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Abstract

International remittances and foreign aid flowing into developing countries are attracting increasing attention as of their rising volume and their effect on receiver countries. The basic objective of the present paper is to determine the long-run and short-run associations among poverty, foreign aid, and remittances. It is hypothesized that foreign aid and remittances are the possible variables affecting poverty. The foreign aid, remittances, and poverty comparison are tested both for the short-run and long-run. Johansen and Juselius's (JJ) cointegration and Vector Error Correction Model (VECM) was used for establishing short-run and long-run relationships between poverty and its determinants. Secondary data was collected for poverty, foreign aid, and remittance from the year 2002 to 2018. The study found a significant long-term and short-term relationship between poverty and its determinants such as foreign remittance, foreign aid, 7and per capita income. Our results are consistent with the findings of Hossain (2013), Connors (2012), Goff (2010), Banga and Sahu (2010), Asra et.al. (2005), and Jongwanich (2007) who found foreign aid and remittances do not help to poverty eradication.

Keywords: *Foreign Aid, Remittances, Poverty Eradication, Johansen Cointegration, Vector Error Correction Model (VECM), Afghanistan.*

JEL Codes: *F35, F50, F24, F22, I32, O15*

Introduction

Afghanistan is an aid-dependent insecure and politically volatile country and in its transition phase post-2001, it has impressively improved its sustainability in many indicators, such as GDP per capita, revenue, life expectancy, school enrollment, gender equality, infrastructure, and maternal mortality Akseer et al. (2019). Yet 54.5% of its population lived below the national poverty line in 2016 and an unemployment rate of 39.5% in 2017 (World Bank, 2018). The country lies as a low-income country by Per Capita GNI. Poverty was once considered a rural problem in Afghanistan but due to domestic migration from rural to urban settlements, increased the likelihood of poverty in the urban localities (Rocha, 2017).

Foreign aid is used for societal emergencies and to fix post-conflict countries (Collier and Dollar 1999). Afghanistan a war-torn country depends significantly on foreign aid which counts 37% of its GDP (World Bank, 2018). Collier and Dollar (1999) found that around

16 million people were lifted out of poverty each year due to aid, they also forecasted that the figure can be doubled with an efficient aid allocation policy. The effectiveness of aid in overcoming poverty is a highly researched area, where, Alvi and Senbeta (2011), Leeson (2008), Kaya et al. (2013), Abuzar et al., (2005) claimed to have a significant role in aid on poverty eradication. Whereas Snowdon (2009) claimed to have slower progress in aid contributing towards poverty elimination. Furthermore, the type of political system used in a country was also considered by some of the researchers and it was found that democratic countries tend to have weak performance results in poverty reduction and economic growth after the aid allocation (Chong et al., 2009).

According to World Bank, Afghanistan's remittances are 4.52% of its GDP. Calculating such exact figures of remittances is a big challenge as this channel focuses on the formal network of transfer, while the majority of transactions happen informally through the Hawala network. International Fund for Agriculture Development after considering the coherent nature of remittance flow, estimated it to be 2.5 billion USD in 2006 which is 30% of the same year's GDP. Whereas, the actual figure for the year 2006 was USD 679 million only, contributing 1.6% of the GDP of that time (IOM, 2014). On the academic side, Adams and Page (2005), Kalim and Shahbaz (2009), Anyanwu and Erhijakpor (2010), Gupta et al., (2009), Siddiqui et al., (2012), Azam et al., (2016) are among many researchers found remittance positively impacting the poverty and economic growth in different countries.

After a detailed literature study, it was found that foreign aid and remittances are vital factors among other factors such as foreign direct investment, microfinancing, and trade openness. These factors and related strategies are applied by global and local organizations to reduce poverty in the world including Afghanistan. As foreign aid is 37% and remittances with an estimated 30% contributed to the GDP of Afghanistan (IMF, 2019), the likelihood of them having an empirically significant role in the economic growth and poverty reduction of the country. Fewer studies have been conducted so far on foreign aid and remittances and their relationship with the economy in the context of Afghanistan (Nasery, 2014; Arsalan, 2019; Deniz and Haidar, 2018). But none of the studies have been found to relate foreign aid and remittances with poverty. The contribution of this study is to add empirical work on poverty reduction in the context of developing countries. Therefore, this study aims to determine short-run and long-run relationships among foreign aid, remittances, and poverty.

2. Literature Review

The literature review is divided into two major sections. The first section debates the relationship between remittances and poverty, while the second section discusses the relationship between foreign aid and poverty.

2.1 Remittances and Poverty

Remittances and Poverty nexus have been viewed in literature from both micro-level as well as macro-level. The pioneering efforts of Adams (1991) showed that remittances do affect rural asset accumulation. Moreover, external remittances have a positive and significant effect on poverty reduction; internal remittances have a positive and significant effect on the accumulation of agricultural capital.

Transferring money back home through a friend or a family is a very frequent technique among migrants from Central Asia to avoid the transaction fees and tax breaks associated

with transferring money officially. As a result, these remittances are never tracked, making it difficult to determine their true impact on reducing poverty in a nation. Additionally, even if they lack the resources to afford the aforementioned lifestyle, many people are inspired to follow in their peers' footsteps after seeing how successful they are in their lives abroad. This explains why illegal migration is so widespread in underdeveloped countries like Central Asia, which also contributes to the widespread misconceptions about the true number of migrants residing abroad and the amount of money they send home (Martin, 2016). Abduvaliev and Bustillo (2020), who argue that more than half of all remittances received by home nations typically do not make it to the official reporting, further emphasize the degree of such deceiving caused by informal mediums of transmitting remittances.

The skillset of labor migrants that can prove to be most beneficial in reducing poverty in the home nation has also been the subject of continuous discussion. Researchers' opinions on the subject are divided; some think that because unskilled workers want to eventually return to their home countries, they don't make any effort to invest any of their profits there. As a result, low-skilled and unskilled workers receive more remittances than highly-skilled workers (Bhattacharya et al., 2018). Researchers frequently highlight the unfortunate effects of the emigration of highly trained employees, notwithstanding the obvious differences in remittances sent by the two kinds of migrants. The underlying premise of the adversity cited above is that when highly educated and competent professionals leave their home country to work abroad, the labor force of the home country suffers negative effects. The labor force is fundamentally altered as a result of the loss of a substantial portion of productive labor, leaving just a small number of them while the majority of the workforce is made up of low-skilled labor (Hosan et al., 2023)

According to a report compiled by Kakhkharov et al., (2020), the work permits issued by Russian Federation to Uzbek migrants increased from 68.6 thousand to 1253.9 thousand over the course of 7 years which hints at the efforts undertaken by the Russian government to promote the inflow of international labor from states like Uzbekistan. Statistics show that remittances comprise 14.8% of the total GDP produced by Uzbekistan (WDI, 2019). This figure grew from 5.9% to 14.4% within a matter of 4 years which further stresses the growing prevalence of remittances in developing economies like Uzbekistan. Among the households categorized by income distribution, middle-income households account for the highest number of remittance recipients. Even while it makes the most sense for poorer households to migrate more frequently, the financial restrictions they face make it difficult for them to move up the socioeconomic ladder. For lower-income households with such a small amount of cash on hand, it can be difficult to afford the means to leave their native nation and relocate to a completely new location (Inoue, 2018). This explains why remittances only account for 7% of the total income of Uzbek households deemed to be in the poorest 40%.

Finally, Esquivel and Pineda (2006) utilized the Propensity Score Matching Approach to examine the impact of remittances on poverty decreases among Mexican families. They determine that getting remittances (regardless of volume) decreases the households' likelihood of being in food-based and in capabilities-based poverty by 8% & 6 % points, respectively. If the remittance sources resemble the Mexican population, this effect is equivalent to a reduction of around 50 & 30 percent in corresponding poverty rates for remittance-receiving households. Further in Pakistan, Siddiqui and Kemal (2006) establish that trade liberalization and international remittances decrease the gap between

urban and rural households but improvement in welfare from trade liberalization is larger for urban households as associated with rural households.

2.2 Foreign Aid and Poverty

A major issue in the aid discussion is whether foreign aid increases growth and reduces poverty. One specific view is that the foreign aid effect depends on good policy and institutional setting; another view claims that aid works irrespective of the policy and institutional setting (Collier and Dollar, 2002; Dalgaard et al., 2004; Alvi and Senbeta, 2012). The positive relationship between foreign aid and growth. These studies propose that aid can have a major role in poverty reduction through an increase in average income. The study by Anetor, et al. (2020) looked at the impact of trade, foreign aid, and foreign direct investment (FDI) on poverty in 29 chosen Sub-Saharan African (SSA) nations from 1990 to 2017. The study, which used the practicable generalized least squares estimating method, demonstrated that while trade helped lower poverty, FDI and foreign aid did not. In contrast to the thorough literature assessment undertaken by Mahembe and Odhiambo (2019), which concluded that foreign help significantly reduces poverty, Anetor et al. (2020) do not identify a correlation between foreign aid and poverty.

In a related study, Maruta et al. (2020) looked at how foreign aid to agriculture, health, and education, as well as institutional quality, affected the growth of 74 developing economies in South America, Asia, and Africa between 1980 and 2016. The outcome of the two-stage least squares estimate method revealed that the region's institutions' level of excellence had an impact on how much the effect was felt. Contrary to Asia, where health aid performed better, South America saw greater success with its educational assistance. Aid for agriculture is more effective at spurring development in Africa. Additionally, employing the generalized method of moments, According to research by Asongu and Tchamyou (2019), foreign aid increases educational achievement in 53 African nations' primary school attendance and lifelong learning. Similarly to this, Brid and Choi (2019) used the dynamic and fixed effect panel regression technique on 76 developing economies to investigate the impact of foreign aid, remittances, and foreign direct investment on economic growth. The findings demonstrated that while remittances and foreign direct investment boosted GDP, the impact of foreign aid was unclear.

However, foreign aid in an economy with a stable macroeconomic policy leads to an increase in economic growth. The critics of the relevance of foreign aid are concerned with its productivity. They argued that foreign aid does not increase growth as it displaces finances, consumption, and domestic savings and leads to overvaluation of the real exchange rate (Rajan & Subramanian, 2007; Boone, 1996). Others opined that foreign aid leads to the weakening of the recipients' country institutions (Brautigam & Knack, 2004; Svensson, 2000; Easterly, 2007; Arvin & Barillas, 2002). These inconclusive findings motivate this research. This study extends the work of Girma (2015) by considering fiscal policy as a crucial macroeconomic policy that can reduce poverty. It also extends the scope by considering the regions in Africa

2.3 Underpinning Theory

An underpinning theory that helps explain the relationship between foreign aid, foreign remittances, and poverty is the "Dependency Theory." The Dependency Theory emerged in the 1950s and 1960s as a critical response to the prevailing modernization theory

Cardoso & Faletto (1979). It focuses on the dynamics of economic relations between developed and developing countries, particularly the relationship between core (developed) and periphery (developing) nations. According to the Dependency Theory, foreign aid and foreign remittances can have both positive and negative impacts on poverty in developing countries.

2.4 Theoretical Framework

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┌─────────────────────┐
│    Foreign Aid      │────┐
├─────────────────────┤    │      ┌──────────────┐
│ Foreign Remittances │    └─────▶│   Poverty    │
└─────────────────────┘          └──────────────┘
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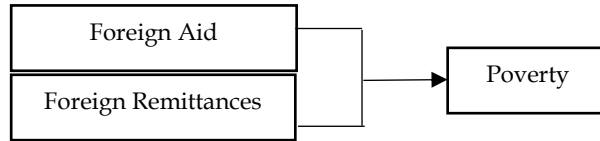
3. Research Methodology

3.1 Data Collection

In the present research study, secondary data was used. While data were collected from 2002 to 2018 as data was not available for headcount and remittances before 2002. The nature of the data was time series as it was only collected for Afghanistan over the year to have a balance data study fed on the sixteen years' data which was collected from websites of trading economies, and world bank indicators.

3.2 Variables Measurement

3.2.1 Dependent Variable

a.   Poverty

The headcount index is used as a proxy for poverty, also known as the poverty rate, and is a measure of the percentage of the population living in a household with income per person below the poverty line. This is the most popular measure of poverty because of its simplicity. Everybody living below the poverty line is counted as poor without any difference in hin far a person is from the line (Alvi & Senbeta, 2012; Leeson, 2008; Collier and Dollar, 2002)

3.2.2 Independent Variables

a.   Foreign Aid

Official Development Assistance (ODA) is considered a proxy for foreign aid, which consists of grants and loans that consist of at least a twenty-five percent grant element from both bilateral and multilateral sources, excluding military purposes (Connors, 2012). In the present research study, a natural log of official development assistance was taken which was in US$.

$$\text{Foreign Aid = Ln (ODA)}$$

b.   Remittances

A remittance is a transfer of currency, often by a foreign employee or worker to an individual in their home country. Money sent home by immigrants competes with international aid as one of the largest financial inflows to developing countries (Banga and Sahu, 2010). Similarly, a natural log of remittance was taken which was in US$.

$$\text{Remittances = Ln (REM)}$$

3.3 Statistical Tests and Model

Different statistical tools were used for the analyses of the data. The Phillips Perron (PP) and Augmented Dickey-Fuller (ADF) tests were used for testing the unit root problem at the level and 1st difference of each series. Moreover, the multivariate Johansen and Jusiles (JJ) Co-integration test has been used for testing the long-run association between poverty and sources to reduce poverty such as foreign aid, foreign remittance, and trade openness. Finally, the Vector Error Correction Model (VECM) has been used for testing the short-run relationship between poverty, foreign aid, foreign remittances, and trade openness.

3.3.2 3.3.1 Unit Root

Economic and financial time series are usually influenced by the changing environment (Zivot & Wang, 2006), particularly the dynamic state of the economy and natural disasters. Therefore, the time series variables usually follow a random walk (i.e., they do not exhibit constant mean or variance, or both across time), referred to as the unit root (or non-stationary) problem (Gujarati, 2009). Two tests are used in the present study for testing unit root problems including the Phillip-Perron (PP) test (Phillips & Perron, 1988) and Augmented Dicky-Fuller (ADF) test (Dickey & Fuller, 1981). The equation for the ADF test is given as follows:

$$\Delta Z_t = y_1 + þz_{t-1} + n \sum_{t=1}^{k} \Delta Z_{t-1} + \mu_t \qquad (1)$$

On the other hand, for Phillip-Perron (PP) test the following equation is used:

$$\Delta z_t \;=\; \alpha_1 + nz_{t-1} + \mu_t \qquad (2)$$

Where, α_1 is the constant term, and μ_t is the error term. Both ADF and PP tests produce the same results, however, they differ mainly on how the heteroscedasticity and serial correlation in the error terms are dealt with. In particular, where the ADF test uses a parametric auto-regression to estimate the error term in the test regression, the PP test, being a non-parametric test, ignores the serial correlation. In the present study, both the PP test and the ADF test are applied for cross-checking and ensuring the accuracy of the results.

3.3.3 Cointegration

Two approaches are widely used to investigate Cointegration in time series including (i) Engle and Granger (1987) unit root test of the regression residuals known as the Engle-Granger (EG) cointegration test, and (ii) the Johansen and Juselius (1990) maximum-likelihood based test known as the Johansen and Juselius (JJ) cointegration. Among these, the JJ Cointegration is generally more powerful since it covers the shortcomings of the EG Cointegration test. Therefore, the present study applies JJ cointegration to investigate the long-term relationship between poverty and sources to reduce poverty such as foreign aid, foreign remittances, and trade openness. The general form of the JJ model is given as follows:

$$\Delta x_t = \$x_{t-1} + \sum_{t=1}^{k-1} P_i \Delta x_{t-i} + hy_t + s_t \qquad (3)$$

Where x_t is (nx1) vector of $I(1)$ time series variables, hy_t is a vector of constants, \$ is the (n ×n) matrix of long-term parameters of the error correction, while P_i represents the (n × n) matrices of short term parameters of lagged difference factor.

3.3.4 *Vector Error Correction Model (VECM)*

After determining the cointegration, Vector Error Correction Model (VECM) is used to examine the speed of the adjustment process towards the long-term equilibrium i.e., how time series reconcile errors while it pursues the long-run equilibrium. The mathematical presentation of VECM is as follows:

$$\Delta y_t = k + \sum_{i=0}^{k} \text{þ}1_i \Delta X1_{t-i} + \sum_{i=0}^{k} \text{þ}2_i \Delta X2_{t-i} \ldots + \sum_{i=0}^{k} \text{þn}_i AXn_{t-i} + Z_1 EC1_{i-1} + s_{1t}$$

…… (4)

Where *K* is constant, Y_t is the dependent variable and Δ is the 1st difference operator. Similarly, X represents the independent $I(1)$ variables 1…n, þ1 to þn represent the coefficient of independent variables X1…. Xn respectively, Z_1 is the coefficient of error correction term, $EC1_{t-1}$ is the error correction term, and s_{1t} is the residual or error term.

4. Results and Discussion

To justify the objective of the study, a detailed analysis was required. The data analysis and model that was used in this paper are as follows:

1. Augmented Dickey-Fuller test and Phillips-Peron to check the Stationarity.
2. Johansen co-integration test for long-run association among the variables.
3. Vector error correction model (VECM) to determine the short-run association

Table 1 presents the results of the Philips and Perron (PP) test and the Augmented Dickey and Fuller (ADF) test. Results of both tests indicate that all variables have unit root problems at a level. However, these variables become stationary at the first difference indicating that all variables are integrated at the order $I(1)$. Hence, the Johansen and Juselius (JJ) co-integration test can be used to check the long-run association among the variables under consideration.

Table 1: Result of Augmented Dickey-Fuller and Phillips Peron Test

Variables	Augmented Dickey-Fuller statistic: with trend and constant				Phillips – Peron statistic: with trend and constant.				Remark
	At level		At first difference		At level		At first difference		
	Critical Value at 5 %	Trace-Statistic Value	Critical Value at 5 %	Trace-Statistic Value	Critical Value at 5 %	Trace-Statistic Value	Critical Value at 5 %	Trace-Statistic Value	
POV	-2.422	-1.884	3.442	-15.72*	-2.866	-1.488	-3.344	-16.73*	I (1)
Ln (ODA)	-2.125	-0.677	-2.266	-19.92*	-2.283	-0.619	-2.599	18.89*	I (1)
Ln (REM)	-4.334	-0.855	-4.123	-17.443	-2.126	-1.122	-3.123	-17.11*	I (1)

Table 2 presents the results of the Johansen and Juselius (JJ) co-integration test. The JJ co-integration is applied to evaluate the Long run relationship between poverty and sources

to reduce poverty. The Trace statistics and the Maximum-Eigen values indicate that there are at most three (03) co-integrating equations, indicating that the variables are co-integrated. Consequently, based on the results it is concluded that a long-run relationship exists between poverty, foreign remittance, foreign aid, and trade openness These results are consistent with the findings of (Connors, 2012; Jongwanich, 2007; Asra et al. 2005)

Table 2: Result of multivariate Johansen and Juselius (JJ) co-integration test

No. of Hypothesized CE(s)	Trace Stat.	Critical Value	Prob.**	x-Eigen Stat.	Critical Value	P-value.**
None *	629.2249	197.3709	0.0001	179.2253	58.43354	0.0000
At most 1 *	449.9996	159.5297	0.0000	123.1880	52.36261	0.0000
At most 2 *	326.8116	125.6154	0.0000	111.1018	46.23142	0.0000
At most 3 *	121.1491	69.81889	0.0000	43.69849	33.87687	0.0025

Since, Foreign remittance, foreign aid, and trade openness of Afghanistan and poverty reveal cointegrating (long-run) relationships, VECM was assessed to model the short-run dynamics of each scheme. **Table 3** reports the results of the VECM model. These results indicate that the Error Correction Terms (ECTs) are statistically significant and negative for most of the equations indicating the propensity to adjust to any aberrations in the long-run equilibrium. The significance of these ECTs provides further proof of a cointegrating relationship between poverty, foreign aid, remittances, and trade openness.

Table 3: Results of Vector Error Correction Model

Error Correction	D(POV)	D(ODA)	D(REM)
CointEq1	-0.672253	-3.382036	-0.581539
	(0.11804)	(2.11383)	(0.77197)
	[-5.69530]	[-1.59995]	[-0.75332]
CointEq2	-0.037377	0.043735	0.031475
	(0.01292)	(0.23134)	(0.08449)
	[-2.89339]	[0.18905]	[0.37255]
CointEq3	-0.318315	-2.442175	-0.420135
	(0.08369)	(1.49868)	(0.54731)
	[-3.80367]	[-1.62955]	[-0.76763]

The p-values for each co-integrating equation are presented in **Table 4** to determine whether a short-run relationship exists among variables. To calculate p-values the system equations have been used. The estimated coefficients of the ECT indicate the speed of adjustment toward the equilibrium point. The coefficient of co-integrating equation 1 indicates that 67.22% of the deviance in poverty from its equilibrium point recuperates every year (since the current study uses yearly data). The probability value of the error correction coefficient for poverty is significant (less than 0.05) and negative in sign, categorically proposing that short-run causality exists, which moves from poverty to foreign remittance, foreign aid, and per capita income.

Table 4: Probability Values for System Equations

	Coefficients	Standard Errors	t-Stat	P-value
C (1)	- 0.672253	0.118036	- 5.695301	0.0001
C (2)	- 0.037377	0.012918	- 2.893386	0.0126
C (3)	0.318315	0.083687	3.803666	0.0022
C (4)	0.050100	0.056261	0.890491	0.3894
C (5)	- 0.010013	0.001510	- 6.630320	0.0000

C (6)	0.027583	0.014773	1.867147	0.0846
C (7)	- 0.069444	0.024952	- 2.783157	0.0155
C (8)	0.036347	0.125650	0.289269	0.7769
C (9)	- 0.062175	0.091319	- 0.680851	0.5079
C (10)	0.017809	0.012012	1.482567	0.1620
C (11)	- 0.013637	0.013204	- 1.032798	0.3205
C (12)	- 0.152602	0.086830	- 1.757486	0.1023
C (13)	- 0.043072	0.038353	- 1.123042	0.2817
C (14)	0.020206	0.032544	0.620872	0.5454
C (15)	0.013767	0.013713	1.003936	0.3337
C (16)	0.008078	0.001757	4.597213	0.0005
C (17)	0.003570	0.001527	2.338428	0.0360
C (18)	- 0.026675	0.015059	- 1.771422	0.0999
C (19)	- 0.019166	0.019070	- 1.005032	0.3332

5. Conclusion

The findings of this study suggest that a significant long-term and short-term relationship exists between poverty, foreign remittance, and foreign aid. Based on the present study analysis it is concluded that a rise in foreign remittance and foreign aid will increase poverty in Afghanistan. Our results are consistent with the findings of Hossain (2013), Connors (2012), Goff (2010), Banga and Sahu (2010), Asra et.al. (2005), Jongwanich (2007), Adam (1991), who found foreign aid and remittances do not help to reduce poverty. According to Sachs et al. (2004), there are numerous examples of countries (including the United Kingdom and the United States) that have escaped from poverty via sustained growth where foreign aid and remittance have played little or no part. While our results are in contradiction with Arndt et al. (2015), Antwi et al. (2013), Javid, Arif, and Qayyum (2012), Eskander and Aberra (2011), Bachman-Oskooee, and Oyolola (2009), who found that poverty can be overcome by foreign aid and remittances. It seems that the government of Afghanistan should focus on policy improvement that will lead to the proper allocation of foreign aid and will help Afghanistan in reducing poverty.

5.1 Policy Implications:

The results of your study indicate that an increase in foreign remittances and foreign aid may not lead to poverty reduction in Afghanistan. This highlights the need for policymakers to reevaluate the effectiveness of existing poverty alleviation strategies and consider alternative approaches to address poverty in the country. Governments and international organizations should focus on developing targeted policies and programs that ensure the proper allocation and efficient utilization of foreign aid and remittances to maximize their impact on poverty reduction.

Given the significant role of remittances in the Afghan economy, exploring the dynamics of remittance flows and their impact on various sectors could be crucial. Research could delve into understanding how remittances affect household consumption, investment, and overall economic growth, as well as their potential to create job opportunities and improve living standards.

5.2 Directions for Future Research

However, further studies are recommended, especially studies in (i) investigate the impact of foreign aid on poverty using the different measures of poverty, including the recently developed multidimensional measures of poverty; such as the human

capabilities approach (CA) and hybrid approach; and (ii) An assessment and implementation of foreign aid policies to reduce poverty.

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