

THE RELATIONSHIP BETWEEN WOMEN'S EDUCATION AND HUMAN DEVELOPMENT

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Abstract

The main purpose of this paper is to study the relationship between Women's Education in primary, secondary and higher education and human development level. This relationship is studied in three groups of countries with high, medium and low human development during the period 2000-2009. The results, based on panel data model estimates show that in countries with high human development, higher educated women have more effective role in human development index. However, in countries with medium human development, secondary education of women has led to increased human development index. In countries with low human development level, all levels of education are conducive to improve the level of human development.

Keywords: Women's Education, Degrees, Human Development Index, Panel Data

Introduction

One of the most important macroeconomic purposes for any country is to gain economic development. Today in the world and especially in the developing countries, most focus is on how to achieve all aspects of development, namely the sustainable development and human development. Therefore, the most of development economists' attention focus on the issue of how these objectives can be achieved in a shorter time (Koulaie& Hafezian, 2006).

Today, without the participation of women who constitute half of the world's population, achieving the real development would not be possible. So the assessment of women's participation in the development process seems to be more important. In this regard, given that the world women's education share has a growing trend, need to review the status of women participation in economic, health and political sections and creating type of reliable mechanism to strengthen their active participation is necessary (Mousavi Khameneh et al, 2010).

Given the importance of human development and educating women as the future mothers, this paper aims to identify the appropriate level of women's education and investing on them, based on the degree of development of the countries. Here there are two major hypotheses which should be introduced as:

- 1- The higher education of women in all countries has a significant and positive impact on human development.

- 2- Higher education of women in countries with low human development, has less impact on the human development level of countries.

The paper structure is as follows: in section two and three, theoretical background and research literature is presented. The fourth section introduces the variables, data and model. Model estimation results are presented and analyzed in section five and finally in section six, conclusion remarks and policy proposals are debated.

Theoretical framework of women's education role in human development

The role of women in development was paid more attention, since the early 1970s. Evidence shows that modernization and development have led to imbalance in outcomes for men and women, so that men have been the beneficiaries of this process and women, the victims (Ketabi, 2005). Certainly a society which tries to achieve development, should consider reducing inequalities in all political, cultural, social and economic dimensions, in particular the inequalities which the measure is sexuality. Development has never been a neutral follow and often neglects women from many aspects and hurt them. However, a part of the Millennium Development Goals is to ensure that by 2015 all children, both girls and boys would be able to finish a full course of primary schooling and gender discrimination in primary and secondary education, preferably by 2005 and at all educational levels in 2015 wiped out. Still amongst 680 million children in developing countries who are in elementary school age, 115 million children do not attend school that girls constitute three-fifths of the number. The statistics are where the world moves to appropriate use of its manpower, developing countries can have a role in the development of the society in the use of human resource by proper training and it does not work unless determining the status of women in society and trying to raise their awareness through education and giving them the right to freedom and equality. Therefore, the purpose of education is necessary in order to achieve other development goals (Mousavi Khameneh, 2010).

Gender differences in general and gender gap in education particularly, are considered the major obstacles to economic growth and development. The developing countries in recent decades' experiences show that increasing investment in human resource, especially women's education, provides background necessary to achieve higher economic growth and social welfare. Because women participation as half of the potential labor force can be effective in the community development, eliminating gender disparities and gaps in various sectors of the economy and the education not only leads to more "equality" but also higher "efficiency" (Emadzadeh, 2003).

One of the most fascinating and meaningful reports of United Nations, is the human development report, which is published each year since 1990. According to this report, life expectancy, education and income are factors that need to be improved to cause a positive change in the human development index. Obviously this is not possible without a comprehensive program to achieve these goals. Human development index alone indicates the status of a country and any positive or negative changes in it, shows the moving forward or backward of the country. This index is based on three indicators of life expectancy, education and Gross Domestic Product. Furthermore, education directly improves HDI and has the positive impact on the other two measures namely long and healthy life and achieving a standard level of living (King, 1987). HDI value for a country suggests the extent of the path to achieve its defined objectives. These goals include: average lifespan of 85 years, access to education for all and a decent level of income. HDI index is a measure which takes figures between 0 and 1. So that, the countries which their HDI is closer to 1, should take a shorter route to reach these goals. The human development reports divides the world countries into three categories: countries with high human development (0/8-1), medium (0/5-

0/799) and low (0-0/49) as criteria to classification (2005, Koizumi, M.D, Hisako)⁶⁴. One of the benefits of HDI is to show how low-income countries can have even better performance than higher-income countries. HDI does not focus only on income. The difference between HDI and GDP, shows how countries with similar GDP, have large differences in HDI, and it's due to the use of their wealth (Anxo and Lindh, 2010).

Research background

In recent decades, extensive studies on the role of women in development have been done at international level. Although most of these studies have been conducted in developed countries, but the importance of this subject has led to formation of valuable studies also in developing countries. An important outcome of extensive research in the field with remarkable advances of econometrics and computational tools in the past decade has motivated revising the premade models and more comprehensive and accurate studies.

Barro and Lee (1994) have reported remarkable findings from regression of years of education of men and women. Their findings show that a large gap in men and women's education is associated with low economic growth. In contrast, the results of Daller and Gatti's research (1999) in Latin America showed that Women's Education cannot be associated with low economic growth. Also in this study, the relationship between gender inequality in education and economic growth has been studied in 5 years period from 1975 to 1990. The researches against Barro's comments found that completing high school education for women has a positive relationship with economic growth, while finishing high school education for men has negative relationship with economic growth.

Some research also indicates the role of Women's Education in relation to the rate of employment. Munch and Wignbergen (2009), have examined the factors affecting the labor market participation of women in different age groups in Europe during 1995 to 2008. The results of this study show that higher education in each age group has positive impact on women participation rate. But only a high school education level until the age of 40 increases their participation rate in the labor market, so for the older age groups, has no effect on the rate or may even have negative effects. In general it was found that Women's Education in higher degrees, in each age group, will increase their participation in the labor market and an increase in participation rate can help reduce pressure on economic growth and financial stability in Europe.

Ince (2010), using time series regression and VAR model, has investigated the different levels of women education, fertility rate and the other human development indices on gross domestic product growth over the period 1980-2009. The results show that the level of women's education has a positive effect on their situation in society. Tending to participation in labor market is more among women with higher education. This means that increasing years of education among women, increases their participation rate in labor market which leads to an increase in GDP.

Barro (1990), in his article entitled "education and economic growth", concentrated on human capital as a tool for economic growth. The results show that Women's Education in secondary school and higher education is not efficient in the labor market of many countries, but the growth clearly depends on the education of males at the elementary levels. The study also doing the same work for OECD countries, acquires relatively similar results for this group of countries.

⁶⁴-During the recent years, countries have been divided into two groups in terms of human resource development, namely high human development and very high human development. But regarding the research study period, previous classifications have been utilized.

Anxo and Lindh (2010), in an article entitled “the impact of women on India development”, have examined the effects of active population parameters, the rate of the employed women labor force between 15 to 64 years old and women participation in secondary school on human development index in the period 1980-2006. In their study they found that the HDI index introduces development concept better than GDP. The final result proved the point that education is an essential factor for development.

Model Estimation and data

This study is based on panel data econometric model to examine the factors affecting human development index with emphasis on the role of women. In recent years with development of econometrics methods, using panel data across studies is important. One of the main reasons for the importance of this method is increasing the data, degree of freedom and thus boosting the confidence level of the results (Baltagi, 2005).

In this model, the human development index (HDI), considered as dependent variable. HDI index is measured based on three criteria, long and healthy life, access to knowledge and standard living. The model independent model variables include: Percentage of educated women in primary, secondary and higher education. The control variables such as per capita income and the cost of health care, is considered in the model to prevent occurrence of clear bias and eliminating serial autocorrelation of disturbing items.

To collect the data which are needed for the model estimation, WDI 2010 software package and human development reports have been used. In the estimation of the considered model, the data of the all countries in three groups of countries with high human development, medium and low have been used.

For the analysis of panel data, the Breusch-Pagan and Hausman tests have been used which the results indicate of existing a unilateral model with fixed effects. Also the estimation results of the model examining the relationship between the Women’s Education level and human development for each group of countries have been presented according to the experimental and theoretical foundations divided into three groups of countries with high human development, medium and low. In general, according to different classes of countries that have been classified in three groups, the model is identified as:

$$HDI = f(S_p, S_s, S_t, z) \quad (1)$$

S_p is the percentage of women with a primary degree, S_s the percentage of women with a high school diploma and S_t the percentage of women who have a university education. Z represents other control variables that influence human capital. Thus the experimental model of present research is the following log-linear model.

$$(2) \ln(HDI) = \beta_1 + \beta_2 \ln(S_{p_{it}}) + \beta_3 \ln(S_{s_{it}}) + \beta_4 \ln(S_{t_{it}}) + \beta_5 \ln(GDP_{it}) + \beta_6 \ln(H_{it}) + U_{it}$$

Model estimation results for countries with high human development

Model estimation results for countries with high human development are shown in Table 1:

Table 1: Model estimation results for group 1

Independent Variables	Fixed Effect
C	-1.554 (18.481)*
S_p	0.015 (1.1160)
S_s	0.007 (1.599)
S_t	0.25 (7.303)*
GDP	0.103 (14.621)*

H(Health)	0.026 (8.829)*
F=1468.143 R ² =0.995	

Numbers in parentheses indicate t-statistics and significance at the 1% level.

Source: Research findings

The estimation results of Women's Education role model in countries with high human development indicate that increasing in the proportion of women in education in the universities leads to improve in human development index in these countries. The results are considered from different directions. The main reason for the lack of impact of Women's Education on human development in these countries is the possibility of free and compulsory education up to the end of high school and also households can afford for their children's education so that most people in this age period benefit from these studies. Hence the possibility of increasing the number of women in these degrees (with respect to the exercise of virtually all of people) is highly unlikely.

In the academic sector in these countries the subject is slightly different, so that the following possible reasons for analysis of women's share positive effect in university education can be considered:

1. The education in some of these countries are provided for free but for others not.
2. Traditionally, men are the head of household financing. Over time, this has advanced to highlighting women's role in this field and their financial independence.
3. These degrees contain substantial unexploited opportunities by men.

So over time and according to empty capacities in the university degrees and the implicit desire of women to obtain an university degree in order to participate in the production, their presence has increased and this has led to improvement of human development level in this group of countries.

Model estimation results for countries with medium human development

Model estimation results for countries with medium human development are shown in Table 2:

Table 2: Model estimation results for group 2

Independent Variables	Fixed Effect
C	1.112 (9.513)*
Sp	0.035 (1.479)
Ss	0.060 (5.102)*
St	0.048 (8.597)*
GDP	0.014 (1.104)
H(Health)	0.013 (1.734)
F= 763/662 R ² =0/992	

Numbers in parentheses indicate t-statistics and significance at the 1% level.

Source: Research findings

To examine estimation results in the countries of this group, the women share coefficients for university and high school education have a positive and significant impact on human development, while the women share coefficients for elementary education has no effect on human development of these countries. In this group of countries, elementary education according to households' financial power is similar to the countries in the first

group. So according to the points mentioned in the previous section, women share in this level has no impact on human development. But for high school education due to new educating capacities, the women share in education, because of their remarkable growth over time, has boosted and directly increases the human development index (HDI). In association with higher education, the major explanations for the first group countries, will also apply in this group.

Model estimation results for countries with low human development

Model estimation results for countries with low human development are shown in Table 3.

Table 3: Model estimation results for group 3

Independent Variables	
C	-1.772 -(8.520390)*
Sp	0.077 (2.925)*
Ss	0.041 (3.651)*
St	0.021 (3.761)*
GDP	0.029 (0.902)
H(Health)	0.075 (5.752)*
F= 937/645 R ² =0/999	

Numbers in parentheses indicate t-statistics and significance at the 1% level.

Source: Research findings

In countries with low human development, increasing women share in all levels of education, has led to improvement in human development level in these countries. When examining relationship between variables in these countries it should be noted that the most of these countries due to low level of income and inefficient and not suitable income distribution system, there is no coherence in the different education levels. Illiteracy rate is high in these communities and the labor productivity is at least as possible. In these circumstances, a slight increase in the education level of each degree, given that these countries are in low levels of growth, because of the increased efficiency of the work force will greatly affect the social welfare. Thus, unlike the countries of first group, because of the prevalence of illiteracy in these communities, great potentials to attract training is quite likely, So that being literate in this group of countries is quite distinct and effective on the development of these countries, while in the first group countries, literacy is a primary and perfectly normal need.

In recent years, due to the activities of international organizations in these countries, the share of educated people in these societies has grown gradually. This has resulted that educated women can join to men in society production and play their role in improving the level of human development in their country.

A surprising result is the increasing effect of Women's Education share with lowering their educational levels such that effect of one percentage increase in women share in elementary level leads to 0/07 percentage improvement in human development of these countries. As it is shown the coefficient is 0/04 for high school and 0/02 for higher education. This shows that women in these countries have not yet presented effectively in the highest levels of management and decision making in such a way that increasing their share in higher

education due to their presence in universities has failed to show real impact on developing in these countries.

Conclusions and policy recommendations

The results for all three groups of countries are summarized in table 4.

Table 4: Comparative effects of women education on countries development

Education Level Development Rank	Primary	Secondary	Higher
High Development	0.01	0.007	0.02*
Median Development	0.03	0.06*	0.04*
Low Development	0.07*	0.04*	0.02*

* indicates coefficient significance

Source: Research findings

As discussed in the previous sections, the first hypothesis stating that “Higher education of women has a significant and positive impact on human development in all countries” and the second hypothesis “higher education of women in countries with low human development, has lower impact on human development level of countries” both are not rejected.

By comparing the results obtained for each group of countries it can be stated that with increasing development levels of countries, the women share role in lower education becomes less and in higher education becomes more important. In this regard, the following points should be noted:

Increasing the share of women in education only leads to improvement of human development levels so that women by making use of the unexploited educational potential in the society could increase their educational level. In these circumstances, educated people with good productivity are added to the previous workforce of the society which can lead to an improved level of human development in their communities.

Women share in higher education can be effective in the presence of women in decision-making levels of the community.

According to the arguments presented and the results obtained in this study, the policy proposals divided into three groups of countries can be offered:

It seems that in countries with high human development, creating incentives for greater participation of women in society, leads to their welcome to university education which causes improvement in human development of these countries in a high level of economic growth.

It seems that in countries with medium human development, given the training facilities in recent years, helping women in higher education, has significant impact on development of these countries directly and in- directly.

Ultimately creating necessary conditions for the eradication of illiteracy due to the high impact of women share in basic education and higher participation of educated women in the macro-level management, can provide the appropriate condition for the growth of the countries with low human development.

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