

Nexus between Gender inequality and Income inequality**Qasim Abbasi¹, Bilal Khokar²****Abstract**

This paper examines the nexus of Gender Inequality and Income Inequality and its impacts on Pakistan. Gender inequality and income inequality is caused by unemployment, poverty and lack of education/ information. I investigate the effect of Gender inequality on poverty, unemployment, Gini and Labor force participation. The Augmented Dickey fuller test and Unit root test is used for examining the stationarity of the variables. Autoregressive Distributed lag (ARDL) model is used for analyzing the co integration among the variables of the model. The result of the model shows that the Unemployment has negative and significant relationship with Gender inequality. Poverty has positive and significant relation with Gender inequality and Gini has negative and significant relationship with gender inequality. The gender inequality and income inequality structure over the period of 1985 to 2016 in which the all estimation are done.

Keywords: Gender inequality, Income inequality, Unemployment, Poverty, Labor Force Participation

JEL Codes: J16, P46

1. Introduction

This paper examines that the nexus of gender inequality and income inequality in Pakistan. To this concept we determine the effects of gender inequality and income inequality. First we discuss the Gender inequality, it is a way of referring to the exclusively social origins of the subjective identities of men and women. Gender is a social category imposed a sexed body. Gender seems to have become a particularly useful word as studies of sex and sexuality. Actually the concept of gender includes our expectations about the characteristics, attitudes and behaviors of men and women. Gender is one of the organizing principals of Pakistan's society. Gender inequality has also huge impact on development. For example, gender inequality in education has impact the economic growth and in poverty as well. This concept is also discussed many authors like Siddique (1998) explored the gender issues in poverty alleviation in Bangladesh. The study concludes that alleviation of poverty is not possible without empowering women. According to Arif et al. (1999), primary education is an important element of human capital and plays an important role in economic growth and development of a country

Income inequality is the unequal distribution of household or individual income across the participants of an economy. Income inequality is also presented as the percentage of income to a percentage of population. Income inequality become a reason of increasing poverty and unemployment in Pakistan. The main object of economic policy is economic growth and GNP per capita is the objective measure of economic welfare. In 1950's Simon Kuznets presented the idea of an inverted U relationship between per capita GNP and inequality in the distribution of income. Now there is need that the GOVT should make policies for the reduction of income inequality and poverty which occurs due to the unequal distribution of income between the resident of nation.

2. Literature Review

Dunn (1993) examines the complex stratification systems in India give rise to a multiplicity of social categories which often obscure the relative status of women and men within the more disadvantaged segments of the population. The focus of this study is on the situation of women in scheduled castes and tribes — groups which are referred to as 'weaker sections of people'. Using Indian Census data, the study documents extreme degrees of gender inequality among the scheduled groups. Findings indicate that relative to men, women in these groups have far more limited access to both educational and employment resources. This research also suggests that socioeconomic development serves to reduce the disadvantage of scheduled group women relative to men. Among the scheduled groups considered to be more developed according to standard indicators, findings indicate less gender inequality in education and employment.

Denton and Walters (1999) explore the aspects of the social production of health by focusing on the ways in which levels of health are shaped by structures of social life style. We address a question, are there gender differences in the determinants of health? The question is explores using multiple regression analyses of data from the 1994 Canadian National Population Health Survey. Two measures of health are used: subjective health status and the Health Utilities Index. Findings indicate that the structures of social inequality are the most important determinants of health acting both independently and through their influence on the behavioral determinants of health. There are very real differences in the factors that predict women's and men's health. For women, social structural factors appear to play a more important role in determining health. The findings suggest the value of models which include a wide range of structural and behavioral variables and affirm the importance of looking more closely at gender differences in the ants of health determinants.

Okatch and Siddique utilizes regression based inequality, decomposition methodology developed by Field (2003) to determine factors driving income inequality at household level in Botswana. By using the household income expenditure survey 2002/03

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an income generating function is estimated using OLS. This provides the efficient and flexible way to quantify the role of household variables like Education and age on inequality in a multivariate context. But on the other side variables like Primary education, age and owning between 1 and 10 head of livestock equalizes income inequality. The explanatory variables were divided into three groups. First group comprising of variables that contribute significantly to income inequality like Secondary school education, training, VAT and number of paid employees and number of children in the household. The second group depends on variables that have a positive but a small impact on inequality like all the dummies. While the third group comprises of variables that equalizes income such as primary education, age, cattle ownership and social safety nets.

Osmani and Sen (2003) examine the interconnections between gender inequality and maternal deprivation, on the one hand, and the health of children and of adults that the children grow. The basic message is that women's deprivation in terms of nutrition and healthcare rebounds on the society as a whole in the form of ill-health of their offspring males and females alike both as children and as adults. These differences are best understood through the concept of overlapping health transition in which two different regimes of diseases coexist side by side. Gender inequality exacerbates the old regime of diseases among the less affluent through the pathway of childhood under nutrition. At the same time, it also exacerbates the new regime of diseases among the relatively more affluent through a pathway that has come to be known as the 'Barker hypothesis'. Gender inequality thus leads to a double jeopardy simultaneously aggravating both regimes of diseases and thus raising the economic cost of overlapping health transition. However, in many parts of the world, females receive fewer resources, and less attention and health care than males do. As a result of this bias, the mortality rates of females often exceed those of males in many countries.

Wilkinson and Pickett (2006) examine the income inequality is a determinant of population health is still regarded as a controversial issue. Analyses in which all adjusted associations between greater income equality and higher standards of population health were statistically significant and positive were classified as "wholly supportive". We suggest that the studies of income inequality are more supportive in large areas because in that context income inequality serves as a measure of the scale of social stratification. We suggest three explanations First, many studies measured inequality in areas too small to reflect the scale of social class differences in a society; second, a number of studies controlled for factors which, rather than being genuine confounders, are likely either to mediate between class and health, and thirds the international relationship was temporarily lost during the decade from the mid-1980s when income differences were widening particularly rapidly in a number of countries. The interpretation of 168 analyses of the relationship between income inequality and health is that income distribution is related to health where it serves as a measure of the scale of social class differences in a society.

Baiocchi and Distaso (2009) investigate the effect of demographic and socio-economic characteristics of households on income inequality. Two nonparametric conditional inequality measures are deriving from estimating the distribution of household income, conditional upon a broad set of exoplanetary variables. The results indicate the importance of inter-family deference in the analysis of income distribution. The purpose of the paper is to analyze the impact of demographic and social factors on the conditional distribution of household income for the UK, using nonparametric inequality measures. the procedure allows us to identify where in the distribution of income inequality determinants exert their greatest impact, which can provide further insight into the determinants of inequality, of great importance to researchers as well as policy makers

Wanjiru (2009) investigates the determinants of gender imbalance in education administration among teachers in public secondary schools. The study is guides by the following specific objectives to establish the effect of gender roles on gender imbalance in education administration among teachers to determine the role of models and mentors in relation to gender imbalance in education administration among teachers and to analyze the effect of educational qualification and training in relation to gender imbalance in education administration among teachers. The study finally found that educational qualification does not cause gender imbalance in education administration. Professional training is noted to be a cause of gender imbalance in education administration. The study concludes that gender roles, teachers self-perception, socialization and gender stereotypes, availability of role models and mentors and training caused gender imbalance in education administration among teachers. The purpose is to establish the determinants of gender imbalance in education administration among teachers in public secondary schools. The study establishes the effect of gender roles on gender imbalance in education administration, to find out the relationship between teacher's self-perception and gender imbalance in education administration, to explore socialization and gender stereotypes and its impact on gender imbalance in education. The impact of educational qualification and training on gender imbalance in education administration in public secondary schools.

Serna et al., (2013) examine the gender inequalities exist in work life, but little is known about their presence in relation to factors examines in occupation health settings. Aim of the study is to identify and summarize the working and employment conditions describes as determinants of gender inequalities in occupational health in studies related to occupational health published between 1999 and 2010. The increase in women's participation in the labor market has been one of the most important social phenomena of the second half of the twentieth century. For example, of the 3.0 billion people employed around the world in 2008, 1.2 billion were women (40.4%). That fact represents an increase of nearly 200 million women employed in the last 10 years. Nowadays, in a context of transition from the traditional gender roles to more equal positions of men and women in society, employment has become more and more important in women's lives. However, we have still identified a set of work-related gender inequalities in employment and working conditions and in reporting work-related health problems.

Lee et al., (2013) examine the trends and identifies the determinants of income inequality. Both Kuznets' hypothesis of inverted U-shaped relationship between income inequality and economic growth and Barrow's hypothesis of U-shaped relationship are not empirically support. Macroeconomic index such as the government spending as a share of GNI was found to be statistically insignificant in affecting income inequality. The statistically significant negative estimate of the investment share in GDP shows that an increase in investment will decrease the income inequality. The pattern of different measures of income inequality reveals that income inequality has increased since 2003 and reached the peak in 2009. Income inequality measure by the Gini coefficients decrease somewhat in 2010 and remain at the similar level in 2011. The pattern of the decile ratio also reveals an increasing income inequality. The result implies that growth-driven trade expansion policy, including FTA, may not be able to reduce income inequality. The findings have important policy implications. An increase in transfer income reduces income inequality significantly among all income sources.

Jayachandran (2014) discusses the several mechanisms through which, as countries grow, gender gaps narrow. Many countries that are poor today have cultural norms that exacerbate favoritism towards males. Norms such as practically and concern for women's purity help explain the male-skewed sex ratio in India and China and low female employment in India, the Middle East, and North Africa. Finally, I lay out some policy approaches to address gender inequality. First a sectoral shift away from agriculture toward services occurs. Second, technological advance reduce the time needed for household chores. Third, the frequency and risk of childbearing declines. Each of these factors increases women's participation in the labor force, which in turn increases human capital investment in girls and women's personal autonomy. However, I also describe certain cultural practices that could make gender inequality in today's poor countries persist even in the face of economic growth. These cultural norms help explain the extremely male skewed sex ratio in India and China, for example. Similarly, the anomalously low female labor force participation rate in India, the Middle East, and North Africa is likely root in the high value these cultures place on women's purity. The institutions favoring males might themselves fade naturally with economic modernization, enabling gender gaps to close, but there is also scope for policymakers to expedite the process.

Jaumotte et al, (2015) explore the rise of inequality in advanced economies, and in particular the growing concentration of incomes at the top of the distribution has become a greater focus of attention for economists and policymakers. Understanding the factors behind this phenomenon is essential to determine whether policy action is needed to reduce income inequality, taking into account other policy objectives. Traditional explanations advanced for the rise in inequality have been technological progress and globalization. We study the causes of the rise in inequality and focus on the role played by labor market institutions in 20 advanced economies during 1980–2010. 2 Traditional explanations for the rise of inequality in advance economies are skill-biased technological change (SBTC) and globalization, which have increase the relative demand for skilled workers, benefitting top earners relative to average wage earners.

Sabir (2015) examines the behavior of female and male in labor force participation and empirically investigating the determinants of labor force participation. Economic growth and development of the nation largely depend on the quantity and the quality of their labor force. In Pakistan a sizeable amount of population is assumes as out of labor force. The overall labor force participation rate for the age 15 and above remained roughly in the range of 49 percent to 53 percent during 1974_75 to 2012_13. This means that the total population of 2012_13 aged 15 years are above 53 percent is economically active or 47percent is economically inactive out of labor force, and more than 75 percent of population is considered as economically inactive. The unemployment rate among women is higher than men. These type of analysis help in designing better policies to increase employment opportunities for males and females. An attempt is made in this study to examines this issue in a comprehensive manner by focusing three aspects including labor force participation, access to paid jobs and inequality in accessing formal jobs. This shows that women are highly disadvantaged in labor force participation.

Naseer and ahmed (2016) analyze that Growth strategy in Pakistan has fail to reduce poverty for two reasons. First, it has not been pro-poor, and second, it exacerbates the income inequality situation in the country that has further compounds the poverty situation. The historical data confirms that during high periods of growth, the emergence of high levels of inequality not only decrease the growth momentum but also reduce the poverty-decreasing effect of the growth. Since, inequality in income is the main hurdle to alleviate poverty effectively. The task by examining the factors that determine the level of income inequality in Pakistan and knowing the drivers of the changes in the income distribution by utilizing Household Integrated Economic Survey (HIES) for the year 2005-06 and 2010-11. The level of income inequality among earners using the Gini index approach and re-estimating the determinants of earnings using the standard augmented Mincer a model. Growth policy adopt to decrease poverty in Pakistan has always characterize by high levels of inequality. The existence of high levels of inequality during the periods of high growth not only decrease the growth but also reduce the poverty decreasing effect of the growth whereas the periods of low growth were marked by undue increases in poverty due to inequality. Therefore, there is need to reduce poverty without increasing inequalities.

3. Theoretical Model

The economic theory enables us to construct economic models which help to understand the economic behavior of an individual as well as the society as a whole. The economic model gives a real picture of the economy but under some abstractions and assumptions. In social sciences, and without these abstractions, it is impossible to measure any phenomena. The basic objective behind the construction of an economic model is to analyze and predict. The predicting power, the provided information, the

realism, the simplicity of assumptions and the generality decide the validity of an economic model (Ali and Naeem, 2017; Ali, 2011; Ali, 2015; Ali, 2018; Ali and Bibi, 2017; Ali and Ahmad, 2014; Ali and Audi, 2016; Ali and Audi, 2018; Ali and Rehman, 2015; Ali and Senturk, 2019; Ali and Zulfiqar, 2018; Ali et al., 2016; Ali et al., 2021; Ali et al., 2021; Ali et al., 2015; Arshad and Ali, 2016; Ashraf and Ali, 2018; Audi and Ali, 2017; Audi and Ali, 2017; Audi et al., 2021; Ali and Ali, 2016; Audi et al., 2021; Audi et al., 2021; Audi et al., 2021; Haider and Ali, 2015; Kaseem et al., 2019; Roussel et al., 2021; Senturk and Ali, 2021; Imran et al., 2021). This study is going to investigate the impact of Gender inequality and Income inequality on poverty, unemployment and labor force participation in Pakistan. Following the methodologies of above studies, the model of this study became as;

$GN_t = (GINI_t, POV_t, UNEMP_t, LFP_t)$

GI_t = Gender Inequality

$GINI_t$ = Income inequality

POV_t = Poverty

$UNEMP_t$ = Unemployment

LFP_t = Labor Force Participation

Following the log linear form of the function the model becomes as:

$GI_t = \alpha_0 + \alpha_1 GINI_t + \alpha_2 POV_t + \alpha_3 UNEMP_t + \alpha_4 LFP_t$

4. Economic Methodology

Mostly time series data has non-stationary problem and the estimated regression results of this data became spurious for policy suggestion (Nelson and Poser, 1982). All co-integration methods also demand the stationarity of the variables. This study comprises with the different econometric method or used different test to show our result is stationary or significant, fact of time series data that it contains unit root problem and regression results of this data are spurious. For the solution of unit root problem, this study uses Augmented Dickey-Fuller (ADF) unit root test, the calculated results of ADF test are presented in table-1.

5. Empirical Results and Discussion

The stationarity of the variables is checked with the help of augmented Dickey-Fuller (ADF) (1981) test. The description of table is that unemployment is stationary at level I (0). But Gini, labor force and poverty are not stationary at level, but at 1st difference all variables came at stationary point. so I use ARDL model because there exists a mix integration among variable.

Table 1: Descriptive Statistics

	LGN	GINI	LB_F	LPOV	UNEMP
Mean	1.779853	0.353787	42.14687	1.566227	5.150000
Median	1.748188	0.368334	41.86500	1.536404	5.275000
Maximum	2.000000	0.410000	45.92000	1.839478	8.270000
Minimum	1.556303	0.275200	39.06000	1.380211	1.970000
Std. Dev.	0.110347	0.044161	1.793083	0.120861	1.672583
Skewness	0.442798	-0.333513	0.113227	0.537298	0.061824
Kurtosis	2.638765	1.811495	2.110175	2.412504	2.278281
Jarque-Bera	1.219693	2.476624	1.124093	1.999876	0.714890
Probability	0.543434	0.289873	0.570041	0.367902	0.699461
Sum	56.95529	11.32118	1348.700	50.11927	164.8000
Sum Sq. Dev.	0.377471	0.060455	99.66951	0.452829	86.72360
Observations	32	32	32	32	32

This study is examine that the impact of gender inequality in Pakistan over the period 1985 to 2017, for co-integration analysis ARDL bound testing method is used. The results of ARDL bound testing method is given in the table-2. The calculated results show that F-statistic is greater than the critical bound, this means that there is co-integration when gender inequality is dependent variable and unemployment, poverty, labor force participation and Gini means income inequality are the independent variables. The calculated results show that F-statistic is greater than the critical bound, this means that there is co-integration.

The estimated long run results are reported in table-3. This study uses the gender inequality as dependent variables whereas the unemployment, Gini, labor force and poverty are independent variables. The coefficients of labor force and poverty shows that the gender inequality has positive and significant relationship. The results shows that 1 percent change (increase\decrease)

labor force causes (0.004722) percent change (increase\decrease) in gender inequality and 1 percent change (increase\decrease) poverty causes (0.548994) percent change (increase\decrease) in gender inequality. The coefficient of Gini and unemployment shows that gender inequality is negative and significant relationship, the results shows that the 1 percent change (increase/decrease) in Gini causes (-10.300324) percent change (increase/decrease) in gender inequality and 1 percent change (increase/decrease) in unemployment causes (-0.149229) percent change (increase/decrease) in gender inequality. The whole long run results of the model show that labor force and poverty are the positive or significant impact on gender inequality and Gini and unemployment are the negative and significant impact on determining the gender inequality in Pakistan.

Table 2: Results of Unit Root Test

Variables	At level		At 1 st difference	
	t-statistics	p-value	t-statistics	p-value
LGN	-2.361111	0.1605	-6.118779	0.0000
UNEMP	-1.737122	0.0403	-6.632659	0.0000
LPOV	-2.600958	0.1043	-13.20842	0.0000
LBF				
GINI	-1.997095	0.2864	-3.856391	0.0065

Table 3: Bound Testing Analysis

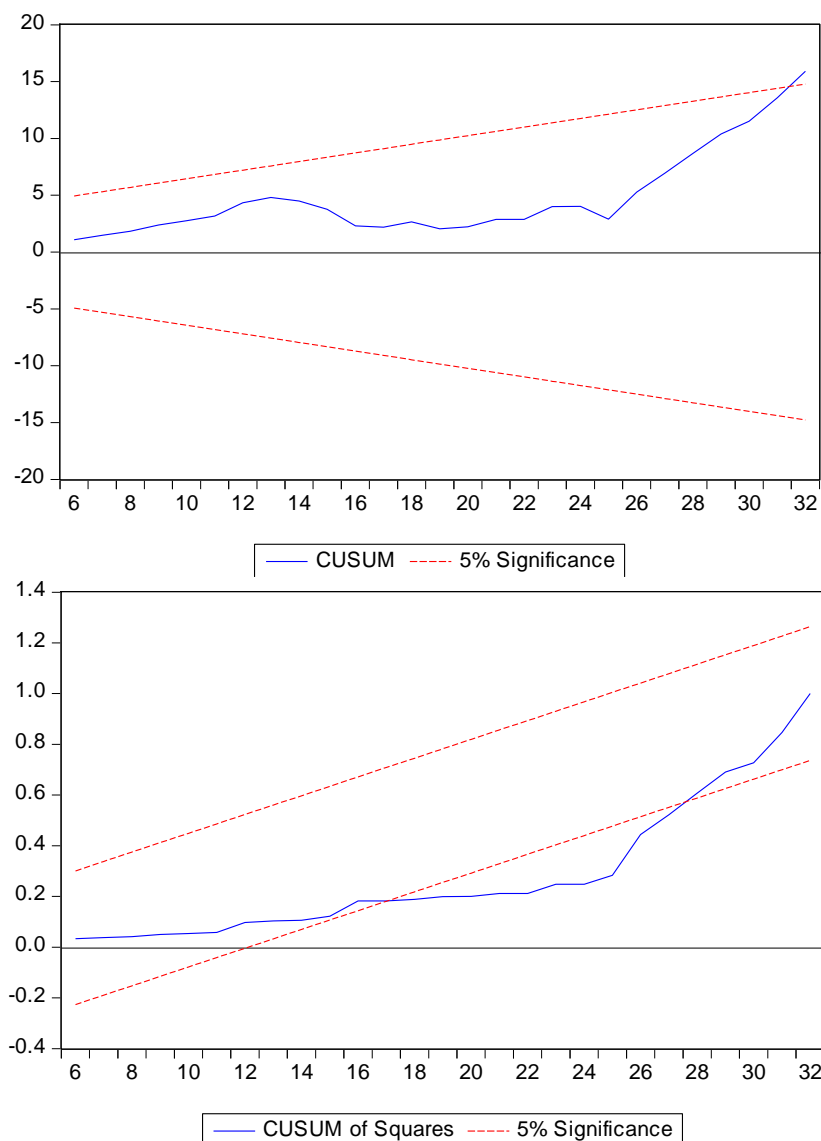
F-statistics(Wald test)=11.86		
Level of significance	Lower bond value	Upper bond value
5%	2.45	3.52
10%	2.86	4.01

Table 4: Long Run Results

Dependent variable=DGN			
Variables	coefficients	t-statistics	p-value
UNEMP	-0.149229	-2.185855	0.0715
LPOV	0.548994	2.236979	0.0666
LBF	0.004722	0.173343	0.8681
GINI	-10.300324	-2.201518	0.0700

Table 5: Short Run Results

Dependent variable=DGN			
Variables	Coefficients	t-statistics	p-value
DUNEMP	0.024592	2.011007	0.0910
DPOV	-0.006115	-0.030998	0.9763
DLBF	0.090038	4.682514	0.0034
DGINI	-1.906291	-2.630416	0.0390
COINTEQ(-1)	-0.565989	-2.508184	0.0460



6. Conclusions

The study investigates the impacts of the nexus of Gender inequality and Income inequality on Pakistan over the period of 1985 to 2016, Augmented Dickey fuller unit root test is used for checking the stationarity of the variables. Autoregressive Distributed lag (ARDL) model is used for analyzing the co integration among the variables of the model. The estimated results if Augmented Dickey Fuller test is showed that five variables are the stationary at 1st difference and one is stationary at level. The long run results showed that the Gini and unemployment are negative and significant with gender inequality in Pakistan. poverty is positive and significant with gender inequality. Labor force Participation is positive and no relationship with gender inequality. In Short run Gini is negative and significant with gender inequality in Pakistan. Labor force participation and unemployment is positive and significant with gender inequality. Poverty is negative and no relation with Gender inequality in Pakistan. Dickey-Fuller (ADF) unit root test, the calculated results of ADF test are presented in table-1, and the calculated results of ARDL bound test are presented in table-2, and the calculated results of long run are presented in table-3, and the results of co integrating form are presented in the table-4.

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