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Role of Foreign Direct Investment and Remittances in the Economic Growth of Pakistan

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Abstract

Foreign direct investment and remittances play an important role in the economic growth of a country by bringing the latest technology, promising better infrastructure, providing foreign capital and generating employment opportunities. The policy environment, macro-economic stability, a sound domestic financial system, good law and order conditions and the availability of cheap energy and skilled manpower are all assumed to be some of the important pre-conditions for foreign direct investment. Remittances, being a reliable alternate source of capital, serve the country well in distressed economic situations. The present study is designed to explore the role of foreign direct investment and remittances on the economic growth of Pakistan by using the Engle Granger Cointegration method. Empirical results suggest that there is a long run relationship between the dependent and independent variables included in the model. Remittances and gross fixed capital formation variables have a positive impact on economic growth in the long-run. However, foreign direct investment has a negative effect on the growth because pre-requisites are missing in Pakistan. Result suggests that there is disequilibrium among the variables in the short-run. The disequilibrium that occurs in the previous time period is very rapidly adjusted in the current time period. Improving conditions for attracting foreign direct investment could further increase economic growth in the country.

Keywords: FDI, Remittance, Economic Growth, ECM, Pakistan

JEL Classification: C22, E22, O1, O11

1. Introduction

Capital has an important role in economic growth and development of an economy. Economists argue capital is a necessary element of economic growth. Development economists consider capital crucial for growth and development whether its origin is foreign or local (Denault, 2011). Pakistan has low capital formation due to a low saving rate, high population growth

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rate, huge debt burden and a relatively low level of managerial and technical skills (Azam & Khattack, 2005). Foreign direct investment (FDI) and remittances have an important contribution in capital formation particularly in developing economies and Pakistan is no exception in this regard. FDI is considered to give rise to increased size and effectiveness of investment. It increases available knowledge and improves quality of knowledge as well. It helps local firms to take advantages of the technology and knowledge of foreign firms, to learn the new techniques, and to get benefits from their experience (Rivero, 2007; Hermes & Lensink, 2003). Host countries devise various policies to attract FDI. Such policies include partial or complete exemption from corporate taxes and import duties. These policies get approval after long debate and great consideration. Such policies are applied to all foreign firms, fulfilling certain rules and regulations (Hanson, 2001).

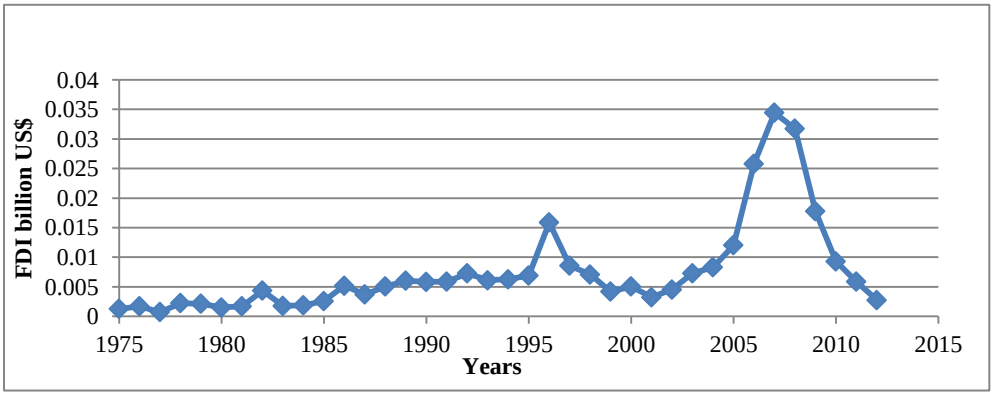
FDI is accompanied by both benefits and costs. The effectiveness of FDI on the economic growth of the host country depends on a given country's general conditions (such as macroeconomic and political stability) and policy environment (including such factors as includes diversification, absorption capacity, linkages between FDI and domestic investment) (Adams, 2009; Hermes & Lensink, 2003).

Pakistan is a large consumer market with 190 million people and is blessed to have huge deposits of natural resources and a diverse natural environment. The lack of capital and relatively poor management and technical abilities in Pakistan, has made it feasible for foreign investors to invest in the country. Although Pakistan has great potential to attract FDI, it has never been able to exploit full benefits of FDI (Government of Pakistan, 2012). Figure 1 shows FDI inflows in Pakistan overtime.

Very low inflow of FDI from the beginning can be observed from Figure 1. FDI increased after the year 1988 mainly due to privatization and trade liberalization policies of the Government of Pakistan. It reached a maximum in 1995 and then started decreasing. The decline in FDI after 1995 can be attributed to sanctions imposed on Pakistan after the nuclear test of that year and the Asian crisis. It started increasing again as a result of liberalization in foreign investment and renewal of Pak-US relationships after 2000. FDI reached its maximum in 2008 and then showed a steep decline thereafter due to a lack of trust and confidence in Pak-US relationships and changes in country specific conditions such as political and macro-economic stability, the

energy crises, and deteriorating law and order conditions. FDI inflows and the annual economic growth rate are given in Table 1.

Figure 1: Trend of Foreign Direct Investment (Real) Inflows to Pakistan 1975-2012



Source: Government of Pakistan (2013)

An examination of Table 1 indicates that FDI started declining in the past few years. FDI inflows in 2012 are half of that received in 2011. Annual growth in FDI also declined steeply, even showing negative growth in FDI from 2009 onward. Khan (2011) and Khalid et al. (2012) argue that this abrupt decline in FDI inflows is attributable to several factors including: political and macroeconomic instability, a declining law and order situation, inconvenient government policies, lack of infrastructure, a growing energy crisis and an illiterate labor force.

Another source of capital formation is remittances. Remittance is the part of a migrant's income that is sent back to their home country (Buch, 2002). In case of natural disasters namely earthquakes and floods, immigrants send remittances to their home country to serve the country (Sorenson, 2004). The benefits of remittances include allowing a country to spend more on consumption, increase imports, and improve investment in the economy (Cornnell & Conway, 2000). Other benefits of remittances include reducing poverty and improving the quality of human life through quality education, better medical facilities (Calaro, 2008; Faini, 2002; Kemal, 2001), reducing the debt burden, lowering the savings investment gap, improving the balance of payments and minimizing current account deficit (Iqbal & Sattar, 2005; Arif, 1999). Orozco & Fedewa (2005) and Beck et al. (2007) showed that remittances result in financial development, thereby reducing poverty and inequality and promoting economic growth.

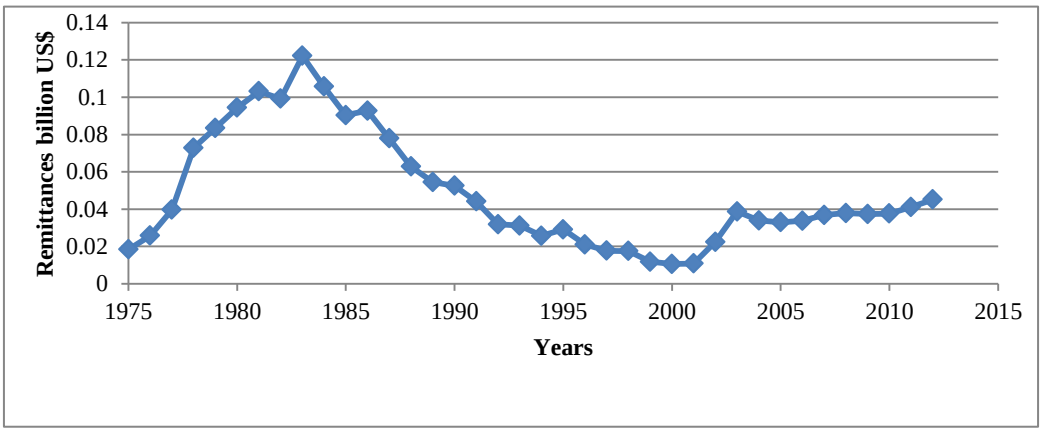
Table 1: FDI Inflows in Pakistan from 2001-2012

Years	FDI inflow (Million$)	Annual growth rate
2001	324.4	
2002	484.7	49.4143
2003	798	64.63792
2004	949	18.92231
2005	1524	60.59009
2006	3521	131.0367
2007	5139.6	45.96989
2008	5410.2	5.265001
2009	3719.9	-31.2428
2010	2205.7	-40.7054
2011	1292.9	-41.3837
2012	666.7	-48.4338

Source: Government of Pakistan (2013)

Pakistan was the fifth largest country in terms of remittance received in 2011. Worker remittances experienced 10.8 percent growth in South Asia compared to 25.8 percent in Pakistan during the year 2011 (Government of Pakistan, 2012). Figure 2 summarizes remittance inflows in Pakistan. During the 1970s, remittance inflows were considerably higher in Pakistan than other countries, as it was the larger country sending its workers to the Middle East. The significant increase in remittances in the 1980s was due to an increase in number of migrant, which were 107,000 in the 1980s, compared to 79,000 in the 1970s. The decade of the 1990s experienced a decline in worker remittances. Important reasons for this decline in worker remittances include a decrease in oil prices which caused a slowing in economic activities of the labor importing countries, especially the Middle East countries, and freezing of foreign currency accounts. After 9/11 remittances considerably increased because migrants started sending the remittances using formal channels of banks.

Figure 2: Trend of Remittance (Real) Inflows to Pakistan during 1975-2012



Source: Government of Pakistan (2013)

The above discussion helps explain why remittances are increasing over time in recent years. Similarly FDI inflow and its impact on economic growth are well-documented. The world financial crisis of 2007 had a substantial effect on different economies of the world, including both developing and developed nations. The need to determine the effect of FDI and remittances on the economic growth in Pakistan is thus apparent given the consequences of the financial crisis. The present study is designed to help answer this question by determining the impact of FDI and remittances on economic growth in Pakistan. The study used the time series data. The findings of the study are used to help formulate policies to channel remittances in productive enterprises.

2. Brief Literature Review

FDI and remittance play a crucial role in building physical capital and their contribution to economic growth is well-documented. This section reviews important prior studies that relate contribution of FDI (Borensztein et al., 1998) and remittance (Buch et al., 2002; Buch et al., 2004; Alıcı & Ucal, 2003) in the economic development of the recipient country. De Mello (1999) also argues that FDI plays a key role in capital accumulation and increasing total factor productivity. Stable political conditions attract FDI and help maximize the benefits of FDI (Alfaro et al. 2000). However, Alfaro et al. (2003) found that FDI had an ambiguous impact on economic growth as FDI in the primary sector had a negative impact, whereas in the manufacturing sector, it had a positive impact on growth. But ambiguous results were found

for the services sector. Johnson (2006) determined the impact of FDI on the economic growth of the host country and results of the study showed that FDI promoted economic growth in developing countries. Koko (2006) investigated the impact of FDI on developing countries and found that FDI resulted in bringing new technology in those countries and it was a channel to approach new and advanced technologies.

Available empirical studies provide evidence that remittances have two opposite effects. Firstly, they increased the income of the unemployed in the home country. Secondly, remittances are able to reduce the financial constraints in the migrant countries thereby increasing investment (Giuliano & Ruiz-Arranz, 2005; Mim & Ali, 2005; Pradhan et al., 2008). However, Chami et al. (2005) argue that remittances have negative impact on economic growth. The reason provided is that the remittances were not used in capital formation. Catrinescu et al. (2006) found that remittance inflows to developing recipient countries show an increasing trend. Contradictory findings were observed in relating remittance to economic growth. The study also revealed that remittances had a long term impact on economic growth when there existed a favorable economic environment and policies.

Remittances are also found to decrease poverty in recipient countries. Adams et al. (2006) showed a decline in poverty because of internal and international remittances in Ghana. However, international remittances had a greater impact on poverty compared to internal remittances. Similarly, Koechlin and Leon (2006) estimated the relationship between remittances and income inequality and found a non-monotonic relation between remittances and income inequality. They also found substantial effects of trade and institutions on economic growth. The study indicated that institutions accelerated economic growth while remittances restricted it. Conversely, Ruiz et al. (2009) showed that remittances have positive impact on economic growth.

Jawaid and Raza (2012) determined the relationship between economic growth and worker remittances in China and Korea and found that there was a negative relationship between remittances and economic growth in the long-run for China, and a positive relationship in the long-run for Korea.

Considering Pakistan, studies also show an important role of FDI in the economic growth (Atique et al., 2000). Khan and Khan (2011) found that FDI has different effects on economic growth in various sectors in Pakistan. Inflow of FDI increased growth in the primary and services sector. Tiwari

(2011) examined the effect of FDI, export receipts and tourism on growth of various countries, including Pakistan, China, India and Russia. Tiwari found that FDI was negatively related with economic growth whereas the effect of tourism was positive on economic growth. Falki (2009) examined the effect of FDI on the growth of Pakistan's economy. Results indicate a negative and insignificant effect of FDI on the economic growth of Pakistan. FDI was not found contributing enough to promote economic growth in Pakistan, so researchers stressed that the government should devise policies attracting FDI, rather than retarding it. The researchers also suggested to develop and improve infrastructure, human capital and domestic market to attract FDI in the country. Khan and Nawaz (2010) studied the factors affecting FDI in Pakistan, and found volume of exports, GDP growth rate, price index and tariff on imports as the important determinants.

3. Methodology and Sources of Data

The primary objective of the study is to determine the impact of foreign direct investment and remittances on the economic growth of Pakistan. The study used yearly time series data from 1975 to 2012. Data were collected from various sources. They included the Hand Book of Pakistan Economy 2010 published by the State Bank of Pakistan and various issues of the Economic Survey of Pakistan.

The impact of FDI and remittances on economic growth was estimated in both the long-run and short-run using the Engle Granger (1987) Cointegration Technique. Using this technique, the analysis was completed in two steps. In the first step, the authors ran a regression on the level form to obtain the residuals. After this, the stationarity of the residuals was determined using an ADF test. If the residuals were stationary, it indicated that the variables were co-integrated (had a long run or equilibrium relationship among themselves). Co-integrated variables imply that an error correction mechanism is there which can be introduced in the short-run equation.

To estimate the long-run relationship between dependent and independent variables, a multiple regression model was used. This model was based on the work of Rivero (2007) and is given below:

$$lnY_t = \beta_o + \beta_1 lnREM_t + \beta_2 lnFDI_t + \beta_3 lnAID_t + \beta_4 lnLBR_t + \beta_5 lnGFCF_t + \mu_t \quad (1)$$

Where ln is natural logarithm, Y_t is real value of annual GDP in million dollars, REM shows the real value of remittances inflows in million dollars, FDI indicates real value of foreign direct inflows in million dollars,

AID is foreign aid inflows to the country in million dollars, LBR represent total labor force in millions, GFCF shows gross fixed capital formation in millions of dollars, t is time period in years (1,2,3……..n) and µt is an error term which is assumed to be independently and identically distributed with zero mean and constant variance**.**

The functional form was decided by constructing scatter plots between dependent and independent variables. Different functional forms were estimated but the double long model mentioned above suited the data well. All the monetary variables used in the analysis are in real form.

The Granger Theorem states that if two variables, namely X and Y are found to be cointegrated, the relationship between the two variables can be named as error correction mechanism (ECM). If the two variables are cointegrated i.e. long run relationship between them exists. It is possible that variables may be in disequilibrium in the short-run. To determine relationship in the short-run, the ECM was first used by Sargan and Bhargawa (1983) and later on by Engle and Granger. The short-run relation for ECM is given as:

$$\Delta lnY_t = \alpha_o + \alpha_1 \Delta lnREM_t + \alpha_2 \Delta lnFDI_t + \alpha_3 \Delta lnAID_t + \alpha_4 \Delta lnLBR_t + \alpha_5 \Delta lnGFCF_t + \varepsilon_t \quad (2)$$

Before estimating relationship in the long-run, we estimated the stationarity of the time series included in the analysis. Most time series data sets are non-stationary (i.e. their mean, variance and covariance vary overtime). A time series data set is considered to be stationary if the mean, variance and covariance are constant over time. If the time series is non-stationery, OLS is not applicable because this leads to spurious regression (Granger and Newbold, 1974). The stationarity of the regression was tested using an Augmented Dickey Fuller (ADF) test. The Augmented Dickey Fuller test was applied by estimating following regression equation.

$$\Delta Y_t = \beta_0 + \beta_1 t + \delta Y_{t-1} + \alpha_i \sum_{i=1}^{m} \Delta Y_{t-i} + \varepsilon_t \quad (3)$$

Where ΔY_t is the first difference of a time series and $\Delta Y_{t-i}$is its lag value and $\beta_0, \beta_1, \delta \; and \; \alpha_i$ are parameters to be estimated and $\varepsilon_t$isthe white nose error term. To determine the cointegration, an Engle-Granger (EG) or augmented Engle-Granger (AEG) test was used, which is similar in nature to that of Dickey-Fuller (ADF) or augmented Dickey-Fuller test. The only

difference is that we compare the estimated value with the critical values provided by the Engle and Granger.

4. Empirical Results

As time series data is employed in the present study, it was necessary to determine the stationarity of the data. The Augmented Dickey Fuller (ADF) test was used for this purpose. The test was applied on all variables at level forms and at first difference. Results in Table 2 showed that the null hypothesis of unit root ($\delta=0$) cannot be rejected for any variable at level form. However, the null hypothesis ($\delta=0$) was rejected for all the variables at first difference at a 5% level of significance. This indicates that the variables are integrated of order 1.

Table 2: Results of ADF Test

Variables on level	ADF-stat	Variables on first difference	ADF-stat	Results
GDP	-1.53	ΔGDP	-4.60*	1(1)
REM	-1.84	ΔREM	-3.34*	1(1)
FDI	-1.86	ΔFDI	-4.02*	1(1)
AID	-0.01	ΔAID	-3.34*	1(1)
LBR	-0.23	ΔLBR	-4.02*	1(1)
GFCF	-1.79	ΔGFCF	-4.25*	1(1)

*Indicates 5 % level of significance

We also used the auto-correlation, partial auto correlation function and Q-statistic to determine the stationarity of variables. Test statistics showed non-stationarity of all variables at level form, but stationary in first difference form.[2] After making all variables stationary using the first difference, relationship in the long-run between them was determined using ordinary least square (OLS). The results are given in Table 3.

[2] Due to space limit, results of these tests are not reported.

Table 3: Long Run Regression Results

Variables	OLS estimation	T-statistics	Significance
Constant	3.94	5.79	0.00
ln REM	0.10	4.51	0.00
ln FDI	-0.07	-2.78	0.00
ln AID	-0.02	-0.48	0.63
ln LBR	-0.04	-0.37	0.71
ln GFCF	0.51	6.44	0.00
F- value	81.63		0.00
R-square	0.93		
Adjusted R^2	0.92		

The value of R^2 is 0.92, indicating that 92 percent of the total variation in the dependent variable is due to the explanatory variables included in the model. The F statistics is 81.62 and it is significant at a one percent. So we rejected the null hypothesis that all regression coefficients were simultaneously zero. The significance of the individual regression coefficients was tested by the usual t-test.

The estimated coefficient of remittances is found positive and statistically different from zero at a one percent level of significance. It implied that a one percent increase in remittances results in a 0.10 percent increase in the economic growth rate of Pakistan in the long-run. Giuliano et al.(2005) and Fayissa and Nsiah (2005) also found the same results.

The coefficient of foreign direct investment is statistically significant and negative with a value of 0.07. Many studies conducted in Pakistan also indicated a negative effect of FDI on economic growth (Tiwari, 2011; Khan, 2007; Atique et al., 2004; Agrawal, 2000; Falki, 2009). Studies conducted outside Pakistan also confirm our results (Adams, 2009; De Mello, 1999). The reason for the negative impact of FDI is that FDI contributes positively to the economic growth of a host country provided that it has a stable financial system (Alfaro et al., 2004). However, the financial system in Pakistan is neither diverse nor efficient (Khan, 2007). An educated labor force is also an

important factor, allowing the country to benefit from FDI spillovers (Borensztein et al. 1998; De Gregorio, 1992), whereas most of the labor force of Pakistan is illiterate, incompetent and unskilled (Khan, 2007; Khalid et al. 2012). According to De Gregorio (1992) and Alfaro et al (2004) FDI contributes positively to economic growth under certain suitable local conditions (i.e. political and macro-economic stability, physical and human capital).Unfortunately these conditions are not present in Pakistan. The law and order situation in the country is discouraging to foreign investors. Furthermore, FDI improves economic growth in the rich host country (Blomstrom et al. 1994), whereas Pakistan is not a rich country.

The estimated coefficient of aid (Ln AIDt) is -0.019. Although the coefficient is negative but it is non-significant. Guillaumont and Chauvet (1999) argue that external and climatic environment is critical for aid effectiveness. Svensson (1999) concludes that aid has a positive impact in countries where institution supremacy is intact and the institution keeps check on the performance of the government, which is not the case with Pakistan.

The estimated co-efficient of gross fixed capital formation (Ln $GFCF_t$) is 0.508 and it is positive and statistically different from zero. The value of the coefficient implies that a one percent increase in GFCF results in a 0.5088 percent increase in economic growth. Bouoiyour and Saloua (2002) and Tiwari (2010) also find a positive impact of physical capital, including GFCF, and the government's final consumption spending on economic growth.

The estimated coefficient of labor (Ln LBR_t) is -0.045. This coefficient is found to be negative but non-significant. It implies that in long-run, the labor force does not play any role in the economic growth of Pakistan. This is so because the labor in Pakistan is abundant and mostly illiterate and unskilled.

To determine the degree of cointegration between the dependent and independent variables, the augmented Engle and Granger (1987) test was applied and its result is given in Table 4. The estimated value of the tests statistic is -3.9396 and is statistically different from zero at a one percent level of significance. Therefore, the null hypothesis of unit root is rejected leading to accept the alternate hypothesis i.e. stationarity of the series. Hence, the variables are cointegrated with each other and there exists a long-run relation among them.

Table 4: Augmented Engle-Granger (AEG) Test Results for Residuals

Series	AEG test-stat	Test critical values		
		1%	5%	10%
Res (saves residuals)	-3.94	-3.63	-2.95	-2.61

4.1 Results of the Short-Run Analysis

After confirming the long-run relationship among variables, we estimated the short run model and the results of the ECM are given in Table 5. The short-run results indicate that labor and Gross Fixed Capital Formation variables have a positive and statistically significant impact on economic growth, while remittances and aid have no effect on economic growth. The FDI variable has a negative impact on economic growth and its coefficient is statistically significant. The lagged residuals from the first equation were used as an error correction variable in this model. The coefficient of the ECM (μ_{t-1}) term has a negative sign according to our expectation and it is statistically significant. The ECM coefficient indicates that the adjustment process is very fast. It implies that 70 percent of disequilibrium that existed in the variables in the model in the previous time period is adjusted in the present time period.

Table 5: Short Run Regression Result (ECM)

Variables	Coefficients	Standard error	t-stat	p-value
Intercept	-0.03	0.01	-2.68	0.01
Rem	0.02	0.04	0.49	0.62
FDI	-0.05	0.02	-2.30	0.03
Aid	-0.02	0.03	-0.59	0.56
Lbr	0.99	0.08	11.80	0.00
GFCF	0.59	0.07	8.45	0.00
ECM	-0.69	0.21	-3.35	0.00

5. Conclusion

Cointegration results reveal that there exists a long-run relationship between the dependent and independent variables. The results indicate that there is a positive relationship between remittances and economic growth in

the long-run. The results also provide evidence of a positive long-run relationship between GFCF and economic growth. However, the analysis shows a negative long-term relationship between FDI and economic growth. The literature suggests that the host country should fulfill certain pre-requisites and conditions (e.g. financial development, macroeconomic and political stability, better law and order situation, educated and skilled labor force and supportive infrastructure) for FDI to be positively related with the economic growth,. According to Asiedu (2006), macroeconomic and political instability, and corruption are hurdles in investment and have negative impact on FDI. Hence, for FDI to have significant and positive effect on economic growth, Pakistan has to focus on political stability, law and order, macroeconomic stability, and supportive infrastructure, among others. The results show that remittances are found positively contributing to economic growth. Remittances are an important source of transfer of resources from the developed nations to the developing countries. There exists a positive correlation between capital flows and remittances but remittances are less volatile then the capital flows (Buch et al., 2002). Greater effects should be made by the Government of Pakistan to facilitate this capital flow. Efforts should also be made to redirect remittances from informal to formal channels. Incentives must be provided so that these remittances can be converted into productive investments. Gross Fixed Capital Formation also has a long-run positive effect on the economic growth so effort is required to encourage GFCF.

Results of the Error Correction Model show rapid speed of convergence towards equilibrium if disequilibrium shock appears. The short-run effect of remittances on economic growth is non-significant. While FDI, GFCF and the size of the labor force all have a significant impact on economic growth in the short-run, foreign aid does not cause economic growth even in the short-run.

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