THE EFFECT OF WOMEN'S EMPLOYMENT ON COMPETITIVENESS AND ECONOMIC GROWTH: A COMPARISON OF TURKEY AND THE MOST COMPETITIVE COUNTRIES[1]

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ABSTRACT

In recent years, a large number of studies have been made about women's employment but no study has been met about the effect of women's employment on competitiveness and economic growth. In this study, the effect of women's employment on competitiveness and economic growth has been compared between the most competitive countries according to the data of International Institute for Management Development (IMD) and Turkey. The main hypothesis of the study is that "women's participation in employment would have positive effects on competitiveness and economic growth". According to the results of the analyses made, while in more competitive countries female labor force participation affects competitiveness positively, in all of the countries discussed and in less competitive countries the effect of female labor force participation on competitiveness is concluded to be insignificant. Female labor force participation positively affects economic growth in all these groups.

Keywords: Women's Employment, Competitiveness, Economic Growth.

KADIN İSTİHDAMININ REKABET GÜCÜ VE EKONOMİK BÜYÜME ÜZERİNE ETKİSİ: TÜRKİYE İLE REKABET GÜCÜ EN YÜKSEK ÜLKELERİN KARŞILAŞTIRILMASI

ÖZ

Son yıllarda kadın istihdamı ile ilgili çok sayıda çalışma yapılmıştır. Ancak kadın istihdamının ülkelerin rekabet gücü ve ekonomik büyümeleri üzerindeki etkisini inceleyen herhangi bir çalışmaya rastlanmamıştır. Bu çalışmada kadın istihdamının, Uluslararası Yönetim Geliştirme Derneği'nin (IMD) verilerine göre rekabet gücü en yüksek 10 ülke ve Türkiye'nin rekabet gücü ve ekonomik büyümesi üzerindeki etkileri karşılaştırılmaktadır. Çalışmanın temel hipotezi, "kadınların işgücüne katılımının ülkelerin hem rekabet gücü hem de ekonomik büyümeleri üzerinde olumlu etkiye sahip olduğudur." Yapılan analizlerin sonuçlarına göre, rekabet gücü daha yüksek ülkelerde kadınların işgücüne katılımı rekabet gücünü olumlu yönde etkilerken, hem ülkelerin tamamı ele alındığında hem de rekabet gücü daha düşük ülkelerde

kadınların işgücüne katılımının rekabet gücü üzerindeki etkisinin belirsiz olduğu tespit edilmiştir. Tüm ülke gruplarında kadınların işgücüne katılımının ekonomik büyüme üzerindeki etkisinin ise olumlu yönde olduğu kanaatine varılmıştır.

Anahtar Kavramlar: Kadın İstihdamı, Rekabetçilik, Ekonomik Büyüme.

INTRODUCTION

Even though women have contributed to all stages of production for centuries, they first present their effort for a fee by the industrial revolution. During the first and second World Wars with the conscription of men, the labor force participation of women increased. Since the 1950s, when in the economies of developed countries the location of the structure that was dominated by the agricultural and industrial sectors gave place to the service sector, an increase has occurred in the female labor force participation. Starting from the 1970s, the expansion of international trade and the shift of demand from standard products to the products with many features depending on the globalization have led countries to adopt a flexible mode of production. Flexible production system provided an important opportunity for the women who were unable to attend labor force due to family responsibilities and due to this opportunity in recent years, the female labor force participation in developed countries has continued its increasing trend.

In Turkey, women in a real sense began to take place in the labor market as a result of the urbanization brought by the migration from rural to urban areas after the 1950s. Although the total female employment was about 70 percent in the 1950s, this rate decreased to 40 percent in the 1980s, to 30 percents in the 1990s and to 20 percent today (Tansel, 2002: 24-25). This decrease can be explained by the withdrawal of women from the labor market due to the fact that the head of the family is increasingly moving away from the agriculture. Especially in urban areas, women with low levels of education do not participate in the labor force. In times of crisis, women participating in the labor force have a priority of being made redundant from work. Turkey, which was exposed to many crises, is the country in the worst condition in women's employment in OECD countries by a rate of 24 percent.

Despite the above mentioned importance of women's employment, in literature, there exists no study examining the effect of women's employment on the economic growth and competitiveness. The purpose of conducting this study was to contribute to the literature by examining the effect of women's employment on economic growth and competitiveness from both theoretical and practical points of view.

In this study, for the above mentioned purpose the effects of women's employment on competitiveness and on the economic growth of Turkey and the

most competitive countries are been analyzing according to the data by IMD. According to the 2009 year's data by the International Institute for Management Development, the most competitive 10 countries are United States, Hong Kong, Singapore, Switzerland, Denmark, Sweden, Australia, Canada, Finland and the Netherlands.

In this study, for the purpose of examining the effect of women's employment on economic growth and competitiveness firstly the effect of female labor force participation on competitiveness and GDP was examined by panel data analyses for all the countries studied. In the next step, 11 countries discussed were divided into two groups of more competitive 6 countries and less competitive 5 countries, and the analyses made on the 11 countries discussed were applied to these groups separately.

In this study, E-views and Stata 11 programs were used. The data used in this study were obtained from World Development Indicators (WDI), CIA World Factbook, a research tool publication created by the International Labor Organization (ILO) which has a name of Key Indicators of Labor Market (KILM) and the website of www.wider.unu.edu. In addition, other sources within this study were obtained from scholarly journals, conference papers, books and other studies in internet media.

The study consists of five main parts. In the first part; theoretical structures associated with women's employment are considered. In the second part; the effect of women's employment on competitiveness and in the third part; the effect of women's employment on economic growth are examined. In the fourth part; information is given about the application. And in the last part; empirical findings and comments are presented.

I. WOMEN'S EMPLOYMENT

Women's labor participation rate can be defined as a rate of women labor force to women population. Employed women's number consists of both employments with payment and without payment. Another concept about women's employment is pink-collared labor force. Pink-collared labor force can be defined as women labor force working in government sector or private sector (Kocacık, Gökkaya, 2005: 199).

Women start to work in labor market with a statue of "worker" with payment by the Industry Reform. By the industrialization, both in industry and agriculture great improvements were made, women's employed in agriculture immigrated to the towns, and supplied their labor force for the labor markets but they supplied their labor force by working as cleaners in the service sector (Özer, Biçerli, 2003-2004: 56-57).

As a result of improvement in industry, firm numbers and scales have grown over time and women have obtained working opportunities in the service sector as salesmanship, secretaryship and accountancy.

II. THE EFFECT OF WOMEN'S EMPLOYMENT ON COMPETITIVENESS

When we search about women's employment and competitiveness, we meet competitiveness concept only as the competition between women and men workers but we think there is a relation between women's employment and national competitiveness. For example, according to the European Union Commission's definition, national competitiveness is the countries' high labor force creating ability and increasing the returns of production factors in hard competition. As women comprise half of the world population, to create high labor force, women's employment needs to be increased.

One of the indicators used to measure the competitiveness of countries is the indicator of employment. An increase in employment will lead to an increase in competitiveness. The most appropriate way to increase employment is to increase women's employment.

According to the World Economic Forum's Global Competitiveness Index 2010-2011, the most important factor in Turkey's international competitiveness in the labor market weakness is the lack of active labor market. The most important sub-variable reducing the effectiveness of the labor market is the women's labor force participation rate. Therefore, by increasing labor force participation rate of women in the labor market activity, the effectiveness of labor market may be provided and thus international competitiveness may be increased.

III. THE EFFECT OF WOMEN'S EMPLOYMENT ON ECONOMIC GROWTH

Tzannatos (1999) defends continuous developments in women labor market and narrowing gender gap can increase output and welfare of men and women. He is of the opinion that economic growth will benefit all workers, especially women workers in the short term; but mostly women will benefit from the economic growth.

Dollar and Gatti (1999) say as a human capital less investment in women is not an effective preference for the developing countries, and also inequalities in training, wage and employment will have negative consequences.

According to Klasen and Lamanna (2009) inequalities in training and employment will significantly reduce economic growth. Discrimination in employment shows an increasing effect of economic growth differences

between the Middle East, North Africa and South Asia. There are evidences that the source of this effect is a slow increase in female employment.

IV. PANEL DATA ANALYSIS ON THE WOMEN'S EMPLOYMENT RELATIONSHIP WITH ECONOMIC GROWTH AND COMPETITIVENESS

In this section, women's employment relationship with economic growth and competitiveness is examined through an analysis of panel data. For this purpose, two econometric models have been formed. For the impact of the amount of female labor force participation on the competitiveness index:

$$INDEX = \alpha_i + \beta_1 \ LNLFPW + e_{it}$$

For the impact of the female labor force participation on the GDP:

$$LNGDP = \alpha_i + \beta_1 \ LNLFPW + e_{it}$$

In these models, INDEX refers to the competitiveness index, LNLFPW refers to the logarithmic form of the amount of labor force participation of women and LNGDP refers to the logarithmic form of the gross domestic product.

For the 1998-2008 period, the amount of female labor force participation data taken for 11 countries has been obtained from Key Indicators of the Labor Market (KILM) publication which is a research tool created by the International Labor Organization (ILO). For the same period and the same countries, Gross Domestic Product data have been obtained from World Development Indicators (WDI) online database. GDP numbers are in constant prices and in the US dollars type.

Competitiveness index data used in this study was created by us by calculation. In the calculation of competitiveness index, 114 indicators were used which were gathered from World Development Indicators (WDI), CIA World Factbook, and the www.wider.unu.edu website.

The indicators used in this study were basically divided into six groups; indexes of education, infrastructure, labor and social protection, macroeconomic policy, energy and environment and health.

A lot of publications were examined for the calculation of competitiveness index. However, the method used in the book "Rekabet Gücü ve Türkiye (Competitiveness and Turkey)" by Coşkun Can Aktan was seen as the most appropriate method for this study. The method can be summarized as follows:

> **1.** For the 1998-2008 periods, the data of each country considered were tabulated separately in groups.

2. The tabulated data were listed from small to large or from large to small according to the effect on the competitiveness.

3. For each country and each year, these sequence numbers' totals were taken and divided into the indicator numbers where the countries' data were placed. In this way, the overall sequencing values of the countries were obtained.

4. If the overall sequencing value of the country was 1, then the index value of the country was considered as 100 and according to this, the index values were calculated by the proportioning of overall sequencing values to 100.

Overall Sequencing Value = Sum of the countries' sequencing numbers / Indicator Numbers

Index Value = 100 / Overall Sequencing Value

The effect of women's employment on competitiveness and economic growth was revealed by the panel data analyses on the most competitive 10 countries (US, Hong Kong, Singapore, Switzerland, Denmark, Sweden, Australia, Canada, Finland and the Netherlands) and on Turkey according to the International Association for Management Development's (IMD) 2009 year's data. Eviews 5.1 and Stata 11 programs are used in making analysis.

V. EMPIRICAL FINDINGS AND COMMENTS

In the study, because of the missing values in some countries' data, unbalanced panel data analysis was done. The Least Squares Method (OLS), Fixed Effects Model and Random Effects Model were applied for each of the models. Autocorrelation problem was eliminated by using xtregar code in Stata 11 program. When disturbance term is first order autoregressive, xtregar makes cross-sectional time series regression models appropriate. Xtregar suggests an internal estimator for the fixed effects model, and a generalized least squares estimator for the random effects model (Stata Corporation, 2009: 476).

A.THE EFFECT OF FEMALE LABOR FORCE PARTICIPATION ON THE ECONOMIC GROWTH AND COMPETITIVENESS FOR ALL THE COUNTRIES STUDIED

Model 1: INDEX = F (LNLFPW)

Model 2: LNGDP = F (LNLFPW)

Table 1: Implementation Results of the Effect of Female Labor Force Participation on the Economic Growth and Competitiveness for All the Countries Studied

LNLFPW	OLS	Fixed Effects	Random Effects
Model 1	0.8104037	2.730859	0.4486702
	(0.1018061)	(0.3428446)	(0.3663045)
Model 2	**0.8829129**	**0.9989993**	**0.9286986**
	(0.0464033)	**(0.0703065)**	**(0.0679621)**

***The values in parentheses are the probality values.

According to table 1, the effect of female labor force participation on the economic growth is statistically significant in each of the three models. Likelihood ratio and Hausman tests were applied to find the fittest of these models. Likelihood ratio test was applied to find the appropriate one of the OLS models and fixed effects models. Hausman test was applied to decide one of the fixed effects and random effects models. It is examined if the difference between the two models' parameters is statistically significant. Accordingly the results of the likelihood ratio test under the null hypothesis of "the OLS estimator is correct" and Hausman test under the null hypothesis of "the random effects estimator is correct" are shown in table 2.

Table 2: The Likelihood Ratio and the Hausman Tests Results in Examining the Effect of the Female Labor Force Participation on the Economic Growth for All the Countries Studied

Test Summary	The Value of Statistics	The Degree of Freedom	Probability
Cross-section F	621.626484	10.91	0.0000
Cross-section chi-squared	478.961562	10	0.0000
Cross-section random	3.862281	1	0.0494

As the probability value is smaller than 0.05 by the result of the likelihood ratio test, the H_0 hypothesis is rejected. So the fixed effects model is found to be more appropriate for the data set. If the Hausman test results are taken into account, as the probability value is smaller than 0.05 the H_0 hypothesis is rejected. So the fixed effects model is appropriate for the data set. Thus according to both Hausman test and likelihood ratio test, fixed effects model is found to be more appropriate. According to the fixed effects model, equation is:

$$LNGDP = 0.4045653 + 0.9989993 \ LNLFPW$$

The coefficients are statistically significant at the 10% significance level. R^2 has taken a value high enough as 69%. A one percent increase in female labor force participation leads to an increase of 0.99% in GDP.

From the figures shown at the end of the paper, the relationship between female labor force participation and economic growth for each country can be examined. We could not draw a figure for Singapore because there are many missed data of female labor force participation data.

From the figures, it can be understood that there is a positive relationship between female labor force participation and GDP in all the countries discussed. These figures comply with the implementation results.

B. THE EFFECT OF FEMALE LABOR FORCE PARTICIPATION ON THE ECONOMIC GROWTH AND COMPETITIVENESS FOR THE HIGHER COMPETITIVE COUNTRIES

At this stage, the countries were divided into two groups of more competitive and less competitive countries. The more competitive countries are the US, Singapore, Hong Kong, Canada, Switzerland and the Netherlands.

Table 3: Implementation Results of the Effect of Female Labor Force Participation on the Economic Growth and Competitiveness for the Higher Competitive Countries

LNLFPW	OLS	Fixed Effects	Random Effects
Model 1	**0.3559073**	2.734826	0.2669797
	(0.0629363)	(0.3925561)	(0.1175303)
Model 2	**0.9633639**	**1.240209**	**1.031857**
	(0.0466764)	**(0.0764909)**	**(0.0396979)**

***The values in parentheses are the probality values.

According to the table 3, the effect of female labor force participation on the economic growth is statistically significant by each of the three models. Likelihood ratio and Hausman tests were applied to find the fittest of these models. Likelihood ratio test was applied to find the more appropriate one of the two models; OLS and fixed effects model. Hausman test was applied to decide between the fixed effects and random effects models. Significance of the difference between the two models' parameters was investigated. Accordingly, the results of the likelihood ratio test under the null hypothesis of "the OLS estimator is correct" and the Hausman test under the null hypothesis of "the random effects estimator is correct" are shown in table 4.

Table 4: The Likelihood Ratio and the Hausman Tests Results in Examining the Effect of the Female Labor Force Participation on the Economic Growth for the more Competitive Countries

Test Summary	The Value of Statistics	The Degree of Freedom	Probability
Cross-section F	116.800881	5.41	0.0000
Cross-section chi-squared	158.002825	5	0.0000
Cross-section random	5.095989	1	0.0240

As the probability value is smaller than 0.05 by the result of the likelihood ratio test, the H_0 hypothesis is rejected. So the fixed effects model is found to be more appropriate for the data set. If the Hausman test results are taken into account, as the probability value is smaller than 0.05 the H_0 hypothesis is rejected. So the fixed effects model is appropriate for the data set. Thus according to both Hausman test and likelihood ratio test, fixed effects model is found to be more appropriate. According to the fixed effects model, equation is:

LNGDP = -1.661783 + 1.240209 LNLFPW

The coefficients are statistically significant at the 10% significance level. R^2 is taken a value high enough as 85%. A one percent increase in female labor force participation leads to an increase of 1.240209% in GDP.

The effect of female labor force participation on the competitiveness is statistically significant by the OLS model. So the equation is:

INDEX = 15.84538 + 0.3559073 LNLFPW

The coefficients are statistically significant at the 10% significance level. A one percent increase in female labor force participation leads to an increase of 0.3559073 category in competitiveness index.

C. THE EFFECT OF FEMALE LABOR FORCE PARTICIPATION ON THE ECONOMIC GROWTH AND COMPETITIVENESS FOR THE LESS COMPETITIVE COUNTRIES

At this stage, the countries discussed are Australia, Sweden, Denmark, Finland and Turkey.

Table 5: Implementation Results of the Effect of Female Labor Force Participation on the Economic Growth and Competitiveness for the Less Competitive Countries

LNLFPW	OLS	Fixed Effects	Random Effects
Model 1	-1.186977	2.658222	-0.1131601
	(0.5558302)	(2.034738)	(0.7398476)
Model 2	**0.4245651**	-0.4148162	0.4560002
	(0.0528458)	(0.1425819)	(0.1229945)

***The values in parentheses are the probality values.

According to the table 5, the effect of female labor force participation on the economic growth is statistically significant only by the OLS method at the level of 10%. According to the OLS method, equation is:

LNGDP = 4.290722 + 0.4245651 LNLFPW

A one percent increase in female labor force participation leads to an increase of 0.4245651% in GDP.

CONCLUSION

Panel data analysis was applied to all of the 11 countries discussed in the first stage. Then countries were divided into two groups as more and less competitive countries, and panel data analysis was also applied for each of these groups separately. According to the results of the analyses made, while in more competitive countries female labor force participation affects competitiveness positively, in all of the countries discussed and in less competitive countries the effect of female labor force participation on competitiveness is concluded to be insignificant. Female labor force participation positively affects economic growth in all these groups.

In summary, our basic hypothesis "an increase in female labor force participation will positively affect competitiveness" was accepted for more competitive countries but could not be evaluated for other country groups because of the insignificant coefficients. The reason for such a result may be that in more competitive countries women are employed in more skilled jobs and thus they increase the effectiveness of the labor force; but in other country groups women are employed in unskilled jobs and this does not affect the competitiveness. Our other hypothesis "an increase in female labor force participation positively affects economic growth" was accepted for all the country groups.

According to the results we have obtained, in order to increase the competitiveness and economic growth, the policies for the protection and enhancement of women's employment should be included. Accordingly the following recommendations can be made:

- Gender discrimination in respect of education must be prevented.

- Women's responsibilities such as housework and childcare must be reduced.

- Some of the legal arrangements made for protecting women must be revised.

APPENDIX:

Figures Of The Relationship Between Female Labor Force Participation And Economic Growth
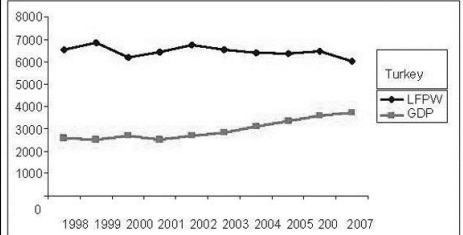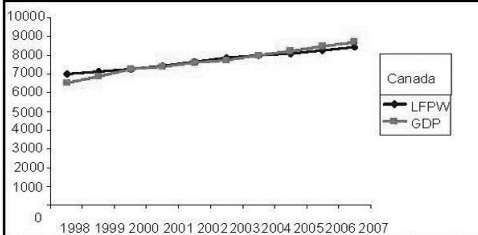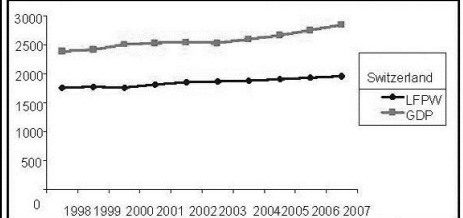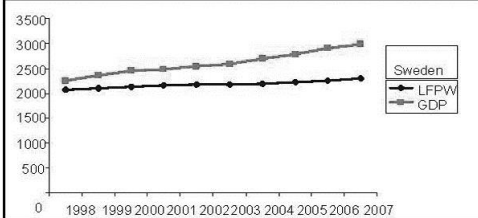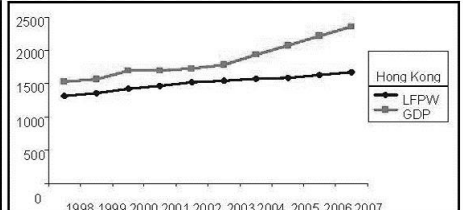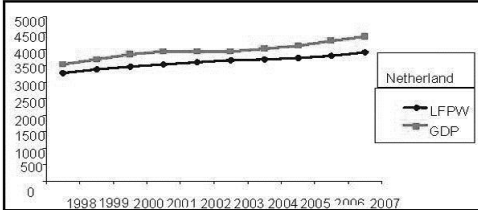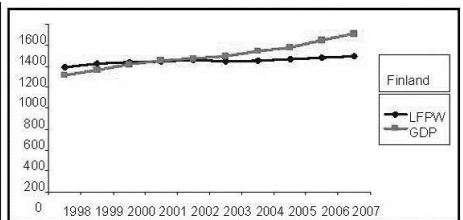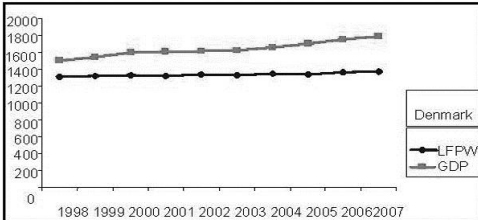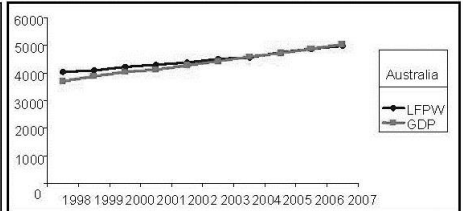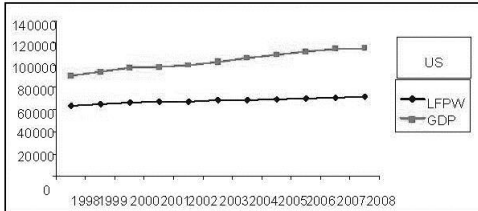
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