FDI and Poverty in-line with Quality of Governance and Voice and Accountability: Follow-ups Based on Linear and Non-Linear ARDL

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Abstract

The aim of this study is to explore if effects of Foreign Direct Investment (FDI) alone on poverty in Pakistan during the time period of 1980 to 2022 are different from those with internal precursors like quality of governance and voice and accountability. For the estimation of effects of FDI on poverty, Linear Autoregressive Distributed Lag (ARDL) as well as Non-Linear ARDL (NARDL) are used.

The originality of the study depends on the ascertain that FDI alone and as an interaction with private investment, quality of governance, and voice and accountability is explored to locate if the affectations are dissimilar on poverty. FDI is found to be unfavorable for poverty alleviation. The findings are even trivial when used with private investment. However, the effects of FDI as an interaction term with quality of governance and voice and accountability are positive and significant in mitigating poverty. The government is suggested to acquire appropriate quality of governance and voice and accountability in complementary with FDI to address the rising poverty.

Keywords: Poverty, FDI, private investment, quality of governance, voice and accountability, Pakistan.

1. Introduction

1.1 Background of the Study

Poverty is a wide spread question of particularly the developing world economies because of being a cause of pronounced deprivation in the well-being of the society. The well-being is measured by income possessed by the individuals, nutrition, health, assets, education, housing, and a right of the freedom of speech. The existence of the devastating effects of poverty are always questioned before the governments of such economies who even remain unsuccessful in turning down the poverty figure under the existence of heavy inflows of FDI. Poverty is commonly spoken issue of developing world however, the world growing economies and even economic super powers are also not that away from its clang.

According to the World Bank estimates of 2018, out of 736 million poor people world-wide, 8.6 percent are living in state of poverty in United States, based on USD1.9 or less per day. Moving onto African region, it is forecasted that about 90 percent of the globally poor people would rest in this region since the focus is minute on the investment activities to shatter the spiraling effects of poverty backed at slow economic growth rate (World Bank, 2019; Bloomberg & Winkler, 2019).

The dire situation of poverty causes unrest within the state and also motivates the victims to either migrate or involve in unhealthy activities in order to seek the much greener pastures. Foreign inflows in respect of FDI prove to be a large and more stable to finance such poverty issues by mitigating the dilemma of fewer jobs and vulnerable business initiatives. However, the evidences remain mixed. The inflow of foreign capital like FDI are the evident causes to address the poverty issues. To large extent, the favorable sequels of such inflows are dependent upon socio-economic posits of the host country in which quality of governance and voice and accountability are the matters of primary concern that can either crush or enchanter the saccharine effect of FDI. Somehow, the donors are in a dilemma of either to provide aid for a project or a budget for the overall support of balance of payments. The latter is however practicable but only in decent governance structure.

For Pakistan, the regularity of poverty carries on to bring into hem in millions of people. Statistics of Asian Development Bank (2021) inform that 7.6 million people in Pakistan were living below the poverty line at USD1.9 per day by 2021. According to World Bank records, poverty rested at 39.3 percent among the lower middle-income poverty line of USD3.2 per day during fiscal year 2021-2022. By September 2021, 22 percent of population survived below the poverty line set at PKR3030 per month by the Government of Pakistan. In the era of 1970's and 1980's, the poverty in country was rather falling but by the arrival of 1990's, which was coupled with trends of governance issues and corruption, the phenomenon of poverty became poverty bomb. Later by 2001, the Government of Pakistan requested International Monetary Fund to prepare the poverty reduction strategy to suggest the guideline for curtailing poverty in the country. According to the report of Ministry of Planning and Development, 24.3 percent that is 55 million people were surviving below the poverty line by 2016.

Similarly, the manner by which the country is managed by the exercise of power for utilizing the social and economic resources to realize economic development has also become one of the most pressing issues in Pakistan. The abrupt governance issues and voice and accountability type of concerns have poured out sabotage of ease of doing business of foreign investors, reduced economic growth and government expenditure, woeful delivery of public services, and self-centered interferences in the rule of law. Therefore, because of weakening felt in being unable to diminish poverty issues, the perceived security threats and dominance of military into the political matters is further swaying away the minds to not defocus issue of poverty mitigation at the back of foreign

investment which are not miles away to get remitted if complemented with finest quality of governance, voice and accountability, and better economic environment. Whether this figure is bearable or no, the need is to locate the facts that; Are FDI inflows helpful in coaxing poverty to slitter down. Therefore, this study looks into the evidences that though the affectation of FDI on diverse measurements of poverty is mostly hypothesized to be positive, how the impact of such inflows differs in the environment of voice and accountability and better quality of governance. It is noticeable that the spillovers of such inflows are significant and positive if the internal environment of the host country is free from corruption and have better speculates of quality of governance (Mehmood et al., 2021; Korle et al., 2020). Hence, the interaction terms are included between FDI, private investment, quality of governance, and voice and accountability.

The novelty and motivation of the study bases on the objective that poverty is viewed in varied dimensions with the latest available range of the data with the diverse trends of analyses with ARDL and NARDL in context of Pakistan and for particular in-line with private investment, quality of governance, and voice and accountability as being internal forerunners. Therefore, for measuring the effects together with private investment, quality of governance, and voice and accountability, the separate interaction terms are introduced with FDI for better insight on the effects on various constructs of poverty.

The scheme of this study is settled in a way that; Section 1 is the introduction which is followed by the literature review given in section 2. The research methodology is furbished in section 3. Whereas, section 4 and section 5 are to highlight the results and discussions and conclusion and policy implication.

2. Literature Review

There have been extensive studies where foreign inflows and poverty are linked (Magombeyi & Odhiambo, 2018a,b; Khan et al., 2019; Almfraji & Almsafir, 2014; Zaman et al., 2012; Ucal, 2016; Shamim et al., 2014).

In theoretical glance, FDI is assumed to reduce poverty by engaging sufficient capital and transfer of technology to the host country, together with economic growth. However, enormous list of the research can be marked here that fails to conclude the positive affectation of such inflows on poverty (Sumner, 2005; Huang et al., 2010; Ali et al., 2010; Ogunniyi & Lgberi, 2014; Dhrifi, 2019; Dhrifi et al., 2020; Pham & Riedel, 2019; Musakwa, 2021). Also, in view of Friedman (1962, 2020) and Stendahl et al. (2022), FDI is not more than being selfish towards profit and thus less concerned with the poverty alleviation.

Other empirics argue that depending on better political status and governance related concerns not only bring FDI inflows in massive rate rather the macroeconomic spell outs of such inflows are supposed to turn into positive (Mehmood et al., 2020, 2021; Owusu-Nantwi, 2019).

To Arogundade et al. (2021), FDI and poverty linkage is established by Endogenous Growth Theory where outward shift in production possibility frontier helps enhancing welfare and reduces poverty. Similarly, Hansen and Rand (2006), Mankiw et al. (1992), Findlay (1978), and Dunning (1977) acclaimed the direct as well as indirect spillovers of FDI. In case of economic and productive efficiency, the direct impacts of FDI are observed. On the other side, the creation of jobs at the back of the expansion of human capital condenses poverty in the host country.

Earlier, the empirical studies on FDI and poverty applied ARDL and concluded positive relationship between the two (Khan et al., 2019; Calvo & Hernandez, 2006; Fowowe & Shuaibu, 2014; Shamim et al., 2014; Uttama, 2015; Ucal et al., 2016). Similarly, Shakil and Imran (2022) explored the influence of trade openness and GDP, together with FDI, to be positive on poverty in Pakistan. The study came along the regression analyses of ARDL while data ranged from 1970 to 2019. Likewise, the results were found to be in similar trend as in the studies of Chindengweike (2022) and Gnangnon (2022) on East African and Developing countries through the techniques of two-step generalized method of moments and linear multiple regression.

Meanwhile, the studies also incorporated the role of new technology and conducive economic environment in tracing positive effects of FDI upon poverty (Arogundade et al., 2021; Hanim; 2021). FDI is also evident to post positive effects where infant mortality rate, household consumption expenditure, and life expectancy are used as proxy variable for poverty (Muskwa & Odhiambo, 2019).

On the opposite note, studies have also confirmed weak traces of positive relationship between FDI and poverty (Aderemi et al., 2021; Akinlo & Dada, 2021; Damegu, 2021; and Aderemi, 2020). Such conclusions are based on critical state of macroeconomic variables and weak human capital in recipient country. To Kedir (2011) and Mehmood et al. (2020, 2021), it is therefore crucial to note that socio-economic aspects such as control of corruption, political stability, and quality of governance are important variables that upset FDI and also alter its effects.

Good governance, resource allocation, and accountability seek to promote economic growth and the integrity which altogether influence the prosperity among the people (Korle, 2020). Similarly, Mehmood et al. (2020, 2021) also brought into notice variables like political stability and corruption to be stern in effects on FDI. Such variables therefore cannot be neglected in hindering positive sway of FDI on poverty.

The literature is exasperated given the poverty related fall outs of FDI. It is crucial to observe that poverty is recorded in varied measures. Poverty as head count ratio was taken by Arogundade et al. (2021), Zaghdoudi and Hakimi (2017). While poverty was measured with public expenditure upon social goods by Oyedele et al., (2013). On the other side, empirics also used infant mortality rate, life expectancy, and house hold consumption

expenditure as proxy for poverty (Haruna et al., 2022; Anetor et al., 2020; Magombeyi & Odhiambo, 2018a, 2018b). Conversely, Akinlo and Dada (2021), Aderemi et al. (2021), and Gohou and Soumare (2012) made human development index as best to represent poverty. More so, take-home had been a measurement of poverty in the study of Tsai and Huang (2007). Given that varied measures are used to locate poverty, it is evident that constructs of poverty are vital for better deduction of results.

Presently, quality of governance and voice and accountability are a source of concern for the researcher (Saidi & Ochi, 2023; Dossou et al., 2023; Ramesh & Vinayagathasan, 2023). For particular, FDI, in line with quality of governance, is traced for its effects on economic growth by Saidi and Ochi (2023). Findings, based upon panel threshold regression, confirmed the insignificant impact of FDI on economic growth given the threshold level of 1.20 of quality of governance. Therefore, the association of FDI and economic growth cannot be linear for always. Rather is to depend upon the certain range of the quasi variables such as governance. In Latin American countries, the findings of Dossou et al. (2023) settled that quality of governance is never passive to attract poverty alleviation. Poverty and economic growth-related macroeconomic concerns are somehow related with the effectiveness of government. In this regard, Ramesh and Vinayagathasan (2023) added voice and accountability and quality of governance to possess positive relationship with government effectiveness, however, in short run span of time.

The purpose of this research is to fill the gap by engaging the latest possible length of the data for the analyses on diverse measures of poverty. Moreover, the study area is explored intramurally for Pakistan where the need is to locate the impacts of FDI on poverty in-line with private investment, quality of governance, and voice and accountability as aroused by (Mehmood et al., 2021; Korle et al., 2020; World Bank, 2006). Additionally, most of the empirics tried to engage with ARDL whereas this breach is circumvented by incorporating the ARDL and NARDL for distinguishing the FDI-led whereabouts of poverty.

3. Research Methodology

3.1 Sources of Data

The data are sourced from World Bank Development Indicators (2022), World Governance Indicators (2022), and Economic Survey of Pakistan (2022) for the length of forty-two years ranging from 1980 to 2022. The data is time series in nature therefore make this study a secondary data research.

3.2 Model Specification

Depending on the findings of empirics like Haruna et al., (2022) and Musakwa (2021), the proposed model of this study is specified in Equation [1].

$$POV_t = \alpha_0 + \alpha_1 POV_{t-1} + \beta_1 FDI_t + \beta_2 PIN_t + \beta_3 GEH_t + \beta_4 GDP_t + \beta_5 INF_t + \beta_6 GOV_t + \beta_7 VAC_t + \mu_t \qquad [1]$$

For the better analyses, some of the variables such as; *PIN*, *GOV*, and *VAC* are chosen to make an interaction term with *FDI* to have a deep insight over the change of impact on *POV*. The specified models are given in Equation [2],[3], and [4].

$$POV_t = \alpha_0 + \beta_1 FDI_t \times PIN_t + \beta_2 GEH_t + \beta_3 GDP_t + \beta_4 INF_t + \beta_5 GOV_t + \beta_6 VAC + \mu_t \quad [2]$$

$$POV_t = \alpha_0 + \beta_1 FDI_t \times GOV_t + \beta_2 PIN_t + \beta_3 GEH_t + \beta_4 GDP_t + \beta_5 INF_t + + \beta_6 VAC_t + \mu_t \quad [3]$$

$$POV_t = \alpha_0 + \beta_1 FDI_t \times VAC_t + \beta_2 PIN_t + \beta_3 GEH_t + \beta_4 GDP_t + \beta_5 INF_t + \beta_6 GOV_t + \mu_t \quad [4]$$

3.3 Description and Hypotheses Building of Variables

Where POV_t is denoting poverty that is a dependent variable at time *t*. Foreign direct investment is shown by FDI_t and is looked forward to fling positive effects on poverty The control variable are private investment, government expenditure on health, gross domestic product, and inflation are shown by PIN_t, GEH_t, GDP_t, and INF_t, respectively. Moreover, μ_t is a white noise stochastic disturbance term.

The justification at the back of incorporating *PIN* is because private investment is a cause of consistent economic growth. Higher private investment fosters economic growth that help tackle the issues at macroeconomic front. Therefore, this variable is hypothesized to pass-on positive effects on poverty. Similarly, health is a determinant of longevity and active work participation. If government expenditure on health is appropriate, it is to stop triggering rate of poverty. In conclusion, poverty and government health expenditure are hypothesized to possess negative relationship. Moving on to GDP, economic progress is better represented by GDP. The GDP is confirmed by the researchers like Winter (2002), Haruna et al. (2022) to infringe the rising poverty at large. Therefore, this study steps up to hypothesize GDP and poverty in positive connotation. Lastly, rising prices hinder the economic growth and is unpleasant for the foreign investors in their business. Likewise, the causes of inflation are also not appreciable while poverty is taken into an account. Therefore, this study concludes to hypothesize inflation as a cause of increasing poverty (Mehmood et al., 2020, 2021).

Mehmood et al. (2021) and Korle et al. (2020) uncovered quality of governance as an instrument that effects FDI. Following the same pattern, this study incorporates the hypothesis that quality of governance is to cause effects on poverty as well. In spite of this, voice and accountability is also expected to affect the poverty (World Bank, 2006). Therefore, quality of governance and voice and accountability are hypothesized to post positive effects on poverty.

3.4 Description of the Variables

The variables and their varied measurements are given in Table 1.

Table 1: Descriptions of the Variables

Variable	Abbreviation	Measurement	Source
Poverty	POV	Household Final consumption expenditure. The series was in current USD which is converted into Million LCU.	World Bank Development Indicators
Foreign Direct Investment	FDI	Net inflows of investment are the summation of reinvestment of earnings, equity capital, other long-term/short-term capital appear in the balance of payments. This series shows total net FDI and the series was in current USD which is converted into Million USD.	World Bank Development Indicators
Private Investment	PIN	Gross fixed capital formation covers gross expenses by the private sector (including private nonprofit agencies) on additions to its fixed domestic assets in current LCU which is converted into Million LCU.	World Bank Development Indicators
Government Expenditure on Health	GEH	Government expenditure on health (developmental and current) in Million LCU.	Economic Survey of Pakistan
Gross Domestic Product	GDP	GDP per capita in current USD.	World Bank Development Indicators
Inflation	INF	Consumer prices in percentage annual.	World Bank Development Indicators
Quality of Governance	GOV	Represents perceptions of a quality of public services, a quality of civil service and a mark of its independence from political pressures, quality of policy implementation and formulation, and a credibility	World Governance Indicators

		of government's commitment towards such policies. Estimates range from -2.5 (weak) to 2.5 (strong) effectiveness of governance.	
Voice & Accountability	VAC	Highlights perceptions of an extent to which a citizen of a country is able to contribute in choosing their government, having freedom of expression and association, and a free media. The range is from -2.5 (weak) to 2.5 (strong) voice & accountability.	World Governance Indicators

3.5 Empirical Analyses

3.5.1 Unit Root Test

The test of unit root, as referred by Dickey and Fuller (1981), is conducted by Augmented Dickey Fuller (ADF) while relying upon Schwarz Information Criteria (SIC). The equation for ADF test is given in Equation [5]

$$\Delta X_t = \beta_0 t + \beta_1 t + \lambda_{yt-1} + \varphi \sum \Delta y_{t-1} + \varepsilon_t \qquad [5]$$

The time trend is shown by *t*. λ represents the status of unit root. The ADF test is followed by a specification as is given in Equation [6]

$$ADF = \frac{\lambda}{SE(\lambda)} \qquad [6]$$

If computed *F* statistic is significant and higher than corresponding critical value, the H_0 of unit root is not rejected and vice versa.

3.5.2 Cointegration and Linear & Non-Linear Autoregressive Distributed Lag Model

The extant of long run relationship represents that variables of prescribed model are cointegrated. For cointegration analyses, Johansen and Juselius (1990), Engle and Granger (1987) and mostly Pesaran (2011), Pesaran et al. (1999;2001) are found in contemporary empirical studies (Mehmood et al., 2020, 2021, Haruna et al., 2022). According to Pesaran et al. (1999) and Pesaran (2011), ARDL based estimations are unbiased even if variables are stationary at I(0), I(1), or a mixture of both.

There are two components to analyze the data. One is the distributed lag which means that the independent variables with lags can influence the dependent variable. The other one is autoregressive lagged value of dependent variable that effects its current value. The method of ARDL begins with the bound test to locate long run relationship among the variables. In this respect, the unrestricted error correction model is generalized in following Equation [7].

$$X_t = \alpha_0 + \alpha_1 \cdot X_{t-1} + \beta_0 \cdot Y_{1_{t-1}} + \beta_1 \cdot Y_{2_{t-1}} + \ldots + \beta_6 \cdot Y_{7_{t-1}} \sum_{j=1}^{p-1} a_j \Delta X_{t-j} + \quad [7]$$
$$\sum_{j=0}^{q-1} \phi_j \Delta Y_{i,t-j} + \ldots + \sum_{j=0}^{w-1} \phi_j \Delta Y_{i,t-j} + \varepsilon_t$$

Where X is the dependent variable against the set of Y_i series of independent variables ranging from Y_1 to Y_7. The notation of p,q,r,s,t,u,v,w are the lag order of the variables extended from Y_1 to Y_7.

The H_0 of hypothesis is $\delta_0 = \delta_1 = \delta_2 = \delta_n = 0$ which means no cointegration. Alternatively, the H_1 is $\delta_0 \neq \delta_1 \neq \delta_2 \neq \delta_n \neq 0$ meaning that there is a cointegration among the specific variables. The H_0 is rejected if computed F-statistic is greater than I(1) and vice versa.

The long run coefficient estimates are computed by the following derived model given in Equation [8].

$$\Delta X = \alpha_0 + \sum_{j=0}^{p} \phi_j \Delta X_{t-j} + \sum_{j=0}^{q} \phi_j \Delta Y_{i,t-j} + \ldots + \sum_{j=0}^{w} \phi_j \Delta Y_{i,t-j} + \varepsilon_t \quad [8]$$

Where ϕ shows the long run coefficient. i shows the number of regressors that range from 1 to 7. Subsequently, the short run coefficients are found with Error Correction Term (ECT). The estimation model is given in Equation [9]

$$\Delta X = \alpha_0 + \sum_{j=0}^{p} \gamma_j \Delta X_{t-j} + \sum_{j=0}^{q} \gamma_j \Delta Y_{i,t-j} + \ldots + \sum_{j=0}^{w} \gamma_j \Delta Y_{i,t-j} + \eta ECT_{t-1} + \varepsilon_t \quad [9]$$

Where the γ and η are the coefficients of short run regressor and of ECT.

The coefficient of ECT must be statistically significant with negative sign. Moreover, the accepted range of the coefficient of ECT is 0 to -1.

Finally, the asymmetric effects of independent variables of interest are computed by employing NARDL as proposed by Shin et al. (2011, 2014). In NARDL, the regressor(s) or the concerned variable is decomposed for positive and negative shock. The representation of NARDL is given in Equation [10].

$$X_t = \beta^+ X_t + \beta^- X_t + \varepsilon_t \qquad\qquad [10]$$

Where the $\beta^{+,-}$ show asymmetric long run changes on X_t in positive and negative, respectively.

Finally, the generalized estimation based on NARDL for long run and short run is given in Equation [11] and [12], respectively.

$$\Delta X = \alpha_0 + \sum_{j=0}^{p} \phi_j \Delta X_{t-j} + \sum_{j=0}^{q} \phi_j \Delta Y^+_{i,t-j} + \sum_{j=0}^{q} \phi_j \Delta Y^-_{i,t-j} + ... + \sum_{j=0}^{w} \phi_j \Delta Y_{i,t-j} + \varepsilon_t \qquad [11]$$

$$\Delta X = \alpha_0 + \sum_{j=0}^{p} \gamma_j \Delta X_{t-j} + \sum_{j=0}^{q} \gamma_j \Delta Y^+_{i,t-j} + \sum_{j=0}^{q} \gamma_j \Delta Y^-_{i,t-j} + ... + \sum_{j=0}^{w} \gamma_j \Delta Y_{i,t-j} + \eta ECT_{t-1} + \varepsilon_t \qquad [12]$$

Where ϕ shows the long run coefficient. i shows the number of regressors that range from 1 to 7. Similarly, γ and η are the coefficients of short run regressor and of ECT. In case of both time horizons, variables of interest for the asymmetric results are FDI, FDI×PIN, FDI×GOV, and FDI×VOC.

4. Results and Discussions

This section elaborates the results and discussion on these results.

4.1 Descriptive Statistics

To start with, the results of Descriptive Statistics are given in Table 2. It is noteworthy to note that the variables as POV (measured with house hold final consumption expenditure), FDI, PIN, have consistency and less dispersion from their respective mean value. However, wider deviation from mean is evident in case of GDP and INF. More so, GOV and VAC, measured within the range of -2.5 to +2.5, have exhibited maximum value of -0.27 and -0.54, respectively. It shows that both of the governance indicator remained far from their defined ideal ranges. Most of the variables are positively skewed that shows a rise within the selected range of data. Apart from GDP, GOV, and VAC, rest of the variables have kurtosis value of > 3. Which means that distribution is platykurtic, have a wider peak, flatter than normal distribution, and the values are widely spread around the mean. Finally, the Jarque-Bera test results make it clear that GDP, INF, GOV, and VAC are normally distributed series.

Table 2: Descriptive Statistics

	POV	FDI	PIN	GEH
Mean	10443792.00	1223.78	1338835.00	91361.04
Median	3705925.00	719.44	634148.00	23179.00
Maximum	52608945.00	5590.00	5975672.00	657185.00
Minimum	217896.00	29.46	32536.00	1378.89
Std. Dev.	14037141.00	1364.17	1666156.00	155011.90
Skewness	1.51	1.71	1.39	2.19
Kurtosis	4.21	5.76	3.81	6.94
Jarque-Bera	18.41	33.81	14.78	60.64
Prob.	0.00	0.00	0.00	0.00
Mean	GDP	INF	GOV	VAC
Median	710.64	8.19	-0.50	-0.90
Maximum	494.32	7.88	-0.46	-0.94
Minimum	1620.74	20.29	-0.27	-0.54
Std. Dev.	293.39	2.53	-0.82	-1.22
Skewness	422.10	3.72	0.16	0.16
Kurtosis	0.84	0.66	-0.57	0.26
Jarque-Bera	2.29	3.82	2.30	2.59
Prob.	5.88	4.18	3.17	0.75
	0.07	0.12	0.20	0.69

4.2 Correlation Analyses

The results of correlation among the opted variables are given in Table 3.

Table 3: Correlation Matrix

	POV	FDI	PIN	GEH	GDP	INF	GOV	VAC
POV	1.00							
FDI	0.45	1.00						
PIN	0.92	0.50	1.00					
GEH	0.95	0.37	0.96	1.00				
GDP	0.92	0.59	0.92	0.84	1.00			
INF	-0.03	0.29	-0.03	-0.05	-0.01	1.00		
GOV	-0.47	-0.44	-0.48	-0.28	-0.64	-0.25	1.00	
VAC	0.51	0.33	0.51	0.45	0.55	0.20	-0.50	1.00

The results indicate INF and GOV as negatively correlated to POV and to almost other variables in the row. However, high correlation is found within the brackets of PIN, GEH, GDP. It is because the variables are measured in Million LCU. Being time series, the regression results are not expected to be erroneous given that the diagnostic results are satisfactory and secondly, the regression analyses is not simply like of ordinary least square.

4.3 Results of Unit Root

Although ARDL is not effected by the order of variables to be integrated at either I(0) or I(1). However, it is essential that neither of the series is stationary at I(2). For this purpose, unit root test is conducted as prescribed by ADF (1981). The results are portrayed in Table 4 which ascertain that the variables are stationary at the mixed states of integration i.e. I(0) and I(1). Therefore, ARDL is justified to be incorporated for the regression analyses.

Table 4: Summary of Unit Root Results

Variable	Level		1st Difference	
	Constant	Constant and Linear Trend	Constant	Conclusion
POV	1.73	2.36	-3.57*	I(I)
FDI	-2.51	-3.42*	--	I(0)
PIN	3.98	-5.57*	--	I(0)
GEH	0.04	3.75	-5.53*	I(I)
GDP	1.51	-4.73*	--	I(0)
INF	-4.93*	--	--	I(0)
GOV	-1.97	-4.34*	--	I(0)
VAC	-3.41**	--	--	I(0)
FDI×PIN	0.15	-1.78	-5.98*	I(1)
FDI×GOV	0.25	-2.69	-5.94*	I(1)
FDI×VAC	-2.02	-2.04	-3.83*	I(1)

Note: * shows significant at 1 percent, respectively

4.4 Selection of Optimal Lag Length

The selection of optimal lag length is vital to obtain the best possible results via ARDL. For this purpose, the optimal lag length is conquered by the mean of Akaike Information Criteria (AIC) with the lowest value in the range of varied lag lengths. The summary of the results is given in Table 5.

Table 5: Summary of Optimal Lag Length

Model-I		Model-II		Model-III		Model-IV	
Lag	AIC	Lag	AIC	Lag	AIC	Lag	AIC
0	115.87	0	118.79	0	117.02	0	91.57
1	104.25	1	108.32	1	106.37	1	81.01
2	102.56	2	107.32	2	105.59	2	80.31
3	93.58*	3	101.63*	3	101.13*	3	77.48*

Note: * shows the selection of optimal lag referred by the minimal value at AIC criteria.

4.5 ARDL Bound Test Towards Cointegration

The results of bound test of cointegration are presented in Table 6. The bound test is repeatedly performed on each model specified is in Equation [1], [2], [3], and [4] for ARDL and NARDL both. The results confirm that computed F-statistic is significant at 1 percent and higher than the corresponding upper bound critical value viewed with Narayan (2005). Therefore, inveterate the long run relationship in each model, respectively.

Table 6: Summary of Bound Test of Cointegration

ARDL			
Model	F-Statistics Calculated	Upper& Lower Critical Value	Conclusion
Model-1	6.72*	2.73 & 3.90	Existence of Cointegration
Model-II	29.39*	2.88 & 3.99	
Model-III	19.83*		
Model-IV	11.33*	2.88 & 3.99	
NARDL			
Model	F-Statistics Calculated	Upper& Lower Critical Value	Conclusion
Model-I	30.82*	4.13 & 5.00	Existence of Cointegration
Model-II	52.71*	4.13 & 5.00	
Model-III	24.68*	4.13& 5.00	
Model-IV	24.67*	4.13 & 5.00	

Note: * show that calculated F-Statistic is significant at 1 percent. Critical values are got from Narayan (2005).

4.6 Long Run Coefficient Results (ARDL)

Table 7 irradiates the long run coefficients results of ARDL for Model-I to Model-IV. The findings of all the models indicate that most of the variables are illustratively significant. In precise, FDI and poverty are found to have a negative relationship in Model-I. These conclusions are not hard to be comprehended. Most of the studies are in the row those have traced same relationship since the tycoons of FDI are more mechanized than are thought to be (Stendahl et al., 2022; Musakwa et al., 2021; Friedman, 1962, 2020; Dhrifi, 2019; Pham & Riedel, 2019; Ogunniyi & Igberi, 2014; Sumner, 2005; Huang et al., 2010; Ali et al., 2010).

In case of Model-II, the interaction term of FDI and PIN is constructed to locate if the results differ. Whereas, the findings are similar as are in case of FDI alone. It means that local entrepreneurs are also modeled to trace the foot prints of FDI in incorporating the mechanics instead of labor therefore, resulting in turning poverty up in-line with fall in house hold consumption expenditure. The results are not unusual as Mehmood and Hassan (2017), Mehmood et al. (2018a;2018b) ascertained that FDI tends to offset the jobs numbers in the host country since being capital intensive at large. Therefore, any labor throw-outs are to ultimately result in reducing house hold consumption expenditure which depicts state of inclining towards poverty. However, it is quite noticeable that the negative effect is mild. This may be due to the labor unions or any government directorate of specific labor capital ratio for the local industries at particular or else the local entrepreneurs are less conversant with latest technology therefore are bound to engage with the labor usage. On the other side, it is noted that in Model-III, FDI×GOV brings into confidence to state positive outcomes on poverty. Any increase of 1 unit in FDI×GOV is held responsible to have a surge of 2263.71 units in the house hold consumption expenditure that is a sign of departure from poverty. The quality of governance that is recorded for the insights of quality of public services towards the general public and the quality of civil services embedded with no any political influence or biasness are the responsibilities of any government at internal front. Such policy norms are indeed vital for the establishment of solid state and to be a host to heavy inflow of foreign inflows and to be a host of sovereignty and respect at external front (Workneh, 2020; Dossou et al., 2023; Mehmood et al., 2020, 2021; Owusu-Nantwi, 2019). Therefore, the earlier conclusions are again recalled by the record of positive relationship of FDI×GOV on poverty unlike the otherwise facts noted at FDI alone. Similarly, the coefficient of the interaction term of FDI×VAC in Model-IV is also significant and holds positive way being in case of poverty reduction. Thereby, it is not unusual to determine that FDI alone is of negative effects on poverty however, better state of voice and accountability which is an internal matter is powerful to sway FDI to have positive state of effects on house hold consumption expenditure and in significantly lowering down poverty. As mentioned by Mehmood et al. (2021), Korle et al. (2020), and

World Bank, (2006), VAC is referred to the perceptions that a citizen of a particular country is able to contribute in choosing their government, having freedom of expression, association, and free media. Therefore, it is sanctioned that any state with better arrangement of voice and accountability is able to address the issues of general public at large (Workneh, 2020; Dossou et al., 2023). Thus, the results of FDI×VAC institute that if VAC is coupled with FDI, the issue of poverty is addressable.

The control variables are mostly significant in effecting poverty. PIN alone is found to address the issue of poverty, unlike GEH and GDP. The negative where abouts of poverty and GEH are due to the replacement of peoples' spending by the government which is evident through the coefficient value. GDP and poverty are also moving other way due to replacement of labor with capital for any favor towards the economic growth. INF is found to increase expenditure on spending to cater the daily needs. It can't be read as a decrease in poverty. It is because during high prices people rather have to spend more on consumption. Moreover, GOV and VAC are found insignificant except at Model-II where both have found to increase poverty. Therefore, any positive effects are not promised while depending on GOV and VAC unless coupled with investment capital.

Table 7: Long Run Coefficient Results (ARDL)

Model-I				
Variable	**Coeff.**	**S.E**	***t*-Stat**	**Prob.**
FDI	-1207.98*	138.25	-8.74	0.00
PIN	15.87*	2.45	6.47	0.00
GEH	-71.10*	12.47	-5.70	0.00
GDP	-24782.11*	6265.39	-3.96	0.00
INF	111987.71*	29651.46	3.78	0.00
GOV	1181510.19	1637433.24	0.72	0.48
VAC	1761616.83	1114038.72	1.58	0.14
C	9105077.93*	2598013.98	3.50	0.00
Model-II				
Variable	**Coeff.**	**S.E**	***t*-Stat**	**Prob.**
FDI×PIN	-0.001*	0.00	-3.18	0.01
GEH	10.95	11.91	0.92	0.37
GDP	-5491.63	6871.20	-0.80	0.44
INF	-66114.01	78988.63	-0.84	0.42
GOV	-9575641.56**	4545431.47	-2.11	0.06

VAC	-9280053.43*	2718149.58	-3.41	0.00
C	-10637141.14*	3174811.59	-3.35	0.01
Model-III				
Variable	**Coeff.**	**S.E**	***t*-Stat**	**Prob.**
FDI×GOV	2263.71**	921.88	2.46	0.02
PIN	1.52	4.27	0.35	0.73
GEH	-16.52	16.14	-1.02	0.32
GDP	9344.50	9949.80	0.94	0.36
INF	-30574.33	54157.74	-0.56	0.58
VAC	-885047.61	1163578.95	-0.76	0.46
C	-3484505.31	3720117.68	-0.94	0.36
Model-IV				
Variable	**Coeff.**	**S.E**	***t*-Stat**	**Prob.**
FDI×VAC	978.48*	223.72	4.37	0.00
PIN	9.27*	2.06	4.49	0.00
GEH	-42.99*	11.51	-3.74	0.00
GDP	-10664.26	7210.84	-1.48	0.16
INF	61149.90***	33822.17	1.81	0.09
GOV	-669744.76	1849386.49	-0.36	0.72
C	2767030.51	1817251.40	1.52	0.15

Note: *, **, & *** show significant at 1, 5, & 10 percent, respectively.

4.7 Long Run Coefficient Results (NARDL)

The results of NARDL are published in Table 8. The FDI is found to have similar consequences on poverty as are recorded in ARDL.

Table 8: Result of Asymmetric Long Run Coefficients (NARDL)

Variable	Coeff.	S.E	*t*-Stat	Prob.
FDI$^+$	-2974.01*	953.12	-3.12	0.00
FDI$^-$	-2087.67***	1230.40	-1.70	0.10
FDI×PIN$^+$	0.02	0.04	0.50	0.62
FDI×PIN$^-$	0.01	0.02	0.42	0.68
FDI×GOV$^+$	16216.29*	5916.44	2.74	0.01
FDI×GOV$^-$	15032.13**	5936.82	2.53	0.02
FDI×VAC$^+$	14131.53**	5902.98	2.39	0.02
FDI×VAC$^-$	14251.23**	5893.60	2.42	0.02

Note: *, **, & *** show significant at 1, 5, & 10 percent, respectively.

Any positive shock that is 1 unit increase in FDI is resulting a decrease in consumption expenditure of house hold by 2974.01 units which means an increase in poverty. And 1 unit decrease in FDI is to bring 2087.67 unit increase in house hold consumption expenditure which means a decrease in poverty. Therefore, FDI alone is not in favor of poverty alleviation.

The results of interaction terms of FDI×PIN are insignificant. However, on complementary end of FDI, quality of governance, and voice and accountability, poverty is well addressed in case of both positive and negative shock recorded in case of FDI×GOV and FDI×VAC. The way FDI×GOV and FDI×VAC increases, poverty is found to decline since there is evidence of rise in house hold consumption expenditure and vice versa. Therefore, governance and voice and accountability are not to be neglected while aiming at exploring the variables to shot down poverty (Workneh, 2020; Dossou et al., 2023)

4.8 Short Run Coefficient Results (ARDL)

Next to the results of long run coefficients, the short run results are detailed in Table 9. The dependent variable is significant at first difference in case of last two years. The short run coefficient of FDI is at most consistent to long run in its effect on poverty. Only the coefficient of FDI is instigating increase in household consumption expenditure at first difference where it is in support of the earlier studies of Fowowe and Shuaibu (2014), Tsaurai & Kunofiwa (2018), Dagume (2021), and Gohou and Soumare (2012).

On the similar note, the record of short run coefficient of FDI×PIN is exhibits likewise effects as are found in long run. The results confirm that when FDI interacts with PIN, the effect on poverty is negative but too meager. At first difference, the impact is positive as in case of FDI alone.

The robustness of the results in both time horizon is established when short run coefficients of FDI×GOV and FDI×VAC both possess positive relationship with poverty i.e., any one

unit increase in these variables tends to favor household consumption expenditure to grow. Which is a sign of poverty reduction. As mentioned by World Bank (2006), Workneh (2020), Korle et al. (2020), Dossou et al. (2023), and Mehmood et al. (2021, 2020), the macroeconomic effects of quality of governance and voice and accountability cannot be kept in veil. Therefore, the complementary impact of quality of governance and voice and accountability with FDI are appreciated as being unswerving in their similar pose of affectation on poverty in short run and in long run too. However, mixed results are found on the short run coefficients of GOV and VAC alone except in case of Model-II where the GOV and VAC both are appreciating the household consumption expenditure thus swaying poverty towards decline. The coefficient of ECT in each model is also significant and sited within the accepted range. At precise, the speed of adjustment at which the dependent variable return to long run equilibrium after the changes in other variables is 99, 35, 40, and 64 percent, respectively.

Table 9: Short Run Coefficient Results (ARDL)

Model-I				
Variable	**Coeff.**	**S.E**	*t*-**Stat**	**Prob.**
D(POV(-1))	-2.21*	0.19	-11.41	0.00
D(POV(-2))	-1.30*	0.17	-7.56	0.00
D(FDI)	314.63*	67.91	4.63	0.00
D(FDI(-1))	-533.97*	55.55	-9.61	0.00
D(FDI(-2))	-415.58*	65.62	-6.33	0.00
D(PIN)	-5.02*	0.87	-5.80	0.00
D(PIN(-1))	4.61*	0.46	10.06	0.00
D(GEH)	8.89*	2.51	3.55	0.00
D(GEH(-1))	-52.66*	4.58	-11.51	0.00
D(GEH(-2))	-44.77*	3.44	-13.00	0.00
D(GDP)	9372.28*	826.18	11.34	0.00
D(GDP(-1))	-9304.02*	893.06	-10.42	0.00
D(GDP(-2))	-3645.90*	866.38	-4.21	0.00
D(INF)	-81237.89*	15481.08	-5.25	0.00
D(GOV)	4411771.80*	749077.98	5.89	0.00
D(VAC)	174927.60	285640.38	0.61	0.55
D(VAC(-1))	-590042.14	384362.12	-1.54	0.15
D(VAC(-2))	1726585.87*	308803.85	5.59	0.00
ECT	-0.99*	0.08	-12.16	0.00

Model-II				
Variable	Coeff.	S.E	*t*-Stat	Prob.
D(POV(-1))	-1.45*	0.11	-13.13	0.00
D(POV(-2))	-0.67*	0.10	-7.01	0.00
D(FDI×PIN)	0.00005*	0.00	1.74	0.11
D(FDI×PIN(-1))	-0.0004*	0.00	-12.16	0.00
D(FDI×PIN(-2))	-0.0002*	0.00	-5.16	0.00
D(GEH)	-7.85**	3.22	-2.44	0.03
D(GEH(-1))	-8.27*	2.07	-4.00	0.00
D(GEH(-2))	-22.43*	2.96	-7.59	0.00
D(GDP)	6113.90*	472.85	12.93	0.00
D(GDP(-1))	2900.80*	783.08	3.70	0.00
D(INF)	-32691.73**	14339.87	-2.28	0.04
D(INF)	4708666.97*	819560.84	5.75	0.00
D(GOV)	1138132.08***	596516.32	1.91	0.08
D(GOV(-1))	1857364.25**	807775.27	2.30	0.04
D(GOV(-2))	1559355.43*	418968.39	3.72	0.00
D(VAC)	2110907.01*	386743.89	5.46	0.00
D(VAC(-1))	2111849.34*	345784.59	6.11	0.00
D(VAC(-2))	0.28*	0.02	18.11	0.00
ECT	-0.35*	0.12	-2.94	0.00
Model-III				
Variable	Coeff.	S.E	*t*-Stat	Prob.
D(POV(-1))	-1.40*	0.16	-8.73	0.00
D(POV(-2))	-0.49*	0.15	-3.16	0.01
D(FDI×GOV)	230.34**	111.40	2.07	0.05
D(FDI×GOV(-1))	737.55*	113.51	6.50	0.00
D(FDI×GOV(-2))	413.87*	97.71	4.24	0.00
D(PIN)	2.21*	0.62	3.55	0.00
D(PIN(-1))	3.14*	0.61	5.15	0.00
D(PIN(-2))	2.09***	1.06	1.98	0.06
D(GEH)	-11.04*	2.27	-4.85	0.00
D(GEH(-1))	-14.75*	3.61	-4.09	0.00
D(GEH(-2))	-24.72*	3.53	-7.00	0.00
D(GDP)	2117.76*	738.66	2.87	0.01
D(GDP(-1))	5910.89*	1220.77	4.84	0.00
D(INF)	8259.67	14428.90	0.57	0.57
D(VAC)	422625.72	351492.59	1.20	0.24
ECT	-0.40*	0.03	-13.85	0.00

Model-IV				
Variable	**Coeff.**	**S.E**	***t*-Stat**	**Prob.**
D(POV(-1))	-1.92*	0.19	-9.93	0.00
D(POV(-2))	-0.73*	0.17	-4.39	0.00
D(FDI×VAC)	46.84	77.85	0.60	0.56
D(FDI×VAC(-1))	553.63*	83.28	6.65	0.00
D(FDI×VAC(-2))	402.06*	97.18	4.14	0.00
D(PIN)	0.05	0.73	0.06	0.95
D(PIN(-1))	5.21*	0.65	8.01	0.00
D(PIN(-2))	3.87*	1.09	3.54	0.00
D(GEH)	-12.67*	2.39	-5.31	0.00
D(GEH(-1))	-34.94*	4.40	-7.93	0.00
D(GEH(-2))	-39.78*	3.97	-10.01	0.00
D(GDP)	5053.07*	944.16	5.35	0.00
D(GDP(-1))	1118.45	925.57	1.21	0.25
D(GDP(-2))	-3151.73**	1211.01	-2.60	0.02
D(INF)	-44591.18*	14199.42	-3.14	0.01
D(GOV)	2013301.86*	693048.08	2.90	0.01
D(GOV(-1))	-2449580.55*	665459.14	-3.68	0.00
ECT	-0.64*	0.06	-10.97	0.00

Note: *, **, & *** show significant at 1, 5, & 10 percent, respectively.

4.9 Short Run Coefficient Results (NARDL)

The estimates of short run coefficients in case of NARDL are detailed in Table 10. The coefficients of FDI+ at first difference and two years lag bear positive sign which indicates that one unit of a positive shock is leading to reduce poverty at the back of an increase in household consumption expenditure by 481.33 and 427.60 units, respectively. However, at the lag of one year, the results are otherwise. Therefore, varied nature of effects are concluded between FDI+,- and poverty. On the other side, the findings of FDI×PIN are linear in trend with poverty. The effects are though significant but quite minute in nature. In case of FDI×GOV, the results of positive shocks are mostly inconclusive however, any negative shock in FDI×GOV is clinched to bring fall in house hold consumption expenditure that is to cause poverty to rise. Thus, it is confirmed that the fall in FDI, in complementary with GOV, is of a caliber to bring poverty level up. On the similar note, the findings on FDI×VAC are assorted in case of negative shock. Whereas, poverty is translated to increase with any positive unit change recorded at FDI×VAC. These results are inconsistent to those found at ARDL.

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Table 10: Short Run Coefficient Results (NARDL)

Model-I				
Variable	**Coeff.**	**S.E**	*t*-**Stat**	**Prob.**
D(POV(-1))	-0.89*	0.19	-4.78	0.00
D(POV(-2))	-0.41***	0.23	-1.83	0.08
D(FDI⁺)	481.33**	236.58	2.03	0.05
D(FDI⁺(-1))	-1376.45*	287.21	-4.79	0.00
D(FDI⁻(-2))	427.60**	192.28	2.22	0.03
ECT	-0.20*	0.03	-7.32	0.00
Model-II				
Variable	**Coeff.**	**S.E**	*t*-**Stat**	**Prob.**
D(FDI×PIN⁺)	0.0003*	0.0001	3.81	0.00
D(FDI×PIN⁺(-1))	-0.0008*	0.0001	-7.43	0.00
D(FDI×PIN⁻)	0.0003**	0.0001	2.51	0.02
D(FDI×PIN⁻(-1))	0.0003**	0.0001	2.40	0.02
ECT	-0.02*	0.00	-15.21	0.00
Model-III				
Variable	**Coeff.**	**S.E**	*t*-**Stat**	**Prob.**
D(POV(-1))	-1.14*	0.22	-5.11	0.00
D(FDI×GOV⁺)	-823.01	577.47	-1.43	0.17
D(FDI×GOV⁺(-1))	608.46	567.31	1.07	0.29
D(FDI×GOV⁺(-2))	-947.39*	361.86	-2.62	0.01
D(FDI×GOV⁻)	167.28	573.04	0.29	0.77
D(FDI×GOV⁻(-1))	3659.76*	675.69	5.42	0.00
D(FDI×GOV⁻(-2))	3775.33*	1044.42	3.61	0.00
ECT	-0.21*	0.02	-10.44	0.00
Model-IV				
Variable	**Coeff.**	**S.E**	*t*-**Stat**	**Prob.**
D(POV(-1))	-0.77	0.19	-4.12	0.00
D(FDI×VAC⁺)	-1620.30	369.78	-4.38	0.00
D(FDI×VAC⁺(-1))	-857.54*	238.60	-3.59	0.00
D(FDI×VAC⁻)	-398.07	274.65	-1.45	0.16
D(FDI×VAC⁻(-1))	3720.81*	372.39	9.99	0.00
D(FDI×VAC⁻(-2))	1947.39*	623.28	3.12	0.00
ECT	-0.15*	0.01	-10.45	0.00

Note: *, **, & *** show significant at 1, 5, & 10 percent, respectively.

4.10 Diagnostic Checking (ARDL & NARDL)

For the legitimacy of the results, the diagnostic checking is performed on different criterion. The summary of the results is given in Table 11. The results encourage to note that most of the tests are passed. The Jarque-Bera test of normality authenticates residuals to be normally distributed. Moreover, H0 of LM test of serial correlation and white test of conditional heteroskedasticity are mostly held rejected. Similarly, Ramsey RESET test results also indicate that most of the models are correctly specified.

Table 11: Diagnostic Checking

Test	ARDL			
	Model-I	**Model-II**	**Model-III**	**Model-IV**
Jarque-Bera Normality	0.68(0.71)	0.61(0.73)	1.83(0.40)	0.12(0.93)
Serial Correlation LM Test	1.93(0.00)	49.75(0.00)	3.02(0.00)	0.24(0.52)
Heteroskedasticity	1.69(0.13)	1.27(0.33)	2.25(0.14)	0.66(0.93)
Ramsey RESET Test	3.85(0.05)	7.79(0.01)	2.78(0.07)	3.24(0.05)
	NARDL			
Test	**Model-I**	**Model-II**	**Model-III**	**Model-IV**
Jarque-Bera Normality	4.56(0.10)	10.01(0.00)	0.72(0.70)	2.06(0.36)
Serial Correlation LM Test	18.4(0.00)	0.99(0.28)	0.30(0.51)	6.22(0.14)
Heteroskedasticity	12.41(0.00)	3.0(0.16)	1.26(0.28)	1.47(0.21)
Ramsey RESET Test	3.25(0.08)	0.57(0.57)	1.24(0.23)	1.51(0.14)

Finally, cumulative sum of recursive residuals and squared i.e., CUSUM and CUSUMsq are illuminated in Figure 1 (given on the next page).

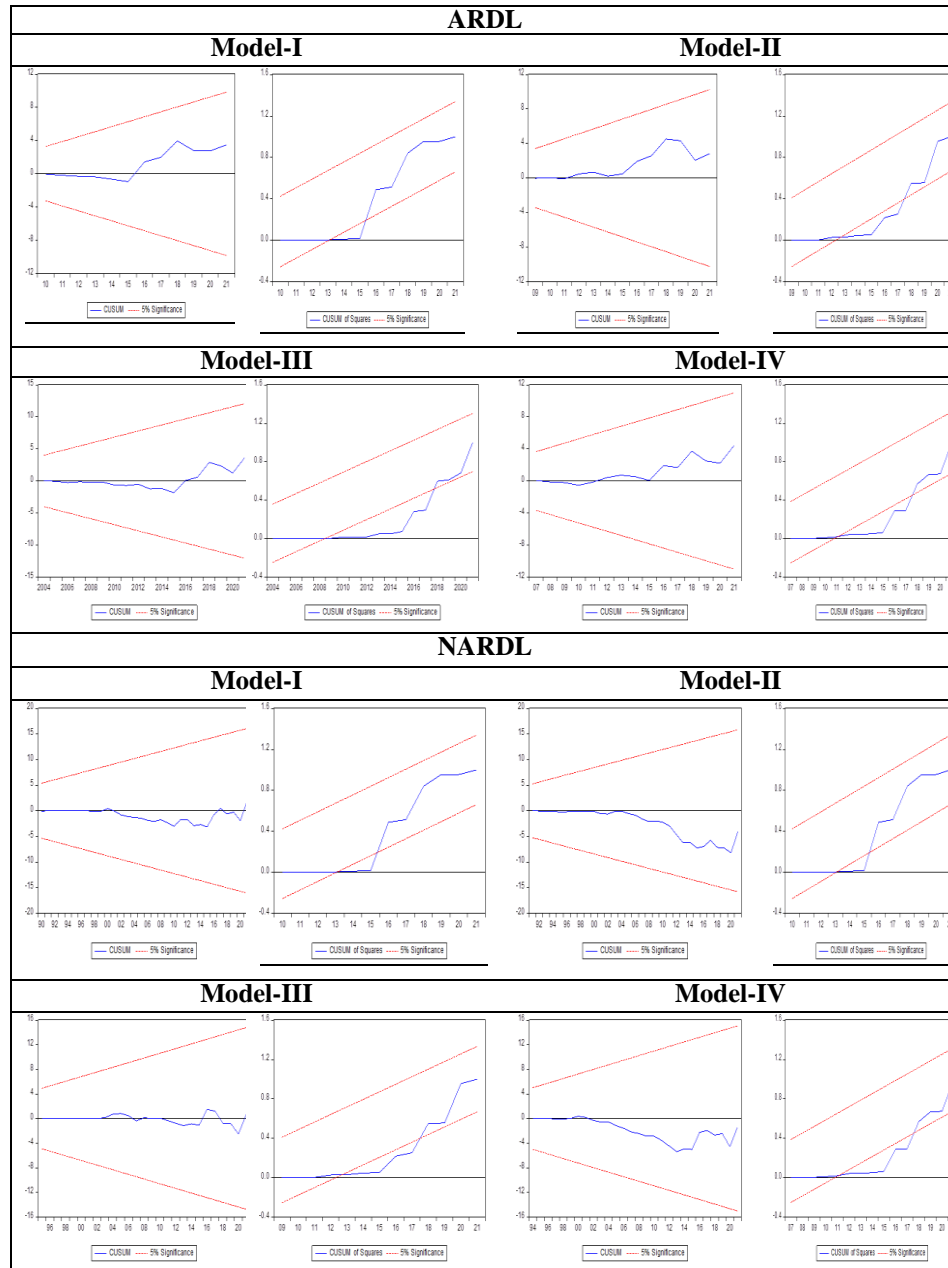The stability of the estimates of both time horizons is evident.

Figure 1: CUSUM & CUSUM Square Test Results

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5 Conclusion and Policy Recommendation

5.1 Conclusion

This study analyzes the role of quality of governance and voice and accountability while poverty related effects of FDI are under the consideration. Poverty is a dependent variable which is proxied by household consumption expenditure. The time series selected for the study on Pakistan is for the period 1980 to 2022. In total 4 models are developed with FDI alone and complemented with PIN, GOV, and VAC, respectively. ADF based unit root test is incorporated to know the status of stationarity. For the regression analyses, ARDL and NARDL approaches are adopted for the accomplishment of specific objectives of the study. Prior to that, optimal lag length of 3 is confirmed under AIC criteria. The bound test ratified cointegration in all the models. The coefficient results of ARDL and NARDL are recorded as follows:

  ➢ FDI spelled out negative effects on poverty. However, when interacted with PIN, the effects are though negative but minute in nature.
  ➢ The result of FDI×GOV and FDI×VAC is significant and positive in affecting poverty.
  ➢ The results of ARDL are consistent to each other in long run and short run. Natheless, mixed results are found in NARDL.

In conclusion the so-called positive effects of FDI on poverty are considered to be far away and imaginative unless complemented with quality of governance and voice and accountability which is more important than itself FDI.

The diagnostic checking also emboldens the accuracy of the results in all the models of ARDL and NARDL.

5.2 Policy Recommendation

As a policy recommendation, the empirical results disseminate that FDI is less attractive in inscribing the concerns of poverty. Similarly, while complemented with private investment at local level as well, the poverty related spell outs are indistinguishable. However, findings encourage that in order to realize better state of poverty, FDI needs to be accompanied with better quality of governance and voice and accountability. Therefore, as a state representative, the government is suggested to have improvisatory public and civil services, the unbiased politics, better policy formulation, and credibility of commitments towards her policies.

Equally important is voice and accountability where the citizens of country have freedom to select their government, freedom of expression, association, and an access to free media.

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5.3 Limitations of the Study

This study is limited to Pakistan but does not withstand in a row frail literature. However, as a suggestion for comprehensive future studies, following recommendations are proposed.

> ➢ The same idea can be extended to the countries/regions having faced with similar issues.
> ➢ The study can be initiated on other macroeconomic challenges such as economic growth and unemployment, and trade related issues.
> ➢ Varying the methodological technique for the robust analyses can also be one of the strategies to base future study in this particular area.

Research Funding

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