

## Role of Female Education in National Economic Development of Pakistan

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### Abstract

*Education play significant role in society development. Education is the fundamental right of all human-beings but unluckily in Pakistan, female education is still not given proper attention. Obviously, education plays a pivotal role in bringing changes and development in societies. Therefore, the main purpose of this article is to analyze the role of female education in national economic development of Pakistan. This is a quantitative study, and we used secondary data. The data is obtained from the World Development Indicators, the World Bank. The results showed that female primary and secondary education enrollment and female teachers have a positive correlation with national economic development of Pakistan. Findings of this study suggest that Government of Pakistan should increase expenditure on education sectors where more focus to be given to female education in the country. The ultimate consequences of improved female literacy would be women empowerment, which will help decline in poverty through employment, elimination of income inequality and an enlarged social consciousness for the improvement of life.*

**Keywords:** Female education; economic development; women empowerment; Pakistan

### Introduction

Human capital in the form of education is largely contributed to a country's development. Education is the backbone of a country's development and prosperity. Without education and technological advancement it is very hard to compete and to attain sustainable economic growth. Investing in human capital especially in research and development sector brings new ideas, skills and technological advancement in a country which leads to economic growth, better life and prosperity. There is a strong positive connection between economic growth and human development of a country; the causal relationship of human development and economic growth of the country is bi-directional indicating a significant impact from economic growth to the human development, the spending on health and education sector and especially on female education contributes a lot to the

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economic growth (Ranis *et al.*, 2000). The good quality institutional capital and high level of female education (tertiary education) without gender discrimination is the key to the economic growth and development of the economy while the low levels of education (primary and secondary education) have no such significant impact on the economy (Alaoui, 2016). Investing in female education and female labor force participation dramatically increase the

*“Education plays key and central role in the economic development of a nation by engineering social development, economic prosperity and human resource development. The government assigns a very high priority to developing a high quality, equitable, and widely accessible education system in Pakistan.”* (Economic Survey of Pakistan (2017-18, p. 169). Many previous studies suggest that human capital in the form of more school enrolment, high literacy rate, and high spending on education contribute more to social welfare and national economic development (Becker, 1962; Barro & Lee, 2010; Khan *et al.*, 2014; Azam & Ahmad, 2010; Azam & Ahmad, 2015; Azam *et al.*, 2015; Bakar *et al.*, 2014; Deen, 2016; Azam & Raza, 2016; Khan *et al.*, 2017; Shah *et al.*, 2018; Rehman *et al.*, 2018). A study by Deen (2016) noted that in India literate females are now in a better position as compared to their men counterparts in all fields, and thereby more female are becoming financially sound and autonomous literate females contribute more towards the social development of India, leading to a remarkable positive change in the advancement of the country. Every nation wants to promote such policies that make pathways from poverty to prosperity and economic development. According to Legatum Prosperity Index, education is one of the main pillar among the nine pillars of prosperity, which is responsible to eradicate poverty and bring economic development and wellbeing in the economy. Not only physical capital but human capital is also a building block for prosperous society. The key to fulfilling lives is increased exposure to education. A well-educated labor force is better able to serve their economy.

UNESCO (2018) claims that certifying that boys and girls stay in school and benefit alike from excellence education drove the Education for All (EFA) movement and the global

community again made this an urgency in the Sustainable Development Goal 4-Education 2030 Agenda. However, the situation in Asia-Pacific is somehow opposing, whereas, even due to marvelous progress in the past decades, still females (girls) could not benefit from education for sustainable development Goals (SDG) in the region. According to the UNESCO Institute for Statistics (UIS) from 2000 to 2016, the number of females who have expanded access to education in the Asia-Pacific enlarged extensively. The data statistics reveals that the number of women (girls) out-of-school children, teenagers, and youth of secondary and primary school age in the region have fallen by 67 million. Moreover, indeed, female enrolments enlarged in tertiary education by 41 million during 2000 to 2016, indicating a favorable data statistics. However, female (girls) enrolment is still not desirable in the region and they are denied access to education especially in rural areas in Asia-Pacific. Data statistics also indicates that in Pakistan, 86% of young males (boys) in rural areas were literate as compared to merely 52% of young females (girls) in rural areas. Similarly, in Timor-Leste, 79% of young females in rural areas are literate, that is below the national average of 86%.

**Table -1 Education Data (Male & Female) in Pakistan**

Educational Level	2006-07	2007-08	2008-2009	2009-2010	2010-2011	2011-2012	2012-2013	2013-2014	2014-2015	2015-2016	2016-2017
Primary school	158.7	157.4	156.5	157.5	155.5	154.6	159.7	157.9	165.9	164.6	167.0
Male education	97.8	92.5	93.3	96.9	93.6	93.6	99.6	97.6	99.9	99.3	99.9
Female education	60.9	64.9	63.4	60.6	58.2	57.0	60.1	60.3	66.0	65.3	67.1
Middle School	40.1	40.8	40.9	41.3	41.6	42.0	42.1	42.9	44.8	45.7	46.7
Male education	22.6	20.2	20.5	21.8	21.9	21.6	20.7	21.8	22.4	27.0	29.5
Female education	17.5	20.6	20.4	19.5	20.4	21.0	21.4	21.1	22.4	27.0	29.5

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High School	23.6	24.0	24.3	24.8	25.2	28.7	29.9	30.6	31.3	31.7	32.1
Male education	14.6	15.0	15.1	14.2	14.4	14.3	17.6	18.0	18.2	16.1	15.2
n											
Female education	9.0	9.0	9.2	10.6	9.5	11.6	12.3	12.6	13.1	15.6	16.9
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Source: *Economic Survey of Pakistan 2017*

\*All figures are in 000 nos

Table 1 demonstrates the male and female education data in primary, secondary and high schools in Pakistan covering the time period from 2006 to 2017. The number of primary school in Pakistan increases as we moved from year 2006 to 2017 as 2006 the number was 158.7 but in 2017 the number increased to 167 which also highlighted the male education in primary school increased from 97.8 in 2006 to 99.9 showing continuously slightly increasing trend same with the case in female education but female education is more rapidly increases as compared to male education from 60.9 in 2006 year to 67.1 in 2017.

The number of middle schools also increased from 40.1 in year 2006 to 46.7 in year 2017 which shows the development in education sector in Pakistan and hence increase in the male and female education enrollments i.e. the male education (middle school) in year 2006 was 22.6 which raises to 29.5 in year 2017, the female education in middle schools in Pakistan tremendously increases from 17.5 in year 2006 to 29.5 in year 2017. This increase indicates high level of development in female education sector in Pakistan. Same is the case in high schools of Pakistan. Rapid movements traced female education in the high schools of Pakistan. The figures speedily moved from 9.0 in year 2006 to 16.9 in year 2017, which shows that our education policy is now more focused on the female education.

### Objectives of the study

Motivation of this study is based on the significant role of education in general and female education in particular in the social development of a country. Literacy rate,

school enrolment and particularly female school enrolment is yet not up to the desirable level in Pakistan. Therefore, the main purpose of this article is to analyze the role of female education in the overall social and national economic development of Pakistan. The outcomes will undeniably help the government to prepare sound policy and to encourage female education.

### **Hypothesis of the study**

H0: There is a significant impact of female primary school enrollment on economic growth of Pakistan.

H1: There is no impact of female primary school enrollment on economic growth of Pakistan.

H0: There is a significant impact of female secondary school enrollment on economic growth of Pakistan.

H2: There is no impact of female secondary school enrollment on economic growth of Pakistan

H0: There is a significant impact of female teacher education on Pakistan's economy.

H3: There is no impact of Female teacher education on Pakistan's economy

### **Literature Review**

The focus of the past studies was basically on gender discrimination and primary and secondary level of women's education, heavily neglecting the role of females in higher education, entrepreneurship and technology. However, more recent studies tried to minimize that gap. This section aims is to present a brief snapshot of some of the past and recent studies and to find out the gap in literature. Economists came with the concept of human capital in the growth models, especially in the early 60's, a strong relationship between human capital and economic growth was found mainly in the studies of Schultz (1961) and Becker (1962). Barro (1999), focused on the accumulation of human capital and the role it plays in the development of the economy. A panel study was conducted, based on 100 countries observed from 1960 to 1995. The results suggested that growth is positively related to the adult male secondary and higher level school attainment while

female education has a insignificant result at these levels. Lincove (2009) investigate the female education, female labor force and its impact on economic growth in low, high and upper income countries. Along with female education and female labor force participation, the study considers religious and political factors also. The main findings are that the investment in girl's education contributes not only to economy but also towards workforce development and home productivity and in many countries; female workforce development is highly influenced by religious, cultural and political factors.

Kalsen and Lamanna (2009), used cross country and panel regression analysis to find out the gender gap in education as well as in employment and its impact on economic growth. The selected time frame was 1960 to 2000. The gender gap in education and employment has reduced the economic growth in North Africa, Middle East and South Asia. Malik and Courteny (2011) conducted primary data based study. The focus group was female faculty and students of 10 selected Pakistani universities. The study found that higher education gives women empowerment, economic independence, educating them about their legal rights. Mokua (2013) studied the educational gender inequality in Kenya. The main findings of the study revealed that girl's education not only contributes to the development of a country but it also has many social benefits like increased family income, reduced fertility rates, late marriages, better and healthier lifestyle, decision making ability etc, which indirectly contributes to the economy. Alaoui (2016) examined the impact of women's education on economic growth in four countries; Morocco, Egypt, Tunisia, and Algeria for time period from 1960 to 2012. The study found that a negative relationship exists between fertility rate and different measure of education. Furthermore, women's tertiary education has a positive and significant impact on economic growth as compared to primary and secondary women's education. Hassan and Rafaz (2017) found that the female education has a positive and highly significant impact on overall economic growth.

## Data and Methodology

### Details of data source, variables and estimation techniques

The data traced from World Development Indicators (2018), the selected time period is from 2001 to 2016. The dependent variable is the economic growth represented by the GDP per capita in the model. Independent variables are school enrollment, primary, female (% gross) denoted as PE and primary education, school enrollment, Secondary, female (% gross) symbolically SE and teachers (% female) denoted by TE in the model. The following multivariate regression model is used in this study to examine the impact of female education on economic development:

### Econometric Model

$$EG_t = \beta_0 + \beta_1 PE_t + \beta_2 SE_t + \beta_3 TE_t + \varepsilon_t \quad (1)$$

In Eq. (1), EG represents GDP per capita, PE is the female primary school enrollment, SE is the female secondary school enrollment and TE is the female teacher education in Pakistan,  $\varepsilon_t$  is the error term shows other factors effect. All the data have been converted into log form in order to overcome non-linearity in the data.

## Results and Discussion

Results are presented in Table 2, Table 3, and Table 4. We first explained the correlation matrix, following by descriptive statistics, and finally employed the econometric technique namely Ordinary Least Squares method (OLS) for regression analysis because all our variables are stationary at level.

**Table -2 Correlation Matrix**

	EG	PE	SE	TE
EG	1.000	0.645	0.529	0.402
PE	0.445	1.000	0.413	0.602
SE	0.529	0.413	1.000	0.368
TE	0.602	0.602	0.368	1.000

**Table -3 Descriptive Statistics**

	EG	PE	SE	TE
Mean	6.920	4.357	3.388	3.849
Median	6.947	4.422	3.375	3.846
Maximum	7.072	4.496	3.796	3.931
Minimum	6.741	4.095	3.000	3.789
Std. Dev.	0.099	0.131	0.265	0.044
Skewness	-0.548	-0.980	-0.009	0.368
Kurtosis	2.329	2.531	1.622	2.026
Jarque-Bera	1.102	2.711	1.265	0.993
Probability	0.576	0.257	0.531	0.608
Sum	110.728	69.716	54.22	61.597
Sum Sq. Dev.	0.147	0.258	1.053	0.029
Observations	16	16	16	16

The correlation matrix results are given in Table 2, which shows that there is no multi-collinearity issue in the analysis; the values of all the selected variables are low and positive. The estimated results demonstrate that there is a positive and a significant impact of female education on economic growth of Pakistan. Table 3 show the descriptive statistics results, gives information about the mean value of GDP which is 6.920, the mean value of primary school enrolment is 4.357, the secondary school enrolment is 3.388 and the mean value of teachers education is 3.849. Next we have the median value of GDP is 6.947, the primary school enrolment is 4.422, the secondary school enrolment is 3.375 and the teachers education is 3.849424. Skewness of the GDP is found -0.5486, kurtosis of GDP is 2.329, and standard deviation of GDP is found 0.099 of the data. Jarque-Bera shows the normality of the distribution of all the selected variables, which is found to be 1.102 for GDP.



**Table - 4 Least squares regression results**

Variables	Coefficient	Std. Error	t-Statistic	Prob.
Constant	1.539	0.518	2.947	0.012
PE	0.433	0.064	6.740	0.000
SE	0.056	0.020	2.748	0.017
TE	0.860	0.185	4.651	0.000
adj. R <sup>2</sup>	0.963		Durbin-Watson stat	2.32

Note: The dependent variable is real GDP Per capita

Equation (2) is estimated equation of this study:

$$EG_t = 1.539 + 0.433 PE_t + 0.056 SE_t + 0.86 TE_t \dots\dots\dots (2)$$

Similarly It is evident from Table 4 that all our obtained empirical results are statistically significant based on the t-statistics, p-value, high R<sup>2</sup> which is found to be 0.863 and adjusted R<sup>2</sup> 0.963 values, in addition, the Durbin Watson test value is found to be 2.321 which indicates that there is no autocorrelation problem in the analysis, In addition, the primary school enrolment estimated coefficient is found to be 1.529, the standard error of the same variable is 0.518 Likewise, the t statistic is 6.740 and the probability value is 0.000 found to be highly significant. Similarly, the female secondary school enrolment estimated coefficient is found to be 0.056 and the standard error is 0.064 and the probability value is found 0.0176 which indicates a positive and significant impact on economic growth. Moreover, the estimated coefficient of female teacher education is 0.860, the standard error of the same variable is 0.185 and t-statistic is found to be 4.651 and the probability value is 0.000 which give a signal that there is a positive and a high significant impact of female teacher education on economic growth of Pakistan.

Table 4 demonstrates the regression analysis results. The female teacher education is highly significant at 1% and shows that a 1 % change in female teacher education can increase the economic growth by 0.86 units. The female primary school enrollment has also a positive significant impact on economic growth of Pakistan's economy and is

highly significant at 1%. An increase of 1% in female primary school enrollment leads to increased economic growth of Pakistan by 0.43 units. Similarly, an increase in 1% the secondary school enrolment of female education can lead economic growth by 0.056 units which indicates that female education has a positive and a highly significant impact on the growth and development of Pakistan's economy.

The  $R^2$  is the goodness of fit, the high value of  $R^2$  near to 1 show that the model is well fitted. The  $R^2$  is 0.96 which shows that our model is fitted well. The Durban Watson test shows that there is no autocorrelation issue in the analysis and the value of Durbin Watson test is found 2.321. Overall results exhibit that female education in the form of enrollment and in the form of teacher is positively contributed to the national economic development of Pakistan. The empirical findings of the present study on the relationship between female education and national economic development are consistent with the findings of Barro and Lee (2010), Khan et al. (2014), Bakar et al. (2014), Muhammad (2016), Deen (2016), and Rehman et al. (2018).

### **Conclusion**

The role of female education for society development cannot be denied and also needs more enrolment of female education and enhanced level of female teachers in the country. The study revealed that education plays crucial role in the country's development. This study empirically found the impact of female primary, secondary school enrollment education of female teacher on economic growth of Pakistan for the time period of 2001-2016. The findings of this study suggest that the Government of Pakistan shall promote such policies which are related to education and especially to the female education because it has a positive and significant impact on Pakistan's economy.

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