2; the highest: Estonia (32.2%), the lowest: Greece (22.4%)
Jurajda et al., 2007	DI and DI_s	Czceh Republic, 1999 data	1. Found less on younger cohorts having territory education, then older and non-territory education. 2. Decreasing due to gender composition of occupations, rather than occupational structure.
Harrison,2004	DI, I_{KM}, MM,G,Atikson with using different delta levels for HS Internal labor market practices for VS**	Australia for both workplace and occupations AWIRS 90 and 95 (interviews)-workplace datasets	1. Relatively high degree of workplace segregation, lower than unit group levels of occupations 2. Workplace segregation falls overtime. For the occupational groups other than Atkinson indices they have similar trend to reduce segregation. 3. Internal labor market analysis shows strong glass ceiling effects (pp.343)
Karmel and Machlenan,1999	I_{KM}	1966-1984 Labor force Survey, 58 occupations of Australia	1. Segregation rises 2. Highly skilled occupations not really contribute to segregation, but lower ranking occupations decreases. 3. Male dominated occupations more contribute to segregation, the occupations reduce segregation are mostly gender neutrals

*Classification is based on UN classification of countries.
**HS: Horizontal Segregation, VS: Vertical Segregation

Source: Taken from relevant study written in "study" part

CHAPTER 3

TRENDS AND PATTERNS OF OCCUPATIONAL SEX SEGREGATION AND TURKEY

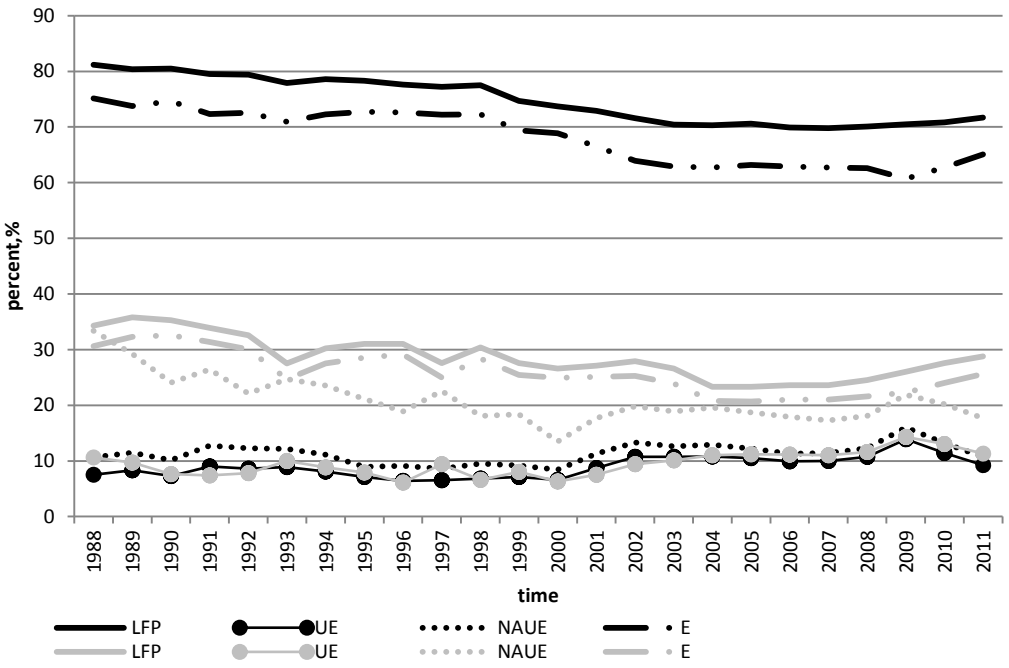
Second chapter discussed the literature on the existence, extent and persistence of OSS. This chapter will start with describing occupational structure of Turkish labor market. Then the literature will be reviewed again on how different variables affect the trend and extent of the OSS. In the light of these variables, the characteristics of and general trends in Turkish labor market will be discussed. In other words, this chapter draws a general picture on occupational structure, OSS and Turkish labor market and provides necessary information on the factors effecting OSS and Turkey for analyzing the data.

3.1 Occupational Structure

The occupational categorization was based on ISCO68 between 1988 and 2000 and ISCO88 after then. As a result, the comparison over time is difficult; but some broad comparison can be discussed. Before analyzing occupational structure of Turkish economy, figure 3.1 and table 3.1 give a brief summary about Turkish labor force.

3.1.1 Summary of Key Variables on Labor Market:

Figure 3.1 summarizes Turkish labor market in terms of LFP, UE, non-agricultural unemployment (NAUE) and employment of men and women separately in economically active population. Dark lines represents men, light ones represents women.



Source: HLFSs 1988-2011, Turkstat

Figure 3.1 Labor Statistics, Summary

First, the sex gap in participation of labor force is high and persistent. Labor force sex ratio is calculated as 240% in 2011[26]. Second, LFP rates of both sexes have decreased over time, while UE rate have been increasing. Less participation of women with same rates of unemployment indicates inactivity and/or discouragement are significant problems' of women. Third, the difference between UE and NAUE supports the domination of women in agricultural sector. Fourth,

[26]Calculated using HLFS.

decline of NAUE of women indicates two things: Either non-agricultural employment opportunities are increasing for women or ex-agricultural employees becomes discouraged workers. Both may occur at the same time. The data sets show that the first is dominant in urban, whereas the second is dominant in rural.

Table 3.1 shows the subordination of Turkish women laborers. As belong to bottom-ranked countries, Turkey is good at male employment. However, women employment is catastrophe, even compared within group.

Table 3.1: Employment and Unemployment Rates, 2011

Country[27]	**Employed***		**Unemployed****	
	M	F	M	F
DK	75.9	70.4	7.7	7.5
IE	63.1	55.4	17.5	10.6
FR	68.2	59.7	9.1	10.2
ES	63.2	52	21.2	22.2
MT	73.6	41	6.2	7.1
HU	61.2	50.6	11	10.9
TR	69.2	27.8	8.3	10.1
**** LFS, Detailed annual survey results (age 15-64); ** LF Adjusted Series***				

Source: LFS series,2001

These are also supported by WB dataset of 2010: the sex ratio of LFP (women/men) as 39.35 ranked 195 over 215; UE in Turkey as 11.89 ranked 52 over 63 countries and women UE rate calculated as 13 (49th over 62). Nonetheless, the UE rates are alarming for all countries; especially countries experience crises like Spain.

In short, Turkish labor market, especially women, is at an inferior position compared to top or top-middle- ranked countries. Invisibility in non-agricultural

[27] The countries are grouped according to their GDP at market prices of 2010 (the end year of data will be used in Chapter 4): bottom-ranked, low-ranked, low-middle ranked, modestly-ranked, high-middle ranked, high-ranked and top-ranked. Each group contains five countries. See Appendix , Table A1 for the ranking and labeling. The countries either will be chosen within these groups, ie. one from each or the top- medium- and bottom rank countries will be compared to Turkish position in the relevant issue. In the first case, if data is available, the countries at the middle of each group will be chosen except bottom-ranked group. If data is not available the closest will be taken. Turkey will be taken from the bottom-ranked group.

sectors, inactivity and discouragement are the main reasons behind the inferiority of Turkish women.

Parallel to analysis of LFP, inactivity rate of Turkish people increasing and the gap between sexes extends over time (Turkstat HLFSs). Based on the Eurostat data, Turkey has the highest percent of inactive rate among EU-ext[28] countries with 46.8%. and the highest rank for women inactivity[29]. Turkstat HLFSs indicate that main reason behind the low participation rates of women is still remain as housework (Turkstat, 2006). On the other hand, schooling and retirement are two main reasons for men. In other words, the reason behind the men's inactivity is depend to labor market- based such as human formation or post labor market activities like retirement. On the other side, women's inactivity depends on family activities that are not counted in labor market activities. OECD Family database presents Turkish women spend the lowest part of her day to human capital accumulation compared to women of other nations. She spends most of her time to care activities, 5.28 hours per day.

3.1.2 Summary of Key Variables in Occupational Structure:

Table 3.2 shows the growth rates of employment by occupational groups over a decade. Other than skilled agriculture workers and crafts, the employment has increased.

Table 3.2: Growth Rates of Employment by Occupational Group 2001-2011[30]

Occp.	total	OA	OB	OC	OD	OE	OF	OG	OH	OI
%	10.73	12.31	27.62	27.4	42.86	35.39	-58.57	-3.94	29.38	52

Source: Computed from HLFSs of Turkstat

[28] EU-ext indicates EU countries and candidate which ILO interested and present data about.

[29] Europe (27) total: %28.8 and for women %35.1. For men inactivity there are various countries higher than Turkey.

[30] OA: Legislators, OB:Professionals, OC: Technicians, OD: Clerks, OE:Sales and Service Workers, OF: Skilled Agriculture and Fishary, OG:Crafts, OH:Operators, OH:Elemantary Occupations

In absolute terms, after skilled agricultural workers the most important change is in elementary workers which increase 52%. It followed by clerks and sales and service workers. These are the occupations with higher female participation. In other words, ex- agricultural workers are shifted to elementary occupations which do not necessitate any extra quality improvements. This means men preserve the monopoly on the high-ranked occupations with keeping growth rate relatively low.

Figure 3.2 shows the sex ratios (men/women) within occupations. Dashed light line is sex ratio in total employed people.

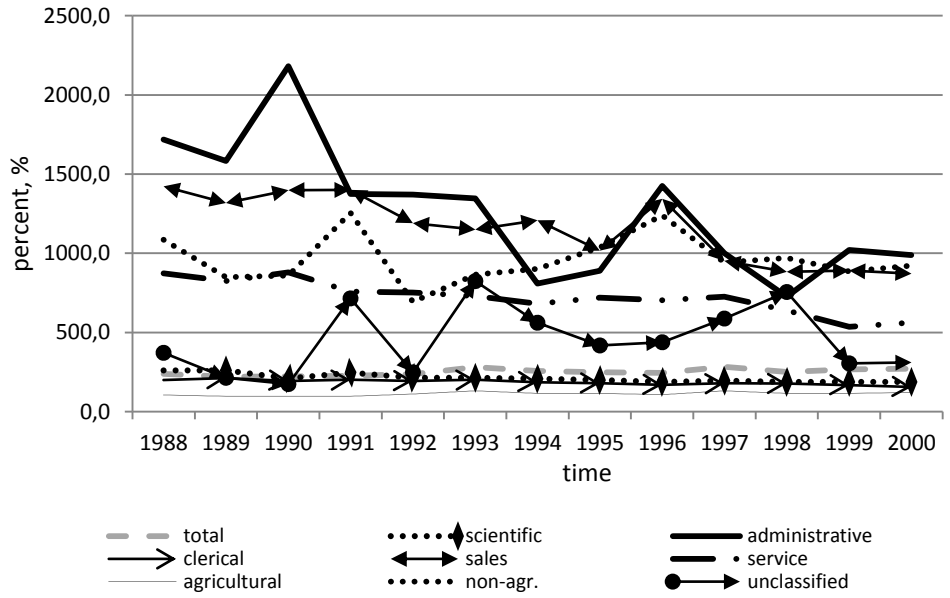


Figure 3.2: Sex Ratio 1988-2000,ISCO68:

Source: Turkstat HLFSs

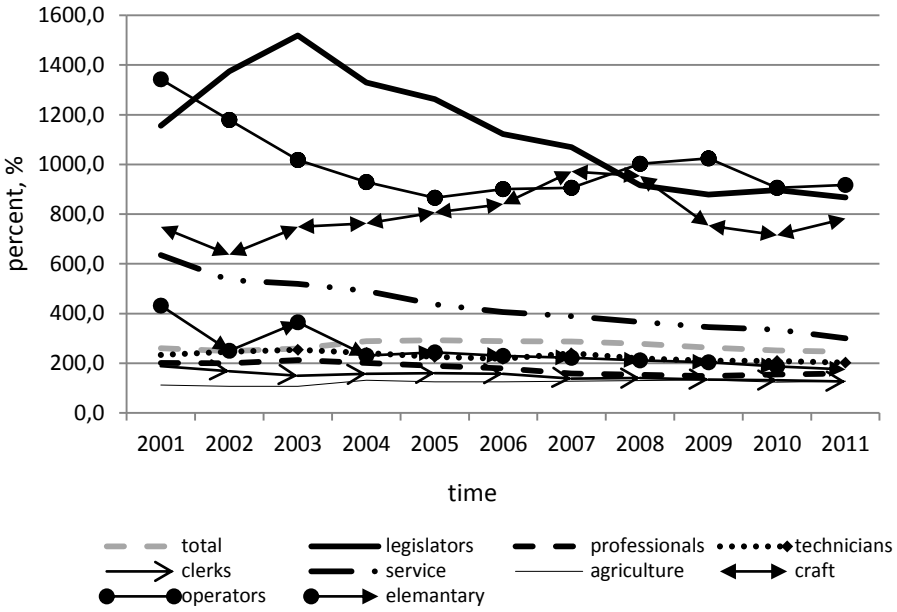
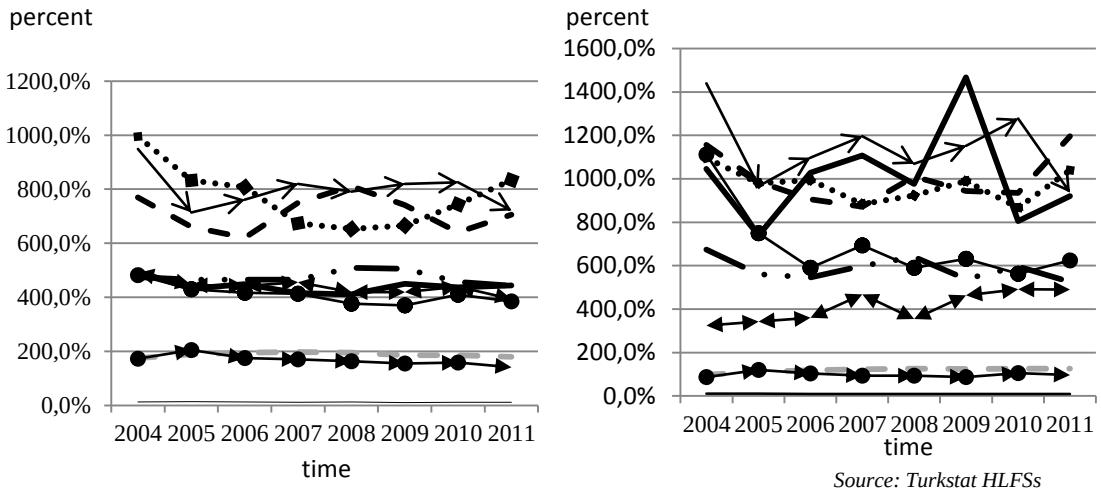


Figure 3.3: Sex Ratio 2001-2011, ISCO88

Source: Turkstat HLFSs

Considering the DI, occupations above the *total* line is the ones that should be redistributed to get identical distribution. Significantly, there is no occupation that shifted from above/below overall sex ratio to below/above overall sex ratio. Below the *total* line the occupations have smoother trend. In other words, the occupations with more women have more stable sex ratio; but sex ratio of male-dominated ones more fluctuates. It means male-dominated occupations experienced more structural change.

Another important point is *convergence of occupations*, especially after 2000s. It means some of the occupations centered or move through to a center over time. Occupations can be segmented into two: the ones which converge to total sex ratio: service, agriculture, technicians, clerks, professionals and elementary and the others which diverge from total sex ratio but converge to a bound: operators, legislators, crafts. The sex ratio gap between two groups is high. Regional findings support segmentation.



Source: Turkstat HLFSs

Figure 3.4: Regional Ratio 2004-2011

Figure 3.3 shows the regional ratio (urban/rural) of occupations. There are mainly four occupational segments, two are more rural favor (agricultural; elementary) and other two are urban favor (service, legislators, operators and craft; clerks, professionals and technicians). The regional ratio for women (urban women/rural women) shows similar segmentation patterns except legislators.

Table 3.3: Female Ratio of Occupationa (ie.OA_f/OA_t), 2010

	TOTAL	OA	OB	OC	OD	OE	OF	OG	OH	OI
CH	0.46	0.33	0.36	0.56	0.7	0.68	0.3	0.14	0.16	0.64
IE	0.47	0.39	0.56	0.48	0.73	0.67	0.06	0.05	0.15	0.38
FR	0.48	0.39	0.45	0.53	0.74	0.73	0.24	0.08	0.18	0.66
ES	0.44	0.34	0.54	0.47	0.65	0.64	0.2	0.07	0.13	0.58
CZ	0.43	0.28	0.48	0.53	0.75	0.66	0.32	0.09	0.27	0.6
HU	0.47	0.37	0.56	0.64	0.75	0.6	0.26	0.13	0.28	0.55
TR	0.28	0.1	0.4	0.33	0.43	0.23	0.46	0.12	0.1	0.35

Soure: LFS series- Detailed Annual Survey Results, 2010

Table 3.3 indicates that, the participation of Turkish women is too low. In addition among the all EU-ext countries, Turkey ranked at the bottom. The highest gap between other countries is the participation of women to legislative occupations.

Only occupation Turkish women have certain superiority is skilled agricultural occupations. However, even women consist less than half of skilled agriculture workers. On the other side, women of almost all countries have superiority in some occupations. *Developed world* has superiority on women in terms of clerks, sales and service workers, elementary occupations and technicians. Only in crafts women representation is below than 15% in world wide.

Table 3.4 The Shares of Occupations in Women Employment

	OA	OB	OC	OD	OE	OF	OG	OH	OI
CH	0.05	0.14	0.28	0.16	0.21	0.02	0.04	0.02	0.08
IE	0.11	0.24	0.07	0.21	0.27	0	0.01	0.02	0.06
FR	0.07	0.13	0.21	0.18	0.2	0.02	0.02	0.03	0.13
ES	0.06	0.17	0.14	0.14	0.25	0.01	0.02	0.03	0.19
CZ	0.03	0.11	0.31	0.14	0.19	0.01	0.04	0.09	0.07
HU	0.06	0.18	0.18	0.15	0.19	0.01	0.04	0.07	0.1
TR	0.03	0.1	0.07	0.11	0.1	0.31	0.06	0.04	0.18

Soure: LFS series- Detailed Annual Survey Results, 2010

The exceptional characteristic of women is also supported in Table 3.4 where the shares of occupations in women employment is shown. The agricultural work has an exaggerated share in women employment. On the other hand, technicians, clerks and sales and service workers consist the main proportion of women in developed countries. In short, the occupational allocation of Turkish women contradicts with developing world.

Table 3.5 Age Profiles of Women Within Occupations, Turkey- 2010

Occ/age	15-24	25-49	50-64	65++
OA	5.2%	83.1%	10.3%	1.5%
OB	10.0%	84.0%	5.8%	0.0%
OC	21.7%	75.7%	2.6%	0.0%
OD	28.1%	69.6%	2.2%	0.0%
OE	30.2%	62.1%	7.2%	0.4%
OF	22.2%	68.4%	8.1%	1.2%
OG	13.3%	54.2%	26.4%	6.2%
OH	33.7%	63.8%	2.3%	0.0%
OI	18.0%	65.3%	14.6%	2.1%

Source: LFS Series, Detailed Annual Survey Results, Eurostat

Table 3.5 presents age structure of occupational distribution in broad age categories for women. All occupations have the majority of employment from middle age groups. Operators, services, clerks and technicians have relatively young workers; whereas skilled agriculture and elementary has older. The lower share of women after 50 ages supports the argument of early retirement among Turkish labor market (ÇSGB 2011:61).

The report of WB (2010:13) also presents informality in Turkey among occupational professions (Table 3.6). Except agriculture workers, the informality is increasing in all occupations. The main reason of this contradiction is decreasing population share of agriculture and the extra high rates of unregistration. The other decline is experiences in crafts; however, informality has also increased among crafts. The findings indicate that new comers enter labor force in an unregistered form.

Although rural unregistration may be supply side preference; in urban social security registrations are in the hand of employers. Informal worker get lower wages, have higher risk to lie off and working conditions than formal colleagues. It is a way to escape rigidity of labor market. In short, Turkish workers suffer due to informality.

Table 3.6: Occupation and Informality, TR

	2001		2006	
	Population share	%Informal	Population share	%Informal
OA	8.2	15.9	9.1	26.9
OB	5.9	5.1	6.7	6.6
OC	5.1	11.8	6.1	15.9
OD	4.6	9.8	6.1	15.8
OE	9.2	43.1	11.6	45.1
OF	34.3	91.5	21.5	85.8
OG	15.8	41.6	14.6	47.3
OH	8.2	29.1	10.7	32.3
OI	8.7	54.1	13.7	63.5

Source: WB LFS 2001, 2006.

Table 3.7 presents the occupational wage settings based on hourly wages and working hours of sexes. The findings change whether hourly wage or monthly wage is taken into account. For instance, GWG[31] computed negative for legislators and skilled agricultural workers when hourly wages are used; however when same technic is used with monthly wages (GWG2[32]), they are positive. Occupations are ranked according to GWG and GWG2 at a decreasing ratio and written in parenthesis. The worst for women in both hourly and monthly wages is professionals. Other occupations differ in ranking depending on whether hourly or

[31] It is unadjusted Gender Wage Gap defined by European Comission. Calculated as the difference between hourly wages of sexes expressed as the percentage of men's wage.

[32] Calculated with the same technic but using monthly data to take into account different working hours of sexes.

monthly wages concerned. The main focus of this study is monthly earnings[33], thus monthly wage analysis will be made when the data is available

Accordingly, GWG2 is less in clerks followed by legislators and technicians. Note that gender wage gap does not have linear relation with sex ratio. Professionals have low sex ratio but high GWG2. On the other hand, clerks with low sex ratio have also low GWG2.

Table 3.7: Occupational Wage Settings by Sex, 2010

	Sex	Euro/hours	Hours/month	Euro/month	hourly wage rate	monthly wage rate	GWG	GWG2
OA	M	9.17	58.9	540.113	0.92	1.09	-8.72 (9)	8.26 (8)
	W	9.97	49.7	495.509				
OB	M	18.52	41.6	770.432	3.99	2.54	56.48 (1)	60.56 (1)
	W	8.06	37.7	303.862				
OC	M	4.64	49.1	227.824	1.05	1.15	5.17 (5)	12.90 (7)
	W	4.4	45.1	198.44				
OD	M	4.06	48.7	197.722	1.04	1.08	3.69 (6)	7.06 (9)
	W	3.91	47	183.77				
OE	M	2.78	56.6	157.348	1.03	1.18	2.88 (7)	15.58 (6)
	W	2.7	49.2	132.84				
OF	M	2.83	46	130.18	0.97	1.24	-2.83 (8)	19.30 (5)
	W	2.91	36.1	105.051				
OG	M	3.12	54.7	170.664	1.20	1.66	16.67 (3)	39.82 (2)
	W	2.6	39.5	102.7				
OH	M	2.67	54.5	145.515	1.28	1.34	21.72 (2)	25.60 (4)
	W	2.09	51.8	108.262				
OI	M	2.47	52.4	129.428	1.17	1.43	14.17 (4)	30.22 (3)
	W	2.12	42.6	90.312				

Source: Constructed From Eurostat Database

Using Eurostat hourly wage data, GWG is calculated for occupations within different sectors except agriculture. Skilled agricultural workers are excluded due

[33] Although there is a legal bound of working hours a week in Turkey, it has not been applied restrictly like most of the Europe. Most of the people earn fix amount regarless of hours he/she works. This makes monthly earnings more relevant for analysis of Turkey.

to exclusion of agriculture sector and lack of observations. Findings are presented in Table 3.7. Subgrouping is based on NACE2 categorization.

Table indicates that sectors are binding for all occupations and there is no systematic link between sectors and occupations[34]. Among all, crafts working in construction has the lowest GWG and sales and service workers in Services (Public administration, defense, education, health services and social work, arts, entertainment and other services) have high GWG.

Table 3.8: Gendre Wage Gaps ,Sectors- Occupations, 2010, in Euro

		OA	OB	OC	OD	OE	OG	OH	OI
INDUSTRY	SB	-16.03	24.65	-8.72	15.80	*na*	-28.61	*na*	*na*
	SC	-2.40	32.16	9.50	12.61	*na*	*na*	*na*	*na*
	SD	8.34	18.01	8.34	0.16	*na*	24.20	*na*	*na*
	SE	-6.78	31.82	-7.18	0.18	50.09	*na*	*na*	*na*
CST	SF	16.00	20.68	0.81	8.10	-3.80	-64.19	24.33	-8.13
SERVICES	SG	-17.37	27.41	-31.70	7.94	*na*	*na*	*na*	4.59
	SH	-45.11	25.93	12.91	4.93	-4.97	*na*	*na*	5.53
	SI	-9.35	8.61	8.02	-0.99	*na*	*na*	*na*	18.01
	SJ	2.32	-13.92	9.04	13.54	*na*	*na*	17.47	18.35
	SK-SN	8.34	20.78	-0.76	0.18	-5.73	*na*	24.21	*na*
	SO-SS	5.74	75.73	7.59	12.74	30.00	-48.59	30.74	15.83

Source: Constructed from Eurostat Source: The Structure of Earnings Survey (SES) 2010

The Table 3.9 shows the relationship between the size of workplace- sex- hourly wage and occupations. Other than high status occupations, working in extended industries offer higher wages.

Managing a firm with 250- 499 worker offers the highest wage. Professionals in size 4 and women technicians in size 3 get more wages. In addition, fewer occupations in all industry sizes offer similar wages for men and women. The people working other than legislation and professionals, the smaller industry size is beneficial for equality of sexes' wages. The sexual wage differential in more

[34] As it will be discussed, the sectors are also significant to explain decision of occupational choice

crowded industries is high and on behalf of men. In addition, GWG for occupations in terms of industry sizes is fluctuating between -0.5 and 0.5. The findings support the idea that men are benefiting more from increase in industry size when industry is more crowded.

Table 3.9 :Industry size, Wage, Occupations, 2010

Occ.	Size/ sex	Size 1		Size 2		Size 3		Size 4		Size 5	
		hour	mont	hour	mont	hour	mont	hour	mont	hour	mont
OA	M	8.12	1229	9.62	1856	11.9	5075	13.29	2582	14.73	2108
	F	5.44	1241	10.4	2008	14.7	4141	11.35	2168	16.4	12276*
OB	M	5.85	855	7.41	1605	12.62	1475	115.11	22277*	10.64	1879
	F	3.58	641	6.24	1219	9.71	1529	22.57	4257	9.84	1493
OC	M	3.19	589	3.15	938	4.27	871	6.02	1202	7.3	1363
	F	3.49	512	4.22	912	4.93	2721	4.95	953	6.34	1009
OD	M	2.73	531	3.44	655	5.49	1080	3.7	749	5.54	1093
	F	2.56	435	3.74	631	4.77	931	3.53	699	5.69	1090
OE	M	2.38	414	2.85	552	2.33	456	3.45	707	5.1	779
	F	2.37	389	1.77	538	2.72	533	3.32	684	3.98	695
OG	M	2.19	387	2.55	541	2.57	524	3.59	738	5.52	1299
	F	2.18	396	12.56	441	1.85	362	2.23	468	4.42	893
OH	M	2.13	427	2.53	516	3.15	637	2.99	639	5.5	1105
	F	1.99	390	1.85	404	2.05	412	2.19	457	3.13	683

Skilled agricultural workers and elementary workers are excluded due to lack of information.
* Women legislators working in size 5 and professional men working in size 4 are outliers among the all results
Size1: 10-49, Size2: 50-249; Size3: 250-499; Size4: 500-999, Size 6:1000+;

S***ource: The Structure of Earnings Survey (SES) 2010, Eurostat***

Lastly the regional analysis of occupations and gender pays are presented over time (Table 3.10[35]). GWG is calculated based on annual average wage.

On average, wages have increased for both sexes and for both regions. In total wage rate and gender wage gap is decreasing over time. However there are occupational variations. In Turkey and urban areas ratios are increased among legislators, professionals, technicians, sales and service workers, and skilled

[35] For information in detailed see Appendix Table A2.

agricultural workers. In rural areas, except professionals, technicians and skilled agriculture workers, all of which are increased, the trends are contrary.

Table 3.10: Average Annual Incomes, GWG, Sex, Occupational Groups, Regions

	Total				Rural				Urban			
	M	F	WR	GWG	M	F	WR	GWG	M	F	WR	GWG
Total	0.02	0.11	-0.10	-0.28	0.02	0.14	-0.14	-0.19	0.03	0.07	-0.05	-0.14
OA	-0.05	-0.10	0.05	0.22	-0.23	-0.10	-0.13	-2.30	-0.01	-0.09	0.07	0.28
OB	0.14	0.08	0.07	0.28	0.25	0.20	0.06	0.61	0.14	0.06	0.08	0.27
OC	0.02	-0.03	0.05	0.17	0.15	0.25	-0.13	1.22	0.02	-0.06	0.07	0.24
OD	0.00	0.07	-0.07	-0.28	0.24	-0.04	0.27	0.44	-0.03	0.07	-0.11	-0.49
OE	0.11	-0.02	0.12	0.22	0.05	0.24	-0.25	-0.63	0.12	-0.05	0.16	0.27
OF	-0.06	-0.19	0.11	0.08	-0.04	-0.16	0.11	0.08	-0.13	-0.42	0.20	0.11
OG	0.00	0.13	-0.14	-0.06	0.03	-0.06	0.09	0.06	-0.02	0.17	-0.22	-0.09
OH	0.05	0.10	-0.06	-0.15	0.06	-0.01	0.07	0.26	0.05	0.12	-0.09	-0.19
OI	0.02	0.11	-0.10	-0.17	0.07	0.03	0.04	0.04	-0.01	0.08	-0.10	-0.19
M: male; F:female; WR: Wage rate; GWG: Gender Wage Gap												

Source: Turkstat, Income and Living Conditions Survey, 2006-2010

3.2 The Factors Effecting Occupational Sex Segregation in Work Place and Turkey

There are many explicit and implicit variables affecting the scale and patterns of sex segregation in workplace. Moreover, these variables affect different countries in different ways.

Explicit factors are external to labor market but implicit to countries' economies, whereas implicit factors are coming from labor market itself and internal to labor market.

3.2.1 Explicit Factors

Development level affects the structure and direction of sex segregation (Anker et al., 2003:4). Until the beginning of the 1960's GDP per capita was used to measure a country's development level (Mazumdar, 1996). However, the failure of purely material analysis of development made the necessity of more flexible thinking on development. Although there are various studies on indicators of economic

development, there could not exist unique and standard packages to measure development level of a country. Swanson (2005: 50) by analyzing 29 countries found that among the three measures of development, high GDP per capita and low infant increase segregation while any increase in urban population ratio lowers it. Hahm (1991: 28) with analyzing panel data of 71 countries from world-system point of view found that economic development encourage women integration to traditional female occupations. Cartmill (1999:27-28) with analyzing 44 nations, found that economic development affect developed countries positively; but serve as a segregator in developing countries by encouraging women to low status service sector[36].

Parallel to studies on economic development and OSS; the main indicators of development are GDP per capita, infant rates and urban population. Death rates, literacy rates, and poverty measures can also be added[37].

Table 3.11: GDP at market prices, base 2005

GEO/TIME	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**	**2012***	**2013***
CH	97.4	100	103.8	107.7	110.1	107.9	111.2	113.4	114.3	116.3
IE	94.9	100	105.3	110.8	107.5	100	99.5	100.2	100.8	102.7
FR	98.2	100	102.5	104.8	104.7	101.4	103.1	104.9	105.4	106.8
ES	96.5	100	104.1	107.7	108.7	104.6	104.3	104.7	102.8	102.5
MT	96.5	100	103.2	107.9	112.2	109.5	113.2	115.4	116.8	119
HU	96.2	100	103.9	104	104.9	97.8	99	100.7	100.4	101.4
TR	92.2	100	106.9	111.9	112.6	107.2	116.8	126.8	130.9	136.9
***** *2012 and 2013 are forecasts.*										

Source: Eurostat, Annual National Account,

http://epp.eurostat.ec.europa.eu/portal/page/portal/national_accounts/data/database

Turkey has a rapidly increasing GDP per capita level compared to other countries and it is expected to increase. This trend is generally same for bottom-ranked countries. On the other hand, the countries on the top have modestly increase in

[36] For discussion on which factors differently affect developed and developing countries see Cartmill, 1999.

[37] Although all variables affect the well-being of individuals may indirectly effect economic development; but the other variables will also be analyzed in the following pages.

GDP levels since they have already high levels of GDP per capita. In addition UNICEF country statistics shows that Turkey has annual inflation growth of 46% between the years 1990-2010, when the growth rate of GDP is only 2.3%. The difference is -0.1%,1.7%,,-0.7% and -1.9% for Switzerland, Ireland, France and Spain respectively.

The other possible development indicators are shown in the Table 3.12. and Table 3.13.

Table 3.12: Development Indicators 1

	Infant mortality rate (under 1)		Life expectancy at birth			Crude birth rate- crude death rates			Total fertility rate
Country	1990	2010	1970	1990	2010	1970	1990	2010	2010
CH	7	4	73	78	82	7	3	2	1.5
IE	8	3	71	75	80	11	5	10	2.1
FR	7	3	72	77	81	6	4	4	2
ES	9	4	72	77	81	11	1	2	1.5
CZ	12	3	70	72	78	4	0	1	1.5
PL	15	5	70	71	76	9	5	1	1.4
TR	66	14	50	63	74	23	18	13	2.1

Source: Unicef Country Statistics; http://www.unicef.org/infobycountry/index.html

Table 3.13 Development Indicators 2

	Population annual growth rate (%)			% of population urbanized	Average annual growth rate of urban population (%)			% of population using improved drinking water sources	% of population using improved sanitation facilities
Geo	1970-90	1990-2010	2010-30	2010	1970-90	1990-2010	2010-30	2008	2008
CH	0.4	0.7	0.3	74	1.6	0.7	0.5	100	100
IE	0.9	1.2	0.9	62	1.4	1.6	1.5	100	99
FR	0.6	0.5	0.4	85	0.8	1.2	0.8	100	100
ES	0.7	0.8	0.4	77	1.4	1	0.7	100	100
CZ	0.3	0.1	0.1	74	1	0	0.4	100	98
PL	0.8	0	-0.1	61	1.6	0	0.3	100	90
TR	2.1	1.5	0.9	70	4.3	2.3	1.4	99	90

Source: Unicef Country Statistics; http://www.unicef.org/infobycountry/index.html

Table 3.12 shows that despite the improvement; Turkey has significantly low infant rates. The life expectancy at birth is also increasing, but it is still the lowest one among the chosen countries. Fertility rate is high, but compatible with other countries; however net increase in (crude) population is higher than other countries. In addition Table 3.13 shows that the population growth and urbanization are decreasing, but still higher than most of the countries. % of population urbanized is among the lowest countries at 2010 and the growth rate of urban population is increasing at a decreasing rate. However; it was high between 1970 and 1990. Lastly, Turkey is the only country that has some proportion of population who cannot reach improved water sources and one of the highest proportions who cannot access improved sanitation facilities.

In terms of poverty and inequality, international sources provide necessary information. The outcomes of Eurostat SILC data-2006 is presented in Table 3.14. In Turkey, the risk of poverty is high compared to other countries. In all countries female face with more risk of poverty rate; however, this situation change when in work risk is in concern. On the other side, unlike their companions, Turkish female have more in work poverty risk than male. Table also shows that the first quintile (low-income) gets lower than 10% of income whereas the fourth quintile (high-income) gets more than 50% of income. Even among her own category (bottom-ranked countries), Turkey has the most unequal distribution of income.

Table 3.14: Poverty and Inequality

	At risk of poverty rate*		In work risk of poverty rate		Distribution of income			
GEO/TIME	**F**	**M**	**F**	**M**	**Q1**	**Q2**	**Q3**	**Q4**
DN	12.0	11.4	3.5	5.4	13.1	20.8	26.6	39.5
IE	19.5	17.5	6.0	6.3	11.0	17.5	25.2	46.3
FR	14.0	12.3	5.6	6.4	12.4	19.2	25.5	42.9
ES	21.3	18.5	7.8	11.2	10.1	18.4	26.6	45.0
MT	14.7	13.3	1.8	5.1	12.1	19.2	26.4	42.3
HU	15.5	16.3	5.4	8.1	10.4	18.0	24.5	47.2
TR	27.0	26.0	19.0	16.9	6.4	14.1	23.2	56.3

** cut-off point: 60% of median equivalised income after social transfers*

Source: Eurostat SILC data- 2006

http://epp.eurostat.ec.europa.eu/portal/page/portal/income_social_inclusion_living_conditions/data/database

Lastly, some indices computed by international institutions show the failure of Turkey in Human Development and Gender issues. Table 3.15 presents the findings of latest Human Development report. According to the report, Turkey is getting better in the dimensions of Human Development Index[38] measure.

While she is approximately 0.1 points below the world average in 1980, in 2011 she is nearly 0.015 above it. With this point Turkey ranked to 92 over 187 countries. From 1998 till now, average annual HDI grew 1.34% and last year it is just 0.90%. This means over time average annual growth of the HDI is diminishing. The other index Gender Inequality Index (GII) reflects gender-based disadvantage. Index measures the potential human development due to inequality in sex achievements in these dimensions: reproductive health, empowerment and the labor market. Gender inequality index value is 0.443 in 2011 and Turkey ranked 77 with this result.

Table 3.15: Human Development Index Over Time

Year	Turkey	High human development	Europe and Central Asia	World
1980	0.463	0.614	0.644	0.558
1985	0.518	0.630	0.665	0.576
1990	0.558	0.648	0.680	0.594
1995	0.588	0.662	0.672	0.613
2000	0.634	0.687	0.695	0.634
2005	0.671	0.716	0.728	0.660
2010	0.696	0.739	0.748	0.679
2011	0.699	0.741	0.751	0.682

Source: Human Development Report 2011, UNDP

The World Economic Forum represents an insight report in 2011: The Global Gender Gap Report 2011 and compute a global gender gap index (GGGI)[39] for 135 countries. Turkey is among the low rank countries according to report. At 2011

[38] Human Development Index (HDI) measures "... the average achievements in a country in three basic dimensions: a long and healthy life, access to knowledge and a decent standard of living...(UNDP 2011: 168)".
[39] GGGI "...is a framework for capturing the magnitude and scope of gender- based disparities...on economic, political, education- and health-based criteria... (WEF 2011: 3)".

Turkey is 122 among the 135 countries. Decomposition of the index is presented below. Turkey is the worst in Economic participation and opportunity with 132nd over 135 countries. The report gives a fruitful insight: even all other measures do better than other countries, lack of economic equality in participation and opportunity for sexes will depress the effect of other measures on general index.
to 77 with his result.

Table 3.16 Decomposition of GGGI and Ranking, 2011

	Country	Turkey
Overall	Rank	**122**
	Score	0.5954
Economic Participation and Opportunity	Rank	132
	Score	0.3888
Educational Attainment	Rank	106
	Score	0.92
Health and Survival	Rank	62
	Score	0.9755
Political Empowerment	Rank	89
	Score	0.0972

Source: The World Economic Forum ,2011

The role of the state is an important sign for OSS. First, Charles (1992:496) by analyzing 25 countries found that more corporatist countries are more prone to segregation compared to pluralists. Second, Charles (1992:483) found low segregation in traditional countries like Japan and Italy; and high segregation in more progressive and egalitarian Scandinavian countries. Third, Mısra et al. (2007: 812-815) find more segregation in the states applying carer strategy whereas it is less in which applies earner-carer strategy[40]. Chang (2000:1664-166) points that the link between state and family is also important sign for the degree of sex segregation: traditional family centered is more prone to segregate[41].

[40] States are categorized according to institutional family strategies they applied: The carer strategy ,The earner strategy , the choice strategy and earner-carer strategy

[41] Among the Formal egalitarian; Substantive- Egalitarian; Traditional Family- Centered and Economy-Centered

Turkey is a weakly corporatist state (Charles, 1992: 492). Same study shows that Turkey is the least modern country which is calculated by natural log of GDP. With the same technique, it is calculated for 2011. The growth rate for 25 years is calculated as 21.2%. However, the modernization indicator is already low for Turkey. According to Chang's (2000) categorization of countries, Turkey can be defined as a traditional-family centered in which gender equality is little concern. In such countries, social and cultural systems drive women to houses as wives and mothers. Lastly, based on the conceptualization of Mısra et. al. (2007:808) Turkey uses a few strategy tools concerning women and labor market. However, she is more likely to impose carer strategies with parental leaves and flexible time, like the other countries who accept the primary role of the women as caring and earning money is considered as extra for them.

In short, as a weak corporatist state, Turkey is expected to be relatively least segregative. On the other hand, traditional-family base structure is more dominant to shape the acts of governments. As a result the strategy of governments through women and employment (carer strategy) is more prone to segregate.

The engines of the economy also affect the pattern of sex segregation. Service sector is assumed to be the domain of segregation (Anker et al., 2003:2)[42]. Hahm (1991) also found significantly positive relation with the female participation to service sector and OSS. In agrarian countries, male and female may be considered as substitutes, so less inclined to segregate[43]. Although Charles (1992:486) and Cartmill (1999:30) find expected results for developed countries, the results of latter are various for developing ones. Cartmill (1999) points positive effect of expanded service sector on professionals, clerical and production; but negative impact on service, sales and managerial occupations. In other words, she shows integrative effects of service sector on developing countries.

[42] Cartmill's study (1999:30) supports this idea for "industrialized" countries. However he found various results for "developing" ones.

[43] In rural areas where agriculture is dominant, more women are employed. However agriculture is low-ranked and offer less income among the sectors. In other words, people have tendency to share their poorness but the situation change when there exist something to accumulate (Almquist, 1987:401)

The proportions of the sectors are significant determinants of intensity to segregate. Table 3.17 shows that the sector composition of Turkey has changed over last two decades. While agriculture had highest proportion at the beginning of the 1990s, the share of service sector took the place of agriculture. However, agriculture is still higher and service sector is still lower relative to other countries (Eurostat[44]). Based on the studies above, OSS is expected to increase with this decomposition. However there are controversial results about the effect of service sector for developed and developing countries (Cartmill, 1999).

Considering all sectors, urban areas are more inclined to segregate with relatively low proportion of agriculture, more industry, construction and service sectors.

Table 3.17: Sector-based Distribution

	Agriculture			Industry			Construction			Services		
Time/sec	T	U	R	T	U	R	T	U	R	T	U	R
1991	47.3	3.98	78.8	15	27.69	5.72	5.3	8.58	2.95	32.4	59.75	12.51
2001	37.6	4.36	72.78	17.5	27.58	6.9	5.2	7.31	2.87	39.7	60.75	17.45
2011	25.5	5	62.3	19.5	25.5	8.7	7	7.7	5.5	48.1	61.7	23.5
T:total, U:urban, R:rural												

Source: Turkstat HLFSs

Informal activities are domain for women workers. As informal sector extends, more women will placed to these sectors and left the formal ones to men. As a result, sex segregation increases (Anker et al., 2003:2). Informality[45] is a significant problem for Turkey. 50.1% of the workers at 2004 and 43.3% at 2011 are not registered to any social security (ÇSGB 2010:9, ÇŞGB 2011: 15)[46].

[44] Source: Eurostat, LFS series- Detailed quarterly survey results, from 1998 http://epp.eurostat.ec.europa.eu/portal/page/portal/employment_unemployment_lfs/data/database

[45] Both working in informal sector and informal employment.

[46] For other studies on informality in Turkey: see Turkish Institute of Social Security website: www.sgk.gov.tr

Public sector is assumed to be more appropriate for women due to their more strict rules and more objective selection criteria. A large public sector rather than more privatization creates more opportunity for females (Iverson & Rosenbluth, 2011:1 and Jones and Rosenfeld, 1989: 671); but also increases OSS (Anker et al., 2003:3). The privatization progress started at 1985 has narrowed the public sector down and it is among the lower shared country with 14% at 1998 (Hammouya,1999:8). In the same study the share of women in public sector is found as 21.6%, whereas public sector makes 14% of the all employment[47].

Fertility rate is expected to have positive impact on lowering sex segregation (Charles, 1992: 496). Low fertility rate is equalized to high participation rates of women. However, as discussed before high participation does not mean low segregation; lower participation does not mean high segregation. Cartmill (1999:28-29) focuses on the depressing effect of higher fertility on segregation since fewer women but the elitist ones could stay in labor market. This is found more obvious in low-ranked countries. Hahm (1991), on the other hand, did not find any significant relation between OSS and fertility rates.

In Turkey fertility rates have decreased over time. This measure has important implications with effecting opportunity cost of women's LFP decisions (Dayıoğlu and Kırdar, 2010:5). Turkstat uses three measures for fertility rates: crude birth rate, general fertility rate, total fertility rate. All three measures are declining over time. In addition Eurostat dataset-2011 on fertility rates shows that Turkey has one of the highest fertility rates. Furthermore, young mothers are relatively common in Turkey. The overall effect of fertility on OSS is also controversial. Low fertility rates increase the LFP of females; however raised participation does not mean low OSS.

Human capital increases the female participation in managerial occupations of developed countries, and professionals and service occupations as well in developing ones. It lowers the participation in clerical, service and production occupations for all countries (Cartmill, 1999: 32).

[47] Calculation of indices in Chapter 4 found that segregation in public sector is higher than private sector at 2010.

Table 3.18: Occupational Share of Females by Educational Levels-Turkey 2010,%

Educ* Occ	OA	OB	OC	OD	OE	OF	OG	OH	OI
All levels	2.94	9.83	6.78	10.28	9.87	32.54	5.88	3.62	18.27
Level 0-2	0.99	0	1.31	2.22	8.99	48.54	7.72	4.49	25.72
Level 3-4	4.59	1.15	16.11	33.2	21.49	5.51	4.95	4.09	8.93
Level 5-6	8.1	48.75	17.65	19.25	3.9	0.57	0.51	0.39	0.9

** 0-2: Pre-primary, primary and lower secondary; 3-4: Upper secondary and post-secondary non-tertiary education; 5-6:first and secondary stage of territary education*

Source: Eurostat, LFS series- detailed annual survey results

Table 3.18 shows the shares of females with given educational attainment within an occupation. Graduate from 3-4 levels increases the proportions of legislators, professionals, technicians, clerks and sales and service workers; but decreases the others. However, higher formal education have depressing effect on clerks and sales workers. It can be concluded that, service sector in Turkey is not functioning as what is expected in literature.

3.2.2 Implicit Factors:

Structure of the labor[48] market is the main implicit determinant.

Rigidity, flexibility[49]: If the labor market is rigid, stable worker is more preferable than instable one. Specialization in skills is expected for a more stable working life. On the other hand, flexible markets more easily accept instable workers and skill is less binding in some areas. Women labor is expected to be discontinuous due to pregnant or family responsibilities. Flexible markets are more percipient to this discontinuity; where it creates bias even at the entrance level in rigid markets (Iverson and Rosenbluth, 2011: 1). In addition, part-time work opportunities are

[48]Structure of the labor market consists: formality degree, rigidity, segmentation and reflect to changes easily and open to change in short time (flexibility); or it is more bureaucratized, time-lags between change and adoption (rigid).

[49] Flexible labor market cares about the importance of "finished work" over "who" and "how". If the labor market is rigid , on the other side, the way who do the work is important as well as the "finished work".

more in flexible markets. However, these opportunities may lead to concentration and segregation (Kremier, 2004: 225).

Klau et al. (1986) present broad indicators of labor market flexibility. One of them is wage flexibility: adaptability of wages to productivity and skill levels (ibid.: 10). Table 3.19 shows the education levels and hourly wages by sex. There is a linear relation between educational level and wages, but the findings show that there is a wide wage gap between male and female with higher education. This shows that there the failure of of adaptation wages to productivity.

Table 3.19: Hourly earnings(Euro) 2010- Turkey, Workers in industry,construction and services

level*/sex	total	male	female
All	4.25	4.29	4.12
level 0-1	2.44	2.51	2.09
level 2	2.41	2.49	2.09
level 3-4	3.28	3.36	3.03
level 5a	9.17	10.59	6.92

**0-1 Pre-primary and primary education; 2: Lower secondary and second stage of basic education; 3-4 Upper secondary and post-secondary non-tertiary education; 5a: first stage of tertiary education theoratically based/research oriented*

Source: Eurostat, Structure of Earnings Survey 2010

Other indicator is labor mobility. Tansel et al. (2011:31) with using Markov transition probabilities show that most of the Turkish people remain in their initial state, except unemployed[50]. Another indicator in the study of Klau et al. (1986) is flexibility of working time and working schedule. The opportunity of temporary and part time work is a significant determinant of this indicator. Table 3.20 shows the part time and temporary work as the percentage of total employment. First quarter of the year is the time with highest proportion of part time work in Turkey. Even in this condition Turkey has low part-time opportunities. Temporary work is also relatively lower in which elementary occupations and crafts are dominated.

[50] Study examines the mobility between formal-salaries, informal-salaries, formal self-employed and informal self-employed.

Table 3.20: part time and temporary employment (%), 2012Q1

Geo	part-time	temporary work
CH	34.7	12.9
IE	22.8	10.1
FR	17.9	14.5
ES	14.3	23.8
MT	13	6.6
HU	6.3	8
TR	13.1	8.7

Source: Eurostat, LFS series- Detailed quarterly survey results (from 1998)

In short, the labor market rigidity of Turkey impose a segregative effect with limiting labor market mobility and linking productivity of women and earnings and failure to create opportunities compatible with disadvantage positions of women.

Labor force growth has an integrative effect on blue-collar occupations in developed countries and clerical, sales and production occupations in developing countries (Cartmill, 1999:31). In other words, while it has integrative effect on developed countries; it increases the segregation in developing ones. According to Cartmill (1999: 29-30) increase in non-agricultural labor force raise the share of women in clerical and sales in developed countries and only sales in low-ranked countries. However, it has negative impact on all other occupations' participation rates. In her study, Charles (1992: 494) presents the size of employee class has a segregative net effect. LFP rates have various empirical results.

There is a decrease in labor force participation rates of Turkey. Based on the census data of Turkstat, labor force participation rate was 62.9% in 1980 where it is approximately 50%. However, persistent OSS in Turkey is failed to link LFP and OSS linearly. In addition Figures 3.1 and 3.2 shows that the trend of NAUE and service and sales workers have similar trends for women. In other words, women working more in non-agricultural works don't reflected to sales and service works as expected.

Segmented[51] labor markets: Rigid part of such markets is more biased toward to women employee. However, in flexible part any discriminatory act may lead to loose of competitiveness, due to cost advantage of others.

As shown in the Figure 3.2 occupational segmentation occurs in Turkish labor market based on the sex ratio. Table 3.21 shows the proportion of part-time workers within the occupations which can be used as a broad estimate of flexibility of occupations. Elementary occupations and professionals seem to be more flexible part of the occupations; whereas legislators and clerks are the rigid ones concerning the part time opportunities. Legislators and operators with high sex ratio are relatively more rigid but crafts are flexible. In other words, data have controversial findings. However, segmentation by wage rates is more controversial since the top (professionals) is one of the most flexible, where the bottom (legislators) is the most rigid one.

Table 3.21: Part-time employment ratio, %, 2012Q1, Turkey

total	OA	OB	OC	OD	OE	OF	OG	OH	OI
13.06	1.54	10.17	4.72	2.84	6.59	3.88	7.65	3.61	16

Source: Eurostat, Detailed Quarterly Survey Results (from 1998)

While there is not clear evidence on a linear link between segmentation and rigidity in Turkish labor market, the contributions of occupations to segregation will be discussed in the next chapter more in detailed.

Unionization: Unionization has male-based orientations and in most of the time and region, had served male interests(Milkman,1990: 87[52]). Although unionized women have better compared to their counterparts; unions themselves are sex segregated.

Unionization is also low among the Turkish labor. At 2010 unionization rate among civil servants is 18.23% for women and 38.77% for men (ÇSGB, 2011:

[51] Segmented labor market is used to imply the markets that have both rigid parts and flexible parts (in literature: primary vs. secondary; internal vs. External; oligopolistic vs. Perfect competitive Rosenfeld (1983)).
[52] For a counter argument see Bridges, 1982.

126)[53]. 33% of the unionized people are women and men 66% are men. Except health and social services, women have less than half of the unionized workers. In transportation and religious and foundational services she has even less than 10%. In addition only 5.5% of the Chairmen, 9.5% of the managing committee, 8.25% of supervisory committee and 11.6% of disciplinary committee are women. In fact, it proves the segregated characteristics of civil servants trade unions (ÇSGB 2011: 131).

Market power[54]: Discriminative practices may have cost reducing effect for the ones who have high market shares (Bridges, 1982:272,274). Oster (1975: 216) claims that segregation is persuasive only in such industries; otherwise "market" will penalize the industry.

In Turkey, Act on the Protection of Competition is enforced and the Turkish Competition Authority (TCA) is created in 1994. According to OECD Report of 2005 TCA is well functioning despite the some obstacles (OECD, 2005). However, the political and economic power of large companies on the functioning of market is also well-known but any further discussion is out of the scope.

[53] The civil servants mentioned in the Union Law of Civil Servants (4688) in paragraph 15 is excluded.

[54] Market power indicates the power to effect the market, involve in the decision making, capability of changing the market practices..

Table 3.22: Factors Effecting Segregation

Factors	Integrative	Segregative	Turkey
Informal sector	Less	More	Segregative
Market power of large companies	Less	More	Necessity of further work
Segmentation	No	Yes	Controversial
Legislative acts	Legitimize share responsibilities btw mother and father	Legitimize discontinuity of mother	Segregative
Economic development	Developed countries	Developing countries	Segregative
Dominant sector	Agriculture	Industry, Construction	Segregative
State	Formal- egalitarian	Traditional family centered	Segregative
State strategy	Earner- carer strategy	Carer strategy	Segregative
Flexible market	Developed countries	Developing countries	NA
Rigid market	Developed countries	Developing countries	Segregative

Source: Discussion mentioned in 3.2

Table 3.22 summarizes the discussion on factors effecting extent and trend of OSS. Less informal sectors and segmentation, more competitive firms, more stable economic development[55], not protective but opportunistic legislations[56] and state policies would reduce the segregation. However, the trends in Turkish economy show her incline to segregation. Next chapter will discuss the extent of the segregation as well as the factors behind the occupational choices of men and women. The methodology is based on traditional human capital. However the critiques and limitations of this theory which are discussed in the Chapter 2 should be kept in mind.

[55] The discussion on economic development does not tell development is bad. Instead the dependent development of low ranked countries is so fragile and segregative.

[56] Not only protect but also create equal opportunity sets for sexes.

CHAPTER 4

OCCUPATIONAL SEX SEGREGATION IN TURKEY: DATA ANALYSES

This chapter will discuss the OSS in Turkish Labor Market based on the HLFS of Turkstat conducted between 2004 and 2010. First, the literature on OSS in Turkish labor market will be discussed. Then, the existence of OSS will be analyzed based on the occupational participation rates and wage inequality between sexes in different occupations. The extent of the OSS in Turkey will be measured by using various segregation indices. Since the main aim is not the quantity, but the trend of the segregation, more specific analysis such as OSS within regions, educational levels, cohorts etc. will be carried on with using DI only for specific years. After that the factors behind the occupational choices of individuals will be discussed using mlog model.

4.1 Background:

The literature on women and employment is expanding for Turkey. The low and declining rates of LFP of Turkish women is presented almost in all studies related to Turkish labor force market (Yenilmez and Işıklı, 2010; Tansel,2002, Dayıoğlu and Kırdar 2010; Uraz et al., 2010 and WB, 2009).

Social and cultural factors, education, urbanization, marital status and economic cycles are pointed as the main determinants of LFP [57]. However, participation is neither a beginning nor an end. The way women participate to labor market highly effects the decisions of next generations and is important to preserve high participation rates. Wage gap is other research area, but limited data sets prevent

[57] For more on literature review see WB Report No:48508-TR (2009) Table 1.1 pp:3-4.

more on this issue[58]. More or less all these studies mention about the occupational sex differences but few put the occupations in focus.

Country report of WB (1993) is the most extended study focusing on the sex segregation in Turkey. Report clearly state the sharp decline of female LFP since 1950 and the high segregated nature of Turkish work force by using DI and WE as the main tools to compute OSS in Turkey 1965- 1990 (ibid: 11). DI is calculated as 37.4 and 42.8; WE is calculated as 46.6 and 50.7 for 1965 and 1990 respectively. Results indicate significant increase in OSS (ibid: 25). High and persistent characteristic of segregation is also stated with reference to international data. Regional indices are also computed based on the HLFS 1990. Segregation is found higher for urban regions: DI and WE are calculated respectively 43.7 and 72.3 for urban regions; 27.3 and 32.1 for rural areas.

Palaz (1999), using the available Population Census data of Turkstat between 1975 and 1990, calculates Karmel and Maclachlan Index (I_{KM} or Ip) to measure horizontal dimension of OSS. The study shows that, there is an increasing and persistent segregation. Decomposition of Ip states that, the raise of OSS is due to increase in the gender composition of individual occupations rather than structural changes in occupations or gender composition of labor force. The highest contributions to segregation come with Production, the Administrative, the Sales and the Services. The shares of the Professionals and the Agriculture are, on the other hand, decreases while the shares of Clerical and the Production rise over time.

Rich and Palaz (2008) have extended the work of Palaz (1999). Data set is widened until 2000 and the effect of legislations, economic activity and cultural attitudes are analyzed. The study found continuation of raise in the OSS by 1990 with the top of 2000. Main contribution of this study is supporting the effectiveness of laws or legislative acts on OSS. Anti-discrimination legislation of such as Constitution and Convention on the Elimination of Discrimination against

[58] For discussion on data inavailability and more on literature review: see İlkkaracan and Selim (2007: 566-568), Aktaş and Uysal (2012: pp:4-5)

Women 1982 or establishment of Directorate General for Women's Status and Problems decreased OSS (ibid 212-213).

In her study, Çelikaksoy (2001) analyzes OSS in three largest cities namely Ankara, İstanbul and İzmir by using 1990 Census of Population conducted by State Institute Statistics (ibid.66). DI is used as the main statistical tool to measure extent of OSS. Moreover, the index is computed at the one-digit, two-digit and three-digit levels. DI is computed as 0.32 for Turkey. Among the cities in concern, Ankara is the most segregated city with the index of 0.46, and İstanbul is the least with 0.38 at one- digit level. General analysis of Turkey show that segregation has linear relation with the number of occupational categories.

Kara (2006), using 1994 Household Expenditure and Income Survey, calculate ratio of occupational sex earnings using ICO68 categorization. He finds that, only few occupations offer high wages for women (ibid. 136). Checking the probit model, he also presents counter effects of variables on men and women. High education drives women to labor market but low education is not binding for men. Household size and household income (non-labor, unearned and spousal) have negative impact on women; but positive for men. Lastly, he concludes that for all occupations the gender discrimination is above 30% (Kara, 2006: 140). Worst is in the service sector with 43% and scientific, technical and professional workers are the better ones. Administrative, executive and managerial workers are found to be positive which indicates advantageous of women.

On international level there are few studies concerns about Turkey. Charles and Grusky (1995:948) compare eight nations in terms of occupational segregation computed by DI, Ds and A. Although there are countries with higher indices; Turkey and Greece have the top-heavy pattern of segregation (Charles and Grusky, 1995:946) with many and highly segregated occupations.

Last there are few studies on segregation within specific occupations dealing with the vertical dimension of the segregation. Palaz (2000) analyzed the higher education employment for academic years of 1988/9-1997/8 based on 40 academic disciplines. The study found a rise in the sex segregation in the academic life.

Although there are some integrated fields, these are generally women-dominated fields. On the other hand, Healy et al. (2005) shows the low segregation rates in academia of Turkey compared to European countries.

Vertical dimension is also analyzed for banking sector for post 1980 era (Günlük-Şenesen and Özar, 2001). Using the survey data from 16 private banks, they found over qualification, especially for women, problem in the banking sector of Turkey.

The factors behind the segregation in workplace could not be well understood without analyzing the factors affecting occupational choices of men and women. However, there are even few studies on this issue for Turkey[59].

In short, the effect of sex segregation in Turkish labor market is high. The persistence of the problem is pointed by various studies. However, the literature on the issue is relatively new and poor. This chapter analyzes the sex segregation in Turkish labor market based on the HLFS of Turkstat with various methods mentioned before.

4.1. Data

This chapter will analyze OSS in Turkish labor market from a supply side perspective using HLFS.

4.2.1 Data Structure

HLFS is conducted regularly by Turkstat since 1988. In 2000, sampling methodology has changed. However, the data that will be used in this chapter started from 2004. There are some fair reasons: First of all, the data which revised according to new population projections is available after 2004. Second, there are some contradictions on presentation of occupations before 2004. The occupational category was ISCO68 in 2000 and economic activities are categorized based on ISIC Rev.2. Although the main occupations of participants are given by ISCO88 categories since 2001, ISCO68 was still in use in the survey . Third, until 2004 ISIC Rev. 2 was in use to present economic activities of individuals. By 2004

[59] Author indebted to Prof. Dayıoğlu for the information she provided in terms of Occupational Choice and Turkey.

activities were categorized by NUTS classification systems and this necessitates more households to be questioned. Lastly, the methodology and standards of Eurostat are also followed since 2004. As a result, it is fair to choose 2004 as beginning year and 2010 as end year as the nearest available data. For these reasons micro data of 2004- 2010 HLFS has used.

HLFS is the main source (supply side) that produces information about characteristics of Turkish labor market[60]. Surveys are changed over time according to necessities of researches[61]. Despite all the improvements over time, there are still some fields that should be improved. First of all, the number of the children in a household can be determined by given answers but the number of the children of a mother is not easy to compute. Also the children living outside the house (for educational reasons etc..) are excluded from the survey. However, existence of a child in the house is binding for all women living in household (mother, sister, grandmother etc.). As a result, the existence of children in the household can also be used. Second, although the years an employed person worked in her last job is given, cumulative experience is not subject to calculate. Most of the studies use an estimate of total experience as: Age- schooling year- a specific age like 5 or 7 when a person starts age. However, the age and education are also given in categories. Age categories are in five years period and education shows the last school completed. These result in highly over/under estimate the experience and need modifications.

Methodology and terminology on educational status, employment status, economic activities and occupations are given in Appendix B. Skill level is used as the main tool for categorization of occupations. ISCO classification skill level is categorized into four levels (Elias, 1997: 6 and Hoffmann and Scott, 1993:7). First skill level consist primary education starts at ages 5-7 and ends at 10-12. Second skill level begins at 11-12 and lasting within 5-7 years. Third level consist tertiary education without university degree and fourth level consist tertiary education with

[60] For more information on General Structure of HLFS: Appendix B

[61] For more information on HLFS 2004-2010: Appendix B

university degree or equivalent. Accordingly occupations are equalized with skill levels.

Table B1 in Appendix presents the main requirements and duties, and minimum skill level of occupations.

Legislators are determined as the head and supervisory of institutions. They are responsible of the well-being of the firms. They are observed as too many and heterogeneous that not any skill level is dominant. As a result it is left as undetermined. Professionals are university or higher level graduates and responsible of development, efficiency and profitability of the firms. Technicians have at least high-school education and responsible of the practical, technical issues of progress of firms. Other occupations except elementary occupations require at least secondary education. Clerks are service workers of firms in general. They are responsible to help response people in their daily firm base activities. Sales and service workers are service workers of individuals in general. They are responsible to help individuals in their daily life. Skilled agriculture and fishery workers are main responses of food industry and both involve in production and service processes. Crafts are people interested in trade, small size production and construction in general. In general, operators are people who are working with industrial equipment and machinery in heavy and large scale industries. Lastly, elementary occupations, those are required relatively least skill, interested in all other kind of works bring small amount of money.

In case of any categorization problem, ILO defines some prescriptions. First, if the work includes different tasks and duties necessitate different skill level, the highest skill level will be taken as base. Second, if a job includes different stages of production and distribution and none of them is dominant, then the production is taken as base. Third, in some countries an occupation or group of occupation may require a university degree while in others a certificate is enough (nursing, teacher etc.) or even within a country teachers of different fields need different skill levels. To get rid of this problem some occupational group are included as subgroup of different major groups (like 2230 Nursing and midwifery professionals is in

professionals; 3231 Nursing associate professionals and 3232 Midwifery associate professionals are included in technicians). Fourth, the same tasks and duties need different skill level according to how it produced, hand-made or machinery. The first one is included in Craft and related trade worker whereas machine operator included in Plant and machine operators and assemblers. Lastly, informal sector is also considered in ISCO88 and included in 7th (Handicraft workers In wood and related materials) and 9th (street services).

4.2.2 Descriptive Statistics for The Key Variables

First, reasonableness of ISCO88 on the Turkish labor market studies will be discussed based on the skill levels. Then descriptive statistics relevant to the issue will be given.

4.2.2.1 Correspondence to ISCO88 Skill Level

Table 4.1 shows the sex ratio and the proportions men and women based on the skill levels. ISCO88 does not match any skill level with legislators due to heterogeneous characters of the occupation. In Turkish dataset men legislators are mostly having second level of skills, while women legislators are mostly having higher skill level. People with higher skill level increases among legislators over time.

ISCO88 matches 4th skill level with Professionals and dataset is compatible with this. For technicians ISCO88 matches 3rd level, and data shows women are mostly overqualified in this occupation. Other occupations, except elementary occupations require 2nd level of skill. People working as clerk and elementary workers are generally overqualified and the level of education increases over time. The data on other occupations are compatible with ISCO categorization. First 5 occupations are more inclined to high and increasing skill levels, whereas last four are mostly to low levels. In addition, while going up, the ratio of high skill to low skill is higher for women. In short, consistency of occupation – skill matching of data and definitions of ISCO88 is high.

Table 4.1 Occupations- Skill Levels

			2004					2010			
		sex ratio	%level1	%level2	%level3	%level4	sex ratio	%level1	%level2	%level3	%level4
OA	men	14.86	3.02	53.99	25.28	17.71	9.61	2.27	46.84	25.16	25.73
	women		2.42	27.9	29.68	40		3.51	21.57	23.72	51.2
OB	men	2.06	0.37	3.55	18.62	77.45	1.58	0.03	0.79	7.9	91.27
	women		0.03	1.39	10.48	88.09		0	0.14	1.94	97.92
OC	men	2.38	0.61	31.49	43.28	24.62	2.05	0.53	23.77	42.3	33.39
	women		0.6	14.12	44.92	40.36		0.71	11.29	35.7	52.3
OD	men	1.70	0.58	26.45	53.53	19.43	1.39	0.69	23.15	48.37	27.79
	women		0.27	14.17	59.47	26.09		0.4	14.04	48.9	36.66
OE	men	4.82	3.77	59.06	32.38	4.79	3.17	3.38	53.82	30.7	12.11
	women		5.46	55.5	33.22	5.82		6.03	54.67	31.79	7.51
OF	men	1.29	19.43	72.68	7.05	0.84	1.22	16.18	73.9	8.16	1.76
	women		39.36	58.01	2.49	0.14		41.17	56.14	2.37	0.32
OG	men	7.54	3.56	75.44	19.21	1.8	6.35	4.51	73.88	18.87	2.74
	women		9.82	76.63	12.45	1.1		13.62	72.13	12.66	1.59
OH	men	9.62	2.21	76.67	19.77	1.35	9.63	2.68	71.64	23.48	2.2
	women		4.45	75.24	19.09	1.21		10.11	69.68	18.06	2.15
OI	men	2.26	12.65	73.2	13.49	0.66	1.88	11.82	71.91	14.75	1.52
	women		26.91	66.99	5.7	0.4		23.73	68.23	7.11	0.92
total	men	2.80	7.34	61.9	20.87	9.89	2.43	6.32	58.07	21.24	14.37
	women		23.28	50.13	13.95	12.65		20.87	46.6	14.09	18.44

4.2.2.2 General Information

Table 4.2 summarized some of the labor market measures of datasets.

The sampled households and persons increased over time. The number of the sampled women is higher than men. One third of sample was chosen from rural areas, and two third from urban areas. Male LFP rate is almost stable over time, it only increased 3.5 points in seven years. Unemployment rates are also increasing and more destructive for women. Young unemployment is the high for both sexes, top at 20-24 years age groups. In addition, among the women, unemployment is more binding for more educated ones. Non-agricultural employment has increased and more within the men. Rural labor force participation rates are higher than urban. In addition, female participation is half of the male participation in rural but one fourth in urban. Moreover, unemployment rate is low in rural than urban. In rural areas, female unemployment is below the men's, but in urban areas female unemployment is higher.

Table 4.2:Summary of Labor Market Measures

	2004	2005	2006	2007	2008	2009	2010
household	121622	126704	129527	128036	129266	135891	143870
population	472837	490040	497137	481605	481154	503329	522171
female	240226	250739	254827	247469	247543	258209	267118
male	232611	239301	242310	234136	233611	245120	255053
LF %	45.18	44.82	44.55	44.25	44.91	45.96	46.73
female	22.96	22.79	23	22.75	23.63	25.14	26.55
male	68.96	68.87	68.32	67.93	68.29	68.61	68.54
UE %	10.39	10.08	9.65	9.91	10.6	13.32	11.39
female	10.2	10.26	10.28	10.41	11.09	13.33	12.34
male	10.46	10.01	9.42	9.72	10.41	13.31	10.99
non- agr. %	68.28	70.65	71.85	73.47	73.57	72.19	72.36
female	45.09	48.74	51.14	53.46	54.23	54.3	54.62
male	76.56	78.55	79.46	80.79	80.87	79.32	79.67

4.2.2.3 Occupational and Sector- Based Information

Table 4.3 shows the shares of occupations in the employment of men and women. Occupational share of men have more stable trend than women.

First three categories are composing nearly 15% of female workers and 20% of male workers. Last four are composing nearly 75% for both sexes. Among these, skilled agricultural workers compose the higher proportion for both and the proportion of agricultural women is nearly twice of agricultural men. Legislators and operators include the least proportion among women. Women are more concentrated: other than two occupations, agricultural and elementary, the proportions are less than 10%. On the other hand, other than professionals, technicians and clerks, the proportion of men is between 10-20% in all occupations. Men are more regularly distributed among occupations.

Table 4.3 Proportions of occupations in employment of men and women (ie: F in OA/ F in total)

	2004		2005		2006		2007		2008		2009		2010	
	W	M	W	M	W	M	W	M	W	M	W	M	W	M
OA	2.2	11.6	2.6	12.6	2.5	11.6	2.7	11.1	3.0	10.9	2.8	10.8	2.7	10.7
OB	8.0	5.9	8.5	5.9	8.8	5.8	9.1	5.4	8.7	5.1	9.5	5.6	9.4	6.1
OC	5.5	5.2	6.3	5.0	6.8	5.3	7.2	6.1	7.7	6.3	6.7	5.8	6.3	5.3
OD	7.3	4.4	7.5	4.5	8.1	4.8	9.1	4.6	9.2	4.9	8.9	5.0	9.2	5.3
OE	6.8	11.6	7.4	11.2	8.5	12.2	9.3	12.6	9.5	12.4	9.8	12.8	9.8	12.8
OF	46.1	21.3	43.6	19.3	39.7	18.2	36.6	17.2	35.4	17.0	35.3	18.2	36.0	18.1
OG	6.3	17.1	6.3	17.4	6.1	17.0	5.2	17.34	5.0	17.0	6.0	16.5	6.2	16.3
OH	3.4	11.8	3.8	12.2	3.7	12.4	3.8	12.9	3.4	12.5	2.7	11.3	3.0	11.9
OI	14.5	11.7	14.0	11.9	15.7	12.6	17.0	12.8	18.1	13.9	18.5	14.6	17.4	13.3

The 4.4 presents sex proportions of occupations. Men are majority in all occupations. Skilled agricultural workers, clerks, professionals, elementary Workers and Technicians are the occupations where women's share is higher than

Table 4.4: Women's Share in Occupations %

	2004	2005	2006	2007	2008	2009	2010
TOTAL	26.33	26.5	26.89	26.8	27.4	28.49	29.19
OA	6.31	6.94	7.49	8.09	9.29	9.29	9.43
OB	32.67	34.25	35.6	38.27	39.17	40.26	38.74
OC	27.48	30.99	32.04	30.23	31.41	31.69	32.83
OD	37.06	37.64	38.15	41.89	41.37	41.45	41.77
OE	17.19	19.23	20.51	21.31	22.43	23.41	23.96
OF	43.66	44.83	44.47	43.78	44.06	43.61	44.98
OG	11.7	11.59	11.57	9.87	10.08	12.58	13.6
OH	9.41	10.16	10.02	9.87	9.24	8.58	9.41
OI	30.66	29.87	31.37	32.66	32.93	33.52	35.07

Source: Turkstat HLFS microdata, 2004-2010

The growth patterns of occupations proportion and women share within occupations from 2004 to 2010 are presented in Figure 4.1

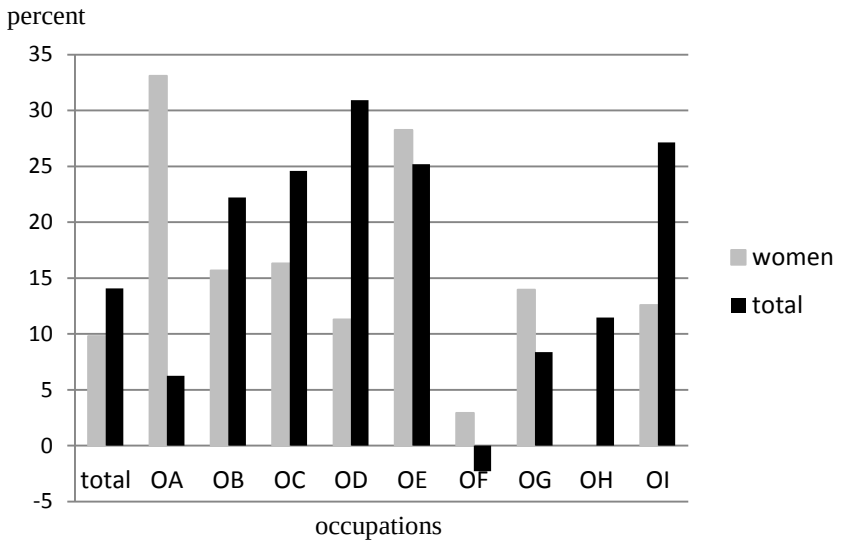


Figure 4.1: Growth Rates of Employment in Occupations

The furthest rise in women employment is in legislators, followed by service and sales workers. However, the legislators are among the ones that have the slowest growth rate in total. The growth rate of women's share in legislation, sales and services, and agriculture is above the total growth rates and below in the other occupations. Other than skilled agricultural workers, the rise in the share of women is above 10%. However, the total share of agriculture is decreasing over time. Clerks, elementary occupations, sales and service sectors and technicians are the ones total share is growing faster.

The share of agriculture is decreasing and service sector is increasing over the relevant period, especially for women. Over time shares of women is increasing in all sectors. However, only in service sector the change in the total women participation is lower than the change of women within sector. The slowest change is in construction, where the share of women is already low.

Table 4.5: Wages by Occupations Realwage(TL)

Occupations		2004		2010	
		Men	Women	Men	Women
OA	Monthly	810.78	945.82	1,065.31	1,210.95
	Hourly	17.74	21.21	24.11	28.54
OB	Monthly	793.50	687.23	1,121.89	921.88
	Hourly	20.44	19.41	28.78	26.42
OC	Monthly	599.86	565.63	741.30	693.56
	Hourly	13.27	12.94	16.47	16.19
OD	Monthly	555.84	451.25	622.84	526.72
	Hourly	12.46	10.01	13.96	12.03
OE	Monthly	415.24	285.19	501.26	340.07
	Hourly	7.69	5.67	9.43	6.89
OF	Monthly	357.90	211.97	371.40	223.73
	Hourly	7.33	4.35	7.32	4.63
OG	Monthly	393.57	239.50	449.72	281.70
	Hourly	7.72	4.75	8.60	5.93
OH	Monthly	442.63	323.24	489.41	354.14
	Hourly	8.71	6.42	9.57	7.00
OI	Monthly	341.00	240.82	392.95	289.42
	Hourly	6.91	5.37	7.82	6.65
total	Monthly	476.26	429.23	585.03	557.94
	Hourly	10.05	10.10	12.46	13.64

Lastly, the wage structure of each occupation is shown in the Table 4.5. Other than legislators, sampled men always earn more than sampled women. Both the wages and the wage gap is higher at the low skilled occupations, where women are more concentrated. However, total hourly wage is calculated higher for women than men. It is because the working hour of women is low as well as the participation.

4.2.2.4 Other Measures

Work Status: Regular and casual employers compose the highest share of both sexes and it is increasing over time. Unpaid family worker is another domain of women. Except unpaid family workers, men dominate in all status. In addition, almost half of the male works in regular workplace, whereas it composes at most one third of women work. However, there are many missing data about workplace in the survey.

Formality: Almost half of the workers are informal in the dataset. This proportion is pretty high for women (70%, 61.6% for 2004 and 2010 respectively).

Working Schedule: Although part-time working is not common among Turkish workers, the share is increasing over time, faster for women.

Job Satisfaction: Percentage of additional job is low among sample. Among the people looking at another job, money is pronounced by 62% of women in 2004. The reasons are more diverge and various in 2010. Women want to work more hours and, in better conditions and regular workplaces in 2010. Among the unemployed women, the household chores compose the main reason for unemployment and more frequently announced over time. Approximately 10% of the sampled women are dismissed in all years[62]. The women, who have worked before but unemployed now, mostly work as clerks, professionals, service workers and elementary workers. This is the result of flexibility of these sectors towards women and a sign for labor market segmentation. For men crafts, operators, elementary occupations and service workers are the ones dismissed more frequently.

4.3 Methodology

Dataset will be analyzed using two different methods: with using indices and mlog model.

Segregation indices are used to measure extent of OSS in Turkey. Since the indices have nothing to do with wages, unlike regression analysis the indices use all data. However, indices are calculated for different wage levels: for all, for who announce wages, for who gain equal or more than food poverty line (1 and 4 person) and poverty line (1 and 4 person), who earn equal or more than minimum wage.

DI is calculated due to extended usage. Among the variations of DI, only standardized DIs calculated and among the extensions WE is calculated to make

[62] In 2009, post-crises environment, it is %16.5. It may be the result of high cheap women demand in crises and replacement with men in reconstruction period. However, further analysis is behind the scope of this paper.

comparisons with OECD possible and I_{KM} is calculated to benefit decomposability characteristics. The extend of occupational segregation is also calculated by marginal matching method. After ranking the occupations M_i/F_i in a decreasing rate, the lower ranks are checked. When the total workers equal to female workers, we have stopped and code them as women occupations. However, equalization is difficult to satisfy, thus the procedure of this thesis is as follows: Whenever the total employee of any occupation is higher or lower than the total female, we have checked the gap between total ratio and difference. If the gap is higher than 10% of the total ratio, the occupation on the line is added to feminine occupations[63].

Gini, Atikson and Kakawani indices are the other indices discussed below. While calculating Atikson, the assumption of equal contribution of men and women to segregation (e=0.5) is used and Kakawani is calculated for the case of zero segregation (b=1). I_{KM}(IP), SR^* and Hutchens Index are also computed.

All these indices are calculated for the people who earn at different cut points[64]. First, OSS is expected to be found high and persuasive, not change so much over time. Thus the problem of OSS necessitating long-term solutions will be proved. Second, the results of indices will be different but the trend of all (increasing or decreasing) is expected to be similar. Third, it is expected to find that low-waged occupations are relatively less segregated.

As indicated the extent of OSS is not expected to vary such a short time period. For this purpose after calculating extent of OSS for all years, detailed analysis will be done only for the first year (2004) and last year (2010) of the dataset.

Detailed analysis will evaluate the OSS in:

1. Age groups: includes +15 people within 11 categories
2. Educational level: includes six categories
3. Marital status: includes four categories

[63] There is no explanation on this controversy in the related papers. 10% is chosen arbitrary, however different proportions are tried and found that the results are more or less same.
[64] 1. All people, 2. Who annonce their wages, 3. No wage presented, 4. Poverty food line for 1 person, 5. Poverty food line for 4 people, 6. Poverty line for 1 person, 7. Poverty line for 4 people, 8. Minimum wages.

4. Economic activity: due to inconsistency of classification calculated for two broadest groups
5. Size of workplace: includes four categories
6. Past work experience: who is unemployed in the survey period but worked in the previous years.
7. NUTS1: includes 12 categories
8. Region: includes 2 categories.

Maximum Likelihood estimation is based on the human capital approach. A utility maximize individual make rational choice among the alternatives based on benefit-cost comparison. An individual "i" chooses occupation "o" among "m" mutually exclusive occupations. The probability of choosing any of the occupation is positive. The utility of an individual from the choice of an occupational choice (U_{oi}) is determined by (Dolton et al., 1989:575-577):

$$U_{oi} = \alpha_i lnw_{oi} + \beta_i n_{oi} + \gamma_i' X_i + e_{oi} \qquad (4.1)$$

where w_o is expected lifetime earnings, n_o is expected social status, X is vector of personal characteristics and e_o is residual error term. Let Y_o shows the choice which yields to highest utility. If U_{oi}=max (U_1,..., U_m) then Y_0=1, otherwise it is equal to zero. In addition, assume that error terms are identical and independently distributed. Then the probability of choosing an occupation is estimated by multinomial logit model (Maddala, 1983):

$$\Pr \ Y_0 = 1 \ = \frac{\exp(\alpha_i lnw_{oi} + \beta_i n_{oi} + \gamma_i' X_i)}{\sum_{k=1}^{m} \exp(\alpha_k lnw_{ok} + \beta_k n_{ok} + \gamma_k' X_k)} \qquad (4.2)$$

Following the pioneer studies, let wages are occupation specific and education and experience are main independent variables affecting lifetime earnings (Mincer, 1974) and expected social status is a function of education, experience and some individual characteristics (Dolton et al., 1989). In addition assume that error terms of two equations are independent and normally distributed with zero means. Then utility becomes a function of education, experience and some personal characteristics and probabilities of selecting an occupation is determined as P_{bi} if

the individual is in the base occupation and P_{oi} if the individual choose occupation o among m occupations:

$$P_{bi} = \frac{1}{1+\sum_{o=1}^{m} \exp(\partial_{o1}+\partial_{o2}Educ_i+\partial_{o3}Exp_i+\partial'_{o3}X_i)} \quad (4.3a)$$

$$P_{oi} = \frac{\exp(\partial_{o1}+\partial_{o2}Educ_i+\partial_{o3}Exp_i+\partial'_{o3}X_i)}{1+\sum_{o=1}^{m} \exp(\partial_{o1}+\partial_{o2}Educ_i+\partial_{o3}Exp_i+\partial'_{o3}X_i)} \quad (4.3b)$$

The dependent variables are occupations and independent variables are experience, education, sex, marital status, sectors, children and being reference. The difference between the data used in calculating indices and estimations is the exclusion of a group of individuals. Education is given in groups. Illiterate people are labeled as 0, primary school is 5 years, secondary school is 8, high school and equivalent as 12 and university or higher written as 15 years. Similarly, age is given as groups by 5 years period. So computing experience or possible experience is difficult. Experience is estimated as (5*age) (maximum age)-1-6-educyears-tenure. In fact, in sample there are some individuals having negative experience. These individuals are excluded from mlogit analysis. Sex, marital status, sectors and being reference people are dummy variables. Although children is not easy to compute, it is estimated by the number of the children in the household smaller than age 5. Mean and standard deviations of variables are presented in Table 4.6.

Table: 4.6 Mean and Standard Deviation of Sample for Mlogit Model

	2004		2010	
Variables	**Mean**	**Std. Dev.**	**Mean**	**Std. Dev.**
exp	13.230	9.841	14.367	11.027
educyears	8.352	4.022	9.185	4.178
Sex 1=m, 2=f	1.202	0.401	1.229	0.420
Marital 1=married, 2=single 3=divorced, 4= widowed	1.779	0.499	1.766	0.510
Krkent 1=rural, 2=urban	1.801	0.399	1.830	0.375
Sect 1=agr, 2= ind. 3=cons, 4=services	3.211	1.000	3.309	0.957
child	0.370	0.629	0.351	0.610
Ref 1=ref, 2=member	0.394	0.489	0.435	0.496
OA	0.038	0.191	0.046	0.210
OB	0.104	0.306	0.113	0.316
OC	0.078	0.268	0.087	0.281
OD	0.094	0.292	0.109	0.311
OE	0.153	0.360	0.167	0.373
OF	0.009	0.093	0.009	0.094
OG	0.205	0.403	0.165	0.371
OH	0.152	0.359	0.140	0.347
OI	0.168	0.374	0.165	0.371

In addition two interaction terms are added to model to see the association of gender with education and experience. A significant non-zero coefficient of association terms indicates both gender plays a significant role to determine occupational choice and, education and experience affects occupational choice of men and women differently (Nasır, 2005).

However, due to convergence problem for female estimations, occupations regrouped into four with the combinations of white/blue collar and high/low skilled for sex-based analysis. Due to the stability of previous analysis in the thesis, sex-based analysis are done only for 2010. In addition to see the effects of fields on education, estimation is done for the people people graduate from

vocational school or university. This time field of education is used in place of education.

4.4 Results and Findings

4.4.1 Extent: Computation of Indices

The extent of segregation is calculated using indices that have been discussed in Chapter 2. Indices will be represented for 5 different groups: among all employed people (C1), wage earners (or who announce wage, C2), people who can earn at least food-poverty border (C3) , who can satisfy minimum necessities of household (C4)[65]and lastly the ones who earn minimum wage or more (C5). Table 4.10 represents the indices. The indices of Charles(C), Atkinson (A) and Hutchens (H) are missing in 2010 at level C4 due to absence of women in that groups.

When we consider whole sample, all indices are agreed on the declining path of segregation. However, among the wage earners (wage>0), the indices are tend to rise. Almost all indices are agreed that over time there is an increasing trend in OSS at the higher wage borders. It means there is more segregation in the top of the wage quintiles[66]. In other words, when there is little to share, the segregation is low; whereas segregation is increasing as the pie is extending. Since women are concentrated in the low income levels, this makes women even worst.

[65] Poverty food line is taken for 1 person, since it is thought as most critical for *individual level*. Poverty line is taken for 4 people, since Turkey has mostly households with 4 people as discussed chapter 3, and for household poverty- food line is not enogh for social serenity. And it is though as household will stay as household at least satisfy the minimums of a food and social matters.

[66] In some years the food- poverty line for four individulas is higher than minimum wage. That is why in some years C4 index is calculated higher than C5 index.

Table 4.7 Indices For Different Groups*

CP	year	DI	Ds	WE	Gini	CV2	MM	C	SR*	IP	H	A	Kakawani
C1	2004	0.33	0.32	0.46	0.39	0.55	0.25	1.93	0.26	0.13	0.28	0.69	0.10
	2005	0.33	0.31	0.47	0.39	0.56	0.24	1.88	0.26	0.13	0.28	0.69	0.10
	2006	0.32	0.31	0.45	0.38	0.51	0.25	1.87	0.26	0.13	0.26	0.69	0.10
	2007	0.33	0.32	0.46	0.39	0.52	0.24	1.97	0.26	0.13	0.27	0.69	0.10
	2008	0.32	0.32	0.45	0.38	0.49	0.23	1.94	0.26	0.13	0.26	0.68	0.10
	2009	0.30	0.31	0.41	0.36	0.42	0.21	1.88	0.25	0.12	0.23	0.66	0.09
	2010	0.30	0.30	0.41	0.35	0.43	0.22	1.83	0.25	0.12	0.23	0.66	0.09
C2	2004	0.28	0.29	0.41	0.44	0.42	0.19	1.49	0.18	0.09	0.19	0.78	0.06
	2005	0.28	0.27	0.42	0.44	0.42	0.19	1.47	0.19	0.09	0.20	0.79	0.07
	2006	0.27	0.27	0.40	0.43	0.42	0.19	1.47	0.19	0.09	0.20	0.78	0.07
	2007	0.28	0.29	0.42	0.46	0.51	0.22	1.61	0.20	0.10	0.23	0.76	0.08
	2008	0.27	0.28	0.42	0.46	0.49	0.20	1.64	0.19	0.10	0.23	0.76	0.08
	2009	0.28	0.30	0.42	0.46	0.50	0.22	1.70	0.23	0.10	0.23	0.74	0.08
	2010	0.28	0.30	0.42	0.45	0.49	0.22	1.72	0.20	0.10	0.23	0.74	0.08
C3	2004	0.29	0.30	0.43	0.46	0.46	0.20	1.55	0.18	0.09	0.21	0.78	0.07
	2005	0.29	0.29	0.43	0.46	0.45	0.20	1.52	0.19	0.09	0.21	0.78	0.07
	2006	0.28	0.27	0.41	0.45	0.45	0.20	1.52	0.19	0.09	0.21	0.78	0.07
	2007	0.29	0.29	0.43	0.48	0.54	0.22	1.65	0.19	0.10	0.24	0.76	0.08
	2008	0.28	0.29	0.43	0.47	0.52	0.21	1.72	0.20	0.10	0.25	0.75	0.08
	2009	0.29	0.31	0.44	0.47	0.53	0.23	1.80	0.24	0.10	0.25	0.73	0.09
	2010	0.28	0.29	0.42	0.46	0.52	0.24	1.74	0.19	0.10	0.24	0.74	0.08
C4	2004	0.43	0.43	0.63	0.54	0.80	0.22	3.54	0.25	0.12	0.42	0.60	0.11
	2005	0.43	0.41	0.64	0.54	0.81	0.21	2.89	0.26	0.13	0.42	0.63	0.12
	2006	0.42	0.40	0.62	0.53	0.80	0.29	2.87	0.26	0.13	0.42	0.64	0.12
	2007	0.43	0.44	0.63	0.55	0.86	0.23	3.72	0.27	0.14	0.46	0.60	0.13
	2008	0.42	0.45	0.61	0.54	0.82	0.23	4.86	0.28	0.14	0.46	0.59	0.13
	2009	0.41	0.50	0.58	0.53	0.78	0.25	6.58	0.29	0.14	0.45	0.53	0.14
	2010	0.42	0.52	0.60	0.52	0.79	0.24	na	0.29	0.14	na	na	0.13
C5	2004	0.43	0.43	0.63	0.54	0.80	0.22	3.55	0.25	0.12	0.42	0.60	0.11
	2005	0.43	0.41	0.64	0.54	0.82	0.21	2.90	0.26	0.13	0.42	0.63	0.12
	2006	0.42	0.40	0.62	0.53	0.80	0.21	2.86	0.26	0.13	0.42	0.64	0.12
	2007	0.44	0.42	0.65	0.57	0.91	0.22	3.12	0.27	0.14	0.46	0.63	0.13
	2008	0.43	0.43	0.63	0.57	0.88	0.21	3.50	0.28	0.14	0.45	0.63	0.13
	2009	0.43	0.46	0.63	0.58	0.90	0.23	4.11	0.29	0.14	0.46	0.60	0.14
	2010	0.43	0.46	0.63	0.55	0.85	0.22	6.87	0.28	0.14	0.45	0.58	0.13

The findings are compatible with previous studies on Turkey. WB (1993:45) computed DI and WE between 1965- 1985 for five years period. The report presents the increasing trend of segregation. DI and WE are computed between 35-45% and 42-57%, respectively. These are compatible with findings, especially with the computations at higher levels. IP was calculated 0.17 and 0.22 for the years between 1975- 1990 in the study of Palaz (1999). IP shows no linear trends. Moreover the findings of Palaz are higher than the results of thesis. Lastly, Charles and Grusky (1975) calculate DI, DI_s and C as 44.5, 46.2 and 2.64 respectively. DI and DI_s are compatible with the calculations of data; but C is found lower for low income levels (C1, C2, C3) and higher for high income levels (C4, C5). Although direct comparison of outcomes would be misleading due to sensitivity of indices to any quantitative or qualitative difference; comparisons show that the outcomes of the thesis are complementary, not controversial to existing literature.

The detailed DI[67] analysis shows that at C1 level, the most important source of segregation is skilled agriculture and fishery works which is dominated by women. Although the effect is decreasing due to decreasing share of agriculture over time, it is still the highest contributor to segregation at that level. Crafts and operators are the following occupations which are dominated by men. The least contributor occupation is technicians. Over time there is no change in the number or type of occupations where Mi/M is above the Fi/F, or vice versa. At C2 level the importance of skilled agriculture workers declined and even became the least contributing occupation. In this level, the most important source is crafts, followed by clerks and professionals. However, now there are more occupations where Mi/M is above the Fi/F. At C5 level the professionals takes the first rank as the most contributor. It is followed by crafts and operators. Skilled agricultural workers are again the least contributors. However, the number of occupations where Mi/M is higher than Fi/F is increased.

In short, skilled agriculture workers are important source of employment and segregation. However, since they are mostly unpaid works, agriculture workers

[67] Since DI is calculated as the absolute sum of all occupations share, the contrubitions of all occupations can be realized seperately.

become invisible among the wage-earners. Interestingly, the segregative occupations like professionals and clerks have more Fi/F ratio than Mi/M ratio. However, this doesn't mean women are better. First the employed women are already too low. Second, as indicated in Table 4.5, the wages they get in the same occupations are lower in most cases.

The detailed analysis by DI will be conducted for 2004 and 2010 with excluding the outliers of the dataset[68]. By doing so crowded unpaid skilled agricultural population and little but effective high-waged population who cause ineffective results for other occupations will be excluded. In general the indices are approximately stable at 0.28. However, the components have changed over time. Crafts, clerks, professionals and operators are the main sources of segregation in total.

Table 4.8 shows the DI index for different categories.

Age levels are grouped by 5-year periods starting from 15-19. Over time OSS is increased within the age groups which have already high OSS. The composition of segregation is also changing by aging. That is because of the differentiation of the experience, future expectations and preferences of men and women by age. In addition these are converging within sex groups. Clerks and crafts are the most important sources of segregation for young people. As professionals become available with the age 25, it becomes one of the most important contributors of segregation. Professionals become the leading segregative occupations by 25-29 ages, when segregation is highest. By 30s operators take the place of clerks. By 45 crafts became relatively unimportant. Instead, the contribution of elementary workers is increasing. Professionals, operators and by 55 ages legislators are the main sources. Sales and service workers are joined to segregative group over time.

[68] Real wage is calculated based on 2003 CPI and only includes the wage earners (above 0tl/month). In addition the ones who earn less than 25 TL and more than 10000 TL per month are excluded as outliers. Instead of a ratio such as top and low %1 etc. , a specific value is chosen to determine outlier. Wages are converted to 2003 prices, and we are dealing with the wages as quantitative measure. As a result fixing the range is fit better for these analyses. 25 TL is on third of the food poverty line of a one person family. If a person earn minimum wage in a working-day, she/he will get approximately 10000 a month.

Table 4.8 Indices For Different Categories

AGE	**A1**	**A2**	**A3**	**A4**	**A5**	**A6**	**A7**	**A8**	**A9**	**A10**	**A11**	
2004	0.28	0.32	0.39	0.35	0.32	0.27	0.28	0.30	0.32	0.26	0.36	
2010	0.22	0.34	0.40	0.33	0.32	0.28	0.25	0.26	0.33	0.27	0.40	
EDUC	**E1**	**E2**	**E3**	**E4**	**E5**	**E6**						
2004	0.21	0.18	0.17	0.27	0.38	0.16						
2010	0.13	0.28	0.24	0.25	0.36	0.21						
SECT	**SA**	**SB**	**SC**	**SD**								
2004	0.20	0.12	0.70	0.32								
2010	0.27	0.18	0.73	0.31								
CONJ.	**M1**	**M2**	**M3**	**M4**								
2004	0.30	0.32	0.25	0.26								
2010	0.33	0.31	0.23	0.16								
SIZE	**<10**	**10--24**	**25-49**	**>50**								
2004	0.31	0.31	0.29	0.26								
2010	0.31	0.32	0.32	0.29								
UE	**past occp**											
2004	0.27											
2010	0.23											
REGION	**R**	**U**										
2004	0.26	0.28										
2010	0.26	0.29										
NUTS1	**TR1**	**TR2**	**TR3**	**TR4**	**TR5**	**TR6**	**TR7**	**TR8**	**TR9**	**TRA**	**TRB**	**TRC**
2004	0.28	0.24	0.27	0.23	0.35	0.32	0.42	0.27	0.33	0.41	0.39	0.38
2010	0.28	0.26	0.28	0.28	0.33	0.34	0.36	0.25	0.31	0.38	0.40	0.35

Educational levels categorized into six groups[69]. While the people do not complete any educational institution were highly segregated, it is almost declined to half over time. Segregation with primary and secondary education attainment increase, whereas high school or equivalently educated declined. At the first level of education, elementary occupations are the main source of the segregation. With education crafts contribute to segregation more. At the high educational level there

[69] Literate but not complete any educational institution, primary school, secondary school or equivalent, high school, vocational or technical high school, higher education.

is the dominance of clerical work on the segregation. It is due to absentee of female on higher education and concentrated in clerical occupations. Groups with vocational education segregated more in clerical jobs, followed by crafts, technicians and operators. Lastly, groups with higher education are segregated fewer in all levels but dominated by professionals, sales and services and legislators. In addition, professionals and technicians are segregating the higher school graduates more than before.

Sectors are broadly grouped into four: agriculture, industry, construction and service. Construction is the most segregated one based on occupations. Moreover, it is increased over time. It followed by services, agriculture and lastly industry. Although the segregation is stable over time, OSS in all the sectors has raised. In agriculture, the skilled agricultural workers and elementary occupations are the ones contribute to OSS more and the effects are increasing over time. In industry, crafts are the main sources and the effect is doubled by time. In addition, legislators and professionals are segregating more than before and technicians contribute less. In construction, the clerks and crafts are the most important sources. Even they are already too high in 2004, the increasing trend has continued. In addition, technicians are less; operators are more segregative than before. At the services sector the professionals, clerks and operators are the main sources. In addition, elementary occupations in service sector are segregating more than before.

Conjugal situation of individuals are also presented in four categories: married, single, divorced and widowed. At 2004, the most segregated groups based on their occupations were single people followed by married, widowed and divorced. Over time married ones became more segregated and followed by single, divorced and widowed. The widowed groups are the ones with the most significant change. Crafts and clerks are the most segregated occupations of married people. Although they are not change significantly over time, professionals are more contribute to segregation within married individuals. Among single the professionals, crafts and operators are the main sources and increased over time. There is a decrease in contributions of sales and service workers and elementary occupations on

segregation in single people. Clerks and crafts are the main sources for divorced people Widowed people are mostly desegregated by elementary occupations, but almost all occupations contribute widowed's segregation less than before.

Segregation is higher when industry size is smaller. While the crafts are segregate more in smaller firms, over time it increases independent of industry size. Clerks and operators also have such a similar process over time. Professionals are highly segregative in the firms with 10-49 workers. Legislators, skilled agricultural workers and elementary workers are not seemed to be effective so much with industry size.

Segregation in rural is a bit smaller than urban and it does not change at all over time. However, the components have changed. At 2004 the dominant segregative occupation was elementary jobs in rural, while it decreases and crafts became the first one at 2010. In urban, crafts and clerks are the most contribute to segregation. Over time professionals and operators are also became effective. In rural there is a tendency of increase segregative power in high status occupations. In terms of Nuts1, there is a tendency of increase in West and Mediterranean and decrease in East and North. Despite of this, the most segregative region is Anatolia, especially eastern parts. Although the segregation within professionals are decreased, they are highly segregate in east and north of Turkey. On the other hand, while they are relatively less segregated in western parts, it is increasing over time. Crafts are segregated in all over the Turkey and the effect is increasing over time. Clerks and operators became segregative in more regions over time. Elementary occupations became segregative in Eastern Anatolia. DI is also calculated in Nuts2 level and findings are presented in Appendix -Table A3. According to Nuts2 the extent between minimum segregation and maximum ones is narrowed down (0.42 at 2004 and 0.26 at 2010). This means provinces lie in a narrow line. As a result, the ones who have stable OSS is falling down at the ranking. In fact the findings are corresponding with the study of Çelikaksoy (2001). Although all three cities, İstanbul, Ankara and İzmir experienced highly decrease in the index, still Ankara has the highest and Istanbul has the lowest index. In terms of other cities, Kastamonu province (incl. Çankırı and Sinop) is the least segregated region at

2010. Moreover compared to 2004 the region claims 17 ups with declining 0.16 points. Konya and Karaman; Gaziantep, Adıyaman and Kilis are also relatively better off. Ağrı, Kars, Iğdır and Ardıhan are again the ones getting better off; but due to their high indices the it is little reflected to ranking. Although their segregation indices fall over time Kayseri, Sivas, Tokat; Van Muş, Bitlis, Hakkari are the last two provinces due to high indices they have. Erzurum, Erzincan and Bayburt are the ones who are worst off. In addition Malatya,Elazığ, Bingöl, Tunceli; Balıkesir, Çanakkale; Antalya, Burdur, Isparta; Manisa, Afyon, Kütahya, Uşak; Samsun, Tokat, Çorum, Amasya; Bursa, Eskişehir, Bilecik have tendency to increase. Ankara; Istanbul; Izmir; Adana, İçel; Zonguldak, Karabük, Bartın are preserved their relative place with a little change in the indices. In short, the regions that are stable are losing their place due to activity of other regions. Kastamonu province is better of due to significant decrease on contributions of professionals, technicians and crafts share on segregation. The Konya province is now better of due to significant decrease on contributions of technicians and declining trend on professionals and crafts. Also the progress of Van and Kayseri provinces is due to significant decrease on professionals' and sales and services' contributions. Lastly, Erzurum region is now worst of due to increase in contributions of technicians, elementary occupations and operators. However, the stable segregation indices do not mean there is no change in the proportions of occupation. For instance, in Tekirdağ region the more segregation in professionals, clerks, operators and elementary occupations are compensated by decline in technicians, sales and services and crafts. Or more clearly, the significance of clerks compensated by significant decline in elementary occupations in Şanlıurfa region who have 0.39 DI for both years. In short, there are some important occupations driving the segregation down like professionals and crafts. Any policy should be concern of the different effects on the occupations. Even there are different paths even within a country and the policies should be discussed accordingly.

The information whether individual works in public/ private or other institutes can be accessed in 2010. Accordingly, public sector found more segregative than other

kind of institutes. It is controversial, what has discussed before, since public is claimed less gendered. However, outliers are working more in private sector, thus the number of people working other than public sector is undermined.

A detailed sector analysis for 2010 is also presented in Appendix - Table A4 All data are used in this case since the disadvantage of power of agriculture is compensated by detailing the sectors. In fact, the outcomes are similar compared to broader sector analysis. Agriculture is the least contributor, whereas construction is first.

4.4.2 Occupational Choice

The results of the multinomial logit model of 2004 and 2010 are presented in Table 4.9. The results of indices show that, among the sample agriculture is the one that contributes to segregation least. As a result, the base category is taken as agriculture and divergence of individuals' choices from agriculture is discussed. Based on the discussion of indices, the main concern is why wage earners choses working as crafts, professionals and clerks and how the probability of less dominated sex in these occupations can be increased.

2004 data consists 66864 individuals, 53389 are males and 13475 are females. On the other hand, 2010 data consist 84304 individuals, 65008 are males and 19296 are females.

Table 4.9 The Shares of Occupations and Share of Women within Occupations

	2004		2010	
	% occup	% women	%occup	% women
OA	3.80	12.74	4.64	15.86
OB	10.44	33.49	11.25	40.28
OC	7.80	32.41	8.67	32.72
OD	9.42	36.17	10.88	40.92
OE	15.28	15.51	16.66	21.25
OF	0.87	11.49	0.90	10.86
OG	20.47	10.53	16.53	8.06
OH	15.15	11.13	13.97	10.42
OI	16.76	23.41	16.50	23.66
TOTAL	100.00	20.15	100	22.89

Table 4.9 shows the share of occupations in the data used for mlogit estimates. Crafts, elementary occupations, sales and services and operators have the highest proportions where the shares of crafts and operators decreased over time. Women have higher and increasing share in professionals, technicians and clerks.

Table 4.10 and Table 4.11 shows the outcomes of mlogit estimates for 2004 and 2010, respectively.

Before discuss the outcomes, hypothesis test will be carried to test whether there is distinction between being in agriculture occupations and others. The hypotheses are that there is no distinction between being in agricultural work or other occupations separately. Using the likelihood chi-square, all the p-values are found smaller than 0.05. The hypothesis of same coefficients are rejected. In other words, it is concluded that, there is statistically significant differences to choose one occupation to agriculture.

The results of estimates show that experience has relatively little but significant effect. Other than legislators; the likelihood of being in other occupations rather than agriculture decreases with experience[70]. It seems to contradictual with

[70] Note thatin the sample, other than elemantary occupations in 2004, agriculture is the least paying occupations on average.

literature (Nasır, 2005), however, definition of experience differs[71]. In addition, agricultural characteristics of Turkey support the findings. Mlogit model is also run when experience is defined as (5*age)-7-schooling and the results are presented in Appendix Table A5 and A6. In this case, experience has positive coefficient for professionals and clerks as well as legislators. The likelihood of choosing technical jobs or operating is not significant. At 2010 experience is not significant for choosing technicians, clerks, operators and elementary occupations rather than agricultural occupations. When tenure has not been excluded from experience, professionals also loss importance and the likelihood of choosing elementary works significantly but negatively affected. In other words, if we exclude tenure from the experience other than legislators, the likelihood of choosing all occupations decreases with more experienced. If we add tenure to experience, agriculture necessitates less experience than legislators, professionals, technicians and clerks; but more than others.

[71] Thesis exclude the years of individuals in the same occupation.

Table 4.10 Results of Mlogit Estimates, Whole Sample 2004

Varb.s	OA	OB	OC	OD	OE	OG	OH	OI
Constant	-8.406***	-10.48***	-6.063***	-4.763***	-2.095***	-1.542***	-1.439***	2.036***
	(-0.376)	(-0.377)	(-0.356)	(-0.257)	(-0.233)	(-0.255)	(-0.208)	(-0.176)
exp	0.037***	-0.040***	-0.0313***	-0.0277***	-0.0255***	-0.054***	-0.016***	-0.018***
	(-0.0056)	(-0.00603)	(-0.00557)	(-0.00544)	(-0.00515)	(-0.0051)	(-0.00505)	(-0.0048)
educyears	0.549***	0.833***	0.399***	0.382***	0.140***	-0.00349	0.0506***	-0.0208
	(-0.0201)	(-0.0208)	(-0.0189)	(-0.0186)	(-0.0181)	(-0.018)	(-0.018)	(-0.0175)
2.sex	-1.100**	-0.978**	0.947**	1.361***	0.244	0.058	0.696*	0.737**
(female)	(-0.554)	(-0.494)	(-0.408)	(-0.389)	(-0.377)	(-0.373)	(-0.375)	(-0.355)
femeduc	0.243***	0.246***	0.119***	0.0996**	0.054	-0.00878	0.0155	0.0176
	(-0.0524)	(-0.0492)	(-0.0452)	(-0.0442)	(-0.0435)	(-0.0437)	(-0.0437)	(-0.0422)
femexp	-0.0278*	0.0117	-0.0231*	-0.0247*	0.0224*	0.0083	-0.0399***	0.0144
	(-0.0148)	(-0.014)	(-0.0133)	(-0.013)	(-0.0127)	(-0.0127)	(-0.0128)	(-0.0121)
2.marital	-0.12	-0.218	-0.166	-0.547***	-0.979***	-0.340*	-0.252	-0.132
(Single)	(-0.198)	(-0.187)	(-0.185)	(-0.184)	(-0.182)	(-0.182)	(-0.182)	(-0.178)
3.marital	0.566	0.399	0.525	0.433	-0.19	0.283	0.212	0.645
(Divorce)	(-0.61)	(-0.597)	(-0.592)	(-0.587)	(-0.584)	(-0.586)	(-0.588)	(-0.571)
4.marital	0.0368	0.155	-0.192	-0.623	-1.035**	-0.803*	-0.675	0.00244
(Widowed	(-0.519)	(-0.493)	(-0.478)	(-0.47)	(-0.446)	(-0.451)	(-0.452)	(-0.417)
child	-0.103	-0.0382	-0.109	-0.0954	0.202***	0.0421	0.125*	0.125*
	(-0.0793)	(-0.0731)	(-0.072)	(-0.0715)	(-0.0674)	(-0.0673)	(-0.0675)	(-0.0649)
1.head	0.779***	0.546***	0.091	0.207	0.00288	-0.245	-0.0998	-0.361**
(ref)	(-0.181)	(-0.17)	(-0.168)	(-0.167)	(-0.164)	(-0.163)	(-0.164)	(-0.159)
2.krkent	-0.254**	0.0353	0.456***	0.435***	0.245**	0.392***	0.291***	0.235**
(urban)	(-0.116)	(-0.114)	(-0.112)	(-0.111)	(-0.106)	(-0.106)	(-0.106)	(-0.102)
2.sect	4.905***	4.152***	6.064***	4.756***	4.658***	7.676***	6.245***	2.169***
(industry)	(-0.352)	(-0.338)	(-0.344)	(-0.25)	(-0.2359	(-0.26)	(-0.2099	(-0.177)
3.sect	6.051***	6.514***	7.401***	6.644***	5.071***	9.977***	6.650***	5.109***
(constr.)	(-0.789)	(-0.774)	(-0.774)	(-0.737)	(-0.746)	(-0.735)	(-0.721)	(-0.711)
4.sect	5.216***	5.313***	5.740***	5.063***	6.025***	5.451***	4.597***	1.983***
(services)	(-0.322)	(-0.306)	(-0.316)	(-0.21)	(-0.19)	(-0.222)	(-0.16)	(-0.112)

Robust standard errors in parentheses.

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

Table 4.11 Results of Mlogit Estimates, Whole Sample 2010

Varb.s	OA	OB	OC	OD	OE	OG	OH	OI
Constant	-10.17***	-14.66***	-6.958***	-6.224***	-3.734***	-2.007***	-2.835***	0.94***
	(-0.41)	(-0.368)	(-0.302)	(-0.279)	(-0.26)	(-0.227)	(-0.225)	(-0.18)
exp	0.038***	-0.024***	-0.0136**	-0.0104*	-0.018***	-0.0209***	-0.00109	-0.00051
	(-0.00544)	(-0.00574)	(-0.00535)	(-0.00529)	(-0.0051)	(-0.00507)	(-0.00506)	(-0.0049)
educ	0.550***	1.007***	0.400***	0.365***	0.152***	-0.00764	0.0442***	-0.0283*
	(-0.0181)	(-0.0203)	(-0.0173)	(-0.017)	(-0.0167)	(-0.0166)	(-0.0166)	(-0.0162)
2.sex	-1.957***	-3.546***	1.512***	2.283***	1.731***	0.386	1.918***	1.526***
(Female)	(-0.64)	(-0.692)	(-0.486)	(-0.474)	(-0.464)	(-0.469)	(-0.466)	(-0.449)
femeduc	0.305***	0.440***	0.0986**	0.0526	-0.0419	-0.0263	-0.0835*	-0.0179
	(-0.0564)	(-0.0587)	(-0.0487)	(-0.048)	(-0.0474)	(-0.0481)	(-0.0478)	(-0.0464)
femexp	-0.0272**	-0.00274	-0.0373***	-0.0381***	0.00707	0.000831	-0.0498***	-0.00177
	(-0.0129)	(-0.0127)	(-0.0121)	(-0.0118)	(-0.0116)	(-0.0119)	(-0.0118)	(-0.0111)
2.marital	0.00741	-0.0396	-0.169	-0.448***	-0.818***	-0.586***	-0.263*	-0.353**
(Single)	(-0.162)	(-0.155)	(-0.154)	(-0.153)	(-0.152)	(-0.152)	(-0.153)	(-0.148)
3.marital	0.787*	0.291	0.302	0.172	-0.292	-0.392	-0.0203	0.0297
(Divorced	(-0.445)	(-0.443)	(-0.437)	(-0.434)	(-0.432)	(-0.437)	(-0.435)	(-0.428)
4.marital	-0.536	0.186	-0.353	-0.672	-0.67	-0.583	-0.587	-0.464
(widowed)	(-0.589)	(-0.546)	(-0.529)	(-0.519)	(-0.496)	(-0.502)	(-0.508)	(-0.474)
child	0.0501	0.0266	0.00348	-0.0711	0.266***	0.209***	0.209***	0.220***
	(-0.0757)	-0.0732	-(0.0713)	(-0.0713)	(-0.0687)	(-0.0683)	(-0.0685)	(-0.0662)
1.head	0.838***	0.687***	0.425***	0.263*	0.0197	0.0409	0.139	-0.162
(Ref.)	(-0.144)	(-0.138)	(-0.136)	(-0.135)	(-0.133)	(-0.133)	(-0.134)	(-0.129)
2.krkent	0.575***	0.610***	1.023***	1.179***	0.937***	1.101***	0.995***	0.668***
(Urban)	(-0.105)	(-0.105)	(-0.101)	(-0.1)	(-0.0962)	(-0.0963)	(-0.0965)	(-0.0925)
2.sect	6.278***	5.177***	6.646***	5.894***	5.816***	7.648***	7.384***	3.673***
(Industry)	(-0.41)	(-0.339)	(-0.313)	(-0.296)	(-0.288)	(-0.257)	(-0.253)	(-0.217)
3.sect	7.008***	6.768***	7.175***	7.204***	6.015***	9.034***	7.444***	5.401***
(Constr.)	(-0.686)	(-0.644)	(-0.629)	(-0.619)	(-0.623)	(-0.599)	(-0.598	(-0.583)
4.sect	5.936***	5.514***	5.509***	5.613***	6.730***	4.782***	4.965***	2.608***
(Services)	(-0.361)	(-0.277)	(-0.248)	(-0.226)	(-0.214)	(-0.175)	(-0.167)	(-0.105)

Robust standard errors in parentheses.

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

The result shows the importance of the education (except for crafts and elementary occupations). In other words, other than crafts, the likelihood of being in a higher paying occupation[72] than agriculture increases with the years of education at 2004. The results are similar for 2010. The only difference is the magnitude of effects. It has increased in all occupations over time except clerks and operators. In addition the significance of education on elementary occupations has increased but coefficient is negative. If we put the occupations in decreasing skill requirement order, professionals will be on the top. It is followed by legislators, technicians, clerks, sales workers, operators, agriculture workers, crafts and elementary occupations.

The importance of being female has increased over time. In addition the magnitudes of the variables are high. The likelihood of being in legislators or professionals rather than agriculture decreases for women. The negative effect is high especially for professionals. On the other hand, except crafts, the likelihood of being other occupations increases for women. Clerks have the highest positive effect for female.

At 2004 interaction of female with education is significant for high-paying occupations. In other words, in legislators, professionals and technicians education affect men and women differently. At 2010 this differentiation eliminated in technicians, but the coefficients of legislators and professionals increased. It means education is more important for women to be placed in higher paying occupations than men.

The interaction term of female and experience has relatively smaller but significant in more occupations over time. At 2010 experience is more important for men to be placed in higher paying occupations. When tenure is included in experience variable, this term becomes insignificant in most of the occupations. In short other than the years in current occupation, female experience has small effect, positive in agriculture, sales and services and crafts. While it was insignificant but positive to be in professionals and elementary occupations; it turns to negative.

[72] On average, elementary occupations are paying less than agriculture in 2004.

Marriage is important to be in clerks and sales and services at 2004 and additionally crafts at 2010. Negative "single" coefficients in almost all occupations mean that likelihood of being in agriculture is more for single persons rather than other occupations. The number of the children smaller than 5 ages is significant only for choice of sales and services at 2004. At 2010 choice of crafts, operators and elementary occupations is also affected by children. The coefficients indicate that, the likelihood of being in those occupations rather than agriculture increases with the number of children in the household. If the likelihood of being in craft rather than agriculture increases with the number of children, number of children positively link with segregation. Parents in more crowded household should find an easy to enter occupation which are generally one sex- dominated. This contributes to segregation.

Being reference person in the house affects the choice in the higher paying occupations positively. In other words, the likelihood of choosing higher paying occupations rather than agriculture increases for reference person.

Living in an urban area affect the choice of all occupations rather than agriculture positively. In other words, the likelihood of choosing agriculture to other occupations is higher for rural persons.

All sectors variables for all occupations are high, positive and significant. Construction has the highest ones, followed by services. As expected, this means agricultural occupations are chosen in agriculture sector. Even it has positive coefficient in all occupations within all sectors, elementary occupations in service sectors has the smallest positive coefficient.

Relative risk ratio of sexes are given in the table below. In this context relative risk measured as follows:

$$\frac{\Pr(Occup = i|sex)}{\Pr(Occup = base|sex)}$$

Where i=1…9, except base category (agriculture) and sex is men or women depending on for whom is the relative risk computed. Accordingly relative risk

ratio gives the ratio of two relative risks measures computed for women and men separately.

Table 4.12 RRR (female/male)

Occup	2004	2010
OA	0.333	0.141
OB	0.376	0.0288
OC	2.57	4.537
OD	3.901	9.81
OE	1.277	5.645
OG	1.06	1.47
OH	2.006	6.807
OI	2.09	4.6

For instance, the relative risk ratio of choosing technical works over agricultural works is 2.57. This means, ceteris paribus, for females rather than males, the relative risk of being in technical works relative to agricultural works would be expected to increase by a factor of 2.57. Other than choosing legislators and professionals, the relative risk ratio of being in an non-agriculture occupation relative to agriculture works is expected to be higher for women relative to men. Clerks has the highest relative risk ratio, whereas professionals and legislators have the lowest one. Actually clerks and professionals are the two occupations where the share of the women is highest, but contribute to segregation most.

The above analysis supports the behavioral differentiation of men and women in terms of occupational choice. Since there is no extreme differences between the years of 2004 and 2010, separate analysis are done for men and women with using 2010 data. However, the sample size of women and relatively high number of dependent variables cause failure of convergence for female estimates.

Instead categorization of occupations is rearranged. Occupations can be grouped into four based on required duties and skills. First two groups belongs towhite collar occupations: white collar high skilled occupations (WCHS: legislators, professionals and technicians), white collar lower skilled occupation (WCLS: clerks and sales people). Last two groups belongs to blue collar occupations: blue collar high skilled occupations (BCHS: skilled agriculture and fishery works, crafts) and blue collar low skilled occupations (BCLS: operators and elementary works).

The findings are presented in Table 4.11.

According female estimates, experience is relatively less significant for the likelihood of choosing occupations other than BCLS jobs. For male, the likelihood of choosing WCLS and BCHS rather than BCLS is decreasing with experience. In separate analysis, the outcomes are indifferent whether tenure is included or excluded in experience. The likelihood of choosing white collar occupations is increasing with the years of education for both men and women. The coefficients are higher for women. On the other hand choosing BCHS occupations is not significantly affected by education for women; but decreasing with education for men.

Table 4.13 Mlogit Estimates for Female and Male, 2010

female					male			
VARIABLES	O1	O2	O3		**VARIABLES**	O1	O2	O3
Constant	-9.877***	-5.557***	-2.162***		Constant	-8.167***	-3.855***	-0.0975
Stf	-0.311	-0.352	-0.175		Stf	-0.178	-0.154	-0.0718
exp	-0.0112**	-0.00618*	0.00548		exp	0.00455**	-0.0147***	-0.0182***
Std	-0.00439	-0.00357	-0.00447		Std	-0.00188	-0.00149	-0.0014
Educyears	0.709***	0.275***	0.0131		Educyears	0.538***	0.199***	-0.0160***
Std	-0.0143	-0.0101	-0.0123		Std	-0.0056	-0.00424	-0.00403
2.marital	0.0428	-0.712***	-0.249***		2.marital	0.0162	-0.225***	-0.240***
Std	-0.0725	-0.0655	-0.0896		Std	-0.0534	-0.0444	-0.0434
3.marital	-0.125	-0.374***	-0.593***		3.marital	0.402***	-0.0549	-0.236*
Std	-0.145	-0.121	-0.188		Std	-0.129	-0.116	-0.12
4.marital	0.0116	-0.264	0.0687		4.marital	0.358	0.111	-0.412
Std	-0.276	-0.205	-0.222		Std	-0.292	-0.257	-0.297
child	0.0118	-0.0994*	0.156**		child	-0.201***	-0.0547***	-0.0335*
Std	-0.067	-0.0593	-0.065		Std	-0.0248	-0.0197	-0.0179
1.head	0.674***	-0.0922	0.125		1.head	0.701***	0.00391	0.0441
Std	-0.125	-0.115	-0.153		Std	-0.0491	-0.0395	-0.0376
2.krkent	0.217**	0.508***	0.0252		2.krkent	-0.0897**	0.165***	0.202***
Std	-0.0955	-0.0767	-0.089		Std	-0.0386	-0.0314	-0.0294
2.sect	1.584***	2.136***	1.331***		2.sect	1.229***	0.805***	0.366***
Std	-0.266	-0.344	-0.129		Std	-0.166	-0.152	-0.0608
3.sect	2.464***	4.467***	-0.218		3.sect	1.062***	0.335**	0.867***
Std	-0.341	-0.389	-0.538		Std	-0.173	-0.164	-0.0641
4.sect	3.322***	4.665***	-0.378**		4.sect	2.355***	2.872***	-0.610***
Std	-0.259	-0.342	-0.151		Std	-0.164	-0.149	-0.0614
Observations	19296	19296	19296		**Observations**	65,008	65,008	65,008

Robust standard errors written in the rows "std".

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

Being single or divorced has decreasing impact on choosing WCLS and BCHS rather than BCLS. Being single have same impact for men. However divorcing increases the likelihood of choosing WCHS rather than BCLS occupations for men. The number of the children in the household decreases the likelihood of any choice of occupation rather than BCLS. Being reference person increases the likelihood of choosing WCHS rather than BCLS; but ineffective in other decisions for both sexes. Living in urban areas increases the likelihood of choosing WCLS

occupations for women; and WCLS and BCHS for men rather than BCLS ones. Being in industry rather than agriculture sector increases the likelihood of choosing any occupations not belongs to BCLS and coefficients are higher for women. Being in construction rather than agriculture also increases this, except choosing BCHS for women. Lastly, being in service sector rather than agriculture increases the likelihood of choosing white collar occupations, but decreases the BCHS occupations.

Marginal effects has computed for all outcomes separately both for male and female and are represented in Table 4.14 and 4.15.

Outcomes of male estimates show that, the average probability of being in WCHS increases by the years of experience, education, being single or divorced, reference of the household, working in non-agriculture sector. For women experience has negative impact but it is relatively insignificant. Years of education, being single and reference person and working in industry or services increase the average probability for female. Interestingly, living in urban region decreases this probability for both sexes. Number of the children smaller than age 5 decreases the average probability for men.

On the other hand, it is relatively insignificant for women. Among the factors increasing the probability for both, years of education, being single rather than married, the reference person and working in industry are more effective for females. For women being reference person is the most important factor followed by working in industry or services and being single. For male the most important factor is working in service sector followed by working in industry and being reference person.

For both male and female, the average probability of being in WCLS occupations increases for living in urban areas, working in industry and services. On the other hand, years of education, being single and reference person decreases this probability for both sexes. Factors in both direction effect women more. Years of experience also decreases this probability for males and being divorced and number of the children decreases the average probability for females. In addition

working in construction increases this probability for women. Among the variables, working in service sector increases the average probability working in clerical or sales persons by 0.40 for female and 0.32 for male.

Table 4.14 Marginal Effects for Males,2010

Var.	O1	O2	O3	O4
Exp	0.00172***	-0.00209***	-0.00208***	0.00245***
(Std)	0,00018	0,00021	0,00018	0,00021
Educyears	0.04689***	-0.00141***	-0.01691***	-0.02858***
(std)	0,00035	0,00045	0,00045	0,0005
Single	0.02000***	-0.03004***	-0.02599***	0.03604***
(std)	0,00491	0,0061	0,00562	0,00643
Divorced	0.05348***	-0.02826*	-0.03681*	0,01159
(std)	0,01292	0,01547	0,01444	0,01649
Widowed	0,03963	0,00651	-0.06157*	0,01542
(std)	0,02799	0,03475	0,03374	0,0364
Child	-0.01802***	0.00473*	0,00049	0.01280***
(std)	0,00235	0,00267	0,00227	0,00275
Ref	0.07460***	-0.04446***	-0,0055	-0.02463***
(std)	0,00446	0,00557	0,00479	0,00577
Urban	-0.02346***	0.02575***	0.02345***	-0.02574***
(std)	0,00377	0,00416	0,00358	0,00447
İndustry	0.07932***	0.02583***	0.02363*	-0.12878***
(std)	0,01167	0,00823	0,01279	0,01367
Constr	0.05080***	-0,01107	0.15228***	-0.19201***
(std)	0,01232	0,0085	0,01362	0,01427
Service	0.12679***	0.31975***	-0.21976***	-0.22677***
(std)	0,01155	0,00839	0,01247	0,01347

"std" presents the robust standard errors
*****P<0.01, **p<0.05, *p<0.1**

Table 4.15 Marginal Effects for Females,2010

Var.	O1	O2	O3	O4
Exp	-0.00079*	0,00008	0.00037*	0,00034
(Std)	0,00041	0,00045	0,00021	0,00032
Educyears	0.06094***	-0.02860***	-0.00483***	-0.02751***
(std)	0,00069	0,00087	0,00049	0,00074
Single	0.08588***	-0.12931***	-0,00538	0.04880***
(std)	0,00611	0,00745	0,00431	0,00605
Divorced	0.02870**	-0.04922***	-0.02198***	0.04251***
(std)	0,01303	0,01496	0,00735	0,01136
Widowed	0,03187	-0.05076*	0,00668	0,01221
(std)	0,02672	0,02771	0,01176	0,01791
Child	0.01160**	-0.02009***	0.00848***	0,00001
(std)	0,0059	0,00708	0,00309	0,00515
Ref	0.09491***	-0.08717***	0,00379	-0,01153
(std)	0,00921	0,01079	0,00754	0,01011
Urban	-0.02545***	0.06374***	-0,00428	-0.03401***
(std)	0,00893	0,00956	0,00444	0,00728
İndustry	0.08448***	0.09762***	0.08357***	-0.26568***
(std)	0,02935	0,0158	0,01008	0,02472
Constr	-0,00189	0.46658***	-0.05696***	-0.40773***
(std)	0,03437	0,03109	0,01342	0,03181
Service	0.08788***	0.40807***	-0.06209***	-0.43386***
(std)	0,0285	0,01553	0,00946	0,0246

"std" presents the robust standard errors

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

For both male and female, the average probability of being in BCHS decreases by the years of education and working in service sector. Additionally years of experience and being single decreases this for male, and being divorced and working in construction sector decrease it for female. Living in urban and working in construction sector increase the probability for male; the number of children and working in industry increase it for females. The negative effect of education and service sector are higher for males. Working in industry is more important factor for female, whereas the construction sector is more significant for males.

For both females and males, the average probability of being in BCLS increases with being single, and working other than agricultural sector. On the other hand,

years of education and living in urban decreases this probability. The number of children increases the average probability for men, but being divorced has positive impact on probability of women. The negative impacts of the sectors are higher for females.

Compared the results of 2004 and 2010 for female shows that there is not much change indirections of the coefficients (Appendix, Table A7). However, the importance of some variables have changed. While the significance of experience and being single have declined; being divorced, number of children and sectors have more significant now.

The findings suggest that education is effective in decision making without any exception.2010 data is asked the fields of education who are graduate from vocational/ technical schools or higher educations. The ratio of men to women by fields of education within occupations are represented in Appendix Table A8. Whole sample is used in mlogit analysis due to failure of female data on convergence.

The marginal effects analysis in Table 4.16 shows that higher skill female have higher probability to choose WCHS, but less likely to choose blue collar occupations. Sex is not effective in the choice of WCLS occupations. Experience have negative impact on the probability of choosing WCHS jobs and positive in BCLS ones. Any other field than "teacher training and education science" decreases the probability of choosing WCHS occupations (except veterinary and health and relatively less significant in journalism and math/statistics). On the other hand the average probability of choosing WCLS occupations increase with the fields other than teacher training and education (except veterinary and health). Journalism, maths, law and life science rather than education decreases the average probability of choosing BCHS and journalism decreases the this probability for BCLS. Other than positive impact on BCLS occupations, the interaction of female with experience is not significant in the choice making. In other words, experience only effect men and women differently (an increases the probability of women) in

the bottom occupations. Marital status[73] is not significant for high skilled individuals. Increasing number of children decreases the average probability of choosing WCHS; but increases this probability of choosing WCLS and BCLS ones. Except WCHS occupations, being reference person decreases the average probability of choosing other occupations. In other words being the reference person increases the average probability of choosing top occupations. Living in urban increases the probability for WCHS occupations, but decreases it for BCLS ones. Service sector is effective in all decision making. Working in service sector increases the average probability of being in white collar occupations, but it decreases the probability of working in blue collar occupations.

[73] That is why variables of widowed and divorced are not presented in the table.

Table 4.16 Marginal Effects Whole Sample, 2010

	WCHS	WCLS	BCHS	BCLS
female	0.1450***	0.0038	-0.0666***	-0.0822***
	(0.0094)	(0.0087)	(0.0043)	(0.0054)
exp	-0.0038***	0.0006	0.0004***	0.0027***
	(0.0004)	(0.0004)	(0.0002)	(0.0002)
Arts	-0.4128***	0.2277***	0.0505***	0.1346***
	(0.0173)	(0.0147)	(0.0093)	(0.0121)
Human.	-0.3400***	0.1694***	0.0431***	0.1274***
	(0.0104)	(0.0090)	(0.0056)	(0.0071)
Soc.Beh.Sc.	-0.3041***	0.2939***	0.0009	0.0092*
	(0.0139)	(0.0127)	(0.0055)	(0.0052)
Journ.	-0.1207**	0.1468***	-0.0152***	-0.0109***
	(0.0477)	(0.0476)	(0.0033)	(0.0024)
BA	-0.5696***	0.4702***	0.0222***	0.0772***
	(0.0076)	(0.0068)	(0.0041)	(0.0043)
Law	-0.1128***	0.1165***	-0.0152***	0.0114
	(0.0249)	(0.0227)	(0.0033)	(0.0128)
Life sc.	-0.0767***	0.0712***	-0.0152***	0.0206
	(0.0216)	(0.0201)	(0.0033)	(0.0149)
Phy.sc.	-0.0644***	0.0683***	-0.0082	0.0043
	(0.0144)	(0.0126)	(0.0052)	(0.0061)
Maths-stat	-0.0450**	0.0645***	-0.0152***	-0.0043
	(0.0180)	(0.0171)	(0.0033)	(0.0070)
Compute	-0.4664***	0.3253***	0.0475***	0.0936***
	(0.0223)	(0.0208)	(0.0107)	(0.0131)
Engineer.	-0.4727***	0.2373***	0.1022***	0.1332***
	(0.0091)	(0.0077)	(0.0050)	(0.0050)
Manuf.	-0.6089***	0.3264***	0.1028***	0.1798***
	(0.0127)	(0.0122)	(0.0067)	(0.0083)
Arch.	-0.2659***	0.1743***	0.0367***	0.0550***
	(0.0159)	(0.0139)	(0.0067)	(0.0075)
Agr.	-0.2040***	0.1671***	0.0079	0.0290***
	(0.0185)	(0.0165)	(0.0069)	(0.0083)
Veterin.	-0.0022	0.0132	-0.0074	-0.0037
	(0.0191)	(0.0162)	(0.0088)	(0.0077)
Health	-0.0090	-0.0066	0.0094	0.0061
	(0.0095)	(0.0050)	(0.0073)	(0.0049)
Soc.Serv.	-0.5916***	0.3347***	0.0482*	0.2087***
	(0.0284)	(0.0280)	(0.0249)	(0.0307)
Pers.Serv.	-0.6229***	0.5101***	0.0235**	0.0892***
	(0.0188)	(0.0189)	(0.0097)	(0.0128)
Trans.	-0.3247***	0.1754***	0.0425**	0.1068***
	(0.0460)	(0.0394)	(0.0212)	(0.0293)
Sec.Serv.	-0.6114***	0.6195***	-0.0078	-0.0003
	(0.0174)	(0.0172)	(0.0060)	(0.0057)
Femexp	-0.0020**	-0.0011	0.0010	0.0021***
	(0.0009)	(0.0008)	(0.0008)	(0.0007)
Single	0.0677***	-0.0573***	-0.0038	-0.0066
	(0.0070)	(0.0065)	(0.0045)	(0.0051)
child	-0.0459***	0.0206***	0.0026	0.0226***
	(0.0048)	(0.0045)	(0.0025)	(0.0028)
Ref	0.1179***	-0.0625***	-0.0189***	-0.0365***
	(0.0072)	(0.0067)	(0.0043)	(0.0050)
Urban	0.0212***	0.0051	-0.0041	-0.0222***
	(0.0074)	(0.0072)	(0.0040)	(0.0051)
Industry	0.0845***	-0.0119	-0.0629**	-0.0097
	(0.0362)	(0.0345)	(0.0316)	(0.0309)
Constr.	0.0847**	-0.0074	-0.0115	-0.0658**
	(0.0380)	(0.0358)	(0.0328)	(0.0317)
Services	0.1325***	0.1636***	-0.1700***	-0.1262***
	(0.0359)	(0.0344)	(0.0315)	(0.0306)

Robust standard errors in parentheses.
***P<0.01, **p<0.05, *p<0.1

CHAPTER 5

CONCLUSION

The main aim of this thesis is analyzing the existence and extent of the occupational sex segregation in Turkish labor market. The main motivation is the highly depressed socio- economic status of Turkish women. The literature on women and the trends in developed countries show that exclusion of women from economic sphere is not efficient anymore. Moreover, the potential of women in economic growth of a nation is highlighted. As a result, the socio-economic conditions of Turkish women is not only a sign of democratization anymore; but also important for the development of Turkish economy.

However, the policies towards increasing of labor force participation in Turkey are not observed until recent time. Even these relatively new policies are failed to rise the participation rates of women. After 1950s, especially with liberalization attempts of 1980s, LFP rates of women decreased sharply. Turkey is failed to manage thesis in terms of labor market outcomes.

In fact, sex-based division of labor is an historical event. The historical progress of division of labor is briefly explained in introduction. Chapter 2 analyzed the literature on socio-economic position of women, theoretical and

empirical aspects of the sex segregation in workplace. The factors affecting OSS is analyzed for Turkish case in the third chapter. In the fourth chapter the extent of OSS and the occupational decision making is discussed.

Table 5.1 The Most Segregated Subgroups and The Most Contributing Occupation

	Higher DI, subgroup	occupation with highest contribution
in all sample	*na*	skilled agriculture
wage≥ min wage.	*na*	professionals, crafts
Age	20-29 ages	professionals
educational level	vocational	clerks, crafts
Sectors	construction	clerks, crafts
marital status	married	clerks, crafts
industry size	smaller than 50	crafts
Region	rural	crafts
nuts1	Anatolia	crafts

Chapter 3 shows that the high informality, the characteristics of legislative acts, economic development, growing service sector, the structure of the state and relevant state strategies and the rigidity of the market preserve, if not increase, the occupational sex segregation in Turkey.

The sample supports that, there is no occupation in which more than half of the workers is female. Female has the higher shares in agriculture, clerks and professionals; and lowest share in operators, crafts and legislators. In fact, the outcomes of indices show that these occupations are the ones contribute to segregation most (professionals, crafts, clerks and operators). Although agriculture is seem to be highest contributor; among the wage earners the effect of agriculture is the lowest. Table 5.1 summarize the results of indices.

Crafts is the most effective occupation that preserves or increases the segregation. Clerks and Professionals are the following occupational groups. Although there is no occupation dominated by women; men have relatively more proportion in crafts whereas female are relatively crowded in other two occupations.

Accordingly the factors effecting occupational choice is discussed within a human capital framework. The main concern is why more men do not choose clerical or professional occupations or why women do not prefer crafts. However, since the main reason is not only the number within occupations, but also the earnings and condition differentials of occupations offered to sexes, it is also worth to discuss that why do not more women choice white collar high skilled occupations. How individuals can increase the probability of being in a specific occupation?

Experience defined as the years other than schooling when individual have started to education is decreases the likelihood of being in non-agricultural works except legislators. In other words, when comparing the cohorts, individual seeking for occupations is more likely to get the position of legislators other than agricultural works or agricultural works rather than any other non-agricultural occupations if s/he graduate from school earlier. Or when comparing the people with same educational level, the older one and when comparing the cohorts with same education levels, the one who is seeking job for more years have more likelihood to get legislators rather than agriculture or agricultural works rather than any other non-agriculture occupations. In addition, experience is more important for male especially in the likelihood of being technicians, operators and clerical occupations.

People with more years of education have more likelihood to be in non-agricultural occupations, except crafts and elementary works. The likelihood of choosing agricultural occupations, crafts and elementary occupation do not differs with education. In addition, education is more important for women to be placed in legislators and professionals.

Male rather than female is more likely to choose professionals and legislators rather than agricultural works and female compared to male is more likely to choose clerical jobs rather than agricultural occupations. In addition, being single rather than married increases the likelihood of choosing sales, clerks and crafts rather than agriculture. The number of the children in the household increases the likelihood of choosing crafts, operators and elementary occupations rather than

agriculture. The likelihood of choosing legislators , professionals and technicians are increases with being the reference person of household. Since these are relatively high paying occupations, it can be explained by either earning money is linked with the responsibility in household or being the head of the household force people to choose high paying occupations. As expected due to absence of agricultural working opportunities, living in urban increase the likelihood of choosing non-agricultural occupations. Lastly, all sectors other than agriculture increases the likelihood of choosing non-agricultural occupations. Among these three, construction seem to be more rigid to agriculture workers. In short, more children, being single, less experienced, less educated, reference person, living in urban seem to increase the likelihood of choosing segregative occupations.

The results of marginal effects of each variable for men and women are summarized in Table 5.2.

Table 5.2 Summary, Marginal Effects, 2010

	WCHS		WCLS		BCHS		BCLS	
	male	female	male	female	male	female	male	female
exp	+++	-	---	+0	---	+	+++	+0
educ	+++	+++	---	---	---	---	---	---
single	+++	+++	---	---	---	-0	+++	+++
divorced	+++	++	-	---	-	---	+0	+++
widowed	+0	+0	+0	-	-	+0	+0	+0
child	---	++	+	---	+0	+++	+++	+0
ref	+++	+++	---	---	-0	+0	---	-0
urban	---	---	+++	+++	+++	-0	---	---
industry	+++	+++	+++	+++	+	+++	---	---
cons	+++	-0	-0	+++	+++	---	---	---
service	+++	+++	+++	+++	---	---	---	---

+:positive factor, -: negative factor; number of the signs shows the significance level(1,2,3)=(0.1,0.05,0.01)
" O" shows that the variable is insignificant.

Source: : Findings in Chapter 4

Working in service sector or industry increases the average probability of individuals to be in white collar occupations. More years of education, working in service sector or construction; decreases the average probability of women to work in blue collar occupations. Actually it supports the finding of Cartmill

(1999): expending service sector helps to reduce OSS. More years of education and being single also decreases the average probability of men to be in middle ranked occupation (WCLS/BCHS). For women more years of education as well as being divorced decrease this probability. Living in urban increases the average probability of working in middle ranked occupations for both sexes. For women working in industry also have the same effect. In short women should move towards to service sector and industry; more educated and make their decisions independent of marriage to decrease the segregation.

For higher skilled group, sex is significant except WCLS occupations. Higher skilled female have higher average probability to choose WCHS, but less BCLS. Education on teacher training and education science, veterinary and health are the field increasing the probability of being in white collar jobs. Education on arts, humanities, business and administration, computing, engineering, manufacturing, architecture and agriculture increases the average probability of being in blue collar occupations. Actually the proportion of female in educational fields shows that they are mostly educated in the fields increases being in white collar occupations. On the other hand, the outcome of blue collar occupations are controversial.

In short, crafts, clerks and professionals are the more biased occupations toward integration. Occupational choices of individuals are highly related by educational level and the responsibility of household. Sector is also effective in decision making, however, whether the choice of sector is before occupational decision or not should be is out of the scope of this thesis, but may be a subject of further research. In addition it should be recognized that women should decide two or more times in labor market process; but in general men have just on decision: Where to work? Only the individuals who decide to work is in concern. This may cause misleading or incomplete outcomes for female estimates. A better way is analyzing the decision of females on labor force participation, occupational decision and intermittent decisions in sequence for the same sample. In addition, only supply side decisions cannot explain the existing segregation in Turkish labor

market. The decisions of firms or third parties are also absent in this thesis which would be complementary work for the analysis.

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APPENDICES

APPENDIX A: Related Tables

Table A1: Countries based on GDP Level, 2010

GROUP	COUNTRY	Abbreviations
bottom-ranked	Former Yugoslav Republic of Macedonia, the	MK
	Bulgaria	BG
	Romania	RO
	Turkey	TR
	Lithuania	LT
low-ranked	Latvia	LV
	Poland	PL
	Hungary	HU
	Croatia	HR
	Estonia	EE
low-middle ranked	Slovakia	SK
	Czech Republic	CZ
	Malta	MT
	Portugal	PT
	Slovenia	SI
modestly-ranked	Greece	EL
	Cyprus	CY
	Spain	ES
	European Union (27 countries)	EU27
	Italy	IT
high-middle ranked	United Kingdom	UK
	Iceland	IS
	France	FR
	Germany	DE
	Belgium	BE
high-ranked	Finland	FI
	Austria	AT
	Ireland	IE
	United States	US
	Netherlands	NL
top-ranked	Sweden	SE
	Denmark	DK
	Switzerland	CH
	Norway	NO
	Luxembourg	LU

Source: Annual National Accounts, 2010, Eurostat

Table A.2: Average annual incomes, GWG, sexes, occupation groups, Regional

		TR			R			U		
		Male	Female	GWG	Male	Female	GWG	Male	Female	GWG
T	'06	7219.1	5010.5	0.31	5410.52	2888.1	0.47	7973.88	5786.2	0.27
	'10	7399.7	5624.5	0.24	5546.07	3375.45	0.39	8196.8	6220.13	0.24
	Ch.	0.02	0.11	-0.28	0.02	0.14	-0.19	0.03	0.07	-0.14
OA	'06	13770.5	11831.1	0.14	10154.65	8591.32	0.15	14578.34	12253.6	0.16
	'10	13110.7	10742.2	0.18	8228.09	7843.92	0.05	14395.81	11217.84	0.22
	Ch.	-0.05	-0.1	0.22	-0.23	-0.1	-2.3	-0.01	-0.09	0.28
OB	'06	11770.7	9943.2	0.16	8811.61	8492.93	0.04	12141.72	10075.74	0.17
	'10	13729.8	10758.6	0.22	11759.02	10658.94	0.09	14038.48	10769.15	0.23
	Ch.	0.14	0.08	0.28	0.25	0.2	0.61	0.14	0.06	0.27
OC	'06	9300.1	7570	0.19	6657.07	6501.72	0.02	9507.74	7680.63	0.19
	'10	9443.7	7333.4	0.22	7794.01	8620.2	-0.11	9697.69	7259.21	0.25
	Ch.	0.02	-0.03	0.17	0.15	0.25	1.22	0.02	-0.06	0.24
OD	'06	7668.9	5790.8	0.24	6005.34	4464.8	0.26	7889.23	5921.09	0.25
	'10	7676.3	6211.7	0.19	7913.72	4292.57	0.46	7649.91	6369.62	0.17
	Ch.	0	0.07	-0.28	0.24	-0.04	0.44	-0.03	0.07	-0.49
OE	'06	5683	3943.7	0.31	4963.16	2997.52	0.4	5836.8	4050.77	0.31
	'10	6365.4	3869.6	0.39	5203.63	3940.58	0.24	6628.03	3856.85	0.42
	Ch.	0.11	-0.02	0.22	0.05	0.24	-0.63	0.12	-0.05	0.27
OF	'06	5582.2	2387.1	0.57	5406.11	2361.25	0.56	6698.11	2550.99	0.62
	'10	5277.8	2001.3	0.62	5190.31	2029.07	0.61	5930.53	1801.8	0.7
	Ch.	-0.06	-0.19	0.08	-0.04	-0.16	0.08	-0.13	-0.42	0.11
OG	'06	5651.6	1662.8	0.71	4556.33	1951.13	0.57	5936.47	1590.73	0.73
	'10	5641.4	1899.5	0.66	4694.62	1835.6	0.61	5843.27	1915.95	0.67
	Ch.	0	0.13	-0.06	0.03	-0.06	0.06	-0.02	0.17	-0.09
OH	'06	5941.96	4019.4	0.32	5232.98	4367.08	0.17	6135.23	3966.21	0.35
	'10	6239.06	4486.1	0.28	5562.36	4321.31	0.22	6431.75	4512.89	0.3
	Ch.	0.05	0.1	-0.15	0.06	-0.01	0.26	0.05	0.12	-0.19
OI	'06	4085.7	2453.6	0.4	3094.91	1543.37	0.5	4577.18	2827.19	0.38
	'10	4180.5	2753.2	0.34	3318.58	1588.29	0.52	4541.56	3078.67	0.32
	Ch.	0.02	0.11	-0.17	0.07	0.03	0.04	-0.01	0.08	-0.19
'06: 2006, '10:2010; Ch.: change rate between 2006 and 2010; GWG: Gender Wage Gap										

Source: Constructed from Incoma and Living Conditions Survey, 2006, 2010.Turkstat

Table A3: DI in Nuts2

Nuts2 /time	2004	2010
Istanbul	0.282	0.282
Tekirdağ, Edirne, Kırklareli	0.222	0.207
Balıkesir,Çanakkale	0.280	0.327
İzmir	0.286	0.293
Aydın, Denizli,Muğla	0.243	0.278
Manisa,Afyon,Kütahya,Uşak	0.272	0.289
Bursa,Eskişehir,Bilecik	0.206	0.281
Kocaeli,Sakarya,Düzce,Bolu,Yalova	0.303	0.282
Ankara	0.346	0.366
Konya,Karaman	0.383	0.258
Antalya,Isparta,Burdur	0.281	0.318
Adana,İçel	0.302	0.313
Hatay,Kahramanmaraş,Osmaniye	0.417	0.384
Kırıkkale,Aksaray,Niğde,Nevşehir,Kırşehir	0.361	0.334
Kayseri,Sivas,Yozgat	0.520	0.410
Zonguldak,Karabük,Bartın	0.358	0.341
Kastamonu,Çankırı,Sinop	0.368	0.202
Samsun,Tokat,Çorum,Amasya	0.247	0.283
Trabzon,Ordu,Giresun,Rize,Artvin,Gümüşhane	0.334	0.313
Erzurum,Erzincan,Bayburt	0.322	0.388
Ağrı,Kars,Iğdır,Ardıhan	0.520	0.382
Malatya,Elazığ,Bingöl,Tunceli	0.325	0.351
Van,Muş,Bitlis,Hakkari	0.634	0.456
Gaziantep,Adıyaman,Kilis	0.433	0.350
Şanlıurfa,Diyarbakır	0.388	0.394
Mardin,Batman,Şırnak,Siirt	0.402	0.353
total	0.280	0.282

Table A4: DI in Detailed Sectors*, 2010

SECTORS	DI
A	0.10
B	0.67
C	0.12
D-E	0.38
F	0.69
G	0.37
H	0.65
I	0.31
J	0.32
K	0.19
L	0.47
M	0.25
N	0.30
O	0.37
P	0.19
Q	0.31
R	0.24
S	0.36
T	0.42
U	0.64
TOTAL	0.30
	**** See NACE2 for categorization***

Table A5: Mlogit Estimates including Tenure in Experience, 2004

Varb.s	OA	OB	OC	OD	OE	OG	OH	OI
Const.	-9.435***	-11.53***	-6.616***	-5.629***	-1.941***	-1.600***	-1.462***	2.068***
Std	-0.398	-0.394	-0.374	-0.276	-0.258	-0.279	-0.237	-0.208
Exp	0.07***	0.017***	0.00119	0.0193***	-0.026***	-0.031***	-0.00826	-0.013**
Std	-0.00621	-0.00605	-0.00587	-0.00576	-0.0056	-0.00554	-0.00552	-0.00532
educ	0.586***	0.888***	0.438***	0.436***	0.136***	0.0208	0.0550***	-0.0178
Std	-0.0206	-0.021	-0.0194	-0.0191	-0.0186	-0.0186	-0.0186	-0.0182
2.sex	-1.419**	-0.92	0.652	1.758***	0.780*	0.0965	1.074**	0.832*
Std	-0.638	-0.57	-0.498	-0.481	-0.47	-0.469	-0.472	-0.454
femedu	0.261***	0.237***	0.144***	0.0870*	0.0234	-0.00973	0.0108	0.0144
Std	-0.0538	-0.0506	-0.0469	-0.0459	-0.0452	-0.0455	-0.0456	-0.0442
femexp	-0.0146	0.0056	-0.0125	-0.0338***	-0.00075	0.00294	-0.0490***	0.00613
Std	-0.0134	-0.0125	-0.0121	-0.012	-0.0119	-0.0118	-0.012	-0.0113
2.marital	-0.87***	-0.654***	-0.420**	-0.871***	-0.824***	-0.401**	-0.217	-0.122
Std	-0.211	-0.199	-0.197	-0.196	-0.194	-0.193	-0.194	-0.19
3.marital	-0.0871	-0.123	0.219	0.102	0.00702	0.156	0.258	0.669
Std	-0.613	-0.6	-0.594	-0.589	-0.587	-0.589	-0.592	-0.574
4.marital	-0.889*	-0.428	-0.519	-0.973**	-0.671	-0.891*	-0.492	0.086
Std	-0.521	-0.499	-0.482	-0.474	-0.454	-0.457	-0.461	-0.424
child	0.196**	0.130*	-0.0131	0.0517	0.154**	0.0463	0.123*	0.118*
Std	-0.0808	-0.0758	-0.0744	-0.0737	-0.0702	-0.07	-0.0701	-0.0676
1.head	0.476**	0.388**	-0.00654	-0.0336	0.0453	-0.218	-0.138	-0.349**
Std	-0.189	-0.176	-0.175	-0.174	-0.17	-0.17	-0.171	-0.166
2.krkent	-0.250**	-0.0119	0.447***	0.413***	0.224**	0.350***	0.276***	0.214**
Std	-0.116	-0.113	-0.112	-0.11	-0.106	-0.105	-0.106	-0.102
2.sect	5.138***	4.239***	6.043***	4.718***	4.592***	7.501***	6.172***	2.112***
Std	-0.349	-0.341	-0.347	-0.247	-0.235	-0.259	-0.209	-0.178
3.sect	6.274***	6.615***	7.466***	6.615***	5.101***	9.940***	6.609***	5.096***
Std	-0.788	-0.776	-0.776	-0.737	-0.747	-0.736	-0.722	-0.712
4.sect	5.301***	5.416***	5.742***	5.005***	5.995***	5.309***	4.522***	1.924***
Std	-0.317	-0.308	-0.318	-0.205	-0.19	-0.221	-0.159	-0.112
Obs.	68,451	68,451	68,451	68,451	68,451	68,451	68,451	68,451

Robust standard errors written in the rows "std".
*****P<0.01, **p<0.05, *p<0.1**

Table A6: Mlogit Estimates including Tenure in Experience, 2010

Varb.s	OA	OB	OC	OD	OE	OG	OH	OI
Cons	-10.7***	-15.4***	-7.41***	-6.823***	-3.463***	-1.724***	-2.699***	1.337***
Std	-0.408	-0.364	-0.307	-0.285	-0.264	-0.238	-0.237	-0.193
Exp	0.0599***	0.0115**	0.00657	0.0142**	-0.0311***	-0.0312***	-0.00817	-0.0170***
Std	-0.00585	-0.00579	-0.00567	-0.00563	-0.00551	-0.00548	-0.00548	-0.00528
educ	0.560***	1.044***	0.425***	0.393***	0.137***	-0.0187	0.0332**	-0.0537***
Std	-0.0182	-0.0201	-0.0172	-0.017	-0.0167	-0.0167	-0.0166	-0.0163
2.sex	-1.878***	-3.027***	1.307**	2.696***	2.392***	0.877*	2.341***	1.777***
Std	-0.657	-0.709	-0.512	-0.499	-0.49	-0.498	-0.494	-0.477
femedu	0.289***	0.403***	0.121***	0.0403	-0.0796*	-0.0509	-0.0923**	-0.0303
Std	-0.0544	-0.0571	-0.0469	-0.0462	-0.0457	-0.0465	-0.0462	-0.0449
femexp	-0.0152	-0.00887	-0.0260**	-0.0429***	-0.0121	-0.0141	-0.0558***	-0.00724
Std	-0.0121	-0.0118	-0.0115	-0.0114	-0.0113	-0.0116	-0.0115	-0.0109
2.marital	-0.512***	-0.298*	-0.274*	-0.621***	-0.547***	-0.361**	-0.137	-0.131
Std	-0.169	-0.162	-0.161	-0.16	-0.159	-0.159	-0.16	-0.155
3.marital	0.297	-0.0441	0.134	-0.00584	-0.0393	-0.18	0.111	0.238
Std	-0.454	-0.45	-0.445	-0.442	-0.44	-0.445	-0.443	-0.436
4.marital	-1.152*	-0.22	-0.54	-0.825	-0.131	-0.122	-0.239	-0.0565
Std	-0.6	-0.555	-0.539	-0.529	-0.508	-0.514	-0.519	-0.486
child	0.297***	0.130*	0.0685	0.0258	0.161**	0.126*	0.163**	0.135**
Std	-0.0758	-0.0738	-0.0718	-0.0717	-0.0694	-0.0689	-0.069	-0.0666
1.head	0.661***	0.693***	0.348**	0.156	0.153	0.153	0.194	-0.0373
Std	-0.15	-0.144	-0.142	-0.141	-0.139	-0.139	-0.14	-0.135
2.krkent	0.610***	0.590***	1.010***	1.182***	0.920***	1.091***	0.988***	0.651***
Std	-0.104	-0.104	-0.1	-0.0996	-0.096	-0.096	-0.0963	-0.0922
2.sect	6.381***	5.232***	6.648***	5.955***	5.817***	7.610***	7.390***	3.637***
Std	-0.401	-0.328	-0.309	-0.296	-0.288	-0.256	-0.253	-0.217
3.sect	7.189***	6.715***	7.118***	7.200***	5.982***	8.953***	7.455***	5.378***
Std	-0.68	-0.639	-0.627	-0.62	-0.624	-0.599	-0.598	-0.583
4.sect	5.891***	5.554***	5.525***	5.652***	6.779***	4.798***	4.986***	2.605***
Std	-0.349	-0.262	-0.241	-0.225	-0.214	-0.172	-0.166	-0.103
Obs.	86,235	86,235	86,235	86,235	86,235	86,235	86,235	86,235

Robust standard errors written in the rows "std".
*****P<0.01, **p<0.05, *p<0.1**

Table 4.15 Marginal Effects for Females,2010

Var.	O1	O2	O3	O4
Exp	-0.00114**	0.00166***	-0.00140***	0.00088**
(Std)	0,00049	0,00054	0,00033	0,00043
Educyears	0.05141***	-0.01286***	-0.01135***	-0.02719***
(std)	0,00086	0,00096	0,00072	0,00093
Single	0.08752***	-0.16388***	0.02639***	0.04997***
(std)	0,0074	0,00833	0,00575	0,00744
Divorced	-0,00795	-0.03303*	0,00248	0.03850**
(std)	0,01723	0,01964	0,01348	0,01663
Widowed	0,03564	-0.06309*	-0,01036	0.03781*
(std)	0,02741	0,03002	0,0171	0,0228
Child	0,00849	-0.02148*	0,00459	0,00841
(std)	0,00764	0,00834	0,00427	0,00641
Ref	0.08770***	-0.10228***	0,00131	0,01327
(std)	0,01173	0,01258	0,01395	0,01573
Urban	-0.03790***	0.06107***	-0.02248***	-0,00068
(std)	0,00985	0,00969	0,00599	0,0081
İndustry	0.19001***	0.05204***	0.20954***	-0.45159***
(std)	0,03927	0,01955	0,00853	0,03421
Constr	0.14282***	0.32947***	0.11111***	-0.58340***
(std)	0,04623	0,04372	0,03445	0,04713
Service	0.21040***	0.35968***	-0.03192***	-0.53815***
(std)	0,03887	0,02012	0,00679	0,03441

"std" presents the robust standard errors
*****P<0.01, **p<0.05, *p<0.1**

Table A8: Sex Ratio in Education Level Within the Occupations

field	OA	OB	OC	OD	OE	OF	OG	OH	OI	TOTAL
1	8,00	0,89	2,50	1,43	6,45	na	17,00	na	na	1,19
2	1,76	0,57	0,65	0,36	0,77	na	1,19	1,03	0,31	0,65
3	10,12	1,83	5,00	3,47	9,88	na	16,29	16,11	16,40	0,00
4	2,67	1,84	1,92	1,16	9,46	na	11,00	na	na	2,05
5	1,00	1,73	2,00	1,25	na	na	na	na	na	1,59
6	2,60	1,58	1,78	1,01	3,40	4,00	10,28	8,57	3,39	1,76
7	2,00	1,30	1,50	1,62	na	na	na	na	na	1,48
8	2,20	0,85	1,92	0,64	2,67	na	na	1,00	na	1,07
9	3,05	1,28	1,89	1,00	4,00	na	2,00	1,50	1,00	1,50
10	2,38	1,49	0,60	1,00	na	na	na	na	na	1,49
11	5,40	2,07	2,53	1,19	3,94	na	32,00	7,33	13,50	2,52
12	12,48	7,51	0,02	7,31	29,70	11,00	0,11	46,06	49,00	0,02
13	4,06	1,56	1,83	1,41	3,93	na	21,31	13,42	5,45	0,00
14	11,38	2,99	6,29	2,50	8,13	na	37,00	13,00	36,00	5,09
15	4,83	2,10	3,28	1,18	8,60	na	na	15,00	2,50	2,65
16	na	3,17	0,71	3,00	na	na	na	na	na	1,83
17	2,33	1,49	0,25	0,42	0,87	na	0,50	7,00	0,50	647,35
18	0,00	0,31	0,04	0,00	0,02	na	0,25	0,00	0,00	0,04
19	2,40	0,58	1,26	0,92	2,15	na	2,00	1,67	1,18	1,37
20	na	1,67	2,57	1,38	2,00	na	na	na	na	2,57
21	25,00	65,33	4,00	9,00	15,80	na	na	na	na	19,55

Fields1-teacher trainig and education; 2-arts, 3- humanities, 4- Social and Behavioral Sciences
5- Journalism, 6- Business and Admnistration, 7- Law, 8- LifeScinece, 9- Physical Science,
10- Maths and Stats, 11- Computing, 12- Engineering, 13- Manufacturing, 14- Architecture,
15- Agriculture, 16- Veteniary, 17- Health, 18- Social Services, 19- Personal Services
20- Transportation, 21- Security Services

APPENDIX B: Information on Data

General Information: HLFS- Turkstat

HLFS is the main source (supply side) that produces information about characteristics of Turkish labor market.

Information is collected by questionnaires conducted by visits. The standards of International Labor Organization (ILO) are the main base. The primary unit sources are addresses and the basic statistical unit is household. The addresses (so the households) are selected by a 2 stage stratified clustered probability sample[74] involving 8 sub samples. The chosen households are visited four times during 18 months. Demographic information is asked to all residents of households but labor market questions are conducted to people over 15 years. Information about employed people consists of main sectors, occupations, and work status and working hours; whereas information about unemployed people includes duration of unemployment and occupation/sector, they are looking for. HLFS is conducted to all residents of Turkish Republic. However institutional population[75] is excluded from the survey. Urban defined as the settlement with population more than 20000, and rural defined as the settlement with population 20000 or less

[74] Stratification is made to control the group is really what you are interested in (not all women or concntrated in a few age grous etc..). Clustring is necesary to use your resources (money, time etc) effectively. Survey is conducted representitive groups (clusters) of all.

[75] Residents of schools, dormitories,orphanage, hotels, rest homes for elderly persons , hospitals and prison; and the active armed forces.

2004- 2010 HLFS:

Main Classifications: People who have employed at least once in lifetime are classified by educational status, employment status, economic activity and occupation.

Educational status

Educational status of people is categorized based on the International Standard Classification of Education (ISCED) version 1997 created and developed by United Nations Educational, Scientific and Cultural Organization (UNESCO). In the context of ISCED education includes "…organized and sustained communication designed to bring about learning… [76](UNESCO 2006: 9)". UNESCO helps national institutes to match their data on ISCED. Levels of education are the products of grouping the educational programs into broad categories. More complex the program is the higher the level of education (UNESCO 2006: 15). Four main levels is presented as Illiterate, Less than high school, high school and higher education. Turkstat presents education levels 7 categories based on ISCE 1997 classification.

Table B1 Skill Levels and Educational Attainment

First Level	Illetrate, Literate but not complete any school
Second level	Primary education, Secondary education
Third level	High School, Vocational School
Fourth Level	Higher School

Source: ILO

[76] Words are underlined by author to point out what are the main criteria of UNESCO to determine an act as education.

Employment Status

Turkstat classified people employed at least once in lifetime by employment status classified by International Classification on Status in Employment (ICSE) version 1993. It is produced and developed by ILO. In fact categorization of ISCED 1993 broadly makes the distinction between paid employment and self-employment. Employees compose all paid workers, whereas self-employed people consist employers, own-account workers, members of producers' cooperatives and contributing family workers. Workers not classifiable by status are also counted as a separate category. Based on ICSE 1993, Turkstat categorize work status into four in purpose: employee, employer, self-employee and unpaid family worker.

Economic activities:

An economic activity takes place when resources combined to produce specific good and services (Eurostat 2008:15).

Until 2000 Turkey used ISIC (International Standard Industrial Classification of all Economic Activities). After that NACE Rev.1 is conducted until 2009. By 2009 NACE Rev.2 is started to use. However 2009 data represent economic activities in both classification methods. NACE is derived from ISIC, with more detailed categories (Eurostat, 2008:14). The difference can be seen at the lowest levels where NACE is more detailed.

NACE is designed to take national characteristics into account for EU members and mandatory for European Statistical System (Eurostat 1996: 12, Eurostat 2008,:12). However national versions are allowed if they are derived from NACE.

The correspondence tables of Nace Rev. 1 and Nace Rev. 2 shows the main shift in classification of occupations occur within non- agricultural sectors. The shift is mostly through the services sector. The repair processes of production , sale of products and publish were included in industry in Nace Rev. 1 and it is shifted to services categories in revision 2.The development projects of construction is shifted from construction to services. The sewerage and waste were processed in

industry in version 1 while they are mostly shifted to services in version 2. In short economic activities are difficult to compare over time period.

Turkey use NACE Rev. 1, with regrouping the main categories into 9[77]. In some cases broader categorization can be used. From 2010 Nace Rev.2 is used and for comparability 2009 data are presented with using Nace Rev 2. Now the data is collected in terms of two-digit activities and these are regrouped into 18 broad categories.

Occupations:

The main unit of this part is occupations. For this reason occupational categorization should reviewed clearly.

Occupations are classified based on The International Standard Classification of Occupations (ISCO) of ILO. Until 2000 ISCO68 was in act, after than ISCO88 is used.

In the context of this classification, job defined as a set of tasks and duties which can be carried out by one person. Occupation is a group of jobs which dealing with similar tasks and duties. ISCO is a tool to use grouping jobs according to tasks and duties undertaken in the jobs.

ISCO88 uses two dimensions of skill. Skill level is a function of the complexity and range of the tasks involved. It is measured with educational level. However formal education and training are not only ways of skill acquisition. For this reason ISCO88 concern with the *necessary skill level,* not the ways of getting these skills. Skill-specialization reflects type of knowledge applied, tools and equipment used, materials worked on, or work with, and the nature of good and services produced. ISCO88 concerns about the required skills to carry out tasks and duties, not the skill of particular person in an occupation.

According to ISCO classification skill level is categorized into four levels (Elias 1997: 6, Hoffmann and Scott 1993:7). First skill level consist primary education

[77] Data base and annual publications also regroup it into 14 from 2004.

begun at ages 5-7 and ends at 10-12. Second skill level begins at 11-12 and lasting 5-7 years. Third level consist tertiary education without university degree and fourth level consist tertiary education with university degree or equivalent. Accordingly occupations are equalized with skill levels.

Table B2: Categorization of Occupations

Source: ILO, ISCO88

Occupations	Main tasks requires knowledge and experience in[78]	Main tasks consist[79]	Skill level
OA	na	Determining and formulating government policies, laws and public regulations, overseeing their implementation, representing governments and acting on their behalf, or planning, directing and coordinating the policies and activities of enterprises and organizations, or departments…	na
OB	in the fields of physical and life sciences, or social sciences and humanities.	increasing the existing stock of knowledge, applying scientific and artistic concepts and theories to the solution of problems, and teaching about the foregoing in a systematic manner	4th
OC	one or more fields of physical and life sciences, or social sciences and humanities.	carrying out technical work connected with the application of concepts and operational methods in the above-mentioned fields, and in teaching at certain educational levels….	3rd
OD	organize, store, compute and retrieve information.	performing secretarial duties, operating word processors and other office machines, recording and computing numerical data, and performing a number of customer-oriented clerical duties, mostly in connection with mail services, money-handling operations and appointments….	2nd
OE	provide personal and protective services, and to sell goods in shops or at markets.	of providing services related to travel, housekeeping, catering, personal care, protection of individuals and property, and to maintaining law and order, or selling goods in shops or at markets…	2nd

[78] Totally taken from ILO definitions

[79] Totally taken from ILO definitions

Table B2 continued			
OF	produce farm, forestry and fishery products	growing crops, breeding or hunting animals, catching or cultivating fish, conserving and exploiting forests and, especially in the case of market-oriented agricultural and fishery workers, selling products to purchasers, marketing organizations or at markets….	2nd
OG	In skilled trades or handicrafts which, among other things, involves an understanding of materials and tools to be used, as well as of all stages of the production process, including the characteristics and the intended use of the final product.	extracting raw materials, constructing buildings and other structures and making various products as well as handicraft goods	2nd
OH	operate and monitor large scale, and often highly automated, industrial machinery and equipment.	operating and monitoring mining, processing and production machinery and equipment, as well as driving vehicles and driving and operating mobile plant, or assembling products from component parts	2nd
OI	In mostly simple and routine tasks, involving the use of hand-held tools and in some cases considerable physical effort, and, with few exceptions, only limited personal initiative or judgment.	Selling goods in streets, door keeping and property watching, as well as cleaning, washing, pressing, and working as laborers in the fields of mining, agriculture and fishing, construction and manufacturing.	1st

APPENDIX C:
TEZ FOTOKOPİ İZİN FORMU

ENSTİTÜ

Fen Bilimleri Enstitüsü [ ]

Sosyal Bilimler Enstitüsü [x]

Uygulamalı Matematik Enstitüsü [ ]

Enformatik Enstitüsü [ ]

Deniz Bilimleri Enstitüsü [ ]

YAZARIN

Soyadı : Gülen
Adı : Gülşah
Bölümü : İktisat

TEZİN ADI (İngilizce) : Women and Occupational Sex Segregation in Turkish Labor Market, 2004- 2010

TEZİN TÜRÜ : Yüksek Lisans [x] Doktora [ ]

1. Tezimin tamamı dünya çapında erişime açılsın ve kaynak gösterilmek şartıyla tezimin bir kısmı veya tamamının fotokopisi alınsın. [x]
2. Tezimin tamamı yalnızca Orta Doğu Teknik Üniversitesi kullancılarının erişimine açılsın. (Bu seçenekle tezinizin fotokopisi ya da elektronik kopyası Kütüphane aracılığı ile ODTÜ dışına dağıtılmayacaktır.) [ ]
3. Tezim bir (1) yıl süreyle erişime kapalı olsun. (Bu seçenekle tezinizin fotokopisi ya da elektronik kopyası Kütüphane aracılığı ile ODTÜ dışına dağıtılmayacaktır.) [ ]

Yazarın imzası ..... Tarih 03.10.2012