Pathways to Alleviate Poverty in Pakistan: The Role of FDI Inflows, Human Capital and Income Inequality

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ABSTRACT

The fundamental purpose of economic development is to increase the population's socioeconomic well-being. Economic well-being is strongly dependent on equal national income distribution, and poverty reduction. Similarly, Pakistan has been a surge in interest in fair income distribution and poverty alleviation during the last three decades. The main aim of the study to investigate the effect of FDI inflows, human capital and income inequality on poverty reduction in Pakistan and used the data period from 1980-2020 and ARDL technique for estimation. This research found that the Gini coefficient and inflation rate (Inf) have positive and significant effect on poverty, while the government expenditure, gross domestic product per capita (GDPpc), foreign direct investment (FDI), and secondary school enrollment (SSE) have also adverse effect on PV in the long run (LR). Similarly, this study also found that the income inequality and inflation rate have positive and noteworthy effect on poverty, while the government expenditure, GDPpc, FDI, and SSE have also adverse and noteworthy effect on PV in the short run (SR). The ECT value is negative and substantial; this means that there are sixty-one percent speeds of adjustment from SR to LR equilibrium. Therefore, this study concluded that equal income distribution, FDI inflows and human capital can significantly reduce in the poverty in Pakistan. This study recommended that to diminish the poverty, the government should undertake growth-oriented policies as well as tactics aimed at improving income distribution.

Keywords: Income inequality; Poverty; GDP growth; ARDL; Pakistan

INTRODUCTION

The primary goal of economic development is to improve the socioeconomic well-being of the population. Economic well-being is heavily reliant on equitable distribution of national income, PV, and improved living conditions for the poor. In Pakistan, there has been a surge in interest in fair income distribution and PV. This derives from the fact that, despite a fair growth rate in national income, economic inequality and poverty persist. As a result, it is critical to investigate the phenomena of income distribution and poverty using the most recent data available in the country (Jafri & Khattak, 1995). The availability of variety of nations throughout the 1990s enabled rigorous empirical examination of long-standing disputes over the relative role of re-distribution and growth in poverty alleviation. While the argument remains unresolved, the bulk of economists have emphasized, based on actual cross-country data, that uneven income-distribution is a significant hindrance to successful poverty reduction (Ravallion, 1997). Many experts believe that growth is the primary method for combating poverty in practice. Without a doubt, GDPg is a vital precondition for PV, but inequality is equally important and should be included on the development agenda (Idrees, 2001).

The link between PV, growth, and inequality has largely been ignored. Growth is regarded as the primary or best path to reducing poverty, with the stipulation that access to social, education, and health services be made accessible to all through other measures. There is a growing recognition that the dynamics of poverty, inequality, and development are non-linear, complicated, and route dependent (Ali & Tahir, 1999). Kuznets (1955) made an imperative point in this framework when he found a practical finding of an inverted U-shape connection between inequality and growth, implying that inequality would upsurge with growth at first, but would decay at sophisticated levels of growth as the growth's benefits trickled down to lower income-inequality. Since then, this idea has been contested with empirical evidence and in the literature acquired for and against this assumption. Institutional variables do not alter in a few years, despite the fact that they are important in both reducing poverty and maintaining it at low-levels. As a result, these linkages are likely to be non-linear and route dependent, implying that determining the influence of GDPg on PV, inequality on poverty, growth on inequality, and so on. Understanding these links necessitates knowledge of both the LR and SR elasticities of poverty (Ali & Tahir, 1999). The approach established by Kakwani (1993) and Kanbur (1987) employs a single survey and gives evidence on SR elasticities while remaining mute on long-term correlations between inequality growth and poverty. Furthermore, it is based on limiting features of GINI. Alternative possibly superior technique Datt and Ravallion (1992) suggestion to divide inter-temporal poverty variations into those caused by growth and those caused by distribution. However, it again relies on two or a few polls to offer information on short-term elasticities.

Furthermore, foreign direct investment (FDI) can influence poverty by creating jobs, enhancing skills, and boosting economic growth. Increased FDI inflows may improve incomes, infrastructure, and access to services, helping reduce poverty. However, the impact depends on the sector, distribution of benefits, and governance quality. If concentrated in capital-intensive industries or benefiting only elites, FDI may not significantly alleviate poverty and could widen inequality (Magombeyi & Odhiambo, 2017). Therefore, FDI's role in poverty reduction is conditional on inclusive policies, equitable resource distribution, and sustainable development strategies.

Lastly, human capital, encompassing education, skills, and health, is essential for reducing poverty. A well-educated and healthy workforce is more productive, earns higher incomes, and accesses better job opportunities, breaking the cycle of poverty. Improved human capital also enhances social mobility and resilience against economic shocks (Quang Dao, 2008). Conversely, low human capital traps individuals

in low-paying jobs, perpetuating poverty across generations and limiting overall economic and social development (Huay & Bani, 2018).

In Pakistan, poverty is a major socio-economic issue that poses a challenge to sustainable development and social stability (Sheikh *et al.* 2020). Nonetheless, a substantial number of the population still exists below the poverty line despite the policy interventions (Shah *et al.* 2021). Foreign direct investment (FDI) inflows, development of human capital, and income inequality are the important variables that play a crucial role in the process of poverty dynamics, but their connection in the Pakistani context is understudied. FDI has the potential to trigger economic growth and employment, but the benefits can be very unevenly spread unless there is sufficient human capital and fair policies. The same can be said about inequality in education, skills, and income that can constrain the poverty alleviating effects of economic growth. It is important to comprehend the relationship between these aspects in order to develop specific measures that are going to promote inclusive development and help to reduce poverty in Pakistan successfully. The study will give directions to different government departments and NGOs etc. in an attempt to alleviate the poverty. It will also assist the researchers in the future who will be expanding this work.

MEASUREMENT OF POVERTY

There are three techniques to defining the poverty line, according to Ali and Tahir (1999). The first method assigns a monetary value as the poverty line at random. For example, the income level at which 20% of the population lives. The second method is more systematic and quasi-objective in nature. There are two possible sub-divisions under this category. These categories are as follows:

The calorie-based Strategy

It entails determining the minimal calorie consumption, selecting a food basket that produces the fewest calories, and the poverty line denotes the amount of money required to achieve the minimal calorie intake. This method is used by Naseem (1977). A version of this method stresses that, in supplement to dietary needs, non-food expenses—such as clothes, shelter, and so on—are equally important in terms of poverty. This is the strategy taken by Malik (1988).

The method based on basic necessities

According to this concept, the poverty line is defined as the spending (or income) required to cover the bare minimum of all fundamental needs, both food and non-food. Ahmad (1993) assessed the minimal requirements for basic needs by consulting with experienced economists and double-checking with heads of various households on the amount and value of each of the basic wants.

In addition to the above approaches, Ali (1997) advocates a complete approach in the framework of a minimal standard of life. He employs an Extended Linear Spending System (ELSS) to determine existence outlays, without regard for calories or food basket composition. The resulting poverty line simply sets a lowest possible level of living steady with the assumed preference structure. Almost all literature on the issue goes into great detail about the various study' findings and procedures. As a result, they ignore the specifics, save to indicate the general patterns evident from this research. Inequality is among a key domestic challenge in Pakistan. One of Pakistan's key difficulties is reducing income inequality. The growing income inequality has mostly excluded the poor from the benefits of growth. The most visible evidence of inequality in Pakistan, a country where the rural population outnumbers the urban population by 64 percent. In Pakistan, it has been suggested that inequality has increased while

poverty has decreased significantly in recent decades. The evidence of a significant drop in poverty is debatable. Except for a brief period from 2003 to 2008, Pakistan's economy has grown at a slow pace since the early 1990s. According to the use of the cost of basic requirements technique to determining the poverty level, about 40% of the population is today poor. Furthermore, since 2010, there has been minimal improvement in the prevalence of poverty and inequality. There is evidence that other South Asian nations, such as India and Bangladesh, have had a quicker drop in poverty in recent years.

The fundamental cause of the growing disparity between affluent and poor is elite control of the state. The entrenched interests have gained broad tax exemptions and concessions, preferential access to state resources, service and bank credits, and low regulatory oversight. The country's sociopolitical condition is being influenced by the country's widening and expanding wealth imbalance. First, Pakistan is unable to provide enough employment to the labor each year. More than one-third of male youngsters are either unemployed or idle. These young people are susceptible to the allure of religious fanaticism, criminality, and violence. Second, there are significant regional inequalities in Pakistan. It can also be used to combat elitist acquisition of governmental resources. On one side, the authors claim that income inequality has positive effect on PV like Adigun *et al.* (2011) and Akram *et al.* (2011) while, other gives opposite results like Cheema and Sial (2012) and Ncube *et al.* (2014). The past literature shows that there the relationship between the GINI and PV is controversial. However, there is no such study available in the case of Pakistan and with combination of these variables, data period and methodology. Therefore, this study was conducted to explore the effect of GINI, FDI inflows and human capital on the poverty in Pakistan.

LITERATURE REVIEW

Mehmood and Nasir (1998) investigated the distribution of individual wages in the labor market in order to identify the reasons of earnings dispersion among employees. The study's data comes from the HIES during 1993-1994 and employs the OLS approach to determine the estimators. The findings indicate that age groups at the two extremes (youngest and oldest) contribute the most to explaining disparity in personal earnings. Furthermore, education not only raises incomes but is the most significant contributor to inequality, trailing only the sector of work, area, gender, marriage, and other factors. Janvry and Sadoulet (2000) examined the data of Latin American nations from 1970-1994, taking into consideration income distribution inequalities. They claimed that Latin American nations have far greater levels of economic disparity than other areas with comparable levels of average per-capita income. They discovered that when income disparity was minimal, growth considerably lowered poverty levels. As a result, income disparity has a substantial cost. Aigbokhan (2000) examined the effect of income inequality on the poverty reduction in Nigeria from 1985 to 1997, using data from the Federal Office of Statistics' nationwide household income surveys in 1985/86, 1992/93, and 1996/97. Households were categorized according to urban and rural, gender, and area. Despite economic progress, they discovered indications of rising inequality and poverty. The period's inadequate policy stance was determined to have led to growing poverty.

Ahmad (2001) used the Household Integrated Economic Survey (HIES) to assess income disparity among occupations in Pakistan during 1992-1993. The study first computes the Gini coefficient for several jobs using household-income and then examines inequities among them. According to the findings, inequality is greatest among employees. In Pakistan, inequality among experts is higher than total inequality, but inequality among professionals is lower than overall inequality. Idrees (2001) examined individual earnings inequality in Pakistan using the HIES for the years 1992-1993, 1996-1997, 1998-1999, and 2001-02. To carry out the analysis, the study used different methodologies. The findings indicate that disparity in earnings is substantially greater than inequality in total household-income. Jamal (2006) used data of Pakistan from 1979-2002 were used. In addition, the research seeks to identify the macroeconomic

and structural determinants of inequality. He discovered that significant poverty elasticity in relation to inequality indicators confirms the relevance of inequality in poverty-reduction efforts. Inflation, sectoral pay disparities, and favorable trade conditions favoring manufacturing aggravate inequality, but progressive taxes, investment, and development expenditure on social services significantly reduce inequality. The findings also revealed optimistically between GDP per capita and income-inequality. Zhu *et al.* (2008) used data from 1989 to 2004. It demonstrates that income growth was rapid when reforms were implemented. Poverty reduction may have been even more satisfying if not for the dramatic growth in income disparity over time, particularly in metropolitan regions and among the affluent.

Goh *et al.* (2009) investigated the wealth disparity in eight Chinese provinces from 1989 to 2004. They demonstrated that income increased for all sectors, the incidence of poverty decreased. Between 1995 and 2006, Tridico (2010) findings revealed that economic expansion had little effect on poverty levels. Although the average growth rate for these nations was estimated to be 4.7 percent for the time, and poverty levels were not considerably impacted. Through time series analysis, Akram *et al.* (2011) used data of Pakistan from 1984 to 2008. The ARDL Approach and discovered that poverty, bad governance, and economic disparity are all intertwined. Lombardo (2011) examined the data of Italy from 1977 to 2004 and found growth has a big influence on poverty patterns, but inequality appears to have had a significant role as well. Ncube *et al.* (2014) evaluated the influence of income inequality on crucial social development, notably output growth and poverty, in the MENA area data from 1985 to 2009. According to the research findings, income disparity decreases economic growth and promotes poverty in the region. Aside from wealth disparity, additional factors contributing to poverty include FDI, inflation, population increase, and just receiving elementary education. Domestic investment, exchange rate, trade openness, GDPpc, and oil rents as a proportion of GDP are all poverty reducing elements in the region.

Ali and Akhtar (2014) found that incomes grow with education level, however earnings are much greater for females than males. When compared to other occupations, managers, technicians, and professionals contribute the most to both male and female incomes. When compared to men, female salaried employees earn more than their employers and self-employed counterparts. Individual factors and occupation are important determinants of the wage disparity between male and female employees in Pakistan. Tabosa *et al.* (2017) examined the effects of economic development and income disparity on poverty in Brazil from 1981-2013. Their findings suggest that GDP growth strategies that encourage income growth while also reducing income inequalities are more effective in addressing poverty. Using EU-SILC data from 2007 to 2014, Andriopoulou *et al.* (2018) inspect the impact of the crisis on the degree and pattern of aggregate inequality and poverty. Their findings demonstrate that inequality has increased, although the extent of the increase differs between indices. They discovered that when the indices utilized are considerably more sensitive to movements towards the bottom of the income distribution, the gains are bigger. Contrary to popular belief, the elderly improved their relative position in the income distribution while the increased population of jobless deteriorated significantly. Differences between educational groups contributed less to aggregate inequality, but disparities between socioeconomic categories increased. All poverty indices indicate that poverty has grown significantly, particularly when "anchored" poverty levels are applied. Significant changes in the structure of poverty have been documented. Despite an increase in the population proportion of households headed by retirees, their contribution to aggregate poverty has decreased significantly, while the contribution of families headed by jobless people has increased. When distribution-sensitive poverty indicators are used, the shifts are more pronounced.

Abbas *et al.* (2018) investigated the influence of individual income levels on poverty in Pakistan. They are interested in investigating people's spending habits and how they alter as their income levels fluctuate. This is a cross-sectional investigation. For research purposes, time series secondary data from 1987 to 2013 are used. The data was subsequently analyzed and interpreted using Stata 12's multiple variable

regression models. Individuals' responses to expenditure levels are diverse, according to the data. The poverty headcount ratio of $1.90 per day has the greatest impact among the different income shares consumed by Pakistan's whole population. Mahadevan and Suardi (2019) use a panel of 13 tourist-intensive economies from 1995 to 2012, it is demonstrated that growing tourism growth, and found minimal indication that tourist expansion decreases headcount poverty. The poverty gap greatly decreased and do not show an improvement in GINI as a result of tourist increase. Bergstrom (2020) used data from 1974 to 2018, and their findings illustrate the critical role that income disparity may play in decreasing poverty, even if previous poverty decreases were largely the result of economic expansion. Maku *et al.* (2021) used ARDL approach to inspect the impact of trade-openness (TO) on GINI and PV in Nigeria between 1981-2019. They discovered that TO in Nigeria had varied effects on inequality and poverty. While its association with inequality is a SR occurrence, it has a LR association with poverty. Overall, trade openness has reduced inequality and poverty. It had no statistically meaningful influence in the former case. However, when inequality affected trade openness, the effects of TO on GINI and PV were reversed. In essence, as GINI increased, TO had a greater impact on poverty.

DATA AND METHODOLOGY

To analyze the effect of FDI inflows, human capital and income inequality on poverty alleviation in Pakistan, the secondary data for the Period 1980 to 2020 for Pakistan is used in a study. The data was collected from World Development Indicators (2022).

Model Specification

This study used the following modified model, this model were also used by Jamal (2006), Sehrawat and Giri (2018), and Young (2019).

$$POV_t = \beta_0 + \beta_1 GINI_t + \beta_2 GDPpc_t + \beta_3 FDI_t + \beta_4 GE_t + \beta_5 CPI_t + \beta_6 SSC_t + \mu_t$$

-- (1)

Table 1: Variables explanation

Variable	Period	Measurement	Symbol
Poverty headcount ratio at national poverty lines (% of population)	1980-2020	Percentage	PV_t
GINI index (World Bank estimate)	1980-2020	Rank	$GINI_t$
GDP per capita growth (annual %)	1980-2020	Percentage	$GDPpc_t$
Inflow FDI (as percentage of GDP)	1980-2020	Percentage	FDI_t
Government Expenditure (as percentage of GDP)	1980-2020	Percentage	GE_t
Inflation, consumer prices (annual %)	1980-2020	Percentage	Inf_t
Secondary School Enrollment (to measure human capital)	1980-2020	Percentage	SSC_t

Data Analysis Technique

This study employed the use of the ARDL technique for estimation. The unit root test using the Augmented-Dickey-Fuller (ADF) and Philips-Peron (PP) tests were employed to check for stationarity and other diagnostic techniques.
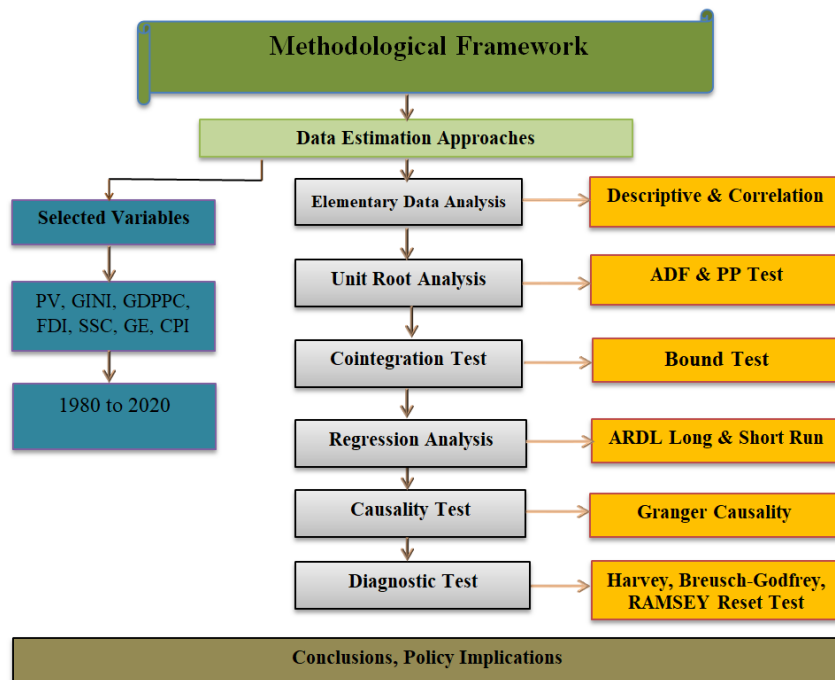
Equation form of the ARDL

$$POV_t = \beta_0 + \sum_{i=1}^{n} \beta_{1i} POV_{t-i} + \sum_{i=0}^{n} \beta_{2i} GINI_{t-i} + \sum_{i=0}^{n} \beta_{3i} GE_{t-i} + \sum_{i=0}^{n} \beta_{3i} GDPpc_{t-i} + \sum_{i=0}^{n} \beta_{4i} FDI_{t-i} + \sum_{i=0}^{n} \beta_{5i} CPI_{t-i}$$
$$+ \sum_{i=0}^{n} \beta_{6i} SSC_{t-i} + \mu_t$$

-- (2)

$$\Delta POV_t = \beta_0 + \sum_{i=1}^{n} \beta_{1i} \Delta POV_{t-i} + \sum_{i=0}^{n} \beta_{2i} \Delta GINI_{t-i} + \sum_{i=0}^{n} \beta_{3i} \Delta GE_{t-i} + \sum_{i=0}^{n} \beta_{3i} \Delta GDPpc_{t-i} + \sum_{i=0}^{n} \beta_{4i} \Delta FDI_{t-i}$$
$$+ \sum_{i=0}^{n} \beta_{5i} \Delta CPI_{t-i} + \sum_{i=0}^{n} \beta_{6i} \Delta SSC_{t-i} + \gamma_1 GINI_t + \gamma_2 GE_t + \gamma_3 GDPpc_t + \gamma_4 FDI_t + \gamma_5 CPI_t$$
$$+ \gamma_6 SSC_t + \mu_t$$

…………………………………………………………………………………… (3)

Figure 1: Methodological Framework

RESULTS AND DISCUSSIONS

Unit Root tests Results

Table 2 indicated the order of integration of the variables. The ADF and PP tests indicated that the variables poverty, Gini coefficient, government expenditure, secondary school enrollment, and inflation rate have stationary at 1st difference (1(1)) while FDI and GDPpc have stationary at level (1(0)).

Therefore, the order of integration of the variables are mixed and recommended the ARDL technique of estimation.

Table 2: Unit Root tests Results

S.No	Variables	ADF Test		PP Test		Order of integration
		At level	1st Difference	At level	1st Difference	
1	Pov$_t$	0.3780	-5.1272*	-0.1363	-5.2437*	1(1)
		(0.9796)	(0.0001)	(0.9384)	(0.0001)	
2	GINI$_t$	-2.2614	-6.2297*	-2.0831	-6.7436*	1(1)
		(0.1889)	(0.0000)	(0.2522)	(0.0000)	
3	GE$_t$	-1.8857	-7.1867*	-1.8391	-7.3108*	1(1)
		(0.3356)	(0.0000)	(0.3570)	(0.0000)	
4	GDPpc$_t$	-4.4414*	---	-4.4414*	---	1(0)
		(0.0010)		(0.0010)		
5	FDI$_t$	-2.9644**	---	-1.9427	-4.2572*	1(0) & 1(1)
		(0.0470)		(0.3102)	(0.0017)	
6	CPI$_t$	-2.5948	-7.8140*	-2.680***	-7.7957*	1(1) & 1(0)
		(0.1022)	(0.0000)	(0.0861)	(0.0000)	
7	SSC$_t$	0.4131	-5.8890*	0.4762	-5.8702*	1(1)
		(0.9812)	(0.0000)	(0.9838)	(0.0000)	

Note: *, ** and *** indicated 1, 5 and 10% implication level.

Estimation Results

Table 3 indicates the ARDL technique results. In the LR, the GINI coefficient has optimistic and noteworthy effect on PV. The increase in the income distribution has increases poverty and reduction the income inequality will reduce the poverty. A unit upsurge in the GINI will also increase in the poverty by 0.30 percent. In line with Adigun *et al.* (2011) and Akram *et al.* (2011) while opposite results were given by Cheema and Sial (2012) and Ncube *et al.* (2014). Likewise, the GE has also negative and significant effect on poverty. A % upsurge in the government expenditure will reduce in the PV by 0.08%. The same outcomes were given by Mehmood and Sadiq (2010) and Sasana and Kusuma (2018) and the opposite results was given by Omodero (2019).

The GDPpc has also negative and considerable effect on poverty. A % upsurge in the GDPpc will reduce in the poverty by 0.34%. The identical results was given by Roemer and Gugerty (1997) and the opposite results was given by Sasana and Kusuma (2018). The FDI has also negative and significant effect on poverty. A % upsurge in the FDI will reduce in the poverty by 0.41%. The identical results was given by Lazreg and Zouari (2018) and the contradictory results were given by Magombeyi and Odhiambo (2017) and (Tsaurai, 2018). The inflation rate has positive and noteworthy effect on poverty. A % upsurge in the inflation rate will upsurge in the poverty by 0.13%. Similar with Amin *et al.* (2020) and the opposite result was given by Emmanuel *et al.* (2018). The SSE has negative and noteworthy effect on poverty. A percent upsurge in the secondary school enrollments will reduce poverty by 0.76 percent. Similar with by Liu *et al.* (2021), Ameer *et al.* (2024) and Hofmarcher (2021).

In the SR, The GINI coefficient has optimistic and noteworthy effect on poverty. The increase in the income distribution has increases poverty and reduction the income inequality will reduce the poverty. A unit upsurge in the Gini coefficient will also increase in the poverty by 0.71%. Similarly, the GE has also negative and noteworthy effect on poverty. A % upsurge in the government expenditure will reduce in the poverty by 0.08%. The GDP growth has also negative and significant effect on poverty. A % upsurge in

the GDP growth will reduce in the poverty by 0.82%. The FDI has also negative and significant effect on poverty. A % upsurge in the FDI will reduce in the poverty by 0.84%. The inflation rate has positive and noteworthy effect on poverty. A % upsurge in the inflation rate will increase in the poverty by 0.31%. The SSE has adverse and noteworthy effect on poverty. A percent upsurge in the secondary school enrollments will reduce poverty by 0.21%.

The calculated value of ECM is -0.6083, which adverse and noteworthy. The ECM value indicates the 61% level of adjustment from SR to LR equilibrium. The ARDL-Bound test follows by F-statistic, estimated value is 30.2048, which is greater than the critical values of upper bound at one percent, shows LR cointegration among the variables.

Table 3: ARDL technique Results

Variable	Coefficient	Std. Error	t-Statistic	Prob.*
Long-Run Results				
$GINI_t$	0.3025*	0.0559	5.4147	0.0029
GE_t	-0.0848***	0.0346	-2.4479	0.0581
$GDPpc_t$	-0.3417*	0.0773	-4.4215	0.0069
FDI_t	-0.4069***	0.1844	-2.2073	0.0784
CPI_t	0.1327**	0.0403	3.2884	0.0218
SSC_t	-0.7556*	0.0555	-13.6047	0.0000
C	11.8892	6.4761	1.8359	0.1258
Short-Run Results				
ECM_{t-1}	-0.6083*	0.0519	-11.7216	0.0001
$D(GINI_t)$	0.7106*	0.0879	8.0844	0.0005
$D(GE_t)$	-0.0848***	0.0346	-2.4479	0.0581
$D(GDPpc_t)$	-0.8216*	0.0980	-8.3853	0.0004
$D(FDI_t)$	-0.8415**	0.3097	-2.7175	0.0419
$D(CPI_t)$	0.3071*	0.0428	7.1662	0.0008
$D(SSC_t)$	-0.2141**	0.0585	-3.6584	0.0146
C	11.8892	6.4761	1.8359	0.1258
F-Bounds Test		H_0: *No levels relationship*		
Test-Statistic	Value	Sig.	I (0)	I (1)
F-statistic	**30.2048***	10%	1.990	2.940
K	6	5%	2.270	3.280
		1%	2.880	3.990

Note: *, ** and *** indicated 1%, 5% and 10% implication level.

Diagnostic Tests

The diagnostic tests indicated that there is no problem of Heteroskedasticity, serial correlation, description error in the model. Furthermore, the model is stable and residuals are normally distributed.

Table 4: Diagnostic Tests Results

Test with H_0	Test Statistics	Value	p-value	Decision
Heteroskedasticity Test: Harvey H_0: Homoskedasticity	F-Statistic	0.4050	0.9468	Sustain Null hypothesis
Breusch-Godfrey Serial Correlation LM Test: H_0: No serial correlation	F-Statistic	1.5045	0.2612	-do-

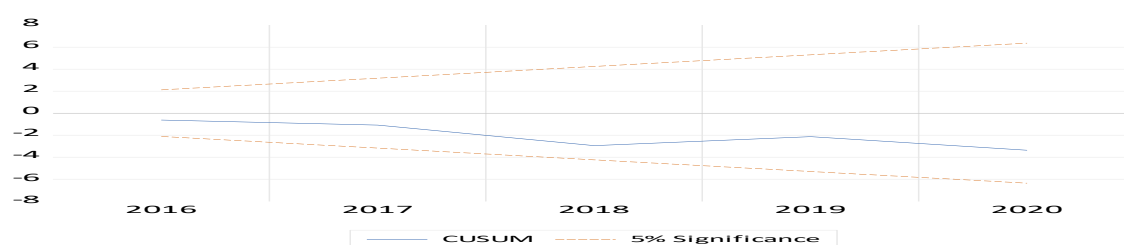| Test with H_0	Test Statistics	Value	p-value	Decision
Ramsey RESET Test	t-statistic	1.3123	0.2597	-do-
H_0: There is no specification error in the model	F-statistic	1.7221	0.2597	

Figure 3: CUSUM test

Figure 4: CUSUM Square test

Figure 5: Normality Test

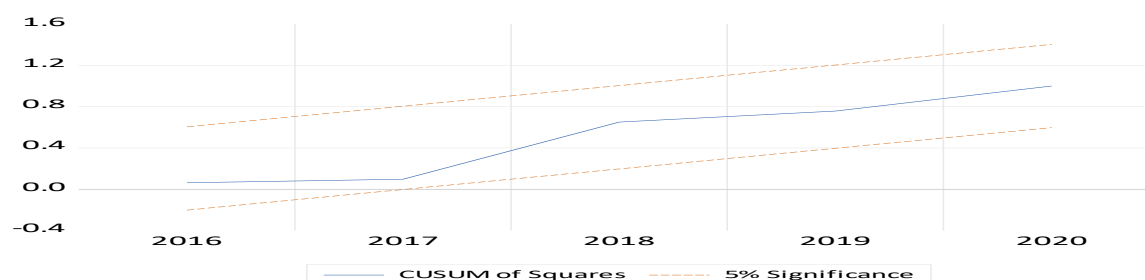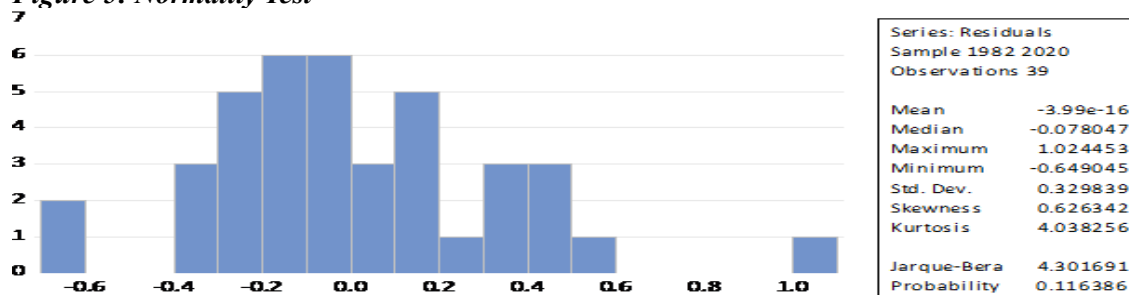| Series: Residuals	
Sample 1982 2020	
Observations 39	
Mean	-3.99e-16
Median	-0.078047
Maximum	1.024453
Minimum	-0.649045
Std. Dev.	0.329839
Skewness	0.626342
Kurtosis	4.038256
Jarque-Bera	4.301691
Probability	0.116386

Granger Causality Test Results

Table 5 indicated that Granger-casualty test results between the variables. There is one-way casualty between GINI and poverty, the causality running from GINI to poverty. There is also found one-way casualty, the causality running from government expenditure to poverty, GDP growth to poverty, FDI to poverty, secondary school enrollment to poverty, income inequality to GDP growth, GDP growth to government expenditure, government expenditure to FDI, and government expenditure to secondary school enrollment, while there is two-way causality between FDI and GDP growth, and FDI and inflation rate.

Table 5: Granger Causality Test Results

Null Hypothesis:	F-Statistic	Prob.
$GINI_t \nRightarrow POV_t$	7.9015*	0.0078
$POV_t \nRightarrow GINI_t$	0.04494	0.8333
$GE_t \nRightarrow POV_t$	8.7032*	0.0054
$POV_t \nRightarrow GE_t$	1.03001	0.3166
$GDPpc_t \nRightarrow POV_t$	4.5312**	0.0398
$POV_t \nRightarrow GDPpc_t$	0.0320	0.8589
$FDI_t \nRightarrow POV_t$	13.864*	0.0006
$POV_t \nRightarrow FDI_t$	0.1960	0.6605
$CPI_t \nRightarrow POV_t$	1.8673	0.1798
$POV_t \nRightarrow CPI_t$	0.8538	0.3613
$SSC_t \nRightarrow POV_t$	5.3715**	0.0260
$POV_t \nRightarrow SSC_t$	0.6925	0.4105
$GE_t \nRightarrow GINI_t$	1.2052	0.2792
$GINI_t \nRightarrow GE_t$	1.3098	0.2596
$GDPpc_t \nRightarrow GINI_t$	2.5357	0.1196
$GINI_t \nRightarrow GDPpc_t$	4.5883**	0.0387
$FDI_t \nRightarrow GINI_t$	1.4896	0.2298
$GINI_t \nRightarrow FDI_t$	0.0046	0.9465
$CPI_t \nRightarrow GINI_t$	1.2261	0.2751
$GINI_t \nRightarrow CPI_t$	0.3888	0.5367
$SSC_t \nRightarrow GINI_t$	0.0274	0.8695
$GINI_t \nRightarrow SSC_t$	0.8917	0.3510
$GDPpc_t \nRightarrow GE_t$	7.9842*	0.0014
$GE_t \nRightarrow GDPpc_t$	0.4664	0.4988
$FDI_t \nRightarrow GE_t$	2.2548	0.1415
$GE_t \nRightarrow FDI_t$	6.6457**	0.0139
$CPI_t \nRightarrow GE_t$	0.2672	0.6082
$GE_t \nRightarrow CPI_t$	5.2E-05	0.9943
$SSC_t \nRightarrow GE_t$	0.7160	0.4028
$GE_t \nRightarrow SSC_t$	3.1377***	0.0845
$FDI_t \nRightarrow GDPpc_t$	3.8477***	0.0572
$GDPpc_t \nRightarrow FDI_t$	8.8087*	0.0052
$CPI_t \nRightarrow GDPpc_t$	1.4369	0.2381
$GDPpc_t \nRightarrow CPI_t$	0.1101	0.7419
$SSC_t \nRightarrow GDPpc_t$	0.4484	0.5072
$GDPpc_t \nRightarrow SSC_t$	0.7256	0.3997
$CPI_t \nRightarrow FDI_t$	5.6039**	0.0231
$FDI_t \nRightarrow CPI_t$	5.1723**	0.0287
$SSC_t \nRightarrow FDI_t$	0.0645	0.8010
$FDI_t \nRightarrow SSC_t$	0.0631	0.8031
$SSC_t \nRightarrow CPI_t$	0.8218	0.3704
$CPI_t \nRightarrow SSC_t$	0.0792	0.7799

Note:

1. $\nRightarrow$ indicated that "does not Granger Cause"
2. *, ** and *** indicated 1%, 5% and 10% significance level.

CONCLUSION AND RECOMMENDATIONS

Income inequality is amongst a key domestic challenge in Pakistan. Income-inequality is one of the foremost issues in the Pakistan economy. The extending gap between the poor and rich population has essentially and prevented the poor from the advantage of GDP growth. The Pakistan share of rural population is as high sixty-four (64) percent compared with the urban population. The difficulty with such research is that they assume uniformity between nations, which is impossible due to differences in culture, social, economic, and institutional situations. As a result, country-specific research is required to fill the gap. Therefore, this research inspects the effect of income inequality, FDI inflows, and human capital on poverty reduction in the case of Pakistan from 1980-2020 and ARDL technique for estimation. This study initiate that the Gini coefficient and inflation rate have positive effect on poverty, while the government expenditure, GDP growth, FDI, and secondary school enrollment have adverse effect on poverty. There is one-way casualty running from income inequality to poverty and government expenditure to poverty, GDP growth to poverty, foreign direct investment to poverty, secondary school enrollment to poverty, GINI coefficient to GDP growth, GDP growth to government expenditure, government expenditure to FDI, and government expenditure to secondary school enrollment, while there is two-way causality between FDI and GDP growth and FDI and inflation rate. Therefore, this study concluded that low-income inequality is significantly reducing poverty in Pakistan. This study recommended that to eliminate poverty, the government should undertake growth-oriented policies as well as tactics aimed at improving income distribution. Furthermore, the government needs to increase the government expenditure in education to improve the human capital to reduce the poverty. Moreover, the government needs to attract the FDI to reduce the poverty.

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