

ATTAINING SUSTAINABLE ECONOMIC GROWTH IN BANGLADESH: ROLE OF EXTERNAL FINANCIAL MEANS OF IMPLEMENTATION



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ABSTRACT

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Sustainable development is the goal of every nation. For this reason, achieving rapid and continuous economic growth is imperative and steps should be taken to play a strong role by identifying and accelerating the performance of the areas that affect it the most. This paper explores the role of external financial means of implementation (MoI) in amplifying the economic growth of Bangladesh for the period 1990-2018. Two thoughts are specifically canvassed here: Sole contribution of export and each of the other MoI in achieving higher economic growth; total export earning or the aggregate amount of other MoI, which contribute the most. Co-integrating relations are determined by ARDL Bound test as variables are stationary at different level. In the long run, economic growth increase by 0.60, 0.06 and 0.38 units for every 1 unit of export, FDI and ODA increase. Money earned from remittances plays an insignificant negative role in GDP due to lack of investment and inappropriate consumption during that period. Export play the most effective role to boost economic growth as it contributes 0.05% more than aggregate value of other MoIs. The solidity of the results has been confirmed through various diagnostic tests.

Contribution/ Originality: This study contributes to the existing literature by identifying the most contributing sector among all external Financial Means of Implementation (MoI) in economic growth of Bangladesh.

1. INTRODUCTION

The Sustainable Development Goals (SDGs) will establish a new round of development targets for the world to be met by 2030. SDGs will be built upon the Millennium Development Goals (MDGs). Much of the focus of discussion on SDGs is concentrated on what should be the goals of upcoming development agenda and their implementation process. The year 2015 is regarded as the turning point for development policies as development effort focused on MDGs is now shifting focus toward a much more ambitious post-2015 development agenda or a set of SDGs to be achieved by next 15 years. On top of that various initiatives such as “Third Financing for Development Conference” added focus of such agenda. The negotiation process on SDGs is underway at the United Nations (UN) and an agreement on the new declaration signed in September 2015 during the 70th Session of the UN General Assembly (UNGA 70). Once the finalized agenda being adopted, there should be definite course of action to ensure that progress leaves no one behind. The zero goals (i.e. leaving no one behind) will be based on three pillars: Economic, Social and Environmental. One of the major concerns of MDGs was weak implementation

mechanism. The ongoing development agenda have been censored for not putting emphasis on the details ensuring their full and faithful delivery, targets and indicators (Bhattacharya & Ali, 2014). Moreover, MDGs laid emphasis on Official Development Assistance (ODA) as major means of implementation (MoI) or as a component of Global Partnership for Development. Given this backdrop, financing the post-2015 development agenda remains one of the major concerns underpinning ongoing discussions on the SDGs. Financing is particularly relevant in the context of proposed Goal 17, “Strengthen the means of implementation and revitalize the global partnership for sustainable development”, as mentioned in the outcome document of the (UN) Open Working Group (OWG) on SDGs, which is dedicated to outlining options for means of implementation (MoI) and global partnership (see Assembly (2015)).

How can external financial MoI help meet SDGs? To put it simply, external financing sources, viz. export earnings, Foreign Direct Investment inflow, remittances received and ODA received, can help in tapping resources for development project related to SDGs. Through different macro-economic channels, these sources can promote GDP growth which can eventually reduce poverty and promotes development. Thus, this study has undertaken a detailed analysis of the economic impact of various external financial MoI using time series data of Bangladesh. In this regard, one may raise concern whether Bangladesh will provide firm statistical conclusions about the relationship of international finance to development outcomes. Contribution of external financial means to GDP is shown in the Figure 1. It can be seen from the figure that the relative contribution of total external financial MoI in GDP increased from 15.0 per cent in 1990 to 22.7 per cent in 2018 in Bangladesh.¹ At the same time, the GDP growth of Bangladesh has also demonstrated steady upward trend. These figures are preliminary indicator of statistical relevance about the relationship of international finance to development outcomes in Bangladesh.

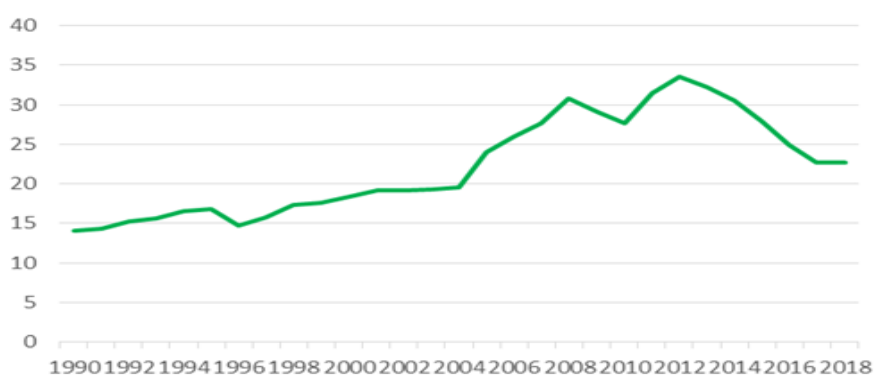


Figure-1. Contribution of total MoI to GDP (%).

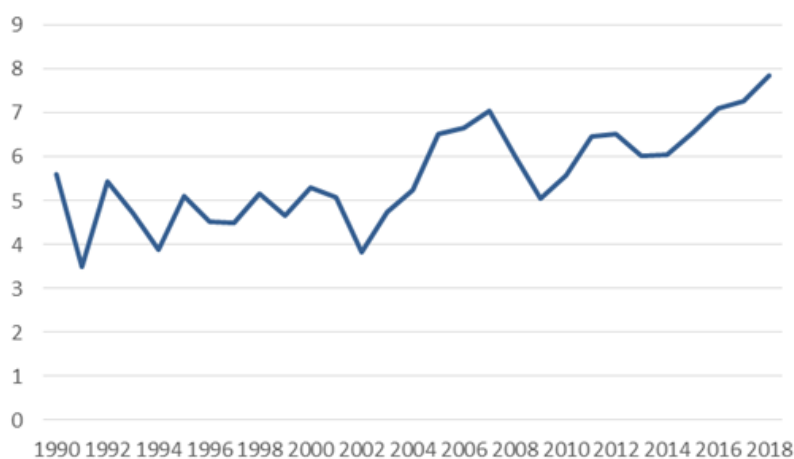


Figure-2. GDP growth %.

¹Total external financial MoI is the sum of export earnings, net inflow of Foreign Direct Investment (FDI), personal remittance inflow and net Official Development Assistance (ODA). The calculation is based on World Development Indicator and UNTCTAD Stat database.

For the next fifteen years, i.e. up to 2035, SDGs will be regarded as a guideline for national development along with national development strategies. In present times, attaining national development is not possible without following the path of sustainable development. In this connection, this project will be of great importance in the context of development of Bangladesh. Successful implementation of SDGs requires financial resources or MoI. As it is quite rational to urge that Bangladesh still relies heavily on external financial resources though it has shown noteworthy advancement in mobilizing resources from domestic sources. Given this backdrop, this study will reemphasize the relative importance of external MoI in the context of Bangladesh. Moreover, this study will also help policy makers to patronize most important MoI among all external MoI. Particularly, this study will shed light into potential role of trade in the achievement of SDGs which is a globally debated issue of present time. The main objective of the study is to explore relative contribution of trade (export) and other external financial MoI (FDI, remittance inflow and ODA) to the attainment of Post-2015 International Development Goals or SDGs in Bangladesh.

The specific objective is to conduct a comparative analysis among external financial MoI.

The comparison will be between trade (export) and other external financial means, viz. FDI, remittance and ODA. This will certainly provide an aid to justify whether trade is most important external financial means of implementation or not.

2. REVIEW OF LITERATURE

There has been extensive body of literature on contribution of external financial MoI on economic growth and MDGs. Dollar and Kraay (2004) investigated the inter-linkage between trade liberalization and growth in average incomes of 137 developing countries covering the period of 1950-1999. They found positive relationship between these two variables. They also found that by augmenting average income, trade liberalization leads to decrease in absolute poverty. Using both macro and micro modeling, Ravallion (2006) found effective connection between globalization and poverty reduction under a set of specific conditions. Hoekman and Olarreaga (2007) conducted case studies in several LDCs- Ethiopia, Cambodia, Zambia, Viet Nam, Bolivia and Nicaragua which concluded that trade openness could lead to economic growth and hence poverty reduction. Winters, McCulloch, and McKay (2004) argued that trade reform brings two things that help to eradicate poverty: it fosters long-rung growth by inducing efficiency in the use and allocation of resources. On the other hand, it also brings adjustment costs down and reduces income immediately. For studying the impact of trade liberalization on economic growth in Tanzania, Mkubwa, Mtengwa, and Babiker (2014) overlooked on the period (1970-2010) and subdivided that into closed economy and open economy. His empirical findings indicates that the effect was relatively greater during the closed economy. The evaluation of relationship between economic growth and trade from Hozouri (2017) study sing a positive song.

Performance in other external sectors also has important implications for the attainment of MDGs. FDI, export and remittances-all have linkage with the MDG attainment through either growth or employment generation. Low-income countries (LICs) should maximize the growth benefits of FDI to scale up investment to address the infrastructure gap in attaining MDGs. According to Bhinda and Martin (2009) FDI could contribute in providing sustainable benefits for growth and poverty reduction, in terms of employment, budget revenue, and transfer of technology and skills. Moreover, according to IMF (2010) external sector performance including prospects for exports, FDI and remittances would affect the pace of growth LICs. UNDP. (2012) claimed that the receipts from petroleum exports and the resultant dramatic increases in government revenues and expenditures along with FDI stimulated the construction and the service sectors in Sudan. Thus it contributes to the attainment of MDG 8 in Sudan. FDI enables an economy with tremendous benefits in attaining MDG as it contribute in providing sustainable benefits for growth and poverty reduction through generating employment raising productive capacity etc. Putting in practice, data that range from year 2001 to 2010 of SAARC countries, Abbas,

Akbar, Nasir, and Ullah (2011) found that only 20% of variation in model is unexplained. So the relationship is positive and significant between GDP and FDI. Sokang (2018) used two staged least squares method of simultaneous equations for Cambodia's condition and the correlation coefficient of FDI, 0.935 tells us it is highly correlated with GDP growth.

Benefits of remittances transmit through increased private consumption of goods and services, investment etc. Moreover, remittances can also influence GDP growth of an economy which is a necessary condition for attaining MDGs as we have illustrated earlier.

Incorporating remittances in the Millennium Development Agenda would lead to not only alleviating absorptive capacity but also resource availability constraints while planning for development. Remittances send by migrant workers are spend on schooling, health care and education for the communities back home which also spill-over benefits into construction, transportation and tourism. These benefits ultimately accelerate the implementation of MDGs (UNDP, 2006). Remittance can reduce poverty of family of migrants in the countries of origin with increased income. This income can assist them in the form of increased consumption or necessary investments in education and health. Most often, remittances is regarded as the function of social safety net. They can be also used to finance community projects, such as hospitals and schools (Ratha, 2005). Adams Jr and Page (2003) found that on average, a 10 per cent increase in the share of international remittances in a country's GDP will reduce 1.6 per cent of number of people living in poverty. Furthermore, remittances also influence economic growth, which is a necessary condition for attaining MDGs as we have illustrated earlier. A World Bank study denoted that remittances can produce a positive effect on macroeconomic growth to as they can be used to finance health and education (World Bank, 2005). Meyer and Shera (2017) worked on Albania and five regional countries to reveal the impact of worker remittances on economic growth from (1999-2013) and saw that an increase in remittances with a unit increases GDP by 0.293%. The empirical evidence of Javid, Arif, and Qayyum (2012) suggest that overseas migration contributes to poverty alleviation and improves the socio-economic conditions in some districts of Pakistan. Reddy and Minoiu (2006) found that developmental aid has a strong, robustly significant and positive effect on growth. The coefficient estimates from cross-country regressions showed that an increase in average bilateral aid from Nordic countries by 1 percent of GDP during 1960-1985 is associated with average growth rates in the 1990s that are higher by 1.5 percentage points. Ekanayake and Chatrna (2010) analyzed the effects of foreign aid on the economic growth of developing countries. The study used annual data on a group of 85 developing countries covering Asia, Africa, and Latin America and the Caribbean for the period 1980-2007. The major point emerging from the study is that foreign aid has a mixed impact on economic growth of developing countries. There are several studies that explored the indirect contribution development aid. Aid can play the role of a catalyst for domestic resource mobilization. Tang and Bundhoo (2017) analyzed the data of ten largest recipient of aid in sub-saharan Africa and their finding result showed that aid by itself does not effect on the economic performances of the recipient country. ODA can be invested to build tax systems which in turn can yield impressive returns. As mentioned by a study of Organization of Economic Cooperation and Development (OECD), every USD 1 of ODA spent on building tax administrative capacity generates about \$350 in incremental tax revenues (Okonjo-Iweala, 2013). There is a gap on existing literature on cross-country analysis on external financial MoI in the context of developing country like Bangladesh. Therefore, this study will look into the contribution of external financial MoI in the attainment of SDGs in a developing country context as a contributory mindset.

3. METHODOLOGY

The study used time series data of Bangladesh for the selected variables covering period from 1990 to 2018. All variables are obtained from World Development Indicator (WDI). Variables used in this study are enlisted in the following Table 1.

Table-1. Description of data.

Variable	Description of Variable	Symbol
GDP growth rate	GDP per capita growth rate (annually)	GDP
Export	Exports of goods and services (% of GDP)	EXP
Remittance	Personal remittances, received (% of GDP)	REM
Official Development Assistance	Net official development assistance received (% of GDP)	ODA
Foreign Direct Investment	Foreign direct investment, net inflows (% of GDP)	FDI
Means of Implementation	Financial Means of Implementation (% of GDP) is the ratio of sum of total FDI, remittance inflow and ODA with GDP.	FMI
Gross Domestic Savings	Gross domestic savings (% of GDP)	GDS
Government expenditure	General government final consumption expenditure (% of GDP)	GFC
Inflation	Inflation, GDP deflator (annual %)	INF
Real Interest rate	Real interest rate (%)	RI

As per our objectives two functional relations are stated:

$$GDP = f(EXP, REM, ODA, FDI) \quad (1)$$

$$GDP = f(EXP, FMI) \quad (2)$$

All variables are converted into their natural logarithmic form except inflation and real interest rate. They can be represented in simple econometric models as Ordinary Least Square model (OLS):

Model 1:

$$GDP = \alpha_0 + \beta_1(EXP) + \beta_2(FDI) + \beta_3(REM) + \beta_4(ODA) + \beta_5(GDS) + \beta_6(INF) + \beta_7(RI) + u \quad (3)$$

Model 2:

$$GDP = \alpha_0 + \beta_1(EXP) + \beta_2(FMI) + \beta_3(GFC) + \beta_4(INF) + \beta_5(RI) + u \quad (4)$$

Where u_i is the residuals, α_0 is the intercept and β_i is slope coefficient ($i = 1, 2, 3, 4, 5, 6, 7$). GDS, INF, RI and GFC are considered as control variables. In Model 1 we would like to see the individual impact of the independent variables on the dependent variable GDP and in Model 2 we would like to observe the comparison between the export earnings (EXP) and other financial means of implementation (FMI) which variable has more impact on economic growth (GDP).

In time series analysis we face the problem of nonstationary. We can't go through further any time series estimation if the variables are not stationarity. Nonstationary means the mean and variance of our time series may vary with time. So to check the stationarity level, ADF test is used (Dickey & Fuller, 1979);

$$\Delta Y_t = \beta_1 + \beta_2 t + \delta Y_{t-1} + \sum_{i=1}^m \alpha_i \Delta Y_{t-i} + \varepsilon_i \quad (5)$$

Where ε_i is the error term, Δ represents the difference order. Null hypothesis of the equation is the time series is nonstationary, $\delta=0$. If we are able to reject the null hypothesis it means our time series has no unit root, it is stationary. So it is the question our variables are stationary at which order.

Then VARs lag selection criteria has been used to make sure the maximum lag length for each model.

As our primitive concern is to see the relationship between dependent and independent variable it is necessary to check whether they are co-integrated or not. There are several methods but we chose ARDL bound test for our estimation. The advantage of this method is it can be run regardless of stationary level of the variable, $I(0)$ and $I(1)$, except the $I(2)$ (Pesaran, Shin, & Smith, 2001). It means it is spurious to run ARDL bound when the variable is stationary at second difference. Generalized ARDL model for model 1:

$$\begin{aligned} \Delta GDP = & \alpha_0 + \sum_{i=1}^n b_i \Delta GDP_{t-i} + \sum_{i=1}^n c_i \Delta EXP_{t-i} + \sum_{i=1}^n d_i \Delta REM_{t-i} + \sum_{i=1}^n g_i \Delta ODA_{t-i} + \sum_{i=1}^n h_i \Delta FDI_{t-i} \\ & + \sum_{i=1}^n k_i \Delta GDS_{t-i} + \sum_{i=1}^n l_i \Delta INF_{t-i} + \sum_{i=1}^n v_i \Delta RI_{t-i} + \gamma_1 GDP_{t-1} + \gamma_2 EXP_{t-1} \\ & + \gamma_3 REM_{t-1} + \gamma_4 ODA_{t-1} + \gamma_5 FDI_{t-1} + \gamma_6 GDS_{t-1} + \gamma_7 INF_{t-1} + \gamma_8 RI_{t-1} + \mu_i \end{aligned} \quad (6)$$

For model 2:

$$\begin{aligned} \Delta GDP = & \beta_0 + \sum_{j=1}^n r_j \Delta GDP_{t-j} + \sum_{j=1}^n p_j \Delta EXP_{t-j} + \sum_{j=1}^n q_j \Delta FMI_{t-j} + \sum_{j=1}^n s_j \Delta GFC_{t-j} + \sum_{j=1}^n x_j \Delta INF_{t-j} \\ & + \sum_{j=1}^n z_j \Delta RI_{t-j} + \delta_1 GDP_{t-1} + \delta_2 EXP_{t-1} + \delta_3 FMI_{t-1} + \delta_4 GFC_{t-1} + \delta_5 INF_{t-1} \\ & + \delta_6 RI_{t-1} + \varepsilon_i \end{aligned} \quad (7)$$

Δ is the difference operator.

Null hypothesis for model 1: $\gamma_1 = \gamma_2 = \gamma_3 = \gamma_4 = \gamma_5 = \gamma_6 = \gamma_7 = \gamma_8 = 0$

Null hypothesis for model 2: $\delta_1 = \delta_2 = \delta_3 = \delta_4 = \delta_5 = \delta_6 = 0$

The explanation of null hypothesis is having no long run relationship among the variable. F test would be performed for testing null hypothesis. Pesaran, Shin, and Smith (1996) contributed some critical values which are categorized in two different sets naming I0 and I1. I0 is known as lower bound, I1 is known upper bound. If our calculated F-statistics value lies below the lower bound, there is no co-integration. If it is greater than upper bound, there exists long run relationship. If it falls within two bounds, the relation will be inconclusive. Once we sure about having long run relations for our models, we will estimate long run model and error correction model.

Long run equation for model 1:

$$\begin{aligned} \Delta GDP = & \alpha_1 + \sum_{i=1}^n \gamma_1 GDP_{t-1} + \sum_{i=1}^n \gamma_2 EXP_{t-1} + \sum_{i=1}^n \gamma_3 REM_{t-1} + \sum_{i=1}^n \gamma_4 ODA_{t-1} + \sum_{i=1}^n \gamma_5 FDI_{t-1} \\ & + \sum_{i=1}^n \gamma_6 GDS_{t-1} + \sum_{i=1}^n \gamma_7 INF_{t-1} + \sum_{i=1}^n \gamma_8 RI_{t-1} + \mu_i \end{aligned} \quad (8)$$

Long run equation for model 2:

$$\begin{aligned} \Delta GDP = & \beta_1 + \sum_{j=1}^n \delta_1 GDP_{t-1} + \sum_{j=1}^n \delta_2 EXP_{t-1} + \sum_{j=1}^n \delta_3 FMI_{t-1} + \sum_{j=1}^n \delta_4 GFC_{t-1} + \sum_{j=1}^n \delta_5 INF_{t-1} \\ & + \sum_{j=1}^n \delta_6 RI_{t-1} + \varepsilon_i \end{aligned} \quad (9)$$

γ and δ are long run coefficients for our model, where $i = 1, 2, 3, \dots, n$.

Short run equation for model 1:

$$\begin{aligned} \Delta GDP = & \theta_0 + \lambda_1(ECT_{t-1}) + \sum_{i=1}^n \theta_1 \Delta GDP_{t-i} + \sum_{i=1}^n \theta_2 \Delta EXP_{t-i} + \sum_{i=1}^n \theta_3 \Delta REM_{t-i} + \sum_{i=1}^n \theta_4 \Delta ODA_{t-i} \\ & + \sum_{i=1}^n \theta_5 \Delta FDI_{t-i} + \sum_{i=1}^n \theta_6 \Delta GDS_{t-i} + \sum_{i=1}^n \theta_7 \Delta INF_{t-i} + \sum_{i=1}^n \theta \Delta RI_{t-i} + \mu_i \end{aligned} \quad (10)$$

Where error correction term is defined as;

$$\begin{aligned} (ECT_{t-1}) = & \theta_0 + m_1 \Delta GDP + \sum_{i=1}^n \theta_1 \Delta GDP_{t-i} + \sum_{i=1}^n \theta_2 \Delta EXP_{t-i} + \sum_{i=1}^n \theta_3 \Delta REM_{t-i} + \sum_{i=1}^n \theta_4 \Delta ODA_{t-i} \\ & + \sum_{i=1}^n \theta_5 \Delta FDI_{t-i} + \sum_{i=1}^n \theta_6 \Delta GDS_{t-i} + \sum_{i=1}^n \theta_7 \Delta INF_{t-i} + \sum_{i=1}^n \theta \Delta RI_{t-i} + \mu_i \end{aligned} \quad (11)$$

Short run equation for model 2:

$$\begin{aligned} \Delta GDP = & \psi_0 + \rho_1(ECT_{t-1}) + \sum_{j=1}^n \psi_1 \Delta GDP_{t-i} + \sum_{j=1}^n \psi_2 \Delta EXP_{t-i} + \sum_{j=1}^n \psi_3 \Delta FMI_{t-i} + \sum_{j=1}^n \psi_4 \Delta GFC_{t-i} \\ & + \sum_{j=1}^n \psi_5 \Delta INF_{t-i} + \sum_{j=1}^n \psi_6 \Delta RI_{t-i} + \varepsilon_i \end{aligned} \quad (12)$$

Where error correction term is defined as;

$$\begin{aligned} (ECT_{t-1}) = & \psi_0 + w_1 \Delta GDP + \sum_{j=1}^n \psi_1 \Delta GDP_{t-i} + \sum_{j=1}^n \psi_2 \Delta EXP_{t-i} + \sum_{j=1}^n \psi_3 \Delta FMI_{t-i} + \sum_{j=1}^n \psi_4 \Delta GFC_{t-i} \\ & + \sum_{j=1}^n \psi_5 \Delta INF_{t-i} + \sum_{j=1}^n \psi_6 \Delta RI_{t-i} + \varepsilon_i \end{aligned} \quad (13)$$

λ and ρ are coefficient of error correction term. They should be negative and significant. They tell about how quickly the short run dynamics converges to the equilibrium. θ_i and ψ_i are short run coefficients for the models ($i=1, 2, 3, \dots, n$). Finally some diagnostic and stability test have been performed. They are Breusch-Godfrey LM test for Serial correlation test, Breusch-Pagan-Godfrey test for Heteroscedasticity test, Jarque-bera test for Normality test and CUSUM & CUSUMsq test for stability of the coefficients. E-views 9 software has been used for all these econometric analysis.

4. RESULT DISCUSSION

Table 2 is all about unit root test for determining stationarity of our observed variables in both Model 1 and 2. Augmented Dickey Fuller test is performed. Lag length was chosen automatically by Schwarz Information Criterion, where maximum 6 lag is counted. And we have observed only Intercept in our test equation. GDP, Export, Remittance, ODA, GDS, FMI and GFC have unit roots in their level. They become stationary at their 1st differences, it means they are I(1). FDI, Inflation and Real interest are stationary at their level I(0).

Table-2. Unit root test for Model 1 & 2.

Augmented Dickey Fuller Test		
Variable name	Level	1 st difference
GDP	-2.062774	-10.96180*
Export	-2.841223	-4.515198*
FDI	-4.800890*	-4.991531*
Remittance	-1.670549	-3.483452*
ODA	-2.22987	-4.332931*
GDS	-0.919567	-4.534473*
GFC	-1.107991	-3.821918*
FMI	-1.242414	-4.109757*
INF	-4.087536*	-7.390064*
RI	-3.209484*	-7.464202*

Note: MacKinnon (1996) one-sided p-values
*denotes the 5% level of significance.

Before performing any other model it is better to determine the maximum lag length for the respective model. We have tested VAR order selection criteria and found 2 lag is the maximum lag length for both model based on Akaike Information Criterion, Table 3.

Table-3. Lag order selection for Model 1 & 2.

	VAR lag order selection Criteria						
	Lag	Log L	LR	FPE	AIC	SC	HQ
Model 1	0	-88.66803	NA	1.78E-07	7.160596	7.544546	7.274763
	1	71.81577	213.9784	1.73E-10	0.013647	3.469212	1.041168
	2	227.4251	115.2662*	9.37e-13*	-6.772228*	-0.245050*	-4.831356*
Model 2	0	-52.44719	NA	3.06E-06	4.329421	4.617385	4.415048
	1	49.89663	151.6205	2.41E-08	-0.584936	1.430811*	0.014451
	2	103.174	55.25060*	1.05e-08*	-1.864744*	1.878784	-0.751597*

Note: *indicates lag order selected by criterion.

LR: Sequential modified LR test statistic (each test at 5% level).

FPE: Final prediction error.

AIC: Akaike information criterion.

SC: Schwarz information criterion.

HQ: Hannan-Quinn information criterion.

To see either there is any existence of long run relationship we have resorted to ARDL bound test in Table 4. For model 1, F statistics value is 80.93 which is higher than all 1%, 5% and 10% critical upper bound value. In case of model 2, its F value also exceeds all the upper bound value. So we have reached in a conclusion that our dependent variable from both models have long run association with their corresponding independent variable.

Table-4. ARDL Bound test for Model 1 & 2.

Null hypothesis: No long run relationship exist			
F-statistics = 80.93			
	Significance	Lower bound	Upper bound
Model 1	10%	2.03	3.13
	5%	2.32	3.5
	1%	2.96	4.26
F-statistics = 11.8379			
	Significance	Lower bound	Upper bound
Model 2	10%	2.26	3.35
	5%	2.62	3.79
	1%	3.41	4.68

Now we are keen to enlarge our concentration on error correction model and long run model. At first we will discuss about model 1. From our VAR lag selection result maximum 2 lag has been counted for our model based on AIC and e-views automatically selected ARDL (2, 2, 2, 2, 2, 2) is the best model. Co-integration form tells us about the short run relationship existence. In Table 5, initial level of growth variable have a significant impact on

growth rate. Export and ODA possess positive impact on growth in the short run and they are significant at 5% level. Surprisingly, Remittance and FDI has the negative effect and between them remittance is significant. In the long run Export, ODA and FDI possess positive relationship with growth which is spectated from Table 6. 1 unit increase in Export, ODA and FDI will stimulate the growth rate by 0.60, 0.38 and 0.06 unit respectively and they all are statistically significant at 5% level. But remittance has the negative relationship with growth. If remittance goes up by 1unit, growth will goes down by 0.17 unit. It is significant at 10% level.

Table-5. Co-integrating form of Model 1.

ARDL(2,2,2,2,2,2,2)			
Variable	Coefficient	Std. Error	t-statistics
ΔGDP_{t-1}	0.21**	0.062621	3.399683
ΔEXP	1.59***	0.172363	9.22444
ΔEXP_{t-1}	0.56	0.270244	2.071281
ΔREM	-1.93***	0.115633	16.755575
ΔREM_{t-1}	-0.37*	0.1342228	-2.757156
ΔODA	0.46**	0.1113	4.123482
ΔODA_{t-1}	-0.25**	0.071832	-3.520843
ΔFDI	-0.077*	0.025538	-3.051269
ΔFDI_{t-1}	-0.17***	0.028113	-6.218923
ΔGDS	-2.06***	0.215605	-9.567142
ΔGDS_{t-1}	-3.40***	0.397945	-8.561816
ΔINF	-0.06*	0.025059	-2.583325
ΔINF_{t-1}	0.06*	0.025999	2.299645
ΔRI	-0.06	0.029938	-1.857692
ΔRI_{t-1}	-0.09**	0.026955	3.587337
ecm_{t-1}	-1.46***	0.116763	12.506589

Note: ***1% level of significance.

**5% level of significance.

*10% level of significance.

Table-6. Long run coefficients of model 1.

Dependent variable: GDP			
Variable	Coefficient	Std. Error	t-statistics
EXP	0.60**	0.166951	3.629845
REM	-0.17*	0.055408	-2.992755
ODA	0.38***	0.07071	5.285907
FDI	0.06**	0.019372	3.338774
GDS	0.07	0.20758	0.327004
INF	-0.07**	0.021811	-3.374369
RI	-0.15***	0.013963	-10.91381
Constant	1.23	0.64352	4.586939

Note: ***1% level of significance.

**5% level of significance.

*10% level of significance.

As theory suggest that higher interest rate increases the cost of borrowing which reduced investment as a result lower output will be generated and higher inflation impedes growth by reducing the effective allocation of native resources (Khan & Ssnhadji, 2001). Among our control variables, Inflation and Real interest rate have the negative relationship with growth which is consisted to the work of Barro (2013); Ahmed. (2010); Hossin (2015); Anaripour (2011); D'Adda and Scorcu (1997). Error correction term is -1.46 and significant means our dependent variable will converge to the equilibrium at a higher speed after the process of roaming around the long run value in a dampening manner (Narayan & Smyth, 2006).

Now we come to the second model for which all required approach have been taken and have found it has long run association. So we generate its co-integrating form ARDL (1, 1, 1, 0, 0, 0) and long run equation in Table 7 and 8. FMI (the combined value) has not been significant in short run but significant in the long run. We have run this

model to see whether our Export earnings have the larger impact or not. In the long run Export and FMI will be the cause for 0.44 and 0.39 unit increase in growth rate respectively. So Export has the larger impact. Inflation and real interest induce growth negatively and their clarification is given in the model 1's explanation. Keynesian doctrine support the positive connexion between Government expenditure and economic growth. But in developing country aspect government might spend excess of it which could lead to an unproductive one (Devarajan, Swaroop, & Zou, 1996). Kalam and Aziz (2009) found that there is strong positive relation between real GDP and growth of government expenditure in the context of Bangladesh which is close to our calculated outcome. Government expenditure has significant positive impact on short and long run.

Our error correction term is -1.32 and highly significant. It means the speed of adjustment is rapid.

Table-7. Co-integrating form of Model 2.

ARDL(1,1,1,0,0,0)			
Variable	Coefficient	Std. Error	t-statistics
Δ EXP	1.57***	0.373096	4.208663
Δ FMI	0.002	0.29082	0.007375
Δ GFC	3.13***	0.905383	3.461291
Δ INF	-0.02	0.038042	-0.42414
Δ RI	-0.04	0.037507	-0.98259
ecm _{t-1}	-1.32***	0.137255	-9.6071

Note: ***1% level of significance.

Table-8. Long run coefficients of Model 2.

Dependent variable: GDP			
Variable	Coefficient	Std. Error	t-statistics
EXP	0.44***	0.155933	2.799807
FMI	0.39***	0.118796	3.28295
GFC	2.37***	0.614241	3.869102
INF	-0.01	0.029194	-0.419127
RI	-0.03	0.029264	-0.955055
Constant	-4.32***	1.278775	-1.976359

Note: ***1% level of significance.

We have tested several diagnostic measures for both models. As we failed to reject their null hypothesis, it is found that there is no serial correlation and heteroscedasticity in our models. Residuals from models are normally distributed. The results are presented in Table 9 and Table 10.

Table-9. Diagnostic test of the Model 1.

Serial correlation test: Breusch-Godfrey LM test		
F-statistics	1.750200	H ₀ : There is no serial correlation.
Prob.F(2,1)	0.4714	
Heteroscedasticity test: Breusch-Pagan-Godfrey test		
F-statistics	0.869684	H ₀ : There is no heteroscedasticity.
Prob.F(23,3)	0.6498	
Normality test : Jarque-bera test		
J-B value	1.323592	H ₀ : Residuals are normally distributed.
Prob.	0.5159	

To check stability of the coefficients of the models, CUSUM and CUSUMsq test have been used where the red line shows the 5% critical bound (Figure 3, 4, 5, 6). As our blue plot lines lie between the 5% critical pair of straight lines in every graph, all of the parameters from both models are stable.

Table-10. Diagnostic test of the Model 2.

Serial correlation test: Breusch-Godfrey LM test		
F-statistics	3.078745	H ₀ : There is no serial correlation.
Prob.F(2,1)	0.0723	
Heteroscedasticity test: Breusch-Pagan-Godfrey test		
F-statistics	1.500996	H ₀ : There is no heteroscedasticity.
Prob.F(23,3)	0.2217	
Normality test : Jarque-bera test		
J-B value	0.521802	H ₀ : Residuals are normally distributed.
Prob.	0.7703	

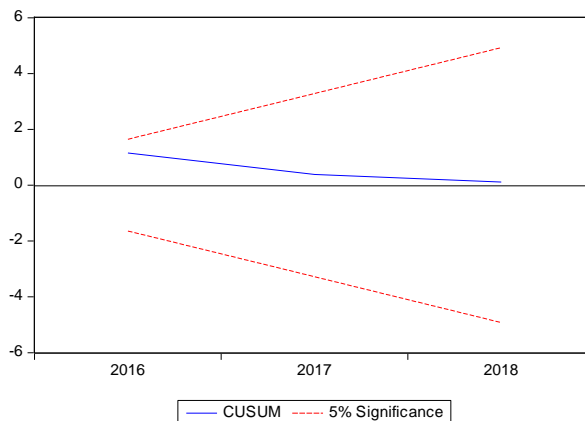


Figure-3. CUSUM test for Model 1.

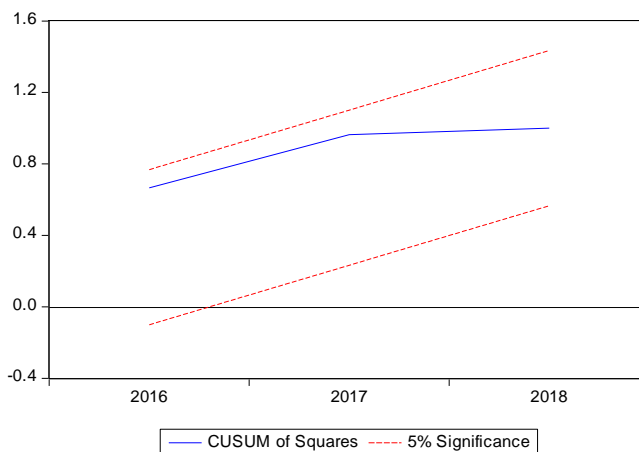


Figure-4. CUSUM of Square test Model 1.

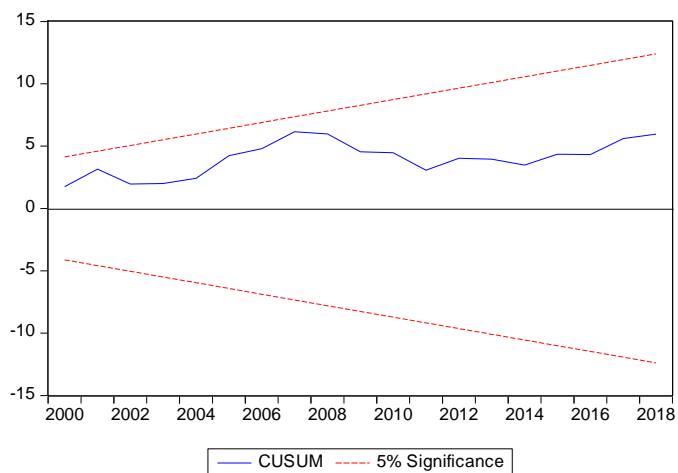


Figure-5. CUSUM test for Model 2.

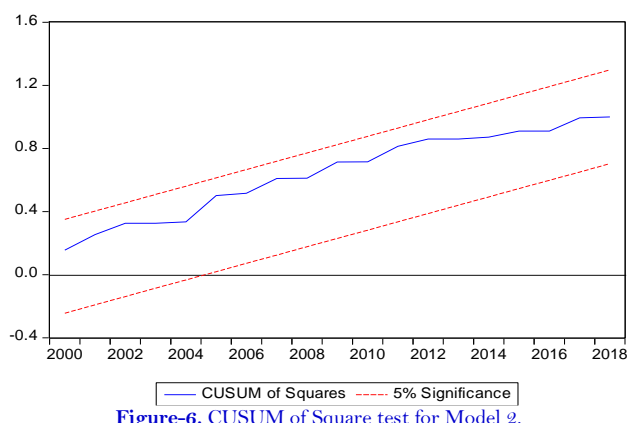


Figure-6. CUSUM of Square test for Model 2.

5. CONCLUSION

The study attempts to investigate the contribution of external financial means of implementation to attain Sustainable Economic Growth. Remittance has a negative impact on growth and it is significant at 10% level and consistent with Chami, Fullenkamp, and Jahjah (2005) in the case of developing economy. The reason may be the recipient family gets much more dependent on getting easy money as a result they show reluctance to do productive job. There is an increase in their desire for more imported goods which could depreciate the business growth native entrepreneur. Another reason might be the larger part of this income may not be saved in financial institution or not invested in productive sector. Rather they seem more comfortable in purchasing lands or luxurious goods like gold rather than invest it in stock market. Cause stability of our stock market is not quite well. If hardly some part of this got saved, it will not work better for the economy as our empirical findings says Gross Domestic Savings has an insignificant relationship with economic growth in the long run. But from few recent studies it is known that remittance has contributed to the economy significantly in recent years. One of the reason for this could be government and other private financial institution's initiatives to bring the money in more convenient way and give the recipient incentives. It is high time to stabilize our financial sectors as well as stock market so that people can easily be attracted and this large amount of inflow can be utilized. Our estimation tells that Export, ODA and FDI have significantly contributed to the economy. From the liberalization regime, early 80's export has been performing tremendously well. In 2018 it's earning was almost 15% of the GDP. But we have experienced that there is a sharp declination after 2012. Political instability, quality of the produced goods, raising competition in international markets and cost of production may be some issue for occurring this. In early 90's FDI was a topic to needless to say. But soon as our export sector have grown, its share also rises. Cause most of the foreign investment happens in export sector in Bangladesh. So they are well correlated, though this is beyond our study. So government should give priorities to the foreign investors in a way so that they are appealed to invest and their investment could lead growth in production. As a result, people who are related with production, their livelihood will raise as soon as their per capita income will raise. After liberation war period, being a war-torn country, there came a huge amount of development assistance gradually. In 1978 it was almost 9% of the country's total production value (WDI). But there is a shrinkage in the flow. It is satisfying that we have come out from that circle of aid dependency. Development assistance is like a blessing to the developing countries which are searching for more capital inflow but foreign debt is a curse which could also affect the future economy being a burden. Infrastructural side (road, rail system, port, large industry, bridge etc.) can be developed with assistance. For making it happen softly, good governance is required and corruption should be abated. Otherwise it will go in vain and benefactor would be discouraged next time. Trade is comparatively more influential to growth than other external sources. So it should get more prioritized. As we are heading towards to the middle income country tag, we will be deprived of many beneficial things like as low interest loan. It is now a burning issue to develop our export sector in a sustained manner. Almost 80% of our export earnings comes with the help of RMG sector. It is

not meant by author that it should not be happened rather export sector need to be more diversified which means we should not rely only on the RMG sector. Many industries like pharmaceuticals, electronics, software, handmade crafts, foods etc. should be given more concentration by the governments by providing them easy export processing system and easy loans so that they can enlarge the production amount. Besides that human development need to be ensue so that they become asset and can help this sector to grow. Bangladesh has shown a good performance in attaining MDG goals and becomes a role model to others. Now it is the challenge to fulfill relative SDG goal. It will give the country a self-sustained economy where none will be lag behind (can be individual, group, industry etc.). So to make sustainable economy each sector would have to keep steady growth. And the respective body should make sure the essential path by which these sectors can contribute more to the economy.

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