Analyzing the Impact of Gender Inequality on Economic Development in Pakistan: ARDL Bound Test Cointegration Analysis

Nabila Khurshid[1]*, Asma Fiaz[2], Jamila Khurshid[3]

[1]Department of Economics, Comsats University, Islamabad, Pakistan, [2]School of Economics, Quaid-e-Azam University, Islamabad, Pakistan, [3]Department of Management Sciences, University of Poonch, Azad Kashmir, Pakistan. *Email: nabilakhurshid@comsats.edu.pk

ABSTRACT

This research explores the issue of gender discrimination and offers its solutions with reference to Pakistani context. A time series data from the period of 1990 to 2016 was used in this study. Dependent variable is GDP growth rate whereas independent variables are gender inequality index (GII), term of trade (TOT), literacy rate (Lit), interest rate (CMR), inflation (wpi) and female access to higher education (HE). For time series we check stationarity of data by employing unit root test which showed that series have mixed level interrogation, so, ARDL technique for best possible estimation. This has highlighted the long run relationship between inequality and economic growth in Pakistan. The results indicate that gender inequality and economic growth are inversely related to each other. Further results revealed that Literacy rates, Interest rate and inflation rate are negatively and significantly related to economic development while female access to higher education was found to have positive and significant impact while terms of trade have negative and insignificant impact on economic development.

Keywords: Economic Development, Gender Inequality, Gender Inequality Index, Pakistan
JEL Classifications: O1, O2, O4, O5

1. INTRODUCTION

Reducing gender inequality and women empowerment is one of United Nations' Sustainable Development Goals (SDGs) and it is on almost every nation's public policy agenda. In most developing countries and even within the developed world, gender inequality is observed (United Nations Development Programme, 2010; World Bank, 2001). Reducing current gender differences may be a problem for social scientists and economists not only because of their associated dimensions of well-being, but also because they have other economic consequences. Gender inequalities in education may prevent lower birth levels, morbidity rates (Summers, 1994; Murthi et al., 1995; Hill and King, 1995) and may even have negative effects on education and health for children (Lagerlof, 1999).

Gender inequality have both direct and indirect effects on economic growth and are intensively explored in literature (Hill and King, 1995; Klasen, 1999; Seguino, 2000; Klasen, 2002; Salatin and Shaaeri, 2015). As an immediate consequence of gender discrimination, investment in children's education by a household will be skewed in favor of boys' education and if girls are more competent and skilled than boys then this investment will be viewed as a case resource misallocation. It would result in reduction of qualities of human capital and as a result the role of human capital in economic process will slow down the economic development (Klasen, 2006; Knowles et al., 2002).

Gender inequality in education, health and employment is found to be a common trait in developing countries. In south Asia, women

are confronted with greater mortality rates as compare to men, a phenomenon, Amartya Sen rightly calls "*missing women*" (Sen, 1989; Klasen and Wink, 2002).

In Pakistan gender discrimination has arisen as a serious problem. Though the issue is conspicuous at different social, political, and anthropological levels; it is very important to investigate its economic effect on Pakistan's expansion and growth. Assessing the status of women in Pakistan requires calculating different measures in the fields of science, economics, society, and politics and compare these factors with men of comparable items, showing progress and development of states, and determining their position relative to other countries at global and regional level. Women education is necessary for reducing the gender gap and it would also promote growth, higher employment, and hence better wages. Educated women can play a vital role in improving their children's health and education and hence boost economic development.

Recently economists' keenness to consider the impact of gender inequality on economic growth has risen. Feminist researchers have also explored the dynamics of gender inequality. They have investigated how gender discrimination can affect economic growth and have shown how gender gap can be reduced by supporting employment opportunities. There is enough research indicating a large gap in development between male and female sections of society in Pakistan (Pervaiz et al., 2011). Pakistan is therefore offering an important case study to examine the impact of gender inequality on the economic cycle.

A substantial amount of work has been carried out to expose the effects of gender discrimination on economic growth. Lagerlof (1999) discovered the positive impact female education has on economic growth through the use of overlapping generation framework. Likewise, Klasen (1999) and King et al. (2008) found that gender discrimination has a negative effect on economic development as it reduces the amount of qualified female human resources. Baldwin and Johnson (1992) demonstrate that wage differential, reduces female contribution in labor market. It will also affect household fertility decision. Esteve-Volart (2009) have found direct positive relationship between female employment and economic development.

Despite all the research on the dynamics of gender inequality, the results are still inconclusive. So, it is the need of the time to investigate further. Moreover, previous studies considered different dimensions of inequality such as education differential, wage gap, and employment gap as proxies for gender inequality. This research however uses extensive technique for gender inequality; gender inequality index. The objectives of such an exercise can be as follows

- To estimate the short-term and long-term impact of gender inequality on Economic development.

Hypothesis

- H_0: There is no long-term impact of gender inequality on economic development

- H_1: There is long-term impact of gender inequality on economic development
- H_0: There is no short-term impact of gender inequality on economic development
- H_1: there is short-term impact of gender inequality on economic development.

2. EMPIRICAL MODEL, DATA AND ESTIMATION PROCEDURE

2.1. Description of Data
The study uses data from the 1990 to 2019 time series. GDP data, terms of trade, interest rates, literacy rates, women's higher education were obtained from WDI, and Pakistan's economics survey, while the index of gender inequality was calculated based on the UNDP developed index. The Data was analyzed using Eviews version 10.

2.2. Econometric Model
An ARDL is method in which lags are included for illustrative variables. A typical ARDL representation is ARDL $(p,q_1,\ldots,q_k)$, p shows dependent variable lags whereas q represents independent variable lags. General form of ARDL linear time series model representation is as follows:

$$zt_t = \mathfrak{y} + \sum_{i=1}^{p}\Omega_i z_{t-i} + \sum_{j=1}^{k}\sum_{i=0}^{q_j} w_{j,t-i}\alpha_{j,i} + \epsilon_t \quad (1)$$

Where
z_t = dependent variable and
$w_t,\ldots,w_k$ = k explanatory variables

Ω_i and $\alpha_{j,i}$ are coefficients of lagged z_t and $w_{j,t-i}$ respectively. ϵ_t is innovation term. The pre-requisite for ARDL model is the determination of lag length for each variable.

To find the long run relationship between variables the representation of ARDL model is as follows.

$$\theta_j = \frac{\sum_{i=1}^{k}\hat{\alpha}_{j,i}}{1-\sum_{i=1}^{p}\Omega_i} \quad (2)$$

The eq(1) is transforming into differences form and replacing into long run coefficient of eq(2) so the coefficient of long run form is as:

$$\Delta z_t = -\sum_{i=1}^{p-1}\Omega_i^{*}\Delta z_{t-1} + \sum_{j=1}^{k}\sum_{i=0}^{q_j-1}\Delta w_{j,t-i}\alpha_{j,i}^{*} - \varnothing EC_{t-1} + \epsilon_t \quad (3)$$

where

$$EC_t = z_t - \alpha - \sum_{j=1}^{k} w_{j,t}'\hat{\theta}_j + \epsilon_t \quad (4)$$

$$\hat{\varnothing} = 1 - \sum_{i=1}^{p} \hat{\Omega}_i$$

$$\Omega_i^* = \sum_{m=i+1}^{p} \hat{\Omega}_m$$

$$\alpha_{j,i^*} = \sum^{q_j} \alpha_{j,m}$$

For testing the long run relationship among variablesthe bound test developed by Pesaran et al. (2001) was used. The procedure of bound test converts cointegrating equation (3) in the following form:

$$\Delta z_t = -\sum_{i=1}^{p-1} \Omega_i^* \Delta z_{t-1} + \sum_{j=1}^{k} \sum_{i=0}^{q_j-1} \Delta w_{j,t-i} \alpha_{j,i^*}$$

$$-\eta z_{t-1} - \alpha - \sum_{j=1}^{k} w_{j,t-i} \delta_j + \epsilon_t$$

(5)

As the following test used to show the existence of level relationships:

$$\eta = 0$$

$$s_1 = s_2 = \cdots = s_k = 0$$

The test used the coefficient estimates of the regression eq (1) or it can be obtaining by directly estimate the eq(5).

2.3. Description of Independent Variables Included in the Model

2.3.1. Terms of trade (TOT)
Trade has a profound effect on economic development. In the present research Trade terms (TOT) is used to represent the ratio between the export prices of a country and the import prices of that country.

2.3.2. Literacy rate (Lit)
For current research the literacy rate, total youth (percentage of people aged 15-24) is used.

2.3.3. Interest rate (CMR)
Interest rate effect investment decisions. Which in turn effect employment level resulting into the growth of economy. In this interest rate is proxy by call for money rate.

2.3.4. Inflation rate (wpi)
Inflation rate affects Economic Development growth in the economy. There are different proxies used for inflation. The wholesale index serves as the economic proxy for inflation.

2.3.5. Female access to higher education (HE)
Education is central to economic growth. University level education for females is used as proxy for female access to higher education.

2.3.6. Gender inequality index (GII)
Gender equality is an International policy principle known both for its inherent and instrumental standards. GII value varies from zero to one. Zero represent perfect equality prevails while one represents perfect inequality. The following Figure 1 shows the GII components and how these are calculated.

Gender inequality index based on a previously used measure of inequality such as gender-related index and gender empowerment. By keeping in view the limitation of prevously used measures (GDI and GEM), in 2010 HDR introduces new measure i.e. GII.. Key innovation of GII are as
i. It measures gender disparities in most important dimension i.e. women empowement, reproductive health and political participation
ii. In one synthetic index combination of empowerment and development it detentions these dimensions reflect important complementarities
iii. GII is combination of GDI and GEM element. Income is the most controversial element in these tools. These tool combine

Figure 1: Index diamension (author's own creation)
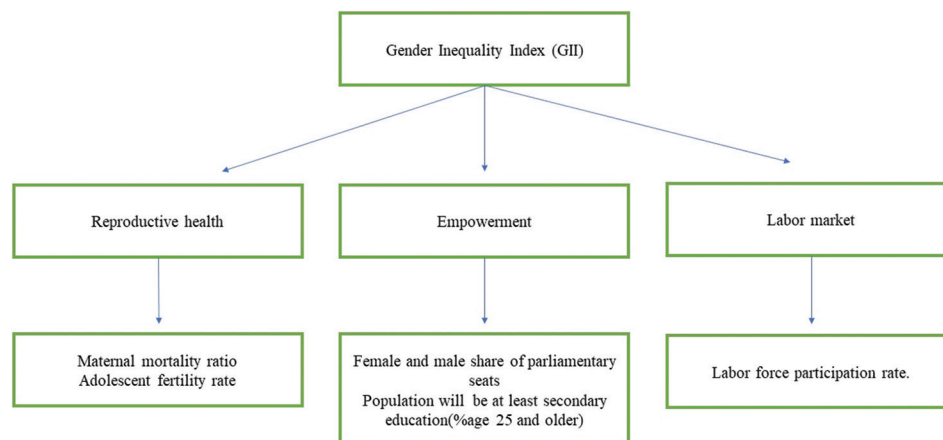
absoulte and relative achivements due to this country with low absoulte income see poorley while they have perfect gender equality, while GII is not used used income element due to contrversal element.

2.3.7. Indicator-diamension

Gender inequlity index measures discrimination between men and women in three dimensions i.e. reproductive health (Ratio of maternal mortality and adoloscent fertility), empowerment (Considered the proportion of males and females in parliamentary seats and the number of males and females under the age of 25 years with attainment of secondary and higher education) and labour market (We used female to male ratio according to participation in labor market) (UNDP, 2010).

Step 1: Firstly, extreme value and zero are treated.

Based on normative theory, the maternal mortality ratio is reduced to a minimum and maximum value of 10 and 1000, respectively. The economies where no female parliamentary representation is assigned value as 0.1 to avoid the geometric mean problem.

Step 2: Secondly aggregation across dimension by using geometric mean in each group is as follows

$$G_F = \sqrt[3]{\left(\frac{1}{MMR} \cdot \frac{1}{AFR}\right)^{\frac{1}{2}} (PR_F.SE_F)^{\frac{1}{2}}.LFPR_F}$$

For women and girls, the aggregation formula is and for men and boys the formula is

$$G_M = \sqrt[3]{1.(PR_M.SE_M)^{\frac{1}{2}}.LFPR_M}$$

Step 3: Thirdly we used harmonic mean for aggregation across gender groups.

To generate equally distributed index, Male and female indices are aggregated as follows

$$HARM(G_F, G_M) = \left[\frac{(G_F)^{-1} + (G_M)^{-1}}{2}\right]^{-1}$$

Step 4: Computing geometric mean of each indicator of arithmetic mean.

After giving equal weights to male and female indices to compute inequality aggregating across dimensions as

$$G_{\bar{F},\bar{M}} = \sqrt[3]{\overline{Health}.\overline{Empowerment}.\overline{LFPR}}$$

$$\overline{Health} = \frac{\left(\sqrt{\frac{1}{MMR} \cdot \frac{1}{AFR}} + 1\right)}{2}$$

$$\overline{Empowerment} = \frac{\left(\sqrt{PR_F.SE_F} + \sqrt{PR_M.SE_M}\right)}{2}$$

$$\overline{LFPR} = \frac{LFPR_F + LFPR_M}{2}$$

Step 5: Finally computing the index (GII) as

$$1 - \frac{Harm(G_F, G_M)}{G_{\bar{F},\bar{M}}}$$

3. RESULTS AND DISCUSSION

3.1. Stationarity Tests

The Augmented Dickey-Fuller (ADF) test is used to check series stationarity and the results are shown in Table 1. Results show that data were not stationary except for GDP which is stationary at level. Nonetheless, the first series difference (Table 2) indicates that all variables except GDP were stationary at first difference indicating that all of them were integrated in order 1.This is evident that the series were integrated at different levels, therefore auto regressive lagged (ARDL) bound test approach proposed by Engle and Granger (1987) is considered an appropriate model for long run relationship analysis between series.

Table 1: ADF test at levels of variables

	GDM	MGI	LTOT	EUL	WPI	CMR	LIT
With constant							
t-Statistic	−4.515	−1.207	−0.960	−0.033	−4.163	−2.221	−1.100
Prob.	0.002	0.657	0.754	0.948	0.003	0.203	0.702
	***	n0	n0	n0	***	n0	n0
With constant and trend							
t-Statistic	−4.383	−1.601	−1.370	−2.526	−4.036	−2.183	−1.694
Prob.	0.010	0.768	0.848	0.314	0.020	0.481	0.728
	***	n0	n0	n0	**	n0	n0
Without constant and trend							
t-Statistic	−1.146	−2.034	−1.779	1.388	−1.175	−0.253	2.244
Prob.	0.223	0.042	0.072	0.955	0.214	0.586	0.993
	n0	**	*	n0	n0	n0	n0

a: (*) Significant at the 10%; (**) Significant at the 5%; (***) Significant at the 1% and (no) not significant

Table 2: ADF test at first difference of variables

	d(GDP)	d(GII)	d(TOT)	d(HE)	d(WPI)	D(CMR	d(LIT)
With constant							
t-Statistic	–6.024	–5.815	–4.768	–4.227	–6.916	–4.564	–5.504
Prob.	0.000	0.000	0.001	0.003	0.000	0.001	0.000
	***	***	***	***	***	***	***
With constant and trend							
t-Statistic	–5.892	–5.830	–4.731	–3.576	–6.741	–4.427	–7.404
Prob.	0.000	0.000	0.004	0.056	0.000	0.008	0.000
	***	***	***	*	***	***	***
Without constant and trend							
t-Statistic	–6.142	–5.254	–4.427	–3.311	–7.049	–4.643	–4.541
Prob.	0.000	0.000	0.000	0.002	0.000	0.000	0.000
	***	***	***	***	***	***	***

a: (*) Significant at the 10%; (**) significant at the 5%; (***) significant at the 1% and (no) not significant

Table 3: VAR lag order selection criteria

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-642.7891	NA	3.39E+11	46.41351	46.74656	46.51532
1	-514.1093	183.8283*	1.28e+09*	40.72209	43.38650*	41.53663*
2	-463.2756	47.20266	2.40E+09	40.59112*	45.58688	42.11837

Table 4: ARDL bound test for cointegration

F-bounds test null hypothesis: No level relationship				
Test statistic	**Value**	**Signif. (%)**	**I(0)**	**I(1)**
F-statistic	6.719645	10	1.99	2.94
k	6	5	2.27	3.28
		2.50	2.55	3.61
		1	2.88	3.99

Table 5: Long run estimates

Variable	Coefficient	Std. Error	t-Statistic	Prob.
GII	–1.434	0.372	–3.859	0.002
TOT	0.705	1.161	0.608	0.552
HE	0.004	0.001	4.344	0.001
WPI	–0.140	0.030	–4.740	0.000
CMR	–0.337	0.051	–6.601	0.000
LIT	–0.227	0.038	–6.040	0.000
C	22.258	5.753	3.869	0.002

3.2. Lag Length Criteria

Akaike information criterion (AIC) was used for appropriate lags selection for ARDL model. The results of AIC which are presented in Table 3 shows that two lags are optimal lag for this model. The Selected Model is ARDL (2, 1, 0, 0, 1, 1, 1).

3.3. ARDL Co-integration Test

ARDL bound test is used to test cointegration presence among series. The results of the bound tests are shown in Table 4. These results show that, at 1 percent, 5 percent and 10 percent respectively, the computed F-statistics (6.719) was greater than the F-critical value. So, these results lead towards rejection of null hypothesis. The existence of cointegration between the series leads to the estimation of the short-run and long-run relationship between gender inequality and other supporting variables on the country's economic development.

3.4. Empirical Results

The results of short and long-run estimates of gender inequality and other factors affecting economic growth were presented in Tables 5 and 6 respectively , based on ARDL.GII, WPI, interest rate, female higher education and literacy rate are revealed as highly significant both in long-run and short-run while TOT is insignificant both in Long run and short-run. The rate of growth of all variables has negative effects on economic development.

The link between gender inequality and economic growth remains inconclusive. Some scholars say that gender inequality has a positive

Table 6: Shor-run estimates

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	45.715	13.465	3.395	0.004
GDP(–1)*	–2.054	0.340	–6.043	0.000
GII(–1)	–2.945	0.673	–4.376	0.001
TOT**	1.449	2.343	0.618	0.546
HE**	0.007	0.002	3.798	0.002
WPI(–1)	–0.287	0.066	–4.369	0.001
CMR(–1)	–0.692	0.181	–3.826	0.002
Lit(–1)	–0.466	0.082	–5.671	0.000
D(GDP(–1))	0.348	0.169	2.061	0.057
D(GII)	–1.014	0.582	–1.741	0.102
D(WPI)	–0.148	0.041	–3.632	0.003
D(CMR)	–0.370	0.112	–3.306	0.005
D(Lit)	–0.229	0.093	–2.457	0.027
CointEq(–1)*	–2.054	0.231	–8.879	0.000

relationship with economic growth (Hill and King 1995), while other indicate that relation is negative. Gender inequality has a negative and highly significant effect on economic development, based on the findings reported in Table 5 (Pervaiz et al., 2011). The long run coefficient value of 1.43 for GII shows that economic growth will decrease by 1.43 when gender inequality increases by 1 unit. Therefore, it is found that gender discrimination has impeded economic growth in terms of human resource deficiencies and the absence of talented girls who could perform better than their male counterparts. Similarly, I unit increase in WPI, Interest rate and literacy rate has been found to reduce economic growth by 1.140,0.337 and 0.227 respectively while

Figure 2: Plot of cumulative sum of recursive residuals

Figure 3: Plot of cumulative sum of squares of recursive residuals
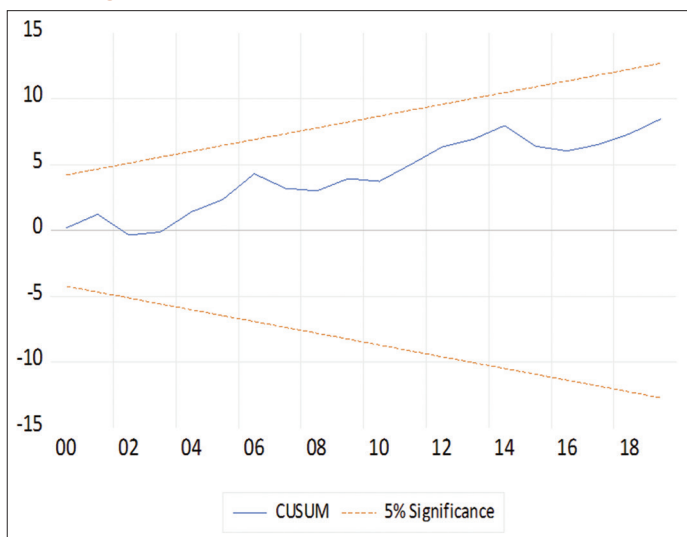
one unit increase in TOT, and higher education increases the economic growth by 0.705 and 0.004 units respectively.

While in Short run (Table 6), one unit increase in GII, WPI, Interest rate and literacy rate have negatively impacted the GDP by 2.945, 0.287, 0.692 and 0.466 units, respectively. Whereas TOT and female access to higher Education have had posted a positive impact on GDP by 1.449 and 0.007 units, respectively.

3.5. Diagnostic Tests

The CUSUM and CUSUMsq tests show the stability of variables of the projected model. The graph of CUSUM and CUSUMsq for current model are reported in Figures 2 and 3 respectively which revealed that the parameters of estimated model are stable and within the limits of stability. It therefore follows that current model does not have any econometric issues.

4. DISCUSSION

The issue of gender discrimination has been debated widely both among scholars and policymakers. Where it has picked up conspicuousness as a theme of concern on inherent grounds, the economists have as of late embraced the application of gender equality as a macroeconomic component. The issue of gender inequality therefore ought not to be seen from the perspective of equality but also because its instrumental significance for economic development.The present study is conducted with the aim of exploring the link between gender inequality and economic growth in Pakistan through the use of new gender inequality technique, i.e. the UNDP-developed gender inequality index (GII). Other supporting variables include TOT, Lit, WPI, Interest rate and female access to higher. Analysis has been done on time series data from 1990 to 2019 through ARDL Bound testing. We consider that gender inequality has an inverse relationship with economic development. In addition, current study inflation results is also supported by the literature (Ayyoub et al., 2011). The literature shows that inflation rate has a negative impact on economic development.
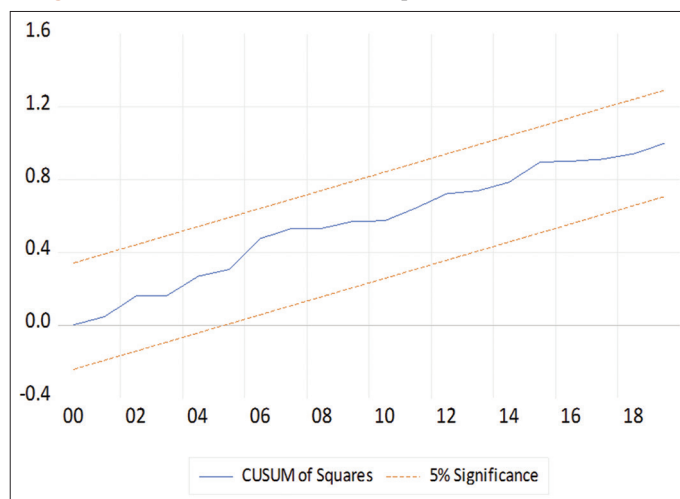
Literacy is a primary indicator of economic growth. Pakistan is among those countries where the world's lowest literacy rate exists, which is the key reason for its sluggish economy. The literacy rate in current research is statistically but negatively linked to GDP. The literacy rate in Pakistan is far from satisfactory and fares unfavourably in comparison with other nations around the world (Rehman et al., 2015).

Research results showed that Interest rate spread negative but highly significant impact on economics development (Chughtai et al., 2015).

Education is central to economic growth. The outcome of current research has shown that women access to higher education has a positive effect on Pakistan's economic development. These findings are consistent with the Aziz et al. (2008) tests. The present research indicates therefore stresses the need to boost education sector for its proven dividends for economic growth. To reduce gender discrimination in educational level will definitively improve economic growth and can achieve high standard of living in much of the rest of developing countries.

A profound effect of trade terms has been found on economic growth as trade terms have a long-term relationship with economy's production (Ghirmay et al., 2001) and both have a negative relationship with each other. If, however, there is a betterment in terms of trade, this will lead towards higher investment and hence rapid economic growth (Mendoza 1997; Blattman et al., 2003). In Current research, term of trade is found to be statistically significant and positively related to GDP.

5. CONCLUSION AND RECOMMENDATIONS

The primary objective of current research has been to shed a light on the relationship between Gender inequality and economic development in Pakistan. We used ARDL model to determine the long-run impact of gender inequality on economic development. Empirical findings indicate that gender inequality has also delayed

impacts on economic growth both in the long-run and short-run. Terms of trade, literacy, interest rate, inflation and female access to higher education along with GII were other supporting variables used in this research. Trade and female access to higher education have a positive effect on economic growth, while literacy rates, interest rates, and inflation have been found to influence economic development negatively.

Moreover, this research showed that the state of gender equality is abysmal. Leading to women their decreased roles in different spheres of life. For economic development, a holistic approach is needed to overcome the consequences of gender inequality. Women access to Higher education as well as health can go a long way in reducing gender inequality increased. Moreover, government should make policies to increase job opportunities for female.

REFERENCES

Ayyoub, M., Chaudhry, I.S., Farooq, F. (2011), Does inflation affect economic growth? The case of Pakistan. Pakistan Journal of Social Sciences, 31(1), 51-64.

Aziz, B., Khan, T., Aziz, S. (2008), Impact of higher education on economic growth of Pakistan. Journal of Social Sciences and Humanities, 6(2), 15-29.

Baldwin, M., Johnson, W.G. (1992), Estimating the employment effects of wage discrimination. The Review of Economics and Statistics, 74(3), 446-455.

Blattman, C., Hwang, J., Williamson, J.G. (2003), The Terms of Trade and Economic Growth in the Periphery 1870-1938. Working Paper No. 9940. Cambridge, MA: National Bureau of Economic Research.

Chughtai, M.W., Malik, M.W., Aftab, R. (2015), Impact of major economic variables on economic growth of Pakistan. Acta Universitatis Danubius: Oeconomica, 11(2), 1-10.

Engle, R.F., Granger, C.W. (1987), Co-integration and error correction: Representation, estimation, and testing. Econometrica, 55(2), 251-276.

Esteve-Volart, B. (2009), Gender Discrimination and Growth: Theory and Evidence from India. Toronto: Mimeo Company.

Ghirmay, T., Grabowski, R., Sharma, S.C. (2001), Exports, investment, efficiency, and economic growth in LDC: An empirical investigation. Applied Economics, 33(6), 689-700.

Hill, A., King, E. (1995), Women's Education in Development Countries. Baltimore, MD: Johns Hopkins University Press.

King, E., Klasen, M.S., Porter, M. (2008), Gender and Development Challenge Paper. Paper Prepared for 2008 Round of Copenhagen Consensus Project. United States: Mimeographed, Copenhagen Consensus Center.

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

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. The World Bank Economic Review, 16(3), 345-373.

Klasen, S. (2006), Gender and pro-poor growth. In: Lukas M, editor. Pro-Poor Growth: Policy and Evidence. Berlin: Dunker and Humblot. p151-171.

Klasen, S., Lamanna, F. (2009), The impact of gender inequality in education and employment on economic growth: New evidence for a panel of countries. Feminist Economics, 15(3), 91-132.

Knowles, S., Lorgelly, P.K., Owen, P.D. (2002), Are educational gender gaps a brake on economic development? Some cross-country empirical evidence. Oxford Economic Papers, 54(1), 118-49.

Lagerlof, N. (1999), Gender Inequality, Fertility, and Growth. Australia: University of Sydney, Department of Economics.

Mendoza, E.G. (1997), Terms-of-trade uncertainty and economic growth. Journal of Development Economics, 54(2), 323-356.

Murthi, M., Guio, A.C., Dreze, J. (1995), Mortality, fertility, and gender bias in India: A district-level analysis. Population and Development Review, 21(4), 745-828.

Pervaiz, Z., Chani, M.I., Jan, S.A., Chaudhary, A.R. (2011), Gender inequality and economic growth: A time series analysis for Pakistan. Middle-East Journal of Scientific Research, 10(4), 434-439.

Pesaran, M.H., Shin, Y., Smith, R.J. (2001), Bounds testing approaches to the analysis of level relationships. Journal of Applied Econometrics, 16(3), 289-326.

Rehman, A., Jingdong, L., Hussain, I. (2015), The province-wise literacy rate in Pakistan and its impact on the economy. Pacific Science Review B: Humanities and Social Sciences, 1(3), 140-144.

Salatin, P., Shaaeri, H. (2015), Impact of gender inequality on economic growth. China-USA Business Review, 14(12), 584-591.

Seguino, S. (2000), Accounting for gender in Asian economic growth. Feminist Economics, 6(3), 27-58.

Sen, A. (1999), Development as Freedom. New York: Alfred A. Knopf.

Summers, L. (1994), Investing in All the People. Washington, DC: World Bank.

United Nations Development Programme. (2010), Human Development Report 2010-20th Anniversary Edition: The Real Wealth of Nations: Pathways to Human Development. New York, USA: United Nations Development Programme.

World Bank. (2001), World Development Report: Attacking Poverty. Washington, DC: The World Bank.