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The Impacts of Gender Inequality in Education on Economic Growth in Turkey

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Abstract

A large number of literature on education of women clearly suggest that educating a woman is equal to educating a family and that woman are worth training more than their counterparts, men, in many respects. However, despite the fact that positive contribution of women education to the economy and society has long been known, education of women in many nations, particularly in developing countries, needs to attract more attention.

The education level of women is quite low in Muslim countries which are mostly developing countries. Increasing the level of education is dependent upon eliminating gender inequality in education. Muslim countries need to use all of their resources in order to reach their economic development targets. Women participation in economy is a major economic resource which is not frequently used in Muslim countries. A large amount of literature (Dollar and Gatti, 1999; Barro, 2001; Schultz, 2002; Klasen, 2002; and Knowles, 2002) suggests that, gender equality has a positive effect on economic growth. Taking Muslim countries into account, one can reasonably claim that the rate of the effect of gender equality on economic growth is higher in developing countries.

In this paper, the impact of gender inequality in education on economic growth for Turkey will be explored, using econometric techniques. The relationship between such variables as primary school graduation, high school graduation, vocational high school education and university graduation with economic growth will be discussed in detail. The paper will take into account of all variables for the period 1968-2005.

The contributions of educated women in an economy are threefold. First of which is that increasing the level of human capital, correspondingly, decreasing the fertility rate of the women. Second argument is that infant mortality rate might decline by virtue of decreasing the fertility rate of the women. Thirdly, increasing women education level may affect the education level of next generation positively.

Within this framework, co-integration approach will be applied in order to understand long run relationship between these variables which is gender inequality in education and economic growth. The empirical results indicate that there is a long-run relationship among these variables.

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Although Turkey has the biggest national income among OIC countries according to 2011 data, she has not been successful in fully eliminating gender inequality. Furthermore, Turkey is an interesting case in terms of education level of women and position of women in labor force. For instance, women are represented in academic life with 38% in Turkey, while the rate of women is quite low in many other sectors. Similarly, it is quite interesting to note that the rate of university graduates among Turkish women are only 3.9%, the rate of women participation in Turkish labor force is 28% and the rate of schooling among women are 32%, while women representation in academic life is quite high. Another interesting and unique situation in Turkey is that half of the female workers are placed in agriculture sector. These facts reflect significance of our study and its contribution to the field.

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Introduction

Education is considered to be one of the most important driving forces of economic and social development. The efficiency of education in economic development emerges depending on its level and distribution. For this reason, as well as increasing levels of education, training levels of women needs to be raised. Since, half of the qualified labor potential, which is one of the important components of competition in economic life, formed by women, makes women's education important. The potential to increase a country's human capital significantly depends on raising the level of women's education.

Increase in the level of education of women provides their active participation in the economic life. An increased level of education is primarily an effect on women's participation rates to labor force. Women's labor force participation as an employer or as an employee provides, effective use of the labor factor, and consequently a higher level of production achievement. Increase in the level of women's education, increases productivity through education, which is considered as a form of human capital.

Recognition of equal opportunities for women in economic and social life provides the rise of their level of education, such as increasing their participation in market activities and enables households to give better decisions. The inclusion of women in working life is effective on the current and future economic growth through the channels of income, consumption and expenditure. In addition, increase in the level of women's education, develops human capital by increasing the quality of child care and education. This is especially effective on the performance of future growth. On the other hand, elimination of gender inequality in economic and social life, lead to an increase in the levels of education of children and an increase in the women's labor force participation rate, as well as the feedback effect of these two developments help to ensure gender equality.

Education investments, provides positive returns both for the individual and for the society. Education, increases individuals personal gains, at the same time, creates positive externalities for society. When the personal and social returns provided by education are calculated according to gender, types of programs, education level and level of development of the countries, determining the priorities of education policies to be applied and increasing the achievements in practice will be possible. The conclusion of the studies in order to calculate the returns of education are that the personal gains of education is higher than calculable social gains, and the education level that provides most personal and social gain is primary school. In addition, education provides higher returns to women than men. Personal and social gains of education in developing countries, is higher than developed countries.

According to these findings, personal and social gains to be obtained from women's education are higher than the gains that the men will get. In developing countries, gains provided by the education are higher than the developed countries. Therefore, in developing countries, women's education is more important than in other countries. Developing countries must remove the gender gap in education by giving more prominence to women's education, and must give priority to policies aimed at expanding primary education.

Women's education has significant gains except the market-oriented activities. Especially the time women spend on household chores such as cooking, cleaning and child care, is much more than men. Since these activities are not performed market-oriented, there may be some difficulties in identifying the exact equivalents in the market. However it is obvious that, considering the costs incurred when the works that, are carried out by women without expecting any fees, are met from the

market, it provides a significant gain to the family budget. While, providing household chores such as cooking and cleaning from market has quite low alternative cost, especially providing childcare from market may have higher alternative cost since the child would be away from his mother. In addition, to increase the level of women's education by reducing their interest in household chores can positively affect the efficiency of home affairs. In economical literature, empirical evidences between women's education and the efficiency of housework are generally positive. While the studies within the framework of economics are in this direction, in some studies except the economics literature has negative effect. In non-economics literature the negative effects between the education of women and household chores are generally depends on their decreasing attention towards household chores and not satisfying them quite well. In studies investigating the economic size of the education, the number of findings concerning the gender inequality has negative effects on economic development is very high.

These effects are both emerge directly or indirectly and not simultaneous or not the same degree in each country. The researches examining the economic effects of education inequality, cannot fully measures many factors or ignores some of them. Despite these shortcomings, achieving gender equality in education can be considered as a strategy that allows their development for developing countries.

1. Relationship between Women's Education and Economic Development

The importance of women's education in the economic and social development is well known. Comparative studies between countries and evidences obtained from households' investigations a show that, educating women has contributed to the community in many ways. Development economists also emphasize the importance of girls' educational attainment in reaching out development goals. In developing regions, it is stated that the investment with the highest rate of return is investment in girls. Studies about positive relationship between national income and gender equality in education and/or positive contribution of women's education on national income and economic growth is substantially increased since the last ten years (Lewis and Lockheed, 2008: 2-3).

Impacts of the provision of women's education or gender equality in education, on the growth and development, occur in different channels. First of all, increase in the level of education of women, is being effective by enabling human capital form's development. At the same time, in parallel with an increase in levels of education, increasing the participation of women in economic life, thus manufacturer aspects become efficient. On the other hand, there is a significant association between women's educational level and population growth, fertility and infant mortality rates.

Despite the absence of sufficient empirical studies of education in terms of macro-economic externalities, it is generally agreed that education to children, by cutting the consumption of the current year, increase investments in the next period. Thus, positive externalities that the future generations will gain through education, are subsidized. According to empirical studies, raising maternal education increases the quality of children more than father's education for the reasons such as, good and healthy nutrition of children and well-education before and during school (Schults, 2002: 212). According to the findings of Thomas, the effect of the income earned by the mother on the child to live longer is 20 times more than the income derived by the father (Klasen, 1999: 8).

The low level of women's education causes negative consequences on growth, due to environmental influences. There are plenty of evidences that, environmental impacts are decisive factors in the success of children (Engin-Demir, 2009:27). In a study by Chen, it is indicated that, not being able to provide gender equality in education with the intellectual environment, by affecting adversely the abilities of children and the quality of students, caused negative effect on quality of labor, productivity, and therefore on growth. In this study, the second channel that is formed on the growth by gender inequality is, reducing the marginal product of capital by low quality of labor, through the household's life-long learning level, it does cause less investment and growth. In addition, employment gender inequality impresses on the growth by means of the quality of labor (Chen, 2004:31).

In the studies about, raising the level of education of the women would be effective on growth through population increase, a right way relationship is determined between gender equality in education and growth. According to one of them, since increasing the women's level of primary education reduces the fertility, it may alert economic development indirectly (Barro, 2001: 38). According to a study of Lagerlöf by using a dynamic method, the initial gender gap in education causes continuation of the deficit by a later period, through the high fertility and low economic growth. This result constitutes an important reason to break the vicious circle of gender gap (Ghulam, 2005:8). In addition, the elimination of gender inequality in education reduces child mortality as well as fertility (Klasen, 1999: 23).

Whether male or female, enhancing the quality and number of employees with higher education levels, will reduce the income and technology diversity between the countries that has higher levels of education and produce new technologies, and the

countries that are applying them (Kim and Lawrence, 1994: 235-6). Closing the gender gap in education will provide more efficient use of resources for developing countries, and will allow more easily to close their the difference between developing countries.

There is not a definitive answer to the question if, making lower levels of human capital investment in women in terms of education and health, can be considered as a market failure or not. However it is referred, reduction of gender inequality that causes an increase in the income level can be regarded as a market failure for the developing countries (Dollar and Gatti, 1999: 21-22). In addition, it is stated that with the development of the pension and social security system, to ensure their senility parents will reduce the investments in sons. Hence, with the increase in national income of the countries, market failures experienced in women's education is expected to decrease (Ghulam, 2005:5).

The theoretical basis of the researches examining the relationship between women's education and growth starts with the studies of Schutz and Denison, dating back to Solow, Roemer, Lucas, Barro's studies. Especially in studies using endogenous growth models, emphasizes the importance of human capital form on growth, which consists of investments in education and health care. In these studies, women's education is often considered as an element of the form of human capital, it is considered as a part of the educational factor. Studies' examining the effects of women's education on growth independently is fairly new.

Studies done by Dollar and Gatti (1999), Lagerlöf (1999), Schultz (2002), Klasen (2002), Knowles (2002), are the major studies that reveal the relationship between women's education and economic growth, and development in the last decade. In these studies, the nature of the relationship between women's education and growth are analyzed. Women's education, as measured by indicators such as women's enrollment rate, literacy rate, indicators which measures the inequality between women and men in education also used in. In studies, however measured the women's education is concluded to be effective on growth, albeit on different channels.

2. Impact of Gender Inequality in Education on Economic Growth

The work of Dollar-Gatti, significantly sheds light on the subject of macro-economic effects of Women's education.

According to this study of Dollar-Gatti, there is a strong correlation between secondary education enrollment rates of women and per capita income. In this study, concluded that gender inequality in education leads to a negative impact on the growth, as well as economic reasons for women compared to men receiving a lower level of education, cultural elements and civil rights are also effective.

In a study by Chen, achieving gender equality in education on national income per capita, is explained by the demographic impact channels. According to this study, providing gender equality in education enables the rise of the level of women's education. Indeed, except for a limited number of countries, especially in developing countries, educational inequality is disadvantage of women. The most important demographic effect of the rise in women's level of education, reduce the number of children, by decreasing fertility. Reduction in the number of children ensures, reduces in the expenditures of children and thus provides increase in savings and therefore investments. Another effect of the decrease in the number of children, takes place in the form of increasing the relative size of the working age population. Reduction in the number of dependent children decreases the dependent population. Decline in the dependent population, increases the marginal efficiency of capital through investments, but also directly increases national income per capita (Chen, 2004:31).

Of the grounds for girls receiving a lower level of education, since boys seen as a tool of social security in old age, girls' education investments have lower returns, women's low-income from education and socio-cultural preferences are included. However, considering that, in the majority of developing countries, women return from education is more than men; it is not possible to say that the economic reason for the occurrence of low investment in women's education is available in all countries. Together with the economic reasons, it is more accurate to take into account socio-cultural structure and other conditions in the country (Ghulam, 2005: 3-4).

According to one of the studies that deal the economic size of the dimension of women's education, in the framework of macro-economic indicators, positive effect of women's education on economic development is statistically more clear than the effect provided by men. At the same time, the educational gap between men and women hinders economic development (Knowles, 2002: 143). According to a study by Klasen, education gap between women and men in East Asia, Sub-Saharan Africa, North Asia and in the Middle East, explains %0.4 and 0.9 of differences in the annual growth increase and this ratio shows the trend of increase. According to this study, a small gender gap in education affects a high growth rate decisively (Klasen, 2002: 367).

3. Econometric Methodology, Data Set and Implementation Results

In order to determine the effects of women education in Turkey on growth, the relationship between gender indicators in education and annual growth rates will be investigated.

Since population censuses are pentetric, it has not been able to reach an annual education indicator. Since 1996, annual training series are displayed. 12 years of data is not possible to make the econometric analysis. For this reason, for gender inequality in education covering the period 1968-2006, series of sex ratio will be used for, elementary school, middle school, high school, vocational and technical high school and university graduates.

3.1 Econometric Methodology

The changes in political and economic life that occur at various times for various reasons, can be effective between relationships on the time series related to changes. When examining the relationship between the analyzed variables, not taken these changes into consideration, even in the lack of structural change taken into account, it causes to obtain incorrect results. In this study, if there is a relationship between gender inequality in education and economic growth, and if this relationship exists in which years these changes have occurred will be investigated, by cointegration test that does not allow the structural break as well as cointegration tests that allow single and double structural breaks. In this way, which events are effective in this relationship will be understood. In this context, firstly, at which level the variables that are conducted a survey have become stagnant will be investigated, then it will be investigated whether there is a long-term relationship between them.

3.2. Unit Root Tests

In order to understand whether are there long rung relationship between all variables, applying cointegration test, it should be checked that all variables at the same level stationary or not. If these series not stationary at level, it should be precede first difference to get stationary positions. When all series become stationary at the first difference level, it can use cointegration test. The Augmented Dickey-Fuller (ADF) and Phillips-Perron (PP)[†] Unit Root Tests are employed to test the integration level and the possible cointegration among the variables (Dickey and Fuller, 1981; Phillips and Perron, 1988). The ADF test is proceeded to check out whether the series are stationary or not and the ADF test is based on the following regressions:

$$\Delta y_t = \alpha_0 + \alpha_1 y_{t-1} + \sum_{i=1}^n \alpha_i \Delta y_{t-i} + \varepsilon_t \quad (1)$$

Equation is consisting of lag of dependent variable. In the equation y is a time series, t is a linear time trend, Δ is the first difference operator, α_0 is a constant, n is the optimum number of lags on the dependent variable, and ε is the random error term. The main difference between Phillips-Perron (PP) Unit Root Tests and the ADF test, in the PP unit root tests in order remove autocorrelation it is adding lag of its and it is applying a nonparametric correction.

3.3. Cointegration Tests

3.3.1. Engle Granger Cointegration Test

Engle-Granger (1987) cointegration test is consist of two stages, first stage regression model is set up:

[†] PP approach allows for the presence of unknown forms of autocorrelation with a structural break in the time series and conditional heteroscedasticity in the error term.

$$y_t = \alpha_0 + \alpha_1 x_t + u_t \quad (2)$$

In the second phase, error terms that is acquired from the model is applied the Augmented Dickey-Fuller (ADF) Unit Root Tests.

$$\Delta u_t = \alpha_0 + \alpha_1 u_{t-1} + \sum_{i=1}^n \alpha_i \Delta u_{t-i} + e_t \quad (3)$$

At this point it should be considered that applied critical values are different from Augmented Dickey-Fuller (ADF) Unit Root Tests.

3.3.2. Gregory-Hansen Cointegration Test

In order to determine long-run relationship between the variables generally applied to cointegration tests, because of time series sometimes have some structural breaks it will not submit the correct results. Therefore instead of standard tests for cointegration if the presences of structural breaks are time series, it has been applied tests that deal with structural break in the cointegrating relations.

Cointegration that is developed by Gregory and Hansen (1996) is considering possible structural breaks in the series. Gregory and Hansen developed tree different models that are considering changing in intercept or trend, through those models investigate is there any cointegration vector among the variables.

$$y_{1t} = \mu_1 + \mu_2 DU_t + \alpha_1 y_{2t} + e_t \quad (\text{Model CC}) \quad (4)$$

In the model while μ_1 represents constant term μ_2 is changing in the represent constant term that time in the structural shift. Structural shift included in model by dummy variable that can be defined as here:

$$DU_t = \begin{cases} 0 & t \leq [n\tau] \\ 1 & t > [n\tau] \end{cases}$$

While n represents that number of observations, τ parameter show data that are between $(0.15T \text{ and } 0.85T)$.

When level shift with trend inclusion of a linear trend it would get model that regime shift where Intercept, slope coefficients and trend change (C/T).

$$y_{1t} = \mu_1 + \mu_2 DU_t + \mu_3 t + \alpha_1 y_{2t} + e_t \quad (\text{Model C/T}) \quad (5)$$

Before the structural change slope coefficient is α_1 and after the shift occurred slope coefficients is represent with α_2 .

In the Gregory and Hansen test (1996), to determine breaking time, trough time period, all possible breaking point (τ) will be calculated by applying contiguous ELS methodology. The residuals from the calculations employed in Phillips-Perron (PP) Unit Root Tests and the ADF test by which to get minimum value to determine the breaking time.

$$ADF^* = \inf ADF(\tau)$$

It is known that standard tests for cointegration are biased towards non-rejection of no cointegration if the data is subjected to a structural break. Hence a researcher relying on standard cointegration tools may erroneously fail to reject the null of no cointegration if the presence of a structural break is not accounted for. In a response to this problem there have in recent years

emerged a number of tests that deal with structural breaks in the cointegrating relations. If in the time series is there more than one endogenous break Gregory and Hansen (1996) test will not be fit for it. In this situation, we should apply the Hatemi-J cointegration test.

3.3.3 Hatemi-J Cointegration Test

The method that is developed by Gregory and Hansen (1996) is taking account just a breaking however, Hatemi-J (2008) cointegration test developed for two endogenous breaking. Hatemi-J (2008) model that is explain the effect of two structural shifts, has showed below.

$$y_t = \alpha_0 + \sum_{i=1}^2 (\alpha_i D_{it} + \beta'_i D_{it} x_t) + \beta'_0 X_t + u_t \quad (6)$$

In the equation α_0 is constant term that is before the structural shifts, α_1 is appear because of first structural break, α_2 is second structural shift that is lead to change in the constant term. β_0 is before the structural shift represent of slope parameter, β_1 is effect of first structural shift on slope, β_2 is represent that second structural shift in the model.

In the model the unknown parameters $\tau_1 \in (0, 1)$ and $\tau_2 \in (0, 1)$ signifying the relative timing of the regime change point and the bracket denotes the integer part. $D1t$ and $D2t$ are dummy variables defined as

$$D_{1t} = \begin{cases} 1, & t > [n\tau_1], \\ 0, & t \leq [n\tau_1] \end{cases}$$

$$D_{2t} = \begin{cases} 1, & t > [n\tau_2], \\ 0, & t \leq [n\tau_2] \end{cases}$$

In order to test the fundamental hypothesis which shows a cointegration relationship among the variables, ADF* statistics are frequently used. ADF* statistics are got out of applying unit root test statistics on the remainders of Model 2.

ADF test statistic does not standard normal distribution. The applicable test statistics are the smallest values of these three tests across all values for τ_1 and τ_2 , with $\tau_1 \in T_1 = (0.15, 0.70)$ and $\tau_2 \in T_2 = (0.15 + \tau_1, 0.85)$. The critical value of these test statistics are in the Hatemi-J (2008) table.

3.4. Data Gathering Methodology

In this study, the relationship between gender indicators in education and annual growth rates will be investigated, in order to determine the effects of women education in Turkey on growth. Gender in education is calculated through the rate of girls among all graduates from primary, secondary and high schools as well as university graduates. These variables are as follows:

lgtrt: Logarithm of growth in Turkey by years

prm: rate of girls among all primary school graduates by years

hgh: rate of girls among all high school graduates by years

unv: rate of girls among all university graduates by years

As population census is carried out in each 5 years in Turkey, the researchers failed to get all annual education indicators. Therefore, for gender inequality profile, gender rate series among primary, high school and university graduates between 1968 and 2006 are used. Growth rates data used within the framework of this research have been taken from World Bank databanks and education data from Turkish National Statistics Institution.

1968-2006 data about above-mentioned variables are presented below in graphs. As a general outlook for these graphs, it seems to be that these series are not static. The rate of girls among primary school graduates were increased in 1997 when a law (Law Number 4306) about uniting primary and secondary schools and making education in these levels mandatory.

Dickey-Fuller method which is used to analyse whether time series are stable or not will also be used for this research.

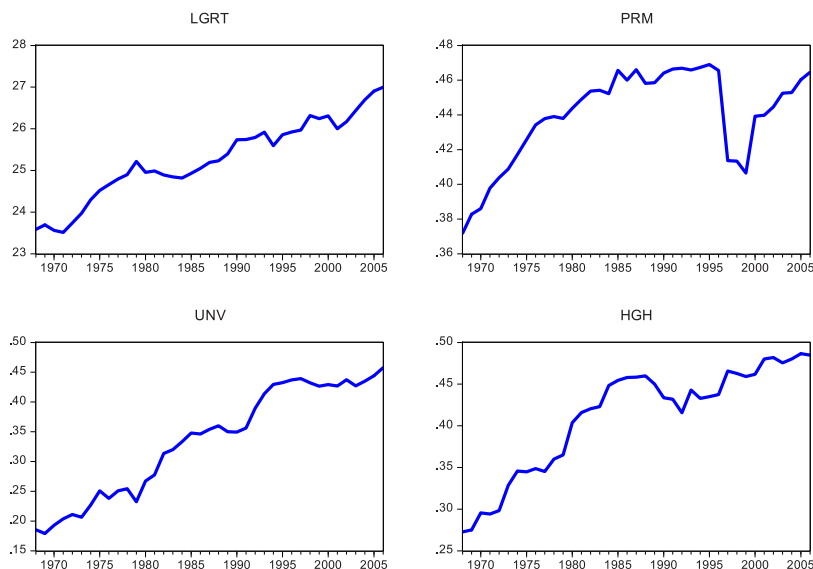


Figure 1: Time Series in Economic Growth and Gender Inequality in Education in Turkey

3.5. Empirical Results

Within the framework for the research presented in this paper, the effect of gender inequality on long term economic growth is investigated, through using “cointegration analysis” econometric method. First of all, whether these series are integrated series $I(1)$ and these series are cointegrated $CI(1,1)$, in other words whether all series are stable when their differences are taken into account from the first level are investigated. In order to understand stability levels of the series, ADF and PP unit root tests have been carried out and the results of these tests are presented in Table 1.

Table 1: The Augmented Dickey-Fuller (ADF) and Phillips-Perron (PP)[‡] Test Results

Variables	ADF-Level	ADF- First difference	PP-Level	PP- First difference
Lgrt	-0,4547	-5.9559**	-0,4547	-5,9559**
Prm	-2.5655	-5.7868**	-2.5754	-5.7828**
Hgh	-2.0907	-5.9645**	-2.1627	-5.9652**
Unv	-0.9654	-6.0124**	-0.9654	-6.0126**

Note: Lag length criteria is chosen with Schwarz information criteria. (**) Critical values at 1% levels.

* MacKinnon (1996) critical values for rejection of hypothesis of a unit root; %1 critical value -3.639407, %5 critical value -2.951125, %10 critical value -2.614300

As can be seen from the table above, when ADF and PP results are scrutinized, it is clearly seen that these series are not stable at their levels, in other words they include unit roots in their levels. When taken primary differences, series become stable in 1% significance level. Taking together results of both tests, it is seen that all series are $I(1)$. Engle-Granger (1987)

[‡] PP approach allows for the presence of unknown forms of autocorrelation with a structural break in the time series and conditional heteroscedasticity in the error term.

cointegration test which does not take structural breaking into account has been carried out in order to test whether there is a long term relationship between economic growth and gender rates among different education levels. The results are presented at Table 2 below.

Table 2: Engle-Granger Cointegration Test Results

Dependent Variable:	Engle-Granger Test Statistic	Prob*
LGRT	-2.835054	0.5273

Note: (*) MacKinnon (1996) p-values.

As can be seen from Table 2, results of the Engle-Granger test show that there is no long term relationship between the variables. The main reason why we feel that there is no relationship between the variables is that structural breaking is not allowed in this test. (Test statistics -2.8350 in 10% level is smaller than Mackinnon critical value 3.73).

In the next phase, Gregory Hansen cointegration test which allows a structural breaking in long term relationship has been used. As the result test statistics -6.1536 is greater than table value -6.00 in terms of absolute value, we consider that relationship between the variables. Lumsdaine ve Papell (1997) find out that more than one breaking would be possible when examining long term series and that the analyses which take only one structural breaking into account would cause incorrect results. Therefore, in this study, Hatemi-j cointegration test which allows two structural breaking is also used.

Table 3: Gregory Hansen and Hatemi-J Cointegration Test Results

		Cointegration Test Results			Lag Length k
		Test Statistic	First Break Point 1	First Break Point 2	
		ADF	TB1	TB2	
Engle Granger	Number of break=0	-2.835	-	-	2
Gregory Hansen	Number of break =1	-6.1536**	1979	-	0
Hatemi-J	Number of break =2	-7.1937**	1989	1991	0

Note: Engle-Granger critical value at %10: 3.73; Gregory Hansen critical value at %5: -6.00; Hatemi J critical value at %10: -7.118.

As the results of this tests the gained test statistics -7.1937 in 10% level is greater than critical level of -7.118 in terms of absolute value, we can conclude that there is a long term relationship between variables in structural breakings which occurred in 1989 and 1991.

Table 4: Correlation Matrix between gender in education and economic growth

	LGRT	PRM	UNV	HGH
LGRT	1.0000			
PRM	0.6170	1.0000		
UNV	0.9308	0.6202	1.0000	
HGH	0.8869	0.7294	0.9205	1.0000

The indicator which has the greatest impact upon the level of growth is gender rate among university graduates. In deed, university graduates enter into business life sooner than people in other categories. Another interesting result is that increase in women rate among university graduates is much higher than other series.

CONCLUSION

Women's low level of education generates negative results on growth, due to its environmental impact. There are plenty of findings about environmental impacts' decisiveness on children's achievements. Not being able to obtain gender inequality in education effects intellectual environment, competences of children and students' quality negatively and leads negative effect on qualification of labor, productivity and thereby on growth. The second path that has occurred on growth by gender inequality, by means of households' lifetime learning level, low labor qualification decreases marginal product of capital, and it leads less investment and growth. Besides, gender inequality in recruitment also causes negative effects on growth by means of qualification of labor

Ensuring gender equality in education brings with it, increasing women's education level. Yet, except limited number of countries, especially in developing countries, education inequality is against women. The most significant demographical effect of women's high educational level is, to reduce the children population by decreasing fertility rate. Reduction in the number of children causes less spending towards children and thus increases savings and investments. Another effect of reduction in the number of children is, realized as increasing the relative size of working-age population. Reduction in the number of dependent children decreases the dependent population decreases. Decline in the dependent population increasing the marginal efficiency of capital through investments, but also directly increases national income per capita.

According to the results of the econometric analysis, a long-term relationship is seen between the sex ratio of higher education, elementary and high school graduates and GDP (Gross Domestic Product) in Turkey. However, this relationship contains fractures especially in the periods before and after the 1980 military intervention. These periods that have breaks, were the times both have economical, social and legal significant impacts. So that, military rule which was effective in this period, sees a large segment of society as objectionable and guilty and, needed to intervene in every area of life. Military government's interventions to the right of education, both with constitutional regulation and the regulations within the framework of the trade union and the Higher Education Act, have been effective in the formation of these breaks. On the one hand with the prohibition of headscarves caused a further increase gender inequality in education, on the other hand large number of educators removed from the profession because of their proximity to the left ideologies. The indicator that has the highest influence on the rate of growth is sex ratio of higher education graduates. According to other levels of graduates, higher education graduates to participate in working life in a shorter time reinforce this findings' accuracy. At the same time the increase in sex ratio of graduates of higher education is much higher than other series.

Whether male or female, enhancing the number and the quality of highly educated employees will reduce the income and technology difference between the new technology producing countries and the countries that implement them. Increasing the level of women's education, both micro-and macro-economic point of view provides more benefits than men. Closing the gender gap in education, will allow more efficient use of resources in developing countries and their difference from developing countries will close more easily. A well-educated population is one of the most important sources of economic growth, but also a key element to ensure the efficient use of other resources. As a result, education is the flower, as well as the seed, of economic development (Krueger, 2000: 44).

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