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Analysis on the Effect of Foreign Remittances on Poverty in Pakistan: An ARDL and Bound Test Approach

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ABSTRACT

The primary intention of present study is to look into the effect of Foreign Remittances on Poverty in case of a country in South Asia region Islamic Republic of Pakistan. This research operated the Annual Time Series Data of Pakistan from 1980 to 2021. The study used Poverty as dependent variable and independent variables are Foreign Remittances, Foreign Direct Investment, Inflation Rate, Population, Secondary School Enrolment and Unemployment. The study also used Augmented Dickey Fuller Unit Root Test, Autoregressive Distributed Lag (ARDL), Error Correction Method (ECM) and ARDL Bound Test. Empirical results indicate several crucial findings. Firstly, Foreign Remittances, Foreign Direct Investment (FDI) and Secondary School Enrollment reduced Poverty while Inflation, Population and Unemployment positively impact on Poverty in Pakistan. The outcomes of Error Correction Method designate that, 68% errors will be fixed annually while moving from short to long run equilibrium. Furthermore, Test of ARDL Bound findings verify that there is a long-run relation among the variables.. In the last, the study applied CUSUM, CUSUMSQ for stability purpose. The present study presents some policy recommendations on the basis of findings.

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Introduction

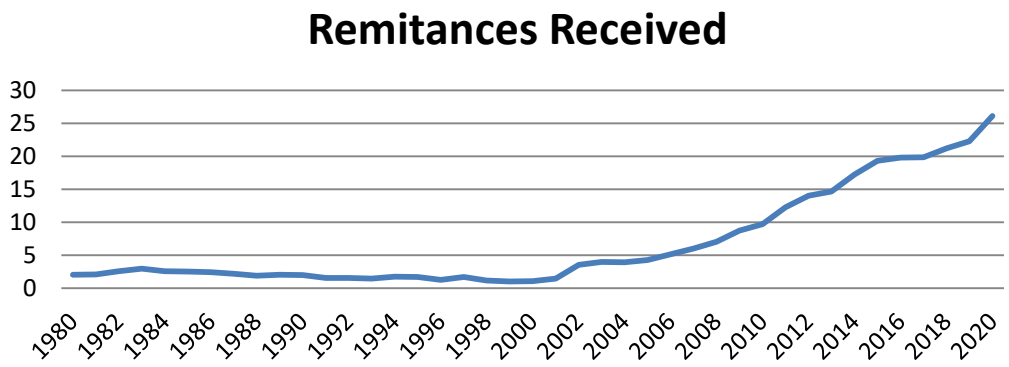
Foreign Remittance (REM) is the transfer of cash from abroad migrants to their relatives back home. It is distinct from supplementary forms of capital inflow, like foreign direct investment, loans and assistance. It is the supreme important basis of overseas exchange revenue for emerging nations. In last two decades, several poor nations have perceived a gigantic enlarge in Remittances. Remittances from overseas help to alleviate poverty and promote health and schooling, Remittances are the principal basis of growing consumption and investment in receiver nations. The rise in consumption and investment is a symbol of economic success. Remittances aid in the lessening of poverty. These are provided to society's most vulnerable citizensRemittances so have a direct impact on reducing poverty. Even when fully ingested, they have a favorable effect since they are better for society's welfare. Remittances can help people invest more in their personal and physical resources. However, if

remittances are utilized for consumption rather than investment, as is common in underdeveloped nations, they can be damaging. They are unable to generate the required savings for economic growth. Remittances help to stimulate economic-growth and diminish poverty by increasing the receiving nation's income, decreasing credit-limitations, speeding-up-investment, and promoting Human Development by endowment healthier Education & Health Care.

Remittance senders and recipients are motivated by the need to provide for their families' fundamental necessities, such as food, clothes, and shelter, in order to lift the family out of poverty. Remittance inflows support economic progress and combat poverty by improving receiver nations' income, easing credit restrictions, rapid investment, and advancing human development by funding improved healthcare and education. Gupta et al.(2009); Calaro (2008); Jongwanich (2007). After trade liberalization, foreign capital inflows (FCI) have become more significant, especially in emerging economies. Resources are shifted by nations from unproductive to productive sectors. When a person or group of people cannot meet their fundamental necessities, which are essential to their survival, such situation is referred to as poverty. The lack of financial resources, poor income, and insufficient spending of families and individuals are only a few of the numerous facets and manifestations of poverty that exist in society. The majority of developing nations define poverty more in terms of consumption than money since consumption is a good indication of welfare attainment and income is a good indicator of opportunities for welfare. Second, whereas consumption is the steady measure of welfare, income fluctuates owing to seasonal variances.

To reap the benefits of economic prosperity, emerging nations' main challenges are eradicating poverty from their economies and reducing income disparity in their society. Most frequently, income is used to define poverty. When a individual absences the income and further resources essential to encounter basic desires like food, shelter, and other goods and services, they are claimed to be living in poverty. If they had these necessities, they would have been forced to participate in their society's relationships and traditions as well as play roles. (UNDP, 2016). The World Bank defines poverty as “surrounding not only substantial deficiency (determined using a suitable definition of consumption or income) but too low attainments in health and education ” (World Bank, 2000, p. 15; Moser & Ichida, 2001, p. 6). Over the past 20 years, remittance inflows have expanded significantly in a number of developing countries. They export labor so they can make remittance payments. The motivation for better healthcare, education, and anti-poverty initiatives is remittances from outside. Remittances are the main factor driving increased investment and consumption in recipient countries. Consumption and investment are growing, which is an signal of economic growth. Remittances aid in reducing poverty.

Personal remittances received by Pakistan in 2020 were 26.089 Billions US dollars. Receiving personal remittances climbed from 2% in 2001 to 9% in 2020, expanding at an average yearly rate of 11.56 percent. Remittances to Pakistan were few before to the 1980s. However, the 1980s saw a considerable increase in the flow of remittances.



Economic growth is a goal for every country in the world because it helps to alleviate poverty and improves life quality. The most significant elements impacting Pakistan's economic development are FDI, Inflation, Foreign Remittances, and the currency rate. Pakistan ranks in the top ten receivers of remittances. Pakistani migrants' remittances to their home nation are steadily growing. Many studies empirically proved that when inflow of remittance is increased the poverty is reduced. In my study the problem is that Pakistan ranks in the top ten recipients of remittances but poverty is also high. The chief goal of this empirical study is to regulate whether or not international remittances help Pakistan reduce poverty. The rising poverty rate in Pakistan, a developing country, has been a major source of worry. Poverty is a serious impediment to a country's growth, and specific efforts must be done to reduce poverty. This study aims to investigate the influence of Remittances in poverty alleviation so that effective policies can be developed to help the poor. Previous research has mostly relied on survey data and has overlooked the link among Remittances and Poverty, therefore this study adds to the body of knowledge by evaluating the effect of remittances on poverty empirically.

There is not much research on how remittance is helpful to alleviate the poverty or change the growth of economy in one of high remittance recipient countries Pakistan. The impact of remittance on the economy of developed or emerging recipient nations have either positive or negative. Some existing literature and empirical results display that there is negative association among remittance and poverty and GDP Progress. In recent years, substantial number of workers is migrated to other countries for earning purpose so, when number of migrants increased the remittance inflow to that country is also increased. Moreover, these remittances increased the income of household that lead to alleviate or change the status of poverty of that household. For this, this research is to be conducted. However, the outcome of this study would be favorable to policy makers of developed Asian country Pakistan to make the plan how to reduce poverty. From this research fruitful suggestion could be drawn regarding to make decision about policies to change the status of poverty in high remittance recipient countries.

Literature Reviews

Tung, L. T., & Thang, P. N. (2023, January), between 1985 and 2019, look into how remittances affected inequality in 18 emerging economies. The study's discoveries support the idea that remittances have a detrimental influence on income disparity, with the amount of remittances received having a direct correlation with the degree of economic inequality in the receiving nations. Additionally, trade openness, economic liquidity, and foreign direct investment all contribute to a decrease in income disparity. However, the difference in income between the wealthy and the poor in these nations may expand as a result of rising government spending, inflation, and per capita GDP.

Saptono et al (2022), uses data of sixty-five middle and low-income nations since 2002 till 2016 to examine the immediate and delayed effects of overseas remittances on poverty reduction. Generally, study proves that, , overseas remittances per GDP considerably ameliorate poverty by applying two-stage least square (2SLS) regression technique. a rise in remittances of 10% will, on average, result in a 4.8% point shrinkage in the poverty gap ratio at USD 1.90 per day, a 6.7-percentage-point decline in the poverty gap ratio at USD 3.20 per day, and a similar decrease in the poverty headcount ratio at USD 1.90 per day. With the addition of political elements in the model, this finding is still solid. Additionally, it was discovered using the system-generalized method of moments (SGMM) estimates that the immediate impacts of foreign remittances are far more significant than their delayed effects.

Ali et al (2022), studies the association among remittances and the growth of human capital in sub-Saharan Africa from 1996 to 2016 and further investigates the part played by financial development in this established nexus. The experiential findings showed that remittances have a favourable impact on investments in human capital, but when financial development was taken into account and human capital investment was regressed, we discovered that remittances' impact was statistically stronger. This study suggests that decision-makers create proactive strategies to encourage remittance inflows.

Zaman et al (2021), In the context of a few remittance-receiving nations, like Bangladesh, Egypt, China, India, Mexico, Indonesia, Philippines, Nigeria, and Pakistan, investigating the connections between remittances, education spending, energy usage, income, poverty, and economic growth. For this reason, study utilized Panel Data from 1990 to 2014. The data is made up of many variables including, Remittances, Education Spending, Energy Usage, Income, Poverty, and Economic Growth. The PP, ADF, ARDL,and Bound tests were used to examine the data. The ARDL model's findings demonstrate that received remittances favourably affect economic growth and that there is a strong long-run link among received remittances and economic growth. Long-term economic growth is favorably and strongly impacted by spending on education, energy use, and income.

Hussain et al (2021), examine the association among Debt Burden, Institutional Quality, Foreign Remittances, Exchange Rate Depreciation, and Distribution of Income in Pakistan. Due to this reason, study operated 35 years Annual Data since 1984 till 2018. The data encompasses dissimilar variables comprising, Institutional Quality, Exchange Rate Depreciation, Debt Burden, Foreign Remittances and Distribution of Income. Utilizing ARDL, PP, ADF, and Bound test, the data was analyzed. The results highlight the considerable and favourable association between debt service and the Gini Coefficient Index, which demonstrates that rising debt levels will lead to wider income distribution.

Zobair (2021), examine the relationship among FDI, foreign remittance, foreign aid and economic growth in Bangladesh. Study uses Annual Data to achieve this goal from 1976 till 2018. The statistics encompasses from dissimilar variables comprising, FDI, foreign aid, foreign remittance and economic growth. Utilizing ARDL, PP, ADF, and Bound test, the data was analyzed. Results indicate that FDI is a key external component in Bangladesh's economy's expansion. However, it has been shown that two more notable sources of funding—foreign aid and remittances—play a detrimental effect in this situation.

Ahmad and Khan (2021), analyzing the effects of overseas remittances and foreign direct investment (FDI) on Pakistan's economy. The study uses Annual Data since 1990 till 2018 for this purpose. The statistics is comprised of several variables, such as economic growth, foreign remittances, and FDI. PP,ADF, ARDL, and the Bound tests were used to examine the data. The outcomes show a sustained affiliation among foreign direct

investment (FDI), overseas remittances, and Pakistan's economic development.

Imran et al (2021), Explore the effect of remittances on South Asian region (SAARC) nations' employment, exports, and inflation growth measures. For this, the panel data set spanning from December 1994 to December 2017 is used. Panel models are projected employing the Fixed Effect Model (FEM) or the Random Effect Model (REM) utilizing the Hausman (1978) specification test. The data comes from a variety of sources, such as employment, exports, foreign remittances, the CPI, and economic growth. The outcomes demonstrate that remittances contribute positively and statistically significantly to the economic growth of the SAARC area. The fact that the coefficient is not particularly high might be the result of remittances being transferred via illegitimate channels. The impacts of employment and exports on GDP are significant and favorable. Nonetheless, there was no appreciable impact of inflation on GDP in our sample.

Jena, & Sethi, (2021), examines the impact of aid, remittances, and foreign investment have had on the prospects for economic growth in the South Asian area. A selection of eight South Asian nations spanning the years 1990 till 2017 is considered for this study. A variety of factors are included in the statistics, such as trade, GDP, external aid, remittances, FDI influx, inflation rate,domestic investment, and financial development. The findings show a long- and short-term relationship among external aid, economic growth, and further macroeconomic parameters. Moreover, employing the Granger causality paradigm, we found that there is a uni-directional relationship among external aid and economic development, FDI and economicgrowth, however no short-run causation among remittancesand economic growth.

Hassan et al (2021), Scrutinize the connections among Pakistan's democratic accountability, poverty, investment portfolio, and income inequality. To this end, the research used annual data spanning 35 years, since 1984 till 2019. Population, Employment, investment portfolio, remittances, democratic accountability, income inequality and poverty are some of the elements that make up the statistics. PP,ADF, ARDL, and the Bound tests were used to examine the data. Investigation using Autoregressive Distributed Lag approach to cointegration shows that investment portfolios and democratic accountability alleviate poverty in Pakistan in the short and long terms. Furthermore, democratic accountability contributes to the decrease in income disparity, even though the investment portfolio has less significance. The rate of literacy contributes to poverty and economic inequality, even as inflation makes these problems worse. Both urbanization and remittances extend the gap among rich and poor.

Butkas et al (2020) clarify how remittances affect poverty in CEE nations. Examine panel data covering seven CEE nations between 2006 and 2015. To assess their connection Three-stage least squared estimators, fixed effects, random effects, and pooled OLS are used. Remittances have a major effect on poverty. The findings support the idea that while remittances reduce poverty, their relationship is unfavorable. It is advised that in order to boost remittances, governments reduce transaction costs.

Onoja and Chagwiza (2020) questioned how macroeconomic stability and remittance inflows influenced poverty in Nigeria. Time series data from 1977 to 2014 is used, together with an econometric modeling method (ARDL, cointegration analysis), to determine their influence. The findings indicate a negative correlation between macroeconomic factors and remittance inflows when it comes to reducing poverty in Nigeria. According to the report, in order to reduce poverty, the Nigerian government should implement appropriate remittance management regulations.

Aladejana et al(2020) examine the impact of remittances from outside on reducing poverty through an

econometric examination of Nigeria. This study makes use of time series data. An ARDL methodology is employed to examine their effects in Nigeria from 1986 to 2014. The results demonstrate that remittances have no beneficial effect on reducing poverty. The Nigerian government ought to devise policies aimed at enhancing remittance measures by reducing exchange rates and the expenses associated with remittance transfers via appropriate channels.

Data & Methodology

Using various macroeconomic data and applying various approaches to estimate the results are crucial while doing research. The current study used Annual Time Series Data since 1980 till 2021. The data of dissimilar variables like Poverty, Foreign Remittances, Foreign Direct Investment, Inflation Rate, Population Growth, Secondary School Enrollment and Unemployment Rate. The measurement, descriptions and sources of above variables are given in the table below;

Table: Descriptions of Variables

SR. #	Variables	Description	Measurement	Source
1	POV	Poverty	Headcount Ratio $ 1.9	World Bank
2	REM	Foreign Remittances	Received, % of GDP	World Bank
3	FDI	Foreign Direct Investment	Inflow, % of GDP	World Bank
4	INF	Inflation Rate	Annual Change	World Bank
5	POP	Population Growth	Annual Growth	World Bank
6	SSC	Secondary School Enrolment	Gross % of Population	World Bank
7	UN	Unemployment	% of Population	World Bank

Model Specifications

In this section, we will discuss the framework of the study, Mathematical Model and Econometric Model used in this ongoing research. The General Specifications of Mathematical and Econometric Models are directed by the Theoretical and prevailing reviews of literatures and the Theories. The estimated model of the study is given below;

The Mathematical Model of the Study is given below;

$$\mathbf{POV} = f(REM, FDI, INF, POP, SSE, UN) \ldots\ldots\ldots (4.1)$$

The Econometric Model of the Study is given below;

$$\mathbf{POVt} = \beta_{0t} + \beta_{1t}ERM + \beta_{2t}FDI + \beta_{3t}INF + \beta_{4t}POP + \beta_{5t}SSE + \beta_{6t}UN + €_t \ldots\ldots\ldots (4.2)$$

The above model of the study is directed by the Theoretical and prevailing reviews of literatures and the Theories which are related to our study.

In this research, the study applied different econometrics techniques. The study applied Augmented Dickey Fuller Unit Root Test for stationary purpose, study also applied Autoregressive Distributed Lag (ARDL) method for the analyses. Study applied LM Test for Autocorrelation, Breusch Pagan Test for Heteroskedasticity, Pair – Wise Correlation Matrix and Variance Inflation Factor are used for Multicoliearity problem. The study also utilized Bound test for the long run relationship among variables. In the last the study also applied CUSUM,

CUSUMSQ and for stability purpose.

Results and Discussion

This section of the study presents the results of empirical results of the different techniques.

Descriptive Statistics

This study processes empirical and analytical data and employs descriptive statistics to provide a useful overview of trade balance drivers. The results of Descriptive Statistic are given in the table below;

Table: Summary of Descriptive Statistics

	POV	REM	FDI	INF	POP	SSE	UN
Mean	3.052590	5.162576	15.82073	2.600111	5.571190	8.194897	0.897699
Median	3.228926	5.018078	16.23262	2.584449	5.870000	7.882675	0.678864
Maximum	4.332304	10.24763	19.11229	3.363952	8.270000	20.28612	3.668323
Minimum	1.390563	1.310692	12.52063	1.931319	2.850000	2.529328	0.102667
Std. Dev	1.012024	2.241773	1.711285	0.465096	1.395100	3.722591	0.778503
Skewness	-0.372538	0.185117	-0.273082	0.236880	-0.004793	0.655797	2.239832
Kurtosis	1.789753	2.214997	2.015279	1.644148	2.574488	3.815766	7.728406
Jarque-Bera	3.534713	1.318281	2.218949	3.609868	0.317016	4.175068	74.24412
Prob.	0.170784	0.517296	0.329732	0.164485	0.853416	0.123993	0.000000
Sum	128.2088	216.8282	664.4705	109.2047	233.9900	344.1857	37.70334
Sum Sq. Dev	41.99188	206.0474	120.0683	8.868878	79.79844	568.1652	24.84875
Observations	42	42	42	42	42	42	42

Source: Software Eviews-9.0

The 1st row displays the Average of all variables in the order. To get the mean or average, add up all the figures in the data set, then divide the total number of figures. The Median value of all variables are in the order. The median represents the halfway point of the data collection. The halfway value is the point at which 50% of the observations are above and 50% are below the value. The third and fourth rows show the Maximum and Minimum values. The Skewness values are displayed in the sixth row. As we can see in the table above, POV, FDI, and POP, are Their mean value is lower than their median value, which causes them to be negatively skewed. The mean values of all other variables, such as REM, INF, UN, SSE and INF are larger than their median values, making them positively skewed. Here in the table above, the kurtosis values of UN and SSE in our examination of descriptive statistics are larger than 3, indicating that these are the Leptokurtic. On the other hand, the kurtosis values of LPOV, REM, FDI, INF and POP are less than 3, so these variables are Platykurtic.

Unit Root Analysis

Time-series analysis is the foundation of our inquiry. It has typically been discovered that time-series data have the issue of non-stationarity. There are several ways to examine the stationarity issue. The current study utilized Augmented Dickey Fuller (ADF) Unite Root Test for the issue of stationarity. This test is used to regulate if an autoregressive model contains a unit root, which might lead to erroneous statistical inferences. For Time-Series

data, the Augmented Dickey-Fuller (ADF) test is the simplest and most suitable method to use when looking for a unit root. The outcomes of Augmented Dickey Fuller (ADF) Unite Root are given in the table below;

Table: The results of Augmented Dickey Fuller (ADF) Unite Root

Variables	At Level		At 1st Difference		Conclusion
POV	0.190412	-2.044331	-5.065522	-5.029998	I(1)
	(0.9687)	(0.5603)	(0.0002)	(0.0000)	
REM	-1993443	-1.908048	-5.870466	-5.760462	I(1)
	(0.2885)	(0.6322)	(0.0000)	(0.0001)	
FDI	-3.002057	-3.258697	-4.135934	-4.058415	I(0)
	(0.0432)	(0.0880)	(0.0024)	(0.0144)	
INF	-3.061620	-3.024141	-7.449372	-7.397744	I(0)
	(0.0376)	(0.1383)	(0.0000)	(0.0000)	
POP	-1.267039	0.528070	-2.179733	-6.280003	I(1)
	(0.6329)	(0.9990)	(0.2170)	(0.0000)	
UN	-1.942867	-2.289433	-7.380428	-7.293694	I(1)
	(0.3101)	(0.4300)	(0.0000)	(0.0000)	
SSE	0.499891	-1.736839	-6.265862	-6.327256	I(1)
	(0.9847)	(0.7164)	(0.0000)	(0.0000)	

Source: Software Eviews-9.0

The outcomes of ADF test are reported in Table above. These outcomes shows, at same level, all variables are not stationary. We have seen that POV, REM, POP, UN and SSE are stationary at 1st difference & Intercept. Further like INF and FDI are stationary at level and intercept. Based on the ADF test It is simple to determine that the time series are not stationary in the similar sequence. Thus, the ARDL approach may be applied in our analysis to calculate compound nature of variables with the combination of I(0) and I(1) series.

Multicolinearity Analysis

To scrutinize the correlation among regressand and regressors is essential. The issue of multicollinearity among the variables is usually recognized by Pair-wise coefficient of variables and Variance Inflation Factor. The high coefficient of correlation illustrations the issue of multicollinearity among variables. The results of Pair – Wise Correlation Matrix is given in the table below;

Table: The results of Pair – Wise Correlation Matrix

Variables	LPOV	REM	FDI	INF	POP	SSE	UN
LPOV	**1.000000**						
REM	-0.025949	**1.000000**					
FDI	-0.249744	-0.372251	**1.000000**				
INF	-0.023650	-0.094034	0.373222	**1.000000**			
POP	0.718654	0.150648	-0.382585	-0.052909	**1.000000**		
SSE	-0.761155	0.006981	0.256288	0.033643	-0.803607	**1.000000**	
UN	-0.479839	-0.521341	0.209047	-0.169993	-0.674950	0.465778	**1.000000**

Source: Software Eviews-9.0

The results of Pair – Wise Correlation Matrix are given in the table above, it exemplifies that high values shows the High correlation between variables. Overall findings show that, Multi – Colinearity does not occur in the set of data. The study also utilized the Variance Inflation Factor (VIF) to check the problem of multicollinearity among variables. The result of Variance Inflation Factor (VIF) is given in the table below;

Table: The results of Variance Inflation Factor

Variance Inflation Factor (VIF)	
Variables	**Cantered VIF**
REM:	1.392251
FDI:	3.030008
INF:	1.607480
POP:	8.654841
SSE:	1.186140
UN:	3.030176
C:	NA

Source: Software Eviews-9.0

The results of Variance Inflation Factor (VIF)are given in the table above, the overall results shows that there is no Multicolinearity in the data set. All variables are moderately correlated because their values lie between 1 and 5 except POP which is highly correlated with POV. The centered value of VIF is less than 10 so this indicate that there is no issue of Multicolinearity in the data set.

Autocorrelation Analysis

The issue of Autocorrelation is occurring when consecutive error terms are correlated with each other in the regression analysis. The issue of Autocorrelation is undertaken by Serial Correlation LM test. Based on this test, significant value illustrations the presence of autocorrelation and insignificant value expressions does not presence of autocorrelation. The outcomes of Serial Correlation LM test are given in the table elow:

Table: Results of Breusch – Godfrey Serial Correlation Test

Breusch – Godfrey Serial Correlation Test:			
F-Statistic:	1.755320	**Prob. F(2,30):**	0.1901
Obs* R^2:	4.295240	**Prob. Chi – Square:**	01168

Source: Software E-views 9

The outcomes designate that, the probability values of Serial Correlation LM test is insignificant (0.1901) and greater than 5%, this indicates that we accept Null Hypothesis (H_0) of No Serial Correlation and reject Alternative Hypothesis (H_1).

Analysis of Heteroskedasticity

Heteroskedasticity is defined as the situation in which the probability distribution of the disturbance term does not remain the same over all the observations of Xi and in particular that the variance of each μi is not the same for all the values of the explanatory variables. The issue of Heteroskedasticity is undertaken by Breusch – Pagan – Godfrey Test. Based on this test, significant value displays the presence of Heteroskedasticity and insignificant

value demonstrations does not presence of Heteroskedasticity. The outcomes of Breusch – Pagan – Godfrey Test are given in the table below:

Table: Results of Breusch – Godfrey Test

Breusch – Pagan – Godfrey Test:			
F-Statistic:	0..645587	**Prob. F(27,10:**	0.8237
Obs* R^2:	24.14699	**Prob. Chi – Square:**	0.6222

Source: Software E-views 9

The outcomes designate that, the probability values of Heteroskedasticity test is insignificant (0.8237) and greater than 5%, this indicates that we reject Alternative Hypothesis (H_1), and accept Null Hypothesis (H_0) of No Heteroskedasticity and the model is Homoskedastic.

Analysis of Heteroskedasticity

The ARDL General Equation of Short and Long Run can be estimated as:

Short Run Equation of ARDL

$$\Delta(LPOV)_t = \alpha_0 + \sum_{i=1}^{a} \alpha 1i\Delta(LPOV)_{t-i} + \sum_{i=1}^{b} \alpha 2i\Delta(REM)_{t-i} + \sum_{i=0}^{c} \alpha 3i\Delta(FDI)_{t-i} + \sum_{i=0}^{d} \alpha 4i\Delta(INF)_{t-i} + \sum_{i=0}^{e} \alpha 5i\Delta(POP)_{t-i} + \sum_{i=0}^{f} \alpha 6i\Delta(SSE)_{t-i} + \sum_{i=0}^{f} \alpha 7i\Delta(UN)_{t-i}$$

Long Run Equation of ARDL

$$\alpha 8(LPOV)_{t-1} + \alpha 9(REM)_{t-1} + \alpha 10(FDI)_{t-1} + \alpha 11(INF)_{t-1} + \alpha 12(POP)_{t-1} + \alpha 13(SSE)_{t-1} + \alpha 14(UN)_{t-1}$$

Empirical Results of Autoregressive Distributed Lag Method

The table below presents the Long Run empirical Results of Autoregressive Distributed Lag (ARDL) Approach.

Table: Results of Autoregressive Distributed Lag (ARDL) Approach

Long Run Coefficients				
Variables:	**Coefficient**	**Std. Error**	**t-Statistic**	**Prob.**
REM:	-0.050347	0.028521	-1.765277	0.0080
FDI:	-0.017820	0.037037	-0.481150	0.0408
INF:	0.032142	0.011007	2.920200	0.0153
POP:	0.121089	0.146616	2.287472	0.0000
SSE:	-0.009818	0.004570	-2.148592	0.0572
UN:	0.372491	0.080427	4.631408	0.0009
C:	-8.460666	0.961125	-8.802879	0.0000
R^2:	0.979656	**Adjusted R^2:**		0.968726
F-Statistic	107.5121	**Prob(F-Statistic):**		0.000044
Durbin Watson Stat:	2.243066			

Source: Software E-views 9

In table above, the coefficient value of Remittances (REM) explains the negatively significant (0.0080) effect on Poverty (POV). Empirical outcome displays that, 1 unit increase in Foreign Remittances (REM) it will lead (-0.050347) percentage decrease in Poverty. Remittances are the financial sums that international employees send home to their home country. Remittances demonstrate the relationship between growth and integration with the global economy in addition to reflecting the local labor force engaged in the global economy. Remittance increase in Pakistan has unquestionably accelerated economic expansion and contributed to macroeconomic stability. Remittances serve as a buffer against poverty as well because they enhance the money supply, which in turn boosts demand and increases consumption of goods and services for the poor. While remittances have offered chances even for unskilled workers, low economic activity has resulted in unemployment for skilled labor. Remittance inflows boost economic growth and lower poverty by boosting recipient countries' incomes, easing credit restrictions, boosting investment, and advancing human development by funding improved health and education Calaro (2008); Jongwanich (2007); Faini (2002); Gupta et al.(2009).

The coefficient value of Foreign Direct Investment (FDI) also displays the negatively significant (0.0408) effect on Poverty (POV). Empirical outcome indicate that, 1 unit increase in Foreign Direct Investment (FDI) it will lead (-0.017820) percentage decrease in Poverty (POV). The importance of foreign direct investment (FDI) as a tool for economic growth has been acknowledged. The country's poverty trends deteriorate as foreign direct investment (FDI) increases. This indicates that foreign direct investment (FDI) in particular economic areas, such as "telecommunications and financial services or services sectors," may be producing chances for skilled employment rather than positions for unskilled workers. Through direct employment creation in the business sector and direct investment in social welfare programs for the impoverished, foreign direct investment (FDI) lowers poverty (Gohou & Soumare, 2012).

The coefficient value of Inflation Rate (INF) also displays the significantly (0.0153) optimistic effect on Poverty (POV). Empirical outcome displays that, 1 unit increment in Inflation Rate (INF) it will lead (0.032142) percentage grow in Poverty (POV). Through its negative channels, inflation or monetary instability both directly and indirectly lowers the purchasing power of the nation's underprivileged workforce. Compared to the upper class or non-poor, the poor are more susceptible to inflationary pressures. The impoverished class keeps a larger percentage of their wealth in cash than the affluent class in order to cover their expenses because of restrictions in the financial markets for non-monetary assets. Internal migration also lowers poverty by increasing the likelihood that unskilled laborers will find employment, particularly.

The coefficient value of Population Growth (POP) also shows the significantly(0.0000) positive effct on Poverty (POV). Empirical outcome displays that, 1 unit increase in Population Growth (POP) it will lead (0.121089) percentage increase in Poverty (POV). It has different effect on poverty, First, a quickly growing population is perhaps going to sluggish down per capita income growth and wellbeing, which tends to make poverty inferior. Second, quick population growth increases the regularity of land-lessness and hereafter poverty in tightly populated poor nations with land shortages. Finally, future generations will undeniably experience larger poverty because of the undesirable outcomes of high population expansion on child wellbeing and maybe schooling.

The coefficient value of SecondarySchool Enrollment (SSE) also illustrate the significantly negative (0.0572) impact on Poverty (POV). Empirical findings indicates that, 1 unit increment in Secondary School Enrollment (SSE) it will lead (-0.009818) percentage increase in Poverty (POV). In emerging nations, poverty is frequently

linked to poor levels of educational achievement and widening gender differences in educational outcomes. even when the returns on investment for education exceed the costs, financing them can be problematic due to small salaries, absence of wealth, and inadequate credit markets. Poorly educated parents could place a lower emphasis on education, possess low scholastic aptitude that they pass on to their kids, or be fewer capable to supply supplementary learning materials.

The coefficient value of Unemployment Rate (UN) also displays the meaningfully (0.0009) positive impact on Poverty (POV). Empirical outcome displays that, 1 unit increase in Unemployment Rate (UN) it will lead (0.372491) percentage increase in Poverty (POV). Unemployment causes income loss, which leaves many families unable to meet their fundamental necessities. People who are unable to find alternative sources of income may go hungry and homeless, incur debt from taking out loans to cover their basic expenses, and lose their savings.

ARDL Bound Test

Afterward ARDL equation, The calculated and tabulated F-Statistics are being compared. The Bound test demonstrate the long run co-integration among variables. If it is expected that the computed F-statistics will be excess of upper bound, then there will likely be a long-term connection or co-integration in the variables. The table below shows the results of Bound Test.

Table: Results of ARDL Bound Test

ARDL Bound Test		
Null Hypothesis: No Long Run Relationship Exist		
Test Statistic:	**Value**	**K**
F-Statistic:	4.796356	6
Critical Value Bounds		
Significance	**I_0 Bound**	**I_1 Bound**
10%	2.12	3.23
5%	2.45	3.61
2.5%	2.75	3.99
1%	3.15	4.43

Source: Software E-Views 9

The outcomes are reported in table 5.8 above. In table, the computed value of F statistic is 4.796356 which are greater than upper bound value 2.12 at 10% level of significance, 2.45 at 5% level of significance, 2.75 at 2.5% level of significance and 3.15 at 1% level of significance. So co integration (long run relationship) exists. F statistic value is also greater than upper bound value of 10%, 5%, 2.5% and 1% level of significance. So there exists long run relationship.

Error Correction Method

Error Correction displays the impact on X and Y over the short and long terms variables and speed of adjustment. Now the following equation shows the movement from disequilibrium to equilibrium with speed of conversion.

$$\Delta Pt = \gamma + \delta \Delta X_{t-1} + \lambda (ECM)_{t-1} + \varepsilon_t$$

The short run and long run results of the estimated model are presented in Autoregressive Distributed Lag (ARDL) framework using the Error Correction Model. The table below shows the short run results of Error Correction Methods.

Table: The Results of Error Correction Methods

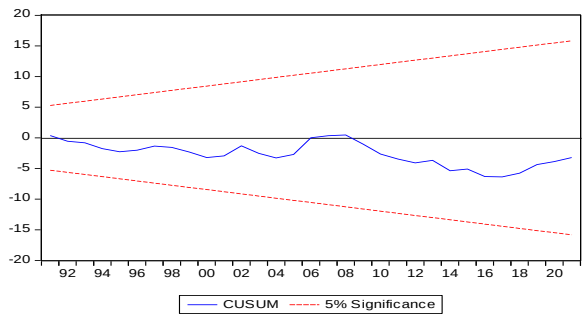
Error Correction Representation for the Selected ARDL Model				
Observations: 38 after adjustment (1980 – 2021)				
Variable	**Coefficient**	**Std. Error**	**t-Statistic**	**Prob.**
D(LPOV(-1))	-0.515025	0.081903	-6.288215	0.0001
D(LPOV(-2))	-0.500243	0.070727	-7.072832	0.0000
D(LPOV(-3))	-0.395294	0.073132	-5.405178	0.0003
D(REM)	-0.000602	0.006803	-0.088439	0.9313
D(REM(-1))	0.002716	0.011475	0.236728	0.8176
D(REM(-2))	0.031749	0.010955	2.898185	0.0159
D(REM(-3))	-0.052449	0.029713	-1.765197	0.1080
D(FDI)	-0.097860	0.047953	-2.040761	0.0686
D(FDI(-1))	-0.006994	0.029326	-0.238505	0.8163
D(FDI(-2))	-0.040923	0.017938	-2.281402	0.0457
D(INF)	0.004648	0.002860	1.625090	0.1352
D(INF)	-0.011105	0.009476	-1.171877	0.2684
D(POP)	1.325951	1.842022	0.719835	0.4881
D(POP(-1))	-8.967709	3.976071	-2.255420	0.0477
D(POP(-2))	2.791695	1.885572	1.480556	0.1695
D(POP(-3))	-2.510033	0.761741	-3.295127	0.0081
D(SSE)	0.008736	0.003803	2.297468	0.0444
D(UN)	0.002250	0.030087	0.074788	0.9419
D(UN(-1))	-0.097768	0.014232	-6.869609	0.0000
D(UN(-2))	-0.147853	0.024922	-5.932594	0.0001
D(UN(-3))	-0.092255	0.025497	-3.618329	0.0047
CointEq(-1)	-0.689806	0.080066	-11.113462	0.0000
R2:	0.979656	**Adjusted R2:**		0.968726
F-Statistic	107.5121	**Prob(F-statistic):**		0.000005
Durbin-Watson stat:	2.243066			

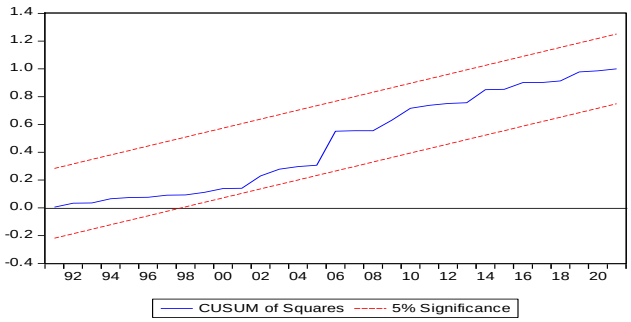
Source: Software E-Views 9

The ECM (-1) indications the adjustment speed of the projected model which is statically important and it has undesirable sign. In other words the coefficient of ecm (-1) show that almost 68 percent error will corrected from short run to long run equilibrium annually. Overall the result of estimated model represents the existence of long run as well as short run relationship between variables.

Stability Test

To analyze the Constancy of the projected coefficients, we have strategized the Cumulative Sum (CUSUM) of Recursive Residuals & Cumulative Sum (CUSUMQ) of Recursive Residual Square. The outcome designates that it is Stable because CUSUM is within 5% level of significance and CUSUMSQ is also within limits of 5% significance level.





Conclusion and Policy Recommendations

The main objective of present study is to investigate the effect of Foreign Remittances on Poverty in case of a country in South Asia region namely Islamic Republic of Pakistan. This study utilized the Annual Time Series Data of Pakistan over the period of 41 years from 1980 to 2021 collected from World Bank. Further the study used different variables, econometric techniques. The study used Poverty dependent variable and independent variables are Foreign Remittances, Foreign Direct Investment, Inflation Rate, Population, Secondary School Enrolment and Unemployment. The study also used Augmented Dickey Fuller (ADF) Unit Root Test, Autoregressive Distributed Lag (ARDL), Error Correction Method (ECM), ARDL Bound Test, and Diagnostic Test to diagnose the problem of Multicolinearity, Autocorrelation and Heteroskedasticity. In the last, the study applied CUSUM and CUSUMSQ test for stability purpose.

The study firstly finds the outcome of Descriptive Statistics. Secondly, the present study analyses the problem of Multicolinearity with Pair – Wise Correlation Matrix and Variance Inflation Factor (VIF) outcomes which display that there is no issue of multicollinearity in the data. The study also investigates Autocorrelation and Heteroskedasticity outcomes which designate that this problem is not exist. The results of ADF test shows that all variables are not stationary at same order. After this study utilized Autoregressive Distributed Lag (ARDL), method to find the results. Empirical results indicate several crucial findings. Firstly, Foreign Remittances, Foreign Direct Investment (FDI) and Secondary School Enrollment reduced Poverty while Inflation, Population and Unemployment positively impact on Poverty in Pakistan. The outcomes of Error Correction Method indicate that, 68% errors will be modified every year while moving from short to long run equilibrium. Furthermore, ARDL BoundTests findings verify that there is a long-term connection among the variables. In the last, the study applied CUSUM, CUSUMSQ for stability purpose. The present study presents some policy recommendations on the basis of findings.

The government need to lower costs for remittances sent through official channels and heightened awareness of money laundering. This will help the academic and practitioners to know the exact amount of remittances. Similarly, people working abroad don't know the reliable bases of back home investment. Meanwhile, in the host countries policymakers can offer rewards to these groups by offering a better investment opportunities and improved property rights for emigrants to boost the connection of these potential development associates which

contribute to their sustainable economic development. Governments should offer incentives to remitters and recipients for starting small companies in the nation, particularly in rural regions, with the goal of creating jobs for people through these enterprises. It will eventually contribute to the reduction of poverty by raising family and national income levels and raising people's quality of life. To encourage the inflow of remittances from unofficial to legitimate routes, the Pakistani government should remove any needless obstacles to this inflow. This will result in improved policy formulation in addition to the recording of remittances and revenue creation. To encourage immigrants and their households to purchase Pakistani goods, the government should improve the caliber, quantity, and diversity of native goods. This will boost domestic investment in addition to raising monetary remittances. This will lead to increase in employment and reduced poverty level in Pakistan.

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