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DETERMINANTS OF FEMALE ENROLLMENT AT HIGHER LEVEL OF EDUCATION AND ITS IMPACT ON ECONOMIC DEVELOPMENT

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*ABSTRACT--*Education is the key factor of development in any country. Role of female in economic development is increasing day by day. Female education is more important for every nation. The population of females in Pakistan is more than 50% so their role in development process cannot be ignored. The objective of this paper is to determine the role of female enrollment at higher level of education and its impact on the economic development. A time series data is taken for the period of 1974 to 2014. Gross domestic product per capita is taken as dependent variable and adult literacy rate, fertility rate; gross enrollment ratio of tertiary, gross enrollment ratio and labor force ratio of female are taken as independent variables. Co-integration and VEC model was used to analyze the dataset. Our result shows that economic growth of a country can be increased due to increase in adult literacy rate, labor force of female participation ratio and gross enrollment ratio of female. Government of Pakistan should take proper steps to upgrades the female schools and Colleges according the international standard and provide education opportunities at tertiary level so that female may play their due role in national economic development.
Key Words: Education, Economics development, Co integration, VECM

Type of study: **Original Research paper**

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1. INTRODUCTION

1.1 Background of the study

The impact of education on economic development has been widely recognized all over the world. The contribution of education was recognized as to have positive impact on economic growth and it was significant not only in terms of money, but also in kind, such as the efficiency of farms and labor productivity. It was also found that education is an important factor in reducing poverty, improving distribution of income along with the numerous aspects of social, political and demographic development. In developing countries, the relative importance of human capital is higher as compared to that of developed countries. Given that education as an instrument of primary importance for organizing human resources for sustainable economic and social growth, Government of Pakistan has participated in the development by implementing numerous strategies and improving the educational system to make it well-matched with the needs of country.

At the time of independence, the literacy rate in Pakistan was only 10%. There were only 10,000 inherited elementary schools, but after the implementation of reforms and policy measures, the number of elementary schools were increased 164,970 people (84,175 men and 80,791 for women) in 2003-04. The educational system at the elementary school level was the main task for each government, to bring it up to the mark to the social, national, economical and ideological needs of the country. In 1992, National Education Policy was framed and a strategy was developed to promote education. An action plan containing many reforms was prepared for promoting literacy rate and higher education during (1998-2010). These reforms were focused to make primary schools more functional, and enhancing the facilities to create the conditions conducive for learning, so that there will be less children drop

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out because of an unfavorable environment. The Punjab is a highly populated Province of Pakistan with a population of 73.621 million people, accounting for 55.6 percent of the country's total population. Population of children belonging to the age group of the primary school (05-09 years) is 11.226 million people, which is 15.2% of the total population. Among these, 51.8% are men, while the other 48.2% are women. The population in the rural area of Punjab accounts for 68.7 percent of Punjab province. The share of children from primary to general population is 15.8% in rural areas. The proportion for men is 16.0 percent, and for women, 15.7 percent in rural Punjab. In urban areas, the number of children of school age is relatively lower than in rural areas. The Children of appropriate age who attend the school or complete the primary education make almost 49.9%. The fraction of such children (men and women) is greater in the urban area, and they can be accredited to the school atmosphere and other facilities existing in urban areas. Subsequently, school-age children who have never appeared in school make up to 50.1%. In the rural and urban areas, the ratio of these children is 56.4% and 34.4%, respectively, with a comparatively greater percentage of women in both regions. Recently, the Punjab government has boarded the program of reforms aimed at improving the quality of education. In 2004, the World Bank allocated USD 100 million, the first loan from the series of three for the restructuring of IDA in support of reform efforts.

Women are the fundamental part of the development. Women's contribution in education and in development process is the economic success (Stephan, 2002), the decrease of fertility rate (Subbarao and Raney, 1995), the raise of child health (Caldwell, 1979), decreasing domestic violence (Heise et al., 1999), enabling women to make family decisions (Hindin and Adair, 2002). The ill-literate women is generally a problem for underdeveloped societies, especially for the Muslim communities (Ahmed, 2005, Balde, 2004). The Pakistan is an example of less school

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education for women, and in 2006 it ranked 134th in the Human Development Index (OCSD, 2007). It is stated that the number of girls that goes to school is less than the boys, with increasing their age in the country (Khan, 2008). The rural areas make 64.57% of the population of Pakistan and are far behind in this respect (Mahmoud, 2004). The rate of literacy among women (aged 10 and over) in rural Pakistan is 29% (PSLM, 2008). For UNESCO, Pakistan is one of the nine countries with a low level of literacy in the world (Khalid and Mukhtar, 2002). In rural Punjab, women with secondary and higher secondary education are 7% and 5%, respectively, while women living in big cities with the same level of education are 21% and 24%, respectively (MICS, 2005). The rate of literacy among women in rural Punjab increased from 24.8% in 1998 to 32.6% in 2003-4 (PBS, 2005), which indicates a slow progress in the educational status of the female population.

1.2 The Millennium Development Goals and Female Education

The Millennium Development Goals were set at the United Nations conferences in 2000, when all countries committed themselves to reducing poverty, hunger and disease, providing more surviving mothers and their babies, improving the education of children, ensuring equal possibility for women and creating a better situation. Consequently, the 8th Millennium Development Goals, with 48 indexes, are the basis for time-bound targets. There were eight MDGs, which are outlined in the following: -

i). Removal of intense poverty and hunger

ii). Accomplishment of general primary education

iii). Awareness of gender equality and women's authorization

iv). Decrease in the child death rate

v). Betterment of parental health

vi). Reduction of HIV cases along with the others like malaria, tuberculosis and

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vii). Awareness of environmental sustainability

viii). Implementation of a worldwide partnership for improvement.

1.4. Main Research Question

On the basis of the issues discussed above, we will try to explore the answer of the following questions:

1.   What are the obstacles and challenges that women experience as students of higher education institutions?

2.   What are the written and unwritten the changes that have been adopted by the universities that have an impact on enrolment of female students?

3.   What are the characteristics and attributes for economic growth due to higher education of women?

1.5. Objective of the Study

The objectives of our study are stated as under: -

1.To examine the obstacles and challenges that women experience as students of higher education institutions;

2.To investigate the changes that have been adopted by the universities that have an impact on enrolment of female students.

3.To determine the characteristics and attributes for economic growth due to higher education of women.

1.6 Significance of the study:

The Ministry of Women and Children's Affairs is accountable for ensuring equal position for women; ensuring protection of the rights of children and women; and promoting the endurance, growth and protection; and increased contribution of

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women in the development process. The results of this study will enable the Ministry to identify the barriers being faced by women in higher education in Pakistan.

2. LITERATURE REVIEW

Determinants of female enrollment at higher level of education and its impact on economic development is an important topic and we attempted to find empirical evidence of previous studies regarding the existence of significant relationship between female enrolment at higher education level and economic development. Keeping in mind these objectives, we intend to explore previous latest relevant literature.

Awan & Khan (2014) state that low productivity in Pakistan is due to lack of participation of women in productivity activities. Awan (2015) argues that now economic paradigm is shifting the world and women are being given equal role in the society so that they may be able to contribute in national development. Awan (2012) states that the educated women are human capital and it must be utilized at maximum level to alleviate poverty and to raise standard of living.

Toor (2000) examined the part of the administration to diminish sex discrimination in training. In Training Arrangement during 1998 to 2010 there was a goal to achieve 90% literacy of teenagers (age 5 to 9) through the motivation and financial assistance. But the goal was not achieved due to the poor administration, inefficient utilization of resources and lack of education of guardians who dropped scope of female' and male's enrollment, i.e. 35% and 59% individually. One explanation behind this circumstance is that the favored little girl's children, as a result of the expected cutting edge supporting guardians on their kids in their superiority. In 2000 Naqvi and Shahnaz examined the impact of various financial, statistics and human capital-related factors on women decision to participate in labour

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force and reached the conclusion that the women of a family can choose to search for an occupation independently.

Aakvik et al. (2005) explain the causes of family foundation, e.g; pay and parental training at the level of instruction of people during 1967 to 1972 in Norway. To calculate the core variable of the instructive level of individual, the OLS method was utilized to figure the review gauges, and the factors that include pay, family training and offer the mother to work. An individual and family unit is clearly critical determinants of school enrolment, particularly for young ladies. The likelihood of a tyke in the aggregate number of understudies is developing in the training of guardians, with the mother's instruction is generally essential in the advancement of young girls' enrolment.

Shahid and Baluch. (2008), attempted to explore the determinants of enrollment in primary education in Lahore district. The objective of study was to investigate and interpret the enrollment of children at primary level in the district Lahore, further to explore the behavior of the households regarding their child enrollment in at primary level. Primary data was collected from the 3320 households. 2520 households were belonging to the urban areas and other 800 respondents were belonging to rural areas of the district Lahore. Simple ordinary least square (OLS) and Logit Model were used to analyze the dataset. The determining factors of the study were: expenses on education, literacy rate, dependency ratio, home ownership and family size. It was founded that all the factors played significant role in primary education enrolment. Some other socio economic qualitative factors were also becoming the strong factor regarding the enrollment of female students at primary level education.

Jozan (2013) explains the relationship between human capital and organizational effectiveness. The author has analyzed that the formation of human

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capital can be achieved through excellence, efficiency and competitiveness, all performance characteristics of the organization. The author explained that human capital is a source of competitiveness, and this capacity for man, his delicious knowledge. Therefore, improved competitiveness and increased human capital, in which their skills, education and health play an important role. To obtain greater organizational efficiency, human capital can move nor a large investment in your human capital through education, training, health and so on. In this study, the author uses time series data in which human capital was assessed through education and training. It was found that an important and positive role of education and training in the field of organizational effectiveness

Fatima et al. (2010), attempted to investigate the role and importance of female learning as the factor of economic growth in the country; a case study of the Pakistan country. The objective of the study was to investigate the gender inequality in education and how it has impact on the economic growth and development, present the policy for minimizing the gender inequality in Pakistan. A time series data was collected for the period of 1980 to 2006. Data were collected from the Economic Survey of Pakistan and world financial statistics. A simple OLS data collection technique was used to interpret the data set. It was founded that the quality of education both at primary and secondary level were showing the decreasing the trend. The enrolment of girls at school level was also in decreasing trend. The enrolment ratio was decreasing but the women contribution in development was increasing. It was suggested that there is need to develop the share on women's in country development although they are majority of the total population.

Sbrana and Sanchez (2010), attempted to explore the determinants of education attainment and development goals in Yemen. The objective of the current was to discover the determinants of education achievement and to examine the

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empirical consequences of statistical estimation of enrollment performance of children in Yemen public education. A survey data set was used to estimate the determinants of education attainment in Yemen. It was founded that two effects were more suitable for education in Yemen. As increasing the number of, increasing the number of female teachers and expansion of the rural public infrastructure will promote the attendance of children at school level. Interventions about the health of child were also promoting the attraction of children. But education level can only be increased if the economic condition of the country improved. It was suggested that government should intervene in the education system of the Yemen. Education goals will be achieved with the intervention of Government and it will further promote the higher education.

Bontis and Serenko (2009) explain the important consequences of the human capital model. They analyzed the financial services industry in Canada. They performed primary data, and also led 396 employees of credit union management. Knowledge management is the most important factor for a company because if an employee has a more accurate knowledge that is more effective for their company and is an important factor in the company. The T-test was used for the evaluation and the results showed that knowledge management is the determining factor in the growth of the company and, therefore, the appropriate training.

Salim et al. (2004) analyzed the problem of human capital and the effectiveness of the organization. They conducted their research at the Egyptian software company. A sample of 38 companies was collected, a total of 107, but only 16 responded positively and were allowed to deliver their data. They did different types of questionnaires and filled out. They performed several types of completed interviews for their data. Data were analyzed using correlation and regression

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methods. The research results showed that the imitability, ideas, intellect and ambitions of employees influence the performance of the company.

Ahmad at el. (2008), tried to explore the cultural determinants of the female educational targets attainment: A case study of the Jhang district of Punjab. The objective of the study was to identify the deterrents of educational achievement of country females in the civilizing scene of Punjab. Primary data set was collected from the district Jhang. Total numbers of respondents were 288. A multistage random sampling data collection technique was used to collect the data. Statistical applications were inferential, descriptive and multiple regression analysis. It was found that improved housing and prosperity statuses of the family, distances of schools, higher education of the children parents, heads of the household attitude about female population and their higher education, gender biased attitude of the heads of household were the factors which shows significant and positive effect on the female education at rural level. It was suggested that secondary schools of the girls should be upgraded in rural areas and government develop the productive policies to alter the cultural approach of the rural society.

Elena Penetsku (2015) explains the role of the human capital and its impact on economic growth. The author analyzes in depth the growth of the three categories in terms of growth theory, he explained, and noted that there are three growths in the region, which have intelligent, sustainable and knowledge of people as human capital. She explained that it was noted that the goal of adequate economic growth through human capital cannot be defined, because without adequate education and training. The best education system can change human capital in the best ways, as an educated person can make a great effort for research, not to illustrate a person. In its conclusion, it evaluates the data groups of different countries that the low investment in education and health (human capital) can negatively affect the development of the countries.

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Akhtar et al. (2009), attempted to investigate that female age at the first enrolment effect the educational attainment or not, the case study of the rural Punjab. The objective of the study was to find the effects of late enrolment of females at school level in rural areas on educational attainment. Total numbers of respondents were 515. A multistage random sampling data collection technique was used to collect the data from the two districts of rural Punjab as Faisalabad and Jhang. Ordinary regression analysis was used to analyze the dataset. It was founded that the effect of late age enrollment of females was not significant. The enrolment at appropriate age reflects the parent interest in the educational improvement of their daughters. It was suggested that government should take steps to promote female education according to UNESCO rules.

Mankiw et al. (1992) tried to explore the relationship between the human capital and economic growth. We analyze its study from secondary data, which are collected by different sources. They followed Solow's growth model, in which human capital was centered, measured, and calculated. The study used a secondary school record as a proxy variable to measure human capital. The significant impact was founded on the economic growth of the country by the human capital. The growth of human capital has boosted the country's economic growth. It is proposed that each country have a greater investment in human capital to achieve its objective of increasing the level of production.

Letic and Kaur. (2012), investigated relationship between female education and economic growth. The purpose of the study was to explore the theoretical overview of the female education impact on economic growth in the two-country analysis. Further they tried to investigate the effect of female education on economic growth through the fertility rate and human development in Niger and India. Study was based on the qualitative analysis and literature of the earlier studies. Data was

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collected from the World Bank dataset from 1990 to 2010. It was founded that fertility rate in both countries were decreased and human capital was increased due to female education. Social and cultural norms were the barriers in both countries and become to decrease female education and their contribution in economic growth. Both countries have differed female enrolment rate of education. It was suggested that increase in investment in the female education will decrease the fertility rate and can increase the human capital in both countries that further promote the economic development.

Yakhaya (2007) analyzes the impact of investment in human resources. The author conducted his research on the effectiveness of employees of Nigerian banks. He chose three banks in Nigeria for his empirical analysis. Primary data was collected through questionnaires and interviewsof employees. Basically it was   Training and Development Activities of Nigerian banks. In order to test the effectiveness of the employee, he used some econometrics techniques, like MNCs, to get their results. As a result of this research, it was revealed that a more efficient employee could improve the efficiency of banks. He suggested that if banks increase pension amount, compensate and provide a better training program for their employees and it can achieve its goals in a better way.

2.1 Summary of literature review

The aim of the study was to examine the determinants of female enrollment at higher level of education and its impact on economic development. Important studies are reviewed which shows that the female enrollment have positive and significant impact on the economic development of the countries. Different variables were used for different studies. Previous studies also highlighted the importance of the female higher education and their role in the development process.

2.2 Distinction of the study:

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The distinction of the present study is that we have used 40-year time series data of Pakistan to measure the impact of the determinants of female enrollment at higher level of education on economic development. Further we are analyzing this topic to recommend suggestion for the universities how to increase the female enrollment at higher level education.

3. RESEARCH METHODOLOGY

Present study is based on the determinants of female enrollment at higher level of education and its impact of economic development in Pakistan for a period of 1974 to 2014. Gross domestic product (annual growth rate) is taken as dependent variable while independent variables are: adult literacy rate of female, fertility rate, gross enrollment rate of female at secondary level, gross enrollment rate of female students at tertiary level and female participation in labor force. All the economic variables are taken as annual growth percentage.

Table 1 Selected dependent and independent variables.

Determinants	Description of the determinants	Measurement Unit
Dependent variable		
GDP	Gross domestic production	Annual growth (%)
Independent variables		
ALR	Adult literacy rate of female	Annual growth (%)
FR	Fertility rate	Annual growth (%)
GERF	Gross enrollment ratio of female at secondary level	Annual growth (%)

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GERT	Gross enrollment ratio of tertiary of female	Annual growth (%)
LFF	Labor force ratio of female	Annual growth (%)

3.1 Model Specification:

Order of integration or stationary of data is checked by the Augmented Dickey Fuller test. The extra lag length of dependent variable is included in ADF test to check the problem of autocorrelation in model. Autoregressive distributed lag model may be suitable to check the strength of the Augmented dickey fuller test as if all the selected determinants are integrated at dissimilar order like 1(0) and 1(1), is the basic requirement to use the autoregressive distributed lag model. Otherwise if all selected variables are integrated at 1(0) order then a simple OLS method is used, while, if order of integration is at 1(1) Johansson co-integration test is used. We have engraved the following equation for our study model: -

$$GDP = \beta 0 + \beta_1 ALR + \beta_2 FR + \beta_3 GERF + \beta_5 GERT + \beta_6\, LFF + \varepsilon_i$$

Whereas,

GDP= Gross domestic product

ALR= Adult literacy rate

FR= Fertility rate

GERF= Gross enrollment ratio of female at secondary level

GERT= Gross enrollment ratio of tertiary of female

LFF= Labor force ratio of female

ε_i = distributed term

$\beta 0$ = intercept term

$B1, \beta 2, \beta 3, \beta 4, \beta 5, \beta 6$ = slope coefficient

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3.2 Unit Root Test

The Unit root test is used to check the stationary of each variable separately or individually either data set is unit root or not. The equation for this test is as under:-

$$\Delta Y_t = \alpha + \beta T + \delta Y_{t-1} + \gamma \sum \Delta Y_{t-i} - e_t$$

Whereas,

T= trend variable

α, δ, γ = are the parameters

et= error term

Δ= indicating the difference

3.3 Lagged Order Selection Criteria:

After checking the stationary of the data we have to select optimal lag before applying the co-integration technique of Johansen Co-integration test. The residuals will be observed in a correlation in a series manner when the regression is biased due to inappropriate selection of variable. These issues can be overcome by adopting the other tests like the AIC and Schwartz tests. These will remove any whimsicality in pick out the lag length in statistical tests of causality.

3.4 Johnson Co Integration Test:

Johansen Co-Integration Test is used to describe long run relationship between more than two variables. But it can also be applied for two variables as well. Applying Schwarz and Akaike criteria provides the appropriate lag length at which the error term is not serially correlated. Co-integration is a statistical property of a set of variables (X_1, X_2, X_k) in a time series data. There is condition in it, the first one is that the series must have valid integration around 1, now if the results are linear combination and they are the integrated in zero order then we call this as co-integration. If there is a situation that three variables, x,y,z, along with three coefficients a,b,c form an equation of type aX+bY+cZ and tis equation is zeroth order

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then the variable are co-integrated. This has become a renowned property in the analysis of time series. Time series often have trends - either deterministic or stochastic. In a famous article, Charles Nelson and Charles Flosser (1982) presented statistics that many macroeconomic time series of the USA (for example, wages GNP, employment, etc.) have random tendencies – these are also called as unit root or processes, 1 - I (1). The unit root process reflects the non-standard statistical properties, so it is impossible for us to apply the conventional method of theory on them.

3.5 Vector Error Correction Model:

The model of error correction refers to the category of models which contains a large number of data of time series, and these data are mostly used to find out the co-integrational variables. The effect of one-time series on the other are calculated by using the ECMs approaches. Error correction is the deviation of last period from the equilibrium value of long terms and the error cause an effect on its short term dynamics. The estimation of the return to the equilibrium value after a specific dynamic is studied in the ECMs Approaches. Yul (1936) and Granger and Newbold (1974) first drew attention to the problem of false correlation and found ways to solve this problem in the analysis of time series. Most of the times the researchers can see the erroneous of relationship between the variables due to the presences of completely unrelated time series data. As in case of Monte Carlo simulations, they show that extremely high R-squares, high individual t-statistics and low Durbin-Watson statistics. The Phillips proved that there will be a lot of irregularities in the results such as, the divergence of intercept, probability and the slope will show a non-degenerate distribution with the increase in the sample size. However, the researcher may be interested in the long term relationship between the variables and there would be some expected trend. Due to the presence of the random nature of the trend, it is

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impossible for us to break up the series in to component series with deterministic (predictable) trend and the other one with a stationary series. Even the false correlations can be appeared in the determinants of a random walks. Thus, the problem of evaluation cannot be solved by detruding. In order to use the Box-Jenkins approach, there must be distinguish between the series and the models like ARIMA should be evaluated. It must be followed by the condition that the time series should be fixed in the first differences. The predictions of such a model will still shows the seasonality and the continuity in the data, but the long term predictions are unreliable. Due to these reasons the Sargan (1964) develops an ECM methodology which is used to see the short run relationship between variables.

$$\Delta GDP_{t\,=}\,\alpha_0 + \alpha_1 FAID + \alpha_2 \mu_{t-1} + \mu_t$$

$$\Delta GDP_{t\,=}\,\beta_0 + \beta_1 \Delta EDEBT + \beta_2 \mu_{t-1} + \mu_t$$

Where,

GDP = gross domestic product

FAID= foreign aid

Δ = difference indicator

μt = error term

α_0 α_1 α_2 β_0 β_1 β_2 = Coefficients of the variables

t-1 = previous time period.

3.5 Granger Causality Test:

After checking the long run relationship by applying the Johansen co integration test we can apply Granger Causality test to check whether the variable cause dependent variables or not. So we apply the Granger Causality test to check whether the unidirectional, bidirectional or multidirectional.

4. FINDINGS AND RESULTS

Table 2. ADF Test

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Variables	Level	1st Difference	Decision
GDP	-1.75004 (1)	-2.96397(1))**	I(1)
ALR	-1.64508(1)	-2.621007 (1)* *	I(1)
FR	-0.696973(1)	-2.621007 (1) ***	I(1)
GERF	-2.697852(1)	-7.154935(1)**	I(1)
GERT	-2.015968(1)	-5.939592(1)***	I(1)
LFF	-1.279351(1)	-4.9271121(1)***	I(1)

ADF test is used to check the unit root of the dataset either it is unit root or not. After applying the ADF test results are presented in the Table 2, which shows all variables are co-integrated at the difference 1st When all the variables are co integrated at 1st difference it's indicate that we will use the Johansen co integration test which measures the longer period relationship among variables. First we apply the Johansen Co integration test for longer period relationship between dependent variable GDP and independent variable adult literacy rate, fertility rate, gross enrollment ratio of females, labor force ratio of females and Gross enrollment ratio of tertiary of female.

Table: 3 Lagged Order Selections

Lag length	AIC Criterion	Schwartz Criterion
0	26.77615	27.05639
1(Optimal Lag)	23.60091	25.56259*
2	23.17245*	26.81556

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Optimal lag order for applying Johansen Co-integration is 2. Lagged Order is selected with the help of AIC and Schwartz criterion. At 2nd lag the AIC criterion has minimum value like it is 23.17245.

Table: 4 Johansen Co-Integration Test

Hypothesized		Trace	0.05	
No. of CE(s)	Eigen value	Statistic	Critical Value	Prob.**
None *	0.946175	163.3243	95.75366	0.0000
At most 1 *	0.636332	78.58608	69.81889	0.0085
At most 2 *	0.607682	49.25216	47.85613	0.0367
At most 3	0.351180	22.11735	29.79707	0.2920
At most 4	0.211391	9.571968	15.49471	0.3151
At most 5	0.088426	2.684908	3.841466	0.1013
Trace test indicates 3 cointegrating eqn (s) at the 0.05 level				
* denotes rejection of the hypothesis at the 0.05 level				

Having established that all the variables in the study are integrated in the order one i.e. I (1), the next thing is to observe either they are co-integration or not (Granger and Engel, 1987). Johansen Co-integration test is used for long relationship two and more than two variables but first we have to select the lag length through VAR lag criteria. AIC and Schwartz information criteria find out the lag length of the model. This standard reflects that the optimum lag length should be 2 as shown in Table 4.

Johansen co integration test shows either the longer period relationship between the dependent and independent variable exists or not. In our model null

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hypothesis is that there is no co integration relationship between the dependent and independent model and the alternative model is that there exists co integration between the dependent and independent variables. In the above model the probability value is below 5% level at none, at most1, at most2 so there is no co integration among variables. While trace test indicates shows that there is the 3 co integration equation at the level 0.05% that means the long run relationship between dependent and independent variables exists. So we reject our null hypothesis and we accept alternative hypothesis.

Table: 5 Error Correction Model

Dependent Variable: D(GDP)
Method: Least Squares
Sample (adjusted): 1974 2014
Included observations: 39 after adjustments

D(GDP) = C(1)*(GDP(-1) + 2.65746040557*ALR(-1) + 1.13171028247*FR(-1) - 15.0742240791*GERF(-1) - 2.62028680412*GERT(-1) +10.5787107701*LFF(-1) + 460.397906494) + C(2)*D(GDP(-1)) + C(3) *D(GDP(-2)) + C(4)*D(ALR(-1)) + C(5)*D(ALR(-2)) + C(6)*D(FR(-1)) + C(7)*D(FR(-2)) + C(8)*D(GERF(-1)) + C(9)*D(GERF(-2)) + C(10)*D(GERT(-1)) + C(11)*D(GERT(-2)) + C(12)*D(LFF(-1)) + C(13)*D(LFF(-2)) + C(14)

	Coefficient	Std. Error	t-Statistic	Prob.
C(1)	0.031132	0.033803	0.920998	0.3716
C(2)	0.055055	0.219391	0.250945	0.8053
C(3)	0.289575	0.189333	1.529447	0.1470
C(4)	-0.056946	0.277070	-0.205531	0.8399

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C(5)	-0.295478	0.270044	-1.094185	0.2911
C(6)	-0.028749	0.101713	-0.282652	0.7813
C(7)	-0.039888	0.094658	-0.421387	0.6794
C(8)	0.349604	0.501590	0.696992	0.4965
C(9)	-1.242830	0.427356	-2.908186	0.0108
C(10)	-0.018777	0.248061	-0.075696	0.9407
C(11)	0.261453	0.249027	1.049899	0.3104
C(12)	-0.144502	0.459609	-0.314402	0.7575
C(13)	0.359084	0.438110	0.819622	0.4253
C(14)	-0.052056	0.307612	-0.169226	0.8679
R-squared	0.687783	Durbin-Watson stat		2.076661
Adjusted R-squared	0.417195			
F-statistic	2.541812			
Prob(F-statistic)	0.043469			

Error Correction equation also presented in table 5, which indicates that all variables are taken at 2nd lag. Total numbers of variables are C1 to C14. The probability value of all variables is more than 5% level of significant except the C9 variable because its value is less than 5% so variable C9 is only significant variable at here; all other variables are not significant. In above table the overall p value of model is less than 5% and R-square is 0.68 so the model is goodness of fit.

4.1 Normality test:

The probability value of the normality test is 0.008711 which shows that the long run relationship exists among the variables. The mean value of the normality test is 8.44%

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while the value of Jarque Bera is 9.486437. The results of Normality test are shown in Figure 1.

Figure 1 Results of Normality Test
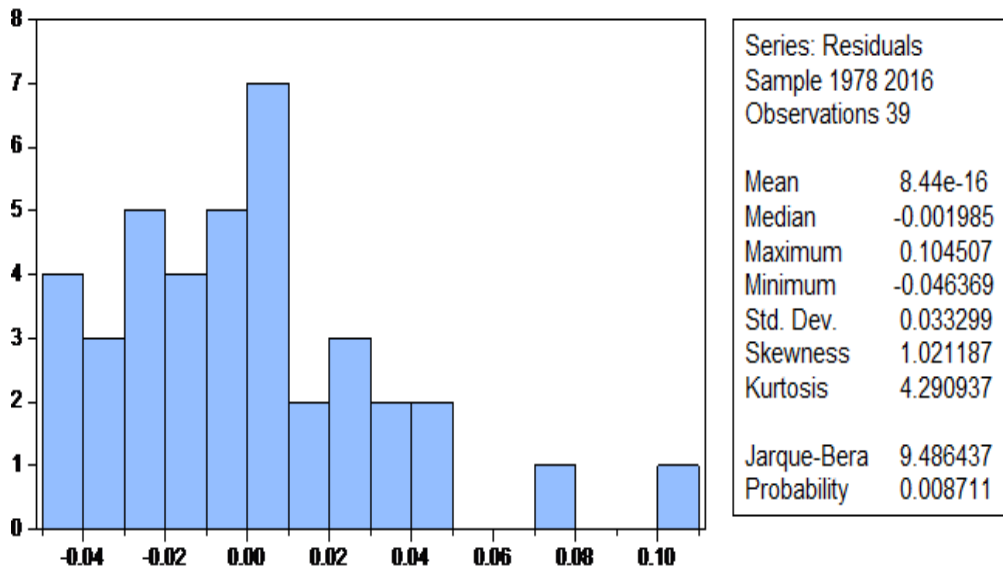
4.2 Breusch-Godfrey Serial Correlation LM Test

Table 6 Breusch-Godfrey Serial Correlation LM Test:			
F-statistic	3.354840	Prob. F(2,13)	0.0669
Obs*R-squared	9.872343	Prob. Chi-Square(2)	0.6102

Breusch Godfrey serial correlation LM test which shows that serial correlation exists or not. Our null hypothesis was the non-existence of serial correlation; while the alternative hypothesis was the existence of serial correlation. In above table the

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probability value is 61.02 % which is more than 5 % so the null hypothesis is accepted as the appropriate hypothesis.

4.3 Heteroscedasticity Test

The results of Heteroscedasticity Test are shown in Table 7

Table 7. Heteroscedasticity Test results

Heteroscedasticity Test: ARCH			
F-statistic	0.082718	Prob. F(2,34)	0.9208
Obs*R-squared	0.179161	Prob. Chi-Square(2)	0.9143

In table 7 the probability value is 91.43 % which is more than 5 % so we cannot reject the null hypothesis, rather we accept the null hypothesis and we concluded that there is no Heteroscedasticity in our model.

5. CONCLUSIONS

Education system of Pakistan is not fulfilling the requirement of international standards that is why our universities are not included in the list of top 500 universities of the world. The situation of female education in Pakistan is very poor. The number female population is greater than fifty percent of the country. While the advanced countries have modern infrastructure at school and university level but in underdeveloped countries the situation of education is very poor. Government is not spending its budget on education according to the requirement of United Nation Organizations. During the last decade in Pakistan, attention is being given on education institutions and on enrolment of children while earlier the situation was not satisfactory, even not yet satisfactory, but in present days governments institutions are trying to improve the education at university and school level both for girls and boys sections. But more efforts are needed to for bitterness of the education.

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In our study four variables: adult literacy rate, female labor force of participation ratio and gross enrollment ratio of female are positively significant except fertility rate, which is negatively significant, while the variable: gross enrollment ratio of female at tertiary level is statistically insignificant. Our result shows that economic growth of a country can be increased due to increase in adult literacy rate, labor force of female participation rate and gross enrollment ratio of female. Government of Pakistan must to take steps to upgrades the female schools according the world standard and provide necessary facilities and incentives. Share of female participation in business activity in GDP can be doubled in Pakistan due to up gradation of the education system. Females are working in all sectors of the economy and their participation ratio is increasing day by day, so necessary measures should be taken for their employment and security.

6. POLICY RECOMMENDATIONS

We would like to make the following recommendations: -

1.Government of Pakistan should take measure to enhance the adult literacy rate of female.

2.Pakistan is agriculture country and the number of female's working in agriculture sector is higher number, there is need to improve the education and health facilities for women in villages and towns.

3.Government should take steps to enhance the enrollment ratio of females at primary level also and motivate parents through financial assistance to get educated their children.

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