

# An Economic Evaluation of the Nexus between Gender Inequality and Economic Growth in Pakistan: A Historical Perspective

Saba Ashraf, Muhammad Arham khan, Sidra Haroon

## ABSTRACT

The study attempts to made an economic evaluation the linking among gender inequality and Pakistan's economic growth. The study also represents the differences of men and women. The study is depend on annual time series data from 1985 to 2015. GDP growth rate take as the dependent variable and independent variables include the female unemployment rate, male-female labor force participation rate and female to male enrollment rate. This study reveal the links between labor force growth, investment, gender inequality and other variables of interest based on the availability of data for the past 30 years. This study show that employment level, disparities in education GPI literacy rate and unemployment rate have negative effect on economic growth. Gender disparities in such factors cause to reduce GDP growth rate. This research use co-integration techniques such as Johansen co-integration technique and data stationary assessments to achieve meaningful results. This study also provides valuable policy insights for future research and policy support.

**Keywords:** Gender; Pakistan; Economic Growth; Co-integration

## Introduction

Gender responsibilities and roles of both women and men. Differences reflect responsibilities among men and women that come from our society and culture. The idea of gender reflects our hope about behavior, characteristics and attitudes of men and women. The problem of gender discrimination is not latest in fact it has a long history. Imbalance or inequality is a problem that has been discussed from many previous years. This study is also exists in educational activities on gender gap which is prolonged over time. Gender gap occurs in many ways. Society plays a vital role. The society should be peaceful and united with custom and civilization. Decreasing gender disparity and accredit of females is one of Millennium (MDGs) introduced by UN's and it is on public policy plan of all nations of the universe because inequality on gender base cannot acceptable on any moral and philosophical basis. Gender inequality is a critical issue of almost all developing and even developed countries (Pervaiz et al, 2011).

Gender inequality is not limited in some areas in fact it is the headache of all parts of the earth adding progressed and developing nations (Naz and Rehman, 2011). Removing gender inequality is a input and prolonged term detained target of the global progress society. The united nations (MDGs) add the removal of gender inequality in initial and secondary enrolments by 2005 and at over all education level by 2015 (United Nations, 2000).

Gender differences turn into a critical problem in Arab region. The problem of gender disparity that are noticeable in social, political and anthropological stage, its economic effect on the expansion and progress of Arab economies is significant to be examined. The problem has established essential importance in previous two centuries, mainly after the authority given by the US's, adding the beijing platform for action and being a member of the millennium development goals (MDGs). In contrast better global knowledge

- Saba Ashraf completed MPhil Economics Agriculture University of Faislabad, Pakistan. E-mail: [saba99479@gmail.com](mailto:saba99479@gmail.com)
- Muhammad Arham khan is currently pursuing MPhil Public policy in PIDE University Islamabad, Pakistan E-mail: [Arhamkhansherwani@live.com](mailto:Arhamkhansherwani@live.com)
- Sidra Haroon is currently pursuing MPhil economics IUB Bahawalpur, Pakistan E-mail: [siddra0786@gmail.com](mailto:siddra0786@gmail.com)

concerning gender related problems, it is a depressing truth that no state has power to remove the gender disparity in term of their culture and societies (Saadia and Augusto, 2005).

Gender disparity can weaken the many development aims. First gender differences in schooling and approach to resources can cause to reduce fertility rates child mortality rates and stop to increase in education level for upcoming generation.

A country cannot progress without investing in schooling of females. Schooling contributes a multidimensional. It may participate towards increasing economic growth in one side, and on other side productivity. Thus human capital is very important in increasing economic progress of many nations. The idea of human capital first given in the late 1950s, there are large material on participation of education in economic progress (Kakar et al, 2011; Hanushek and Kimko, 2000). Education sharply increases economic growth by increasing human capital. Further it also promote economic progress by decreasing disparity through upgrading in materialistic and social capital of the society. It means that human capital is a key to increase economic progress and advancement. The better participation of human capital is beneficial through education that enhances the economic growth. If a knowledgeable person earn more than non-educated, the same should be true for countries as well (Gylfason and Zoega, 2003).

Gender is a common factor that effect both males and females. The women are more vulnerable because of their inferior role in society. In an article universal declaration of human rights in all field of life all human being should be treated equally because all living things are born free.

### **Overview of Gender Inequality in Pakistan:**

The land of Pakistan is 803,940 square kilometers, India is located in the southeast and east, in southwest is located Iran, Afghanistan is in north of Pakistan, and in south Arabian sea is located. Pakistan is consists of two territories like Islamabad and provinces like Baluchistan, Punjab, Sindh and Khyber Pakhtunkhwa. The most famous is Punjab and its population is 148.4 which is half of total population. Although the language of people's are Balochi, Punjabi, Urdu, Pashto, Saraiki and sindhi and many others that reflects the traditional and cultural norms. But 10 to 15% population are engaged with urdu, punjabi, sindhi, pashto and saraiki. The occupation of peoples of Pakistan is agriculture that is 60% in rural areas and other remaining with forestry, fishing and business.

In 1998 population survey report, the gender ratio (female to male ratio in survey) is 108 men for each 100 women. The gender ratio normally employ like an indicator of gender gap in community, reason that it shows gender gap in death cases. Great gender ratio shows that death of unmatured girls or women. The census report also shows the women access to resources which is poor. The gender ratio of women in Pakistan is 106 and for men are 108. Sen also talk about missing women in the country. In global the men ratio is 95-98% for each 100 women (Sen, 2001).

Gender ratio in Pakistan is very low in term of treatment of women after giving birth. Females in Pakistan start to giving birth of children at very early age, because of marriage of girls at very young age. The fertility level in Pakistan is increased in the beginning of 1990s.

### **OBJECTIVES OF THE STUDY:**

The main objective of this study is to explore the impact of gender gap on economic growth. Various factors determine the gender inequality which in turn can influence the performance of the economy in many form and manifestations. Specific objectives are:

- To investigate the impact of gender inequality (either in education or employment or both) on economic growth in case of Pakistan.
- To provide relevant suggestions for policy makers to address issues of inequality among genders.

### **REVIEW OF LITERATURE**

- Saba Ashraf completed MPhil Economics Agriculture University of Faisalabad, Pakistan. E-mail: [saba99479@gmail.com](mailto:saba99479@gmail.com)
- Muhammad Arham khan is currently pursuing MPhil Public policy in PIDE University Islamabad, Pakistan E-mail: [Arhamkhansherwani@live.com](mailto:Arhamkhansherwani@live.com)
- Sidra Haroon is currently pursuing MPhil economics IUB Bahawalpur, Pakistan E-mail: [siddra0786@gmail.com](mailto:siddra0786@gmail.com)

Seguino (2000) stated that there is a positive connection among progress and sex disparity in salaries. Seguino observed that females remain inclined toward lesser earnings occupations. Providing that sex disparity in schooling tends to be connected with greater earning disparity, each may also imagine a positive connection among returns to progress and inequalities among males and females in approach to education. The study is also related with the connection among sex disparity and income per capita in progressive nations. It is also associated with instrumental effects of gender disparity in schooling. In his estimation he used the data of 41 sample from sub-Saharan African (SSA), north African and middle eastern nations and also run ordinary least square method (OLS).

Toor (2000) stated the function of govt for lowering the gender gap in schooling. Educational strategy from 1998 to 2010 set a goal for achieving the 90% enrollment, 5 to 9 year old children through the use of existing resources. Nevertheless, the target have not been attained because of poor administration, low education of parents and inadequate use of existing resources that reduced the girls enrollment than to boys enrollment e.g. 35% is girls enrolment level and 59% for boys. The cause for this is that sons preference over girls is greater, due to boys are consider as future financial support of their parents in old ages.

Naqvi and Shahnaz (2000) explored the upshot of dissimilar demographic, human capital and socio economic linked factors on the decisions of females to enter into the labor force and added that the educated women of the family can easily take decision to seek employment as compared to uneducated women. The literate females have better capacity to take decision and right decisions.

Stromquist (2001) Found that poverty and its insinuation for schooling in Latin America. The literature investigated the different features of national and international policy method and sex schooling discrimination in society. He provides detail on policies that are accepted by the latin America, govt were sex sightless. Although the issue of sex inequality in schooling achievements and approach is stay present. Poverty appear in Latin America particularly in rural areas due to several enduring factors. This policy provides detail of pupils in education.

Klasen (2002) studied the influence of sexual differences on economic progress by using the sum of years in education of men and the relation of both men and women schooling as the changeable factors seize the consequences of sexual differences. Such factors are used in primary stages (in 1960) and also in variations. The final changeable factor is the men and women relation of the complete progress in the period of schooling among 1960 and 1990. The estimation of the data doable by employing the instrumental changeable factors.

Black and Brainerd (2004) attempted to check the model of becker, for lowering the sex gap because gender gap spread in all over the world and it described that converged industries uncovered to worldwide forces would have to go away the expensive gap to handle through increasing rivalry. The aim of their research have to know the sex wage discrimination among rivalry industries, from the period of 1976 to 1993. This research estimated that higher trade upward the wage disparities of unskilled personnel on the other side females can get advantage by lowering the gap in industries.

## Materials and methods

### Data Description

The research is conducted to analyze an economic evaluation of the nexus between gender inequality and economic growth in Pakistan. Annual time series data has been used in this research for the duration 1985 to 2015. Employing regression on the time series data, provide surprising consequences due to the occurrence of non stationary of such data. The data of this research has been taken from various economic surveys of Pakistan, Pakistan bureau of statistics, education statistics of Pakistan and State Bank of Pakistan. Data on various variables such as rate of economic growth, employment rate (both male and female), labor force participation rate and literacy rate may be used for this study. The data on GDP growth is taken from economic survey of Pakistan and from World Bank (WB) on Pakistan economy from (1985 to 2015). The data on female to male labor force participation rate are

- Saba Ashraf completed MPhil Economics Agriculture University of Faisalabad, Pakistan. E-mail: [saba99479@gmail.com](mailto:saba99479@gmail.com)
- Muhammad Arham Khan is currently pursuing MPhil Public policy in PIDE University Islamabad, Pakistan E-mail: [Arhamkhansherwani@live.com](mailto:Arhamkhansherwani@live.com)
- Sidra Haroon is currently pursuing MPhil economics IUB Bahawalpur, Pakistan E-mail: [siddra0786@gmail.com](mailto:siddra0786@gmail.com)

collected from various labor force surveys of Pakistan economy. Gender parity index (GPI) are contain from various education statistics surveys of Pakistan, ratio of female unemployment rate and ratio of male unemployment rate are contains from various employment statistics for the period of 1985 to 2015.

Education and employment are very important factors that upward economic growth. The objective of our research is to examine the long run connection among gender education and employment on economic growth of Pakistan. Time series data series data is employed for the duration of 1985 to 2015 for analysis and Co-integration Correlogram test Argumented Dicky Fuller test and Vector Error Correction Estimates and Granger Casuality test are used to determine the long and short run relationship of gender inequality on economic growth of Pakistan. In this study an attempt is made to determine and analyse the nexus between gender inequality and economic growth in Pakistan, also know the education and employment gender gap effect on economic growth of Pakistan. Our research also presents policy measures for to reduce gender gap in employment and education sector and its positive effect on economic growth.

## Description of Variables

### GDP growth rate:

Growth is the rate that changes the output level of any country. GDP growth rate is taken as dependent variable in our research and it is depend on independent variables. Growth rate is the % change of a particular variable with in a particular duration say given time period one year or growth rate is the change in gross domestic product from one year to another year of any country. The value of all final goods and services that can be produced in a one year with the help of its resources.

### Female to Male Labor Force Participation Rate:

Female to male labor variable use as independent variables in this study which define as % of female to male Labour Force Participation(%), model estimated by the International Labor Organization (ILO, 1995). Labour Force Participation rate is the part of economically active persons at the age of 15 or above. All the persons that offer labour for the manufacture of goods and services within the designated frame. The aim of our study is to evaluate the nexus among gender disparity and economic growth.

### GPI Literacy Rate:

GPI is taken as independent variable in this study. Literacy rate known as the men and women of a country can read , write and understand the simple sentence of their daily routine life, age involved in literacy rate is 15 or above. In contrast gender parity index is used to measure the ratio of females to males that are enrolled at primary schooling level in private and public educational sectors. Gender parity in education effects the economic growth. However due to shortages of data, data of primary level is used. The dependent variable that is earlier explained is GDP growth rate. The real GDP growth is measured with the help of dependent variables $\beta$ . A number of factors that are used in estimation called control variable.

### Ratio of Female to Male:

This shows total ratio of female to male in a country that influenced on economic growth.

Extending the estimated model by Ali (2015), the economic growth is investigated in this study by the following model:

$$Y = \beta_0 + \beta_1 FM + \beta_2 GPI + \beta_3 LFPM$$

Where Y is dependent variable which is growth rate, BIFM is total ratio of female to male  $\beta_2$ GPI is the gender parity index and  $\beta_3$ LFPM is the female labor force participation rate is the independent variable.

- Saba Ashraf completed MPhil Economics Agriculture University of Faislabad, Pakistan. E-mail: [saba99479@gmail.com](mailto:saba99479@gmail.com)
- Muhammad Arham khan is currently pursuing MPhil Public policy in PIDE University Islamabad, Pakistan E-mail: [Arhamkhansherwani@live.com](mailto:Arhamkhansherwani@live.com)
- Sidra Haroon is currently pursuing MPhil economics IUB Bahawalpur, Pakistan E-mail: [siddra0786@gmail.com](mailto:siddra0786@gmail.com)

## Empirical Results and Discussion

### Stationary of Data:

A data is said to be stationary if its mean and variance do not change or constant over time and no concern at what point we measure them that they are time invariant. The value of the covariance among the two time period depends only on the gap or lag among the two time periods and not the actual time at which the covariance is calculated. A stationary is very easy to predict that its statistical properties will be identical in the future as they had been in the past.

To explain weak stationary let  $Y_t$  is a stochastic time series with these properties:

$$\text{Mean: } E(Y_t) = \mu$$

$$\text{Variance: } \text{var}(Y_t) = E(Y_t - \mu)^2 = \sigma^2$$

$$\text{Covariance: } \gamma_k = E[(Y_t - \mu)(Y_{t+k} - \mu)]$$

Where  $\gamma_k$  the covariance at lag  $k$  is the covariance among the values of  $Y_t$  and  $Y_{t+k}$  that is between two  $Y$  values  $k$  durations apart. If  $k=0$  we obtain  $\gamma_0$ .

### Non Stationary of Data:

Non stationary process will necessarily contain permanent components. A non-stationary process or time series having a time varying mean or varying time variance or both. Non stationary of data that its mean variance change over time or do not remains constant. It is not easy to generalize. Non stationary data has no long run mean to which the series returns. The variance of non-stationary data will depend on time and will near to infinity as time goes to infinity. In general theoretical correlogram of non-stationary process will not diminish or zero due to increase in length of lag. Non stationary data cannot be predicted or forecasted. In order to receive reliable outcomes data need to be transformed into stationary data. Non stationary has two types.

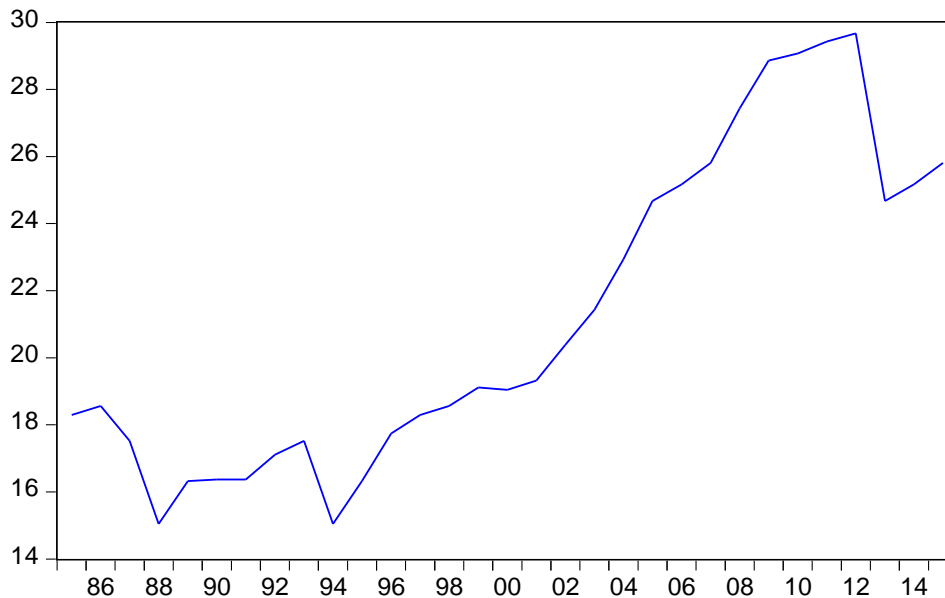
### ESTIMATION OF ECONOMETRIC MODEL:

The present study deals with the time series data from 1985 to 2015. There are a number of issues in time series data which make estimation complicated than one can do in cross sectional data. One of them is the issue of stationarity and use of ordinary least square (OLS) method for estimation. The literature on time series data shows that if time series is non stationary, then use of OLS is inconsistent and biased. It is therefore necessary to check the property of stationary before operating any estimation technique. There are a number of test which can be used for testing stationary of the time series data. However construction of correlogram and calculation of Augmented Dickey Fuller (ADF) are popular technique in the literature.

### Graph N0. 4.1. To Check Stationarity of Individual

- Saba Ashraf completed MPhil Economics Agriculture University of Faisalabad, Pakistan. E-mail: [saba99479@gmail.com](mailto:saba99479@gmail.com)
- Muhammad Arham Khan is currently pursuing MPhil Public policy in PIDE University Islamabad, Pakistan E-mail: [Arhamkhansherwani@live.com](mailto:Arhamkhansherwani@live.com)
- Sidra Haroon is currently pursuing MPhil economics IUB Bahawalpur, Pakistan E-mail: [siddra0786@gmail.com](mailto:siddra0786@gmail.com)

female / male particip rate labor force



Above variables is non-stationary because its shows trends in it.

**correlogram test:**

Variables also non-stationary because variables are away from spikes lines. Its shows non-stationary trends.

It is often observed that time series variable Ratio of Female to Male here as an example – is non stationary series, which converts into stationary stochastic process if its first difference is taken. Figure No 4.7 shows the Correlogram at first difference just to confirm the above the statement. It is interesting to see that GPI is stationary at first difference. It means that either mean or variance are changing function of time, however, if first difference is taken then at least of them (mean or variance) becomes stationary or constant over a time, which is the indication of stationary process.

**Tables 4.1:**

Variables	At level (t statistics)	At level (probability)	At 1st difference (t statistics)	At 1st difference(probability)
GDP	-3.501445	0.0150		
FEMALE__MALE_PARTICIP_R	-0.605809	0.8549	-4.865790	0.0005

- Saba Ashraf completed MPhil Economics Agriculture University of Faislabad, Pakistan. E-mail: [saba99479@gmail.com](mailto:saba99479@gmail.com)
- Muhammad Arham khan is currently pursuing MPhil Public policy in PIDE University Islamabad, Pakistan E-mail: [Arhamkhansherwani@live.com](mailto:Arhamkhansherwani@live.com)
- Sidra Haroon is currently pursuing MPhil economics IUB Bahawalpur, Pakistan E-mail: [siddra0786@gmail.com](mailto:siddra0786@gmail.com)

GPI_LITERACY	-2.046216	0.2666	-1.098255	0.0003
RATIO_OF_FEMALE_TO_MALE_	-6.184644	0.0000	-----	-----

Table No 4.1 reports the summary results of ADF test at level and first difference of all variables including all possible three options namely constant both (constant and trend) and none option. One of the objectives of the table no 4.1 is to confirm the results of Correlogram analysis using more powerful estimation techniques. The power of ADF test depends on appropriate lag length selection and appropriate option among none, constant and both.

Table No 4.1 summarizes the results of ADF tests. All reveals that all the variables are stationary at first difference and non-stationary at level however, there are some exceptional cases as well. For instance, GPI\_LITERACY and RATIO\_OF\_FEMALE\_TO\_MALE\_data are stationary at level with “both” and “none” options respectively incorporated in ADF Tests. These results are not robust in fact, when tested for all lag lengths then these results were doubtful.

On the basis of empirical results in table no 4.1 all the variables are non stationary and hence OLS cannot be used for obtaining unbiased, consistent and efficient estimates for the model developed in the chapter -4. There is one straight way which is using co-integration techniques. There are possibilities that time series may have an equilibrium long run relationship among them which OLS cannot capture in its estimates.

There are several steps for implementing Johanson co-integration technique. These steps includes estimation of appropriate Vector Auto Regression (VAR) model for an appropriate lag length, testing the existence of co-integrating relationship using Trace statistic and Maximum Eign value test. Finally estimating an appropriate version of vector error correction (VECM) model and Granger Causality Test is also the part of Johanson Co-integration techniques.

Table No 4.1 represents the estimated output of VAR model<sup>2</sup>. Estimation of parsimonious VAR is the requirement of implementation of Johanson technique of estimation. In the present case one issue is directly important which is why lag length two is selected for estimating VAR model. In fact, it is very much important to know that what the optimal lag length for VAR model is because results of Johanson co-integration techniques are very sensitive to lag length of VAR model. It is therefore necessary to carry out a test of selecting appropriate lag length. This has been done and results of appropriate lag length criterion is reported in the table no 4.3.

**TABLE NO 4.2 VAR MODEL:**

Vector Error Correction Estimates  
Date: 05/26/18 Time: 12:55  
Sample (adjusted): 1988 to 2015  
Included observations: 28 after adjustments  
Standard errors in ( ) & t-statistics in [ ]

Cointegrating Eq:	CointEq1
GDP(-1)	1.000000

FEMALE\_\_MALE\_PARTICIP  
\_R(-1) 1.213589

- Saba Ashraf completed MPhil Economics Agriculture University of Faislabad, Pakistan. E-mail: [saba99479@gmail.com](mailto:saba99479@gmail.com)
- Muhammad Arham khan is currently pursuing MPhil Public policy in PIDE University Islamabad, Pakistan E-mail: [Arhamkhansherwani@live.com](mailto:Arhamkhansherwani@live.com)
- Sidra Haroon is currently pursuing MPhil economics IUB Bahawalpur, Pakistan E-mail: [siddra0786@gmail.com](mailto:siddra0786@gmail.com)

(0.13503)  
[ 8.98740]

GPI\_LITERACY(-1) -21.54959  
(3.20088)  
[-6.73239]

RATIO\_OF\_FEMALE\_TO\_MALE  
LE\_(-1) 32.99452  
(10.9038)  
[ 3.02598]

C -51.07890

Error Correction:	D(GDP)	D(FEMALE__MALE_PARTICIP_R)	D(GPI_LITERACY)	D(RATIO_OF_FEMALE_TO_MALE)
CointEq1	-0.027064 (0.21899) [-0.12358]	-0.321625 (0.15516) [-2.07289]	-0.011798 (0.00164) [-7.19800]	0.000465 (0.00486) [ 0.09568]
D(GDP(-1))	-0.301249 (0.27571) [-1.09263]	0.373153 (0.19534) [ 1.91025]	0.007392 (0.00206) [ 3.58233]	0.010476 (0.00612) [ 1.71085]
D(GDP(-2))	-0.082324 (0.25617) [-0.32137]	0.021706 (0.18150) [ 0.11959]	0.005316 (0.00192) [ 2.77276]	-0.008559 (0.00569) [-1.50452]
D(FEMALE__MALE_PARTICIP_R(-1))	-0.536296 (0.48559) [-1.10441]	0.487780 (0.34405) [ 1.41778]	0.006142 (0.00363) [ 1.68997]	-0.010709 (0.01078) [-0.99300]
D(FEMALE__MALE_PARTICIP_R(-2))	0.281900 (0.51242) [ 0.55014]	0.406424 (0.36305) [ 1.11948]	0.018993 (0.00384) [ 4.95220]	-0.010788 (0.01138) [-0.94794]
D(GPI_LITERACY(-1))	35.38942 (28.2501) [ 1.25272]	-24.30665 (20.0153) [-1.21440]	-0.541825 (0.21144) [-2.56256]	0.384456 (0.62740) [ 0.61278]

- Saba Ashraf completed MPhil Economics Agriculture University of Faislabad, Pakistan. E-mail: [saba99479@gmail.com](mailto:saba99479@gmail.com)
- Muhammad Arham khan is currently pursuing MPhil Public policy in PIDE University Islamabad, Pakistan E-mail: [Arhamkhansherwani@live.com](mailto:Arhamkhansherwani@live.com)
- Sidra Haroon is currently pursuing MPhil economics IUB Bahawalpur, Pakistan E-mail: [siddra0786@gmail.com](mailto:siddra0786@gmail.com)



D(GPI_LITERACY(-2))	-5.393551 (29.2827) [-0.18419]	-33.91493 (20.7469) [-1.63470]	-1.026358 (0.21917) [-4.68299]	0.662181 (0.65033) [ 1.01822]
D(RATIO_OF_FEMALE_TO_MALE_(-1))	1.102182 (9.92021) [ 0.11110]	9.735099 (7.02851) [ 1.38509]	0.315899 (0.07425) [ 4.25464]	-0.475241 (0.22031) [-2.15710]
D(RATIO_OF_FEMALE_TO_MALE_(-2))	-8.984843 (6.95955) [-1.29101]	-0.121789 (4.93087) [-0.02470]	0.081316 (0.05209) [ 1.56110]	-0.316182 (0.15456) [-2.04565]
C	-0.496125 (0.69960) [-0.70916]	1.067884 (0.49567) [ 2.15443]	0.035869 (0.00524) [ 6.85018]	-0.011013 (0.01554) [-0.70881]

---

R-squared	0.676997	0.323073	0.796421	0.684640
Adj. R-squared	0.795050	-0.015390	0.694632	0.526959
Sum sq. resid	74.58189	37.43845	0.004178	0.036786
S.E. equation	2.035544	1.442191	0.015235	0.045207
F-statistic	0.971755	0.954529	7.824208	4.341951
Log likelihood	-53.44598	-43.79719	83.61173	53.15762
Akaike AIC	4.531856	3.842657	-5.257981	-3.082687
Schwarz SC	5.007643	4.318444	-4.782194	-2.606899
Mean dependent	-0.071429	0.296071	0.015357	0.000393
S.D. dependent	2.025939	1.431219	0.027570	0.065729

---

Determinant resid covariance (dof adj.)	1.28E-06
Determinant resid covariance	2.19E-07
Log likelihood	55.77584
Akaike information criterion	-0.841132
Schwarz criterion	1.252333

---

Above value shows that -0.49 which means that short variable move to long run variable with the speed of 49% and value of speed of adjustment is significant.

**TABLE NO 4.3: Var Lag Order Selection Criteria**

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-140.386	NA	0.354125	10.31328	10.50360	10.37146

- Saba Ashraf completed MPhil Economics Agriculture University of Faisalabad, Pakistan. E-mail: [saba99479@gmail.com](mailto:saba99479@gmail.com)
- Muhammad Arham khan is currently pursuing MPhil Public policy in PIDE University Islamabad, Pakistan E-mail: [Arhamkhansherwani@live.com](mailto:Arhamkhansherwani@live.com)
- Sidra Haroon is currently pursuing MPhil economics IUB Bahawalpur, Pakistan E-mail: [siddra0786@gmail.com](mailto:siddra0786@gmail.com)

1	-37.6756	168.7383*	0.000734*	4.119689	5.071263*	4.410594*
2	-21.3568	22.14705	0.000777	4.096912*	5.809746	4.620542
3	-6.39108	16.03466	0.001035	4.170791	6.644885	4.927146

\*indicates lag order selected by the criterion

LR: sequential modified LR test statistic (each test at 5% level)

FPE: Final prediction error

AIC: Akaike information criterion

SC: Schwarz information criterion

HQ: Hannan-Quinn information criterion

**Source: Author's Calculation using Eviews**

Table No 4.3 shows the VAR lag order selection criteria<sup>3</sup>. Akiake information criterion (AIC) is one of the most popular criterions. It tells that optimal lag length is two. However, LR, FPE, SC and HQ show that optimal lag length is one. Too more and too less lag length selection is inappropriate. In rest of the analysis, lag order two is used, based on AIC criterion.

Empirical evidence in table no 4.3 is in favor of lag order selection of two, suggests that results of VAR model given in table no 4.2 are valid. All the estimated coefficients are in accordance with economic theory.

Table No 4.4 represents trace and maximum Eigen value statistic<sup>4</sup>. Detailed results of Co-integration test are given in Appendices Trace statistic find co integrating vectors in quite different ways. For example, "none" means that there is no co-integrating relationship against alternative that there is more than one co-integrating equation. If alternative hypothesis is accepted then further another hypothesis is formulated that is there is exactly one co-integrating equation against alternative that more than one co-integrating equations and so on. The probability value corresponding to "none" of null hypothesis is significant at 5 percent level of significance which means that there is only one co-integrating equation among the variable or alternatively there is long run relationship among the four variables of interest.

<sup>3</sup> Software outputs are given in appendices VI.

<sup>4</sup> Detailed results of co-integration test are given in appendices VII.

The test of Max Eigen value is also reported in the table no 4.4. Maximum Eigen value statistic follows different way of searching co-integrating relationship among variables. It sets hypothesis in alternative ways. In case of max Eigen value statistic, the null hypothesis is no co-integrating equation against alternative of exactly one co-integrating equation. If alternative hypothesis is accepted then null of exactly one co-integrating equation is tested against alternative of exactly two co-integrating equations and so on. In present case both max. Trace and max Eigen value statistic show that there is only one co-integrating equation. The linear deterministic trend is incorporated in the co-integration test.

**Table No 4.4 Trace and Maximum Eigen value test**

- Saba Ashraf completed MPhil Economics Agriculture University of Faisalabad, Pakistan. E-mail: [saba99479@gmail.com](mailto:saba99479@gmail.com)
- Muhammad Arham khan is currently pursuing MPhil Public policy in PIDE University Islamabad, Pakistan E-mail: [Arhamkhansherwani@live.com](mailto:Arhamkhansherwani@live.com)
- Sidra Haroon is currently pursuing MPhil economics IUB Bahawalpur, Pakistan E-mail: [siddra0786@gmail.com](mailto:siddra0786@gmail.com)

Unrestricted Co-integration Rank Test (Trace Test)				
Hypothesized	Eigen value	Trace	0.05 percent	Prob.**
No. of CE(s)		Statistic	Critical Value	
None	0.462581	29.48817	29.79707	0.0342
At most 1	0.282297	10.85884	15.49471	0.2203
At most 2	0.029809	0.907877	3.841466	0.3407
Unrestricted Co-integration Rank Test (Maximum Eigen value Test)				
Hypothesized	Eigen value	Max-Eigen	0.05 percent	Prob.**
No. of CE(s)		Statistic	Critical Value	
None	0.462581	18.62933	21.13162	0.1081
At most 1	0.282297	9.950965	14.26460	0.2152
At most 2	0.029809	0.907877	3.841466	0.3407

Source: Author's calculation using Eviews software

Table No 4.5 represents Vector Error Correction Model (VECM) <sup>5</sup>. It contains short run effects of different variables on log of household saving. If VECM term is negative, then it means that there exists short run disequilibrium in the model which reverts back to equilibrium level in the model. The "VECM" term is negative in case of log of household saving in the model. It shows that if there is any short run disequilibrium in the model, 76.75 % restores back to equilibrium in the current year.

All the variables household savings, per capita income, CPI and interest rate have correct theoretical signs except few of them. Starting with the one and two years lag effects of household's saving on current household's saving is negative. It means that if household's saving increases this years, it will falls in next year. This type of relationship may describe our social behavior. It is a common phenomenon that if there is higher liquidity in current year, there may be less liquidity in future because it will induce people to prefer consumption rather saving.

TABLE NO 4.5 Vector error correction (VECM) model

Error Correction:	D(GDP)	D(FEMALE__MALE_PARTICIP_R)	D(GPI_LITERACY)	D(RATIO_OF_FEMALE_TO_MALE_)
VECM term	-0.767581	4.374912	29.08265	0.315990
	(0.46142)	(3.20299)	(7.91024)	(0.15742)

- Saba Ashraf completed MPhil Economics Agriculture University of Faisalabad, Pakistan. E-mail: [saba99479@gmail.com](mailto:saba99479@gmail.com)
- Muhammad Arham khan is currently pursuing MPhil Public policy in PIDE University Islamabad, Pakistan E-mail: [Arhamkhansherwani@live.com](mailto:Arhamkhansherwani@live.com)
- Sidra Haroon is currently pursuing MPhil economics IUB Bahawalpur, Pakistan E-mail: [siddra0786@gmail.com](mailto:siddra0786@gmail.com)

	[-1.66353]	[ 1.36589]	[ 3.67658]	[ 2.00727]
D(GDP(-1))	-0.371585	-1.86957	-20.5228	-0.31382
	(0.36925)	(2.56318)	(6.33014)	(0.12598)
	[-1.00633]	[-0.72940]	[-3.24208]	[-2.49106]
D(GDP(-2))	-0.107154	-2.830984	-7.96407	-0.066
	(0.28416)	(1.97256)	(4.87152)	(0.09695)
	[-0.37708]	[-1.43518]	[-1.63482]	[-0.68075]
D(F/M partict(-1))	-0.045323	0.203558	1.912055	0.008452
	(0.03393)	(0.23551)	(0.58162)	(0.01157)
	[-1.33591]	[ 0.86434]	[ 3.28748]	[ 0.73019]
D(F/M partict (-2))	0.010780	0.054375	0.023159	0.017318
	(0.03377)	(0.23441)	(0.57892)	(0.01152)
	[ 0.31922]	[ 0.23196]	[ 0.04000]	[ 1.50318]
D(GPI(-1))	0.001437	-0.016839	-1.14621	-0.00777
	(0.01580)	(0.10965)	(0.27079)	(0.00539)
	[ 0.09095]	[-0.15357]	[-4.23283]	[-1.44105]
D(GPI(-2))	-0.006186	-0.133484	-0.83493	-0.00917
	(0.01432)	(0.09939)	(0.24546)	(0.00489)
	[-0.43206]	[-1.34300]	[-3.40144]	[-1.87605]
D(Ratio(-1))	-0.273985	4.278960	27.54174	0.319723
	(0.73239)	(5.08400)	(12.5557)	(0.24987)

- Saba Ashraf completed MPhil Economics Agriculture University of Faislabad, Pakistan. E-mail: [saba99479@gmail.com](mailto:saba99479@gmail.com)
- Muhammad Arham khan is currently pursuing MPhil Public policy in PIDE University Islamabad, Pakistan E-mail: [Arhamkhansherwani@live.com](mailto:Arhamkhansherwani@live.com)
- Sidra Haroon is currently pursuing MPhil economics IUB Bahawalpur, Pakistan E-mail: [siddra0786@gmail.com](mailto:siddra0786@gmail.com)

	[-0.37410]	[ 0.84165]	[ 2.19357]	[ 1.27955]
D(Ratio (-2))	-0.271749	6.233672	1.343161	-0.07424
	(0.72225)	(5.01362)	(12.3819)	(0.24641)
	[-0.37625]	[ 1.24335]	[ 0.10848]	[-0.30130]
C	0.243671	-0.580134	1.309640	0.137342
	(0.10407)	(0.72241)	(1.78411)	(0.03551)
	[ 2.34141]	[-0.80305]	[ 0.73406]	[ 3.86815]
R-squared	0.618457	0.351625	0.668207	0.479163
Adj. R-squared	0.427685	0.027438	0.502310	0.218745
Sum sq. resids	0.389387	18.76307	114.4388	0.045324
S.E. equation	0.147080	1.020976	2.521450	0.050180
F-statistic	3.241871	1.084635	4.027853	1.839976
Log likelihood	20.12513	-34.12588	-59.44	50.23540
Akaike AIC	-0.723224	3.151849	4.959998	-2.87396
Schwarz SC	-0.247436	3.627636	5.435785	-2.39817
Mean dependent	0.119056	-0.093214	0.250000	0.108127
S.D. dependent	0.194418	1.035278	3.574135	0.056772

Source: Author's Calculation using Eviews 9 software

Economic theory states that there is positive relationship between GDP and FEMALE\_\_MALE\_PARTICIP\_R. However, there is negative effect of FEMALE\_\_MALE\_PARTICIP\_R at lag one and positive at lag second. The negative effect at lag one is not observed in economic theory. This seems to be specification problem in the above VECM model presented in the table no 4.5.

- Saba Ashraf completed MPhil Economics Agriculture University of Faisalabad, Pakistan. E-mail: [saba99479@gmail.com](mailto:saba99479@gmail.com)
- Muhammad Arham khan is currently pursuing MPhil Public policy in PIDE University Islamabad, Pakistan E-mail: [Arhamkhansherwani@live.com](mailto:Arhamkhansherwani@live.com)
- Sidra Haroon is currently pursuing MPhil economics IUB Bahawalpur, Pakistan E-mail: [siddra0786@gmail.com](mailto:siddra0786@gmail.com)

There are also negative effects of RATIO\_OF\_FEMALE\_TO\_MALE\_on GDP in Pakistan which is also theoretically incorrect sign. In theory GPI is expected to have negative effects GDP however its effect at lag one is positive which is also theoretically incorrect. In the light of these flaws a general to specific methodology is adopted to construct theoretically valid VECM model for GDP which is reported in the table no 4.6.

**TABLE NO 4.6 Granger causality test**

Dependent variable: D(GDP)			
Excluded	Chi-sq	Df	Prob.
D(FEMALE__MALE_PARTICIP_R)	1.846545	2	0.3972
D(GPI)	0.407593	2	0.8156
D(RATIO_OF_FEMALE_TO_MALE_)	0.237867	2	0.8879
All	5.738102	6	0.4532
Dependent variable: D(FEMALE__MALE_PARTICIP_R)			
Excluded	Chi-sq	Df	Prob.
D(GDP)	2.224925	2	0.3287
D(GPI)	2.609716	2	0.2712
D(RATIO_OF_FEMALE_TO_MALE_)	1.935423	2	0.3800
All	5.162047	6	0.5232
Dependent variable: D(GPI)			
Excluded	Chi-sq	Df	Prob.
D(GDP)	11.38774	2	0.0034
D(EMALE__MALE_PARTICIP_R)	10.85355	2	0.0044
D(RATIO_OF_FEMALE_TO_MALE_))	4.901214	2	0.0862
All	26.48491	6	0.0002
Dependent variable: D(RATIO_OF_FEMALE_TO_MALE_))			
Excluded	Chi-sq	Df	Prob.
D(GDP)	8.559569	2	0.0138

- Saba Ashraf completed MPhil Economics Agriculture University of Faislabad, Pakistan. E-mail: [saba99479@gmail.com](mailto:saba99479@gmail.com)
- Muhammad Arham khan is currently pursuing MPhil Public policy in PIDE University Islamabad, Pakistan E-mail: [Arhamkhansherwani@live.com](mailto:Arhamkhansherwani@live.com)
- Sidra Haroon is currently pursuing MPhil economics IUB Bahawalpur, Pakistan E-mail: [siddra0786@gmail.com](mailto:siddra0786@gmail.com)

D(FEMALE__MALE_PARTICIP_R)	2.917284	2	0.2326
D(RATIO_OF_FEMALE_TO_MALE_)	3.627796	2	0.1630
All	15.36339	6	0.0176

Source: Author's Calculation using Eview software 9.

Table 4.6: General to specific approach to VECM for household's saving

	Coefficient	Std. Error	t-Statistic	Prob.
VECM	-0.688955	0.267483	-2.5757	0.0176
GDP(-1)	-0.432692	0.203	-2.08222	0.0497
GDP(-2)	-0.185422	0.218282	-0.84946	0.4052
FEMALE__MALE_PARTICIP_R (-2)	-0.014302	0.009725	-1.47054	0.1562
GPI_LITERACY (-2)	0.007269	0.031643	0.229704	0.8205
RATIO_OF_FEMALE_TO_MALE_ (-2)	0.266827	0.653921	-0.40804	0.6874
Constant	0.235945	0.073393	3.214837	0.0042
R-squared	0.598438	Mean dependent var		0.119056
Adjusted R-squared	0.475135	S.D. dependent var		0.194418
S.E. of regression	0.144821	Akaike info criterion		-0.81432
Sum squared resid	0.440434	Schwarz criterion		-0.48127
Log likelihood	18.40052	Hannan-Quinn criter.		-0.71251
F-statistic	4.610081	Durbin-Watson stat		1.920578
Prob(F-statistic)	0.003898			

Source: Author's calculation using Eviews software 9

The VECM term is negative in the table no 4.6 which is theoretically valid. It is significant at five percent level of probability. One year lag effect of GDP on current GDP is negative which is also significant at five percent level of significance. Its coefficient is 43 percent. It means that current increase in GDP will fall in future GDP by 43 percent. There is a negative effect of FEMALE\_\_MALE\_PARTICIP\_R at lag two on GDP, which is not statistically significant; however, it is in accordance with the

- Saba Ashraf completed MPhil Economics Agriculture University of Faisalabad, Pakistan. E-mail: [saba99479@gmail.com](mailto:saba99479@gmail.com)
- Muhammad Arham Khan is currently pursuing MPhil Public Policy in PIDE University Islamabad, Pakistan E-mail: [Arhamkhansherwani@live.com](mailto:Arhamkhansherwani@live.com)
- Sidra Haroon is currently pursuing MPhil Economics IUB Bahawalpur, Pakistan E-mail: [siddra0786@gmail.com](mailto:siddra0786@gmail.com)

theory. The effect of GPI and per  $RATIO\_OF\_FEMALE\_TO\_MALE\_$  is also positive however statistically insignificant. The value of R square and adjusted R square is 59 and 47 percent respectively. There is no major flaw in the model.

Summing up, there are evidences that there is strong relationship among GDP,  $FEMALE\_MALE\_PARTICIP\_R$ , GPI\_LITERACY and  $RATIO\_OF\_FEMALE\_TO\_MAE L RATIO$ .

### Conclusions and Policy Recommendations:

There is a need to improve the situation of females in Pakistan. For this purpose effective policy measures are required to improve the women's situation in education, employment and many others factors that can help to improve the women's situation in Pakistan. The govt should those steps that encourages the women in all sectors at all levels. The objective of our paper is to explore the nexus among gender inequality and economic growth. Our outcomes show that there is a strong relationship between gender inequality and economic growth in Pakistan. Our results suggest that there is a need to improve the condition of women in Pakistan, especially in education, employment, GPI literacy and to reduce unemployment rate in Pakistan. In our analysis show that girls face difficulty in every sector, they are ignored in many sectors. Our Results show that the average inflation in during 1985 to 2015 is 8.58 which is a single digit rate. However, there are very high and very low inflation rates in Pakistan as well. For instance, the highest inflation rate is 20.09% which is really high enough too beloved that it might be harmful for growth. Similarly lowest inflation rate from 1985 to 2015 is 3.2 which is enough low. The value of skewness suggests that distribution of inflation is positively skewed with leptokurtic distribution as value of kurtosis is greater than 3. Our findings show that negative effect of female to male labor force participation on GDP which cause to fall in GDP by 43% for the period of 1985 to 2015. Our findings also reflects that GDP affected by employment, labor force and female to male ratio and GDP falling due to these effects. All these have negative impact on economic growth. There are a number of issues in time series data which make estimation complicated than one can do in cross sectional data. One of them is the issue of stationarity and use of ordinary least square (OLS) method for estimation. The literature on time series data shows that if time series is non stationary, then use of OLS is inconsistent and biased. It is therefore necessary to check the property of stationary before operating any estimation technique. There are a number of test which can be used for testing stationary of the time series data. However construction of correlogram and calculation of Augmented Dickey Fuller (ADF) are popular technique in the literature. Figure No 4.2 shows that female/male participate rate labor force rate is non stationary series at level that is, the mean and variance and covariance of the CPI inflation series is not constant over time, rather it changes. Figure No 4.5 and 4.6 show that the correlogram of GPI at level and first difference respectively. Figure 4.5 shows that GPI rate is on stationary series at level that is the mean and variance and covariance of the GPI inflation series is not constant over time rather it changes

Govt should passes laws that are in favor of women or that encourage them in the areas of work. Skills of handicrafts provide to women at home level. Govt should provide opportunities of employment and jobs in all departments. In Pakistan females are bounded in their tribal system. In that system they have no permission of work from outside the home. Govt should provide equal opportunities to females in making laws. More funds or budget spent on females education because the contribution of females in labor activities increases the GDP per capita.

### References:

- Cagatay, N., and Erturk, k. 2004. Gender and Globalization a Macroeconomic Perspective: Working Paper No. 19, Policy Integration Department World Commission on the Social Dimension of Globalization.
- Lopez-Clarosand, A., and Saadia, Z. 2005. Women's Empowerment: Measuring the Global Gender Gap. World Economic Forum 2005.
- Löfström, A. 2009. Gender Equality, economic growth and employment. Swedish Ministry of Integration and Gender Equality.
- Saba Ashraf completed MPhil Economics Agriculture University of Faislabad, Pakistan. E-mail: [saba99479@gmail.com](mailto:saba99479@gmail.com)
  - Muhammad Arham khan is currently pursuing MPhil Public policy in PIDE University Islamabad, Pakistan E-mail: [Arhamkhansherwani@live.com](mailto:Arhamkhansherwani@live.com)
  - Sidra Haroon is currently pursuing MPhil economics IUB Bahawalpur, Pakistan E-mail: [siddra0786@gmail.com](mailto:siddra0786@gmail.com)



GOP: Pakistan Economic Survey 2012–13, Islamabad, Pakistan (2015).

Sathar, Z.A., and Kazi, S. 1997. Women's autonomy, livelihood and fertility: a study of rural Punjab. Women's autonomy, livelihood and fertility: a study of rural Punjab.

Sathar, Z.A., and Kazi, S. 2000. Women's autonomy in the context of rural Pakistan. The Pakistan Development Review, 89-110.

Jejeebhoy, S.J., and Sathar, Z.A. 2001. Women's Autonomy in India and Pakistan: The Influence of Religion and Region. Population and Development Review 27(4), 687-712.

Knowles, Stephen, Lorgelly, Paula K., and Dorian Owen, P., 2002. Are educational gender gaps a brake on economic development? Some cross-country empirical evidence. Oxf. Econ. Pap. 54 (1), 118–149.

Abu-Ghaida, D., and Klasen, S. 2004. The costs of missing the millennium development goal on gender equity. World Dev. 32 (7), 1075 –1107.

Berik, G., Rodgers, Y. M., and Seguino, S. 2009. Feminist economics of inequality development and growth. Feminist Economics, 15(3), 1–33.

Cuberes, D., and Teignier, M. 2014. Gender inequality and economic growth. A critical review. Journal of International Development, 26,260–276.

Kabeer, N., and Natali, L. 2013. Gender equality and economic growth: Is there a win-win? Institute of Development Studies Working Paper No. 417. Retrieved from <http://www.ids.ac.uk/files/dmfile/Wp417.pdf>

Seguino, S. 2000b. Accounting for Asian economic growth: Adding gender to the equation. Feminist Economics, 6(3), 27-58.

Seguino, S. 2002. Gender quality of life and growth in Asia 1970 to 1990. The Pacific Review, 15(2), 245-77.

Elson, D., Grown, C., and Çağatay, N. 2007. Mainstream, heterodox, and feminist trade theory. In I.van Staveren, D.Elson, C. Grown and N.Çağatay (Eds), The feminist economics of trade (pp. 33–52). Routledge: London and New York.

Dollar, D., and A. Kraay. 2000. Growth Is Good for the Poor. World Bank Research Department Washington, D.C.

Klasen, S. 1999. Does Gender Inequality Reduce Growth and Development? Evidence from Cross-Country Regressions. Policy Research Report Engendering Development, Working Paper No. 7. World Bank, Washington, D.C.

World Bank. 2000. World Development Report 2000/01: Attacking Poverty. New York: Oxford University Press.

World Bank. 2001. Engendering Development. Washington, D.C.

Nowak, Z, A., and Dahal, G. 2016. The contribution of education to economic growth: Evidence from Nepal. International Journal of Economic Sciences, Vol. V(2), pp. 22-41., 10.20472/ES.2016.5.2.002

Malik, S. and Courtney, K. 2011. Higher education and women's empowerment in Pakistan. Gender and Education, 23 (1),29-45.

UNICEF. 2008. The state of the world's children 2009: maternal and newborn health (Vol.9).

Schultz, Paul T., and E.D. 2002. Why governments should invest more to educate girls. World Development 30: 207-225.

Klasen, S. 2002. Low schooling for girls slower growth for all? Cross-country evidence on the effect of gender inequality in education on economic development: World Bank Economic Review, 16(3), 345-373.

Hill, M, A., and King, E, M. 1993 Women's education in developing countries: an overview, in Elizabeth M. King and M. Anne Hill (eds) Women's Education in Developing Countries: Barriers, Benefits and Policies, Baltimore: Johns Hopkins University Press, 1-50.

Hill, M.A. and King, E.M. 1995 Women's education and economic well –being. Feminist Economics 1, 21- 46

- Saba Ashraf completed MPhil Economics Agriculture University of Faislabad, Pakistan. E-mail: [saba99479@gmail.com](mailto:saba99479@gmail.com)
- Muhammad Arham khan is currently pursuing MPhil Public policy in PIDE University Islamabad, Pakistan E-mail: [Arhamkhansherwani@live.com](mailto:Arhamkhansherwani@live.com)
- Sidra Haroon is currently pursuing MPhil economics IUB Bahawalpur, Pakistan E-mail: [siddra0786@gmail.com](mailto:siddra0786@gmail.com)

- Sala-i-Martin, X. 1997. I Just Ran Two Million Regressions: American Economic Review, 87, 178-183.
- Bleaney, M. and Nishiyama. A. 2002. Exploring Growth: A Contest between Models. Journal of Economic Growth, Vol. 7, 43-53.
- Kakar, Z, K., Khilji, B.A. and Khan, M, J. 2011. Relationship between Education and Economic Growth in Pakistan: A Time Series Analysis, Journal of International Academic Research, 11(1), 27-32.
- Hanushek, E, A. and Kimko, D, D. 2000. Schooling Labor Force Quality and the Growth of Nations American Economic Review, Vol.90(5), 1184-1208.
- Gylfason, T. and Zoega, G. 2003. Education Social Equality and Economic Growth: A View of the Landscape, CESifo Economic Studies, Vol.49,(4), 557-579.
- Unterhalter, E. 2006. Measuring Gender Inequality in Education in South Asia, UNICEF, UNGEI. [www.unicef.org](http://www.unicef.org) and [www.ungei.org](http://www.ungei.org)
- Blauch, M. and S. Shahid. 2008. Measuring Gender Disparity at Primary School Level in Pakistan. International NGO Journal, 4(5), 180-189
- Rena, R. 2005. Gender Inequality in Education: An Eritrean Perspective. The Global Child General, 2, 43-45.
- Filmer, D. 2005. Gender and Wealth Disparities in Schooling: Evidence from 44 Countries. International Journal of Educational Research, 43, 351-369.
- Pandy, A. P. 2002. Gender Disparity in Education-Needs Community Participation. Paper presented at the 25th Annual Conference of the Indian Association for the Study of Population Sciences, Mumbai India February 11-13, 2002.
- Aslam, M., and Kingdon, G., G. 2008. Gender and Household Education Expenditure in Pakistan. Applied Economics, 40, 2573-2591.
- Sen, A. 2001. Many Faces Of Gender Inequality. Frontline, Volume 18 -Issue 22, Oct. 27 -Nov. 09.
- Zissis, C. 2007. Pakistan's Uneven Push for Women. Analysis brief, Council for Foreign Relations, March 1<sup>st</sup> 2007.

- Saba Ashraf completed MPhil Economics Agriculture University of Faislabad, Pakistan. E-mail: [saba99479@gmail.com](mailto:saba99479@gmail.com)
- Muhammad Arham Khan is currently pursuing MPhil Public policy in PIDE University Islamabad, Pakistan E-mail: [Arhamkhansherwani@live.com](mailto:Arhamkhansherwani@live.com)
- Sidra Haroon is currently pursuing MPhil economics IUB Bahawalpur, Pakistan E-mail: [siddra0786@gmail.com](mailto:siddra0786@gmail.com)