

Globalization and its Impact on Income Inequality; A Time-Series Analysis of Pakistan using ARDL Approach

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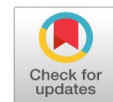
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Abstract: The present study analyzes globalization and its impact on income inequality in the case of Pakistan using the time-series ARDL by Pesaran et al. (2001) from 1991-2019. The outcomes are unique in the sense that globalization causes to increase in income inequality in Pakistan. In contrast, inflation and government expenditure have a negative effect on income inequality. GDP has a positive and significant impact on income inequality. The findings have practical implications for income inequality. This paper finds both short and long-run results while results of short-run differ from the effects of long-run. The methodology used in the paper is ARDL because it is confirmed after applying the unit root test some variables like Gini, TR, and Inflation are stationary at a level while GDP and Government final consumption and expenditure are stationary at level. The data of all variables are collected from WDI, and data strongly favored the balanced panel. However, the ECM value shows a higher convergence speed toward equilibrium. The study updated the recent analysis and suggested that income inequality is the main issue in developing countries, and Pakistan considers a developing country. The researcher limited the analyses only for Pakistan to get the desired outcome and bridge the gap of globalization and its influence on income inequality in Pakistan.

Keywords: Globalization, Income inequality, ARDL, Pakistan, Trade, Inflation, Government final consumption and expenditure, GDP

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INTRODUCTION

The term Globalization has a multidisciplinary concept. It has social, political, and economic associations. It is characterized as fast economic integration among nations driven by the progression of trade, investment, capital flows, and technological changes (Aghion & Williamson 1998). The inclination towards globalism could be seen during the era of liberalism in the 19th century, the general strength of the First World War of brilliant long stretches in 1950s and 1960s. Globalization converts into more noteworthy mobility of the variable of the production of labour and capital, and more importantly, that is globe unification by increasing the trade, foreign direct investment, and Intellectual Property Rights (IPR) (Milanovic, 2005; Wade, 2001).

Globalization is broadly seen as a factor expanding income disparity. To that extent worldwide disparity is concerned, globalization rather appears to lead towards convergence. Many arising nations, particularly China, have found the created world through out globalization. Yet, a huge piece of the discussion centers around income disparity inside nations, specifically inside cutting edge economies. The United States, for instance, is broadly seen as the country that has encountered the most articulated expansion in income disparity, yet other industrialized nations reported developing differences among rich and poor. The Brexit referendum in the United Kingdom in 2016 or the consequence of Donald Trump in the United States in 2016 are broadly seen as imagining the developing failure of globalization Dorn (2017).

Income inequality is the main financial issue that can be found in the individual nation as well as at the international level. It is accounted that 1 percent of income recipients get around 15% of overall income. The most top 5% get the 40% of all the income. In any case, the 20% deprived people just get 1% of overall income (Braun, 1997). Income inequality is a major issue in emerging countries. Many strategies to be adopted to reduce income inequality. Even the target of SDGs 10 focused on reducing the inequality, but the point is still exists on large scale.

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Though SDGs target includes inequality within and among the nations. The main focus of the SDGs was to target the marginalized as well as the deprived people living in underdeveloped countries, so the connection strongly favored that Pakistan considers the underdeveloped countries.

It has been recognized that the benefits of enhancing income and total GDP rates related with globalization and technological advancement have not been shared, similarly across every population. Concerning the creating and emerging economies. For example, India and China are developing at a quicker rate along with a fast decrease in their proportion of individuals less than poverty line. Hence, there is a propensity for extending of income inequality (where India has greater inequality in the distribution of income than China), inferring that there is lopsided circulation of income or development of livelihoods among different areas of population in these economies Hrushikesh et al. (2020). The most significant work, that is designated as inverted U-Shaped relationships, described income inequality first increases at the initial stage of economic development. Subsequently, per capita income enhances, but the income distribution is still worse at the same time. After some time, income distribution starts reducing when per capita moves upward, the procedure of development contains from ordinary to industrial and other sectors as well Kuznets, (1950).

Income inequality is the most debatable phenomenon in developing as well as in developed countries. Discussing about the underdeveloped countries, Pakistan's economy faced a huge level of income inequality in the 1980s and 1990s Shahbaz et al. (2011). Hence, Shari, (2000) elaborated Malaysia considered under the list of developing countries and tried to stabilize its economy. The consequences show income inequality was high during 1970-2000 that created different social conflicts political instability, and impeded economic development. The US considered the rich economy, and this country tried to get stable themselves quickly after the world war, but income inequality was high in the US economy (Weinberg, 1996).

There is an extensive assortment of writing on the historical points of view and expressive link of globalization and income inequality between countries. Despite of the incredible significance of the globalization procedure of the planet, its origin and results persist ambiguously. An association linking an inequality and what's more the quantity of mechanism across globalization that can influence the planet inequality have been explored. The track distinguished are, product payment level, component price converges because of worldwide relocation, capital mobility diminishing the disparity along with divergent in marginal product and rate of payback in nations and vigorous convergent in per head income, so the growth rate is useful to a distance of the secured pace Eckel, (2013).

Various inspections of the analysis regulated to see globalization aspects like globalization and poverty, globalization and sustainability. For instance, the concept of globalization has been perceived by both anti-globalist and pro-globalist as suggested by (Stiglitz, 2003). The literature is confined to discuss the agenda of globalization and income inequality in case of different combinations of countries. For example, Miraj et al. (2016) worked on developing countries even they didn't specifically work on Pakistan to see the impact of globalization. Dorn (2017) discussed 140 developing countries, Celia et al. (2019) considered the European countries, while a latest study is done by Haseeb et al. (2020) to analysis the Indonesian countries. However, the evidence provided, less literature is contributed towards globalization effect on income inequality in the case of Pakistan, which is the most popular and huge problem in every country, especially in emerging countries. None of the updated literature is available to analyze the relation between globalization and income inequality in the case of Pakistan. The current research will bridge the gap to see the relationship between globalization and income inequality in the case of Pakistan.

Globalization enterprise's fast rotation in exchange matters, monetary circulation, and the strength of work worldwide that put forward co-operatively the economic world and construct them powerfully interconnected to each other Zhu and Trefler (2005). Globalization has a positive and a negative impact, as suggested by literature, the motivation behind the study is that the researcher wants to conduct the study that how globalization can affect income inequality in Pakistan. What strategies were adopted to reduce the income inequality even SDGs focused on this on a priority basis. Pakistan considers the developing economy, to what extent globalization made it stronger to pull away from the inequalities.

The main purpose of the research is to explore the following objectives:

- To analyse the role of globalization on income inequality in Pakistan.
- To comprehend the major reasons of globalization that effect income inequality in Pakistan.
- To see either globalization has a positive or a negative effect on income inequality in Pakistan.

- To investigate the short-run relation or long-run relationship exist of globalization and income inequality in Pakistan.

The theoretical chain provides the evidence like Bukhari and Munir (2019) analysis the effect of globalization and income inequality in case of emerging economies. This study is significant in nature for the academic discourse, offering an outline for the future studies. Moreover, this study offers a specific approach of Pakistan, making it quite difficult to be applied on other countries. However, under any stretch of description, the generic implications of this study may not be disregarded and unheeded. Practically, this study offers implications for the policy makers and institutions to design the models for the eradication of poverty, inequality, and unemployment.

In view of investigating the inequality, the origin and level of globalization, the literature confined the less contribution towards defining the association between globalization and income disparity in emerging countries. The current analysis will be helpful for the policymakers for the implications of the measures to reduce the income inequality in Pakistan.

LITERATURE REVIEW

The Issue of Income Inequality

The world economy has been confronting the issue of income inequality. Rising income inequality may diminish the financial possibilities, and restricted development is accessible that make obstacles for the poor to get the advantages of different changes that are offered by globalization and make obstacles to mismatch the abilities of capital and labor that remain inefficient. Decreasing income inequality considers the huge and significant factor in achieving the objective of egalitarian dissemination of income and coming out the social and welfare assistance gives that is due to the expansion of income inequality (Greenwood, 1990)

Historical Literature of Income Inequality

The most important work, which is nominated as inverted u- shaped curve income inequality, enhances at the earliest level of economic improvement. Therefore, per capita income rises but income distribution become worse similarly. After a certain time, income inequality progressively reduces when per capita income is upward. Hence, the procedure of development comprises to move from conventional to industrial and other services sectors, where the usage of modern technology is beneficial mostly a marginal ratio of the population. While, with the progression of time, when the advanced strategies of production become formative, the income is distributed equally in the large population. Therefore, a higher level of per capita income refers to reducing income inequality issue Kuznets, (1955).

An extensive theoretical explanation was confined, how global integration among different economies affects income distribution. For example, the neoclassical broadening perspective and the neoliberal standard, which influenced the universal strategy on the agenda of indigenous progress in the 1990s, recommended that amalgamation to the global economy via Trade and FDI leads to diminishing the income distribution over different economies (Wade, 2001). Accordingly, the legislation of phenomenon or the urbanization attitude, territories are longer interestingly bend towards the international markets with compared to less consolidation.

An urbanization stance recommended that pursued development enlarge the middle class, enhances the earning opportunities as well as saving rate between the vulnerable peoples causes to diminish the distribution of income (Beer, 1990). An inference is that an emerging economy trying to reach the strategies of the advanced economies should unfold their advertise through lessening the tariffs, eliminating the trade barriers, acknowledging the privilege to FDI, and implement the IPR (Ha-Joon, 2015). A world intellectual property rights (WIPO, 2003) reported that invisible assets replace the traditional way and tangible assets like innovations, ideas, creativity such as labor, capital, and land are the main driver of economic development.

Various Empirical Analyses between Globalization and Income Inequality

The empirical studies also found inconsistent results like the theoretical studies. In particular, Milanovic (2002, 2005), same Barro, (2002) concluded that globalization is pro-inequality. Collier & Dollar, (2002) defined the outcome of trade openness on income inequality resulted from insignificant. Milanovic (2005) contributed that globalization has an inverse relation to income inequality. However, he further added that the effect of globalization was much alarming for territories with GDP per head lesser than \$8000. Contrarily, Collier & Dollar, (2002)

worked on almost 92 territories for 40 years, founded that their openness measures were insignificantly linked to income of portion of the lowest quintile.

Seshanna & Decornez (2003) resulted the world economy from the last 40 years, and it is consolidated more in the world, and unable to equal the dissection between high class and vulnerable economies. Mahler (2001) highlighted productive globalization, internal diplomacy, and income disparity in advanced territories. However, few evidence was confined to mold globalization (trade, financial openness, and foreign direct investment) or dispersion of the disposable income and gross household income. The main crux of the result showed the techniques of globalization are less impacted, and it is worthwhile to the fiscal reallocation in the territories.

The investigations between globalization and inequality, Lindert and Williamson (2001) and O'Rourke (2001) expressed that expanded global disparity has been founded between the territories instead of within-country. It observed that globalization have unique ramifications within territories required for the nation. The way that the territories become more coordinated that can be deciphered as globalization sharpened the disparity between countries. The effect that disparity relies upon in nation's progressions in their arrangement to abuse it. Considering the net effect of globalization is little and clarified almost 1800 years increase in world disparity. The wellspring of imbalance in worldwide with immense regions with low-level of training, considering the turbulent organizations that could be helpless for administration and non-democracy rules system, but not for globalization.

Another study was done by Agenor (2003) to what extent globalization has affected emerging economies. The main target was to channel the trade openness and financial integration that has an unfavorable effect on hunger. The analysis evidences an inverted u-shaped association exists between globalization and hunger, that appropriating globalization causes to enhance the hunger. So, globalization and opening of trade system are the main source of consumer price subsidies that is eligible to reduce poverty. The result evaluated that continuous subsidy may cause to enhance the value of non-aided outcome and affects the non-dominated groups (Dhehibi & Gil, 2003).

The evidence provided by Either (2002) inspected the wage link between globalization and income disparity. Various outcomes of globalization on unemployment, expertise charge system, and territories social system were noticed. The empirical analysis showed the role was not played to enhancing the skill premium rather than skilled biased technical changes. So, outsourcing and unskilled labor can be substitutable while capital instruments and experienced persons are considered to be interdependent. Hence, globalization explains the reason for analyzing the stylized facts. Miller (2001) demonstrated globalization clarifies a huge expansion in income inequality from decreasing the wage of the workers that are not skilled in the US since the last 1970. The vast enhances in wage inequality resulted from structure that changes in the production function. When the system of outsourcing is involved, then the workers that are not specialized migrate to the deprived nations. Miller (2001) Further explained that globalization would enhance the disparity that is already have in the territories.

Another empirical work was investigated by Dreher and Gaston, (2008) to show the association between income inequality and globalization that involve industrial wage inequality and household income inequality. By defining these three proportions of openness during period of 1970-2000. Hence their result mentioned income inequality was large in OECD countries.

Dorn (2017) re-examined the link between globalization and income inequality in 140 different emerging and advanced economies during the time of 1970-2014. The OLS techniques were adopted to see the overall impact of globalization or sub-indicator effect of inequality. The OLS techniques shows globalization causes to enhance the income disparity. However, 2SLS techniques were used to analyze the effect of globalization in advance economies. The result concluded both OLS and 2SLS techniques do not provide the favored result, both techniques cause to enhance the income disparity in emerging and advanced economies.

A recent approach is focused by Abakumova and Primierova (2018) to analyze the economic growth, globalization, and income inequality from 1995 to 2016 using ARDL of Ukraine. Their result comprehended economic growth first increased the income inequality, and then it decreases gradually. Their result strongly supported the Kuznets (1955) hypothesis. However, globalization has a positive association with income inequality.

Another consideration is examined to interplay the link between income inequality and globalization over the specific 29 European countries by Celia et al. (2019), covering the period between 2005-2015. The time length covered the two lopes of economic growth and economic recession. Three macroeconomic trends were particularly analyzed to work. Financial, trade liberalization, and technological advancement. The main objective was to analyze the reason to enhance or diminish the inequality through the trade liberalization and financial effect. The

conclusion indicated that globalization causes to reduce the inequality in European countries.

Haseeb et al. (2020) worked on inequality, globalization and human development in Indonesian economies during the period between 1990-2016. The outcome of the discussion provided a unique result linked with co-movement between globalization, inequality and human development index in Indonesian economies. From the time side, the result viewed the robust but inconsistent associations between mentioned variables, and from an economic point of view, the analysis described globalization causes to enhance inequality in Indonesian economies. In a nutshell, after keen analyzing the plethora of literature on globalization and its impact on income inequalities, we divided the study into the next three sections.

MODEL FRAMEWORK AND CONSTRUCTION OF THE VARIABLES OF DATA

The interconnection between inequality and various characteristics along with globalization that influence income inequality explored. The mechanism recognized product equalization, capital mobility that lessens the wage inequality, differential item, rates of assets among territories, and dynamic combination in per head earnings of growth where the growth process is positively linked with the time dependent Ethier, (2002). The channel between globalization and income inequality described enhancing the inequality has got synonymously between the country rather than within-country inequality. The idea of globalization has distinct thoughts for inter-country inequality, relying upon the various dimension of globalization confined the concerned government O’Rourke, (2001). However, the link between the GDP is that it tends to lessen the income inequality through various literature Shehbaz et al. (2011). Inflation is counted as the persistent level of increasing the prices of the channel between inflation, and income inequality that tends to enhance the income inequality (Seven, 2016).

However, the construction of the variables concern. Following the methodology of Ousama (2012), the study includes the Gini coefficient that is used the proxy of income inequality. The reason behind taking the Gini is that as it is full of data measures, covering all aspects of disparity and facilitating the analysis of residents regardless of their population size. Hence, it is frequently used in the empirical literature. Trade openness has used the proxy of globalization, that is also supported by the literature Grenier et al. (2006). The high association coefficients between the variables are, there is some diffuseness providing the details of data. If we drop any of this variable there can be chances of less knowledge. If we include all the variables, then the chances of multicollinearity can occur. The issue of degree of freedom, and possibilities of over-parametrization exists that is more severe condition in the present analysis today. That is why the data is limited to the 29 observations in the study. The data source of all variables is taken from WDI, the time span mentioned in data is 1991-2019. The data is unique in the sense as it is updated data for example Dilawar and Arif (2019) worked on globalization and carbon dioxide emissions in Pakistan, but they did not discuss the combination that the researcher have selected for time-series in Pakistan using ARDL.

Table 1: Correlation Analysis

Correlation Probability	YGINI	TR	LNGDP	LNGOVEXP	INF
YGINI	1.000000				
TR	-0.143551	0.4575	1.000000		
LNGDP	-0.032070	-0.434759	1.000000		
LNGOVEXP	-0.093703	-0.370289	0.971091	1.000000	
INF	-0.295394	0.536267	-0.143154	-0.062284	1.000000
	0.1198	0.0027	0.4588	0.7482	

The author taken the Gini, TR, and other variables like GDP government final consumption and expenditure that are supported as the literature of Ang, (2010). The inflation is the purchaser index, and the writers remains ambiguous about the influence of inflation on income inequality. The literature evidence that inflation enhances inequality Clarke et al. (2006), and Ang (2010). The data consists of an annual basis covering time of 1991-2019,

and it compiles from WDI. The reason behind taking is that it depends on the availability of the data.

Econometric and Estimation Procedure

The recent work follows the Ousama (2012) method to assess the hypothesis that income inequality effect by globalization along with other selected variables such as inflation, GDP, and government final consumption and expenditure.

The specific econometric regression equation used in the model

$$\text{Gini} = f(\text{TR}) \quad (1)$$

$$\text{Gini} = \alpha_0 + \alpha_1 \text{TR} + \alpha_2 \text{GDP} + \alpha_3 \text{Inf} + \alpha_4 \text{GovExp} + \mu_i \quad (2)$$

Gini is a dependent variable which is the measure of income inequality, TR is trade openness, that it is used for the proxy of globalization. GDP and government final consumption and expenditure are control variables.

The Procedure of Estimation as Follows

The methodology of the procedures involves four steps. First, the unit root is directed for the stationary of the data. The outcome found the data is integrated at order I (0) and I (1). ADF test is applied for the non-stationary of the data. Second, the long-run relationship association have been tested. ARDL, is proposed by Pesaran and Shin (1995), Pesaran and Shin (1997), and Pesaran et al, (2001). The ARDL has various benefits over the different procedures of cointegration. For instance, it may be utilized to propose either the variables are integrated at I (0) or I (1), or both are partially integrated Pesaran and Shin (1997).

Second, it includes an adequate lag to catch the data-producing in the dynamic system of overall to specific framework Chai (2003). Third, the Error Correction Term (ECT) is inferred from ARDL with a basic straight transformation (Banerjee et al. 1993). The ECT coordinates short-run adjustment with long-run equilibrium without losing long-run data. Fourth, small characteristics of the ARDL approach are far better than other cointegration procedures (Pesaran & Shin, 1999). Fifth, endogeneity creates a lesser issue in the ARDL procedure because this excludes the issue of residual correlation. Lastly, (Pesaran & Shin, 1997) illustrated the simultaneous techniques in long-run and short-run with lags in the ARDL system that eliminate the issue that is associated to serial correlation and endogeneity problems.

The ARDL equation used in the model follows:

$$\text{Gini} = \alpha_0 + \sum_{i=1}^p \varpi_i \Delta \text{GINI}_{t-1} + \sum_{i=1}^p \phi_i \Delta \text{TR}_{t-1} + \sum_{i=1}^p c_i \Delta \text{GDP}_{t-1} + \sum_{i=1}^p \theta_i \Delta \text{Gov}_{t-1} + \sum_{i=1}^p \delta_i \quad (3)$$

$$\Delta \text{Inf}_{t-1} + \lambda_1 \text{TR}_{t-1} + \lambda_2 \text{GDP}_{t-1} + \lambda_3 \text{Gov Exp}_{t-1} + \lambda_4 \text{Inf}_{t-1} + \mu_t$$

Where the term β_0 considers the drift component. The sigma sign constitutes the error correction term. Then the different character to represent the long-run relation in the model. The second step involves the ARDL bounds testing to estimate the above equation. Then the critical value of F -statistics is administered to analyze the hypothesis whether the long-run relationship between the variables exists or not.

The null hypothesis illustrates:

H0: $\alpha_i = 0$.

There is no long-run relationship

The alternative hypothesis defines:

H1: $\alpha_i \neq 0$.

There is the long-run relationship between the variables.

The F -statistics is contrasted with two values. The higher and lower bound test was proposed by Pesaran et al. (2001). One set explains the variables are integrated at I (0), other assumes the variables are integrated at I(1). Hence, if the value of F -statistics is higher than the maximum and bottom bound test, we consider the null hypothesis without cointegration is rejected no matters whether the variables are I (0) or I (1). If the value is below the lower bond test, then the null hypothesis with no cointegration can't be denied. When the computed F -statistics

lies between maximum and minimum bonds then the outcome can be inclusive. However, to achieving the lag length criteria, the ARDL evaluates the number of regressions. The model is based on Schwartz-Bayesian Criteria (SBC) and Akaike's Information Criteria (AIC). The SBC selects the minimum lag length that why it is known as an economical model, while AIC is select the possible higher lag length criteria.

The following step is considered in the second stage, the long-run association is explored for the mentioned model through SBC and AIC. The existence of the long-run association evidence that the series involves the cointegration, it means the model represents the error correction term. Therefore, the third step consists of the error correction term.

$$\text{Gini} = \alpha_0 + \sum_{i=1}^p \varpi_i \Delta \text{GINI}_{t-1} + \sum_{i=1}^p \phi_i \Delta \text{TR}_{t-1} + \sum_{i=1}^p c_i \Delta \text{GDP}_{t-1} + \sum_{i=1}^p \theta_i \Delta \text{gov}_{t-1} + \sum_{i=1}^p \delta_i \Delta \text{Inf}_{t-1} + \lambda_1 \text{TR}_{t-1} + \lambda_2 \text{GDP}_{t-1} + \lambda_3 \text{GovExp}_{t-1} + \lambda_4 \text{Inf}_{t-1} + \eta \text{ECM}_{t-1} + \mu_t \quad (4)$$

The error correction outcomes have specified speed of adjustment towards the long-run if any shock happens, so we use it to examine the short-run dynamics. The interesting information about the error correction term is that it integrated the short-run adjustment towards the long-run without losing the data. The fourth stage involves the stability of the parameters through CUMSUM and CUMSUM sum of squares. If the parameters are not significant, then it gives fallacious results.

RESULT DISCUSSION AND EMPIRICAL ANALYSIS

The results are displayed under this section. As described earlier, the ARDL technique can be favorable when the variables are level I (0), and at I (1) level, or fractionally integrated. It is obligatory to ensure that no variables are integrated at I (2). To ensure this technique, the ADF is applied.

Table 2: Unit Root Analysis

Variables	<i>t</i> -statistics	<i>p</i> -value	Integrated order
Ygini	-3.539221	0.0145	I(0)
TR	-3.539221	0.0150	I(0)
INF	-4.839670	0.0044	I(0)
GDP	-5.420810	0.0001	I(1)
Govexp	-5.077911	0.0003	I(1)

Table 2 shows none of the variables is beyond at I (2). Variables consist between the integrated order of I (0) or I (1). After confirming that none of the variables is stationary at I (2), the long-run association is conducted. Equation three is carried out to test the bound approach to compute the necessary step of *F*-statistics. The thumb rule is followed for this test which was mentioned earlier. If the *F*-statistics value can be founded than the maximum bond, and minimum bond confined, there is a long-run association among the variables. The computed *F*-statistics evidence that the value of *F*-statistics is higher than the 5% significance level of upper bound required by Pesaran et al. (2001). This value is used to make a decide the relationship between the variables.

Table 3: Bound Test Significant at 5% Level

Variable	Coefficient	Std. Error	<i>t</i> -Statistic	Prob.
TR	29.31050	13.93908	2.102757	0.0507
INF	-0.166502	0.089223	-1.866128	0.0794
LNGDP	11.85178	3.358519	3.528870	0.0026
LNGOVEXP	-7.466223	2.239115	-3.334452	0.0039

Table 4: F-Bounds Test

Test Statistic	Value	Signif.	I(0)	I(1)
F-statistic	4.919745	10%	2.45	3.52
K	4	5%	2.86	4.01
		2.5%	3.25	4.49
		1%	3.74	5.06

Table 3 shows the long-run relationship of the specific variables. The results show TR and GDP are positively significant while Gini INF and government consumption and expenditure is an inverse and significant association. The results favor the literature of (Zhu & Trefler 2005; Grenier et al. (2006) While the coefficient of INF and government final consumption and expenditure is negative and significant. The value of F-statistics strongly agreed to reject the null hypothesis and accept the alternate. Moreover, Amusa et al. (2009) suggested that if the variables are integrated, then the long-run coefficient supports the unbiased results. The short-run result has counted the coefficient of ECM is correct and supported by Pesaran et al. (2001). The value of ECM got -0.746684 that is negative, which found the higher speed towards symmetrical if any shock happens in the short-run. Hence, the importance of R2 is quite good. The results of short-run are different from the results of long-run.

Finally, the ARDL involves to go for the stability of the model. Pesaran and Shin (1997) suggest using the Brown et al. (1975) stability test. The familiar method is called cumulative sum (CUSUM) and cumulative sum of squares (CUSUMSQ). These procedures are confounded to reform it and suggested to plotted against the break's points. These hold to test the stability of the parameters.

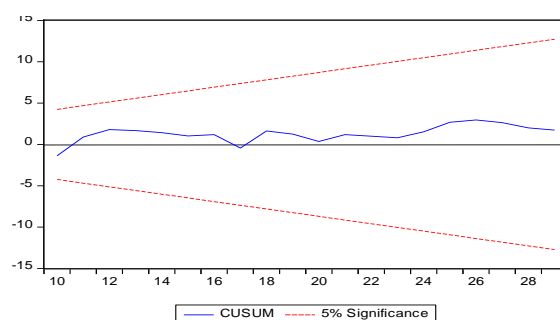


Figure 1: CUSUM

Fig 1 represents the Cumulative sum of the squares. Hence, the straight line shows the critical bound at a 5% significance level.

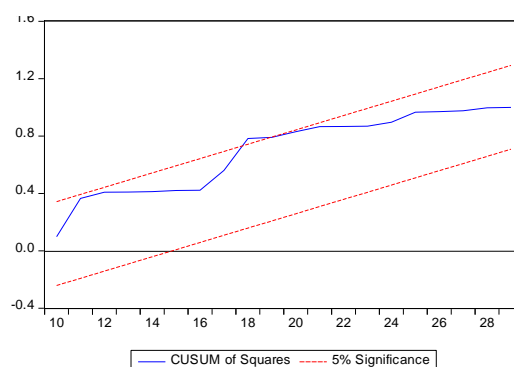


Figure 2: CUSUM OF SQUARE

Fig 2 plot is about the cumulative sum of the squares of recursive residuals. Hence, the straight line represents the 5% significant level.

It is supported by the literature if the plot of these figures lies within 5% significance level. Then we surely say the coefficients in the specific model are stable and cannot be denied. So, the coefficients in the ECM model are comprehensively sustain.

CONCLUSION AND POLICY RECOMMENDATIONS

A bulk of literature endeavored to analyze the linkage between globalization and income inequality. No consensus has emerged yet about Pakistan. The study is limited in a sense it considers only Pakistan to define the issue of income inequality in a more explicit way. The researcher fully concentrates on the issue of income inequality and analyzes its objectives in a more comprehensive and critical way. Pakistan considers the developing country, and this country faces the problem like income inequality. The model applies the ARDL bound test approach that discovers the long-run association, and we found through estimation that a long-run association exists between the variables. It concludes via results globalization causes to enhanced income inequality. The results are matched with literature (Stiglitz, 2003) that globalization has an adverse effect on income inequality, it causes to enhance the income inequality. The results provide the evidence GDP has a positive association with income inequality, while inflation, government final consumption, and expenditure have an inverse association with income inequality.

The theoretical significance of the study is that it provides the path to policymakers, and they can look to comprehend this study, and we have hugely witnessed in the literature how to tackle the issue of income inequality. For Pakistan, it is necessary to control this issue through policies as it is a main problem faced by Pakistan. Moreover, the government of Pakistan should design the procedures to reduce income inequality on a priority basis as it is the target of the SDGs agenda.

Policymakers should be considerate to introducing the policies like by giving incentives to poor and various tactics can be used to diminish the income inequality as mentioned by literature to provide employment opportunities, to introduce the small and medium enterprises, to focus on agriculture, livestock and other sectors as well. By providing all these incentives, the government of Pakistan may reduce the issue of inequality in the future, and it can be less problematic for the people of Pakistan, they will get an opportunity for their livelihood that is a basic need for every citizen. The major goals should be to achieve the overall improvement to diminish the issue of income inequality.

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APPENDIX

Lag Length Criteria						
Lag	LogL	LR	FPE	AIC	SC	HQ
0	-27.09615	NA	7.42e-06	2.377493	2.617463	2.448848
1	89.22668	180.9466	8.89e-09	-4.387161	-2.947343	-3.959028
2	131.0392	49.55555*	3.17e-09*	-5.632531*	-2.992863*	-4.847620*

* 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

ARDL Bound Test Approach				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-80.23491	32.57691	-2.462938	0.0248
YGINI(-1)*	-0.746684	0.158912	-4.698742	0.0002
TR(-1)	21.88569	10.03372	2.181215	0.0435
INF**	-0.124325	0.063692	-1.951961	0.0676
LNGDP**	8.849538	2.877857	3.075044	0.0069
LNGOVEXP(-1)	-5.574912	1.963894	-2.838703	0.0113
D(YGINI(-1))	0.352904	0.150964	2.337664	0.0319
D(TR)	5.503517	6.444772	0.853951	0.4050
D(LNGOVEXP)	-4.627725	2.365621	-1.956241	0.0671
D(LNGOVEXP(-1))	-2.742358	2.138757	-1.282221	0.2170