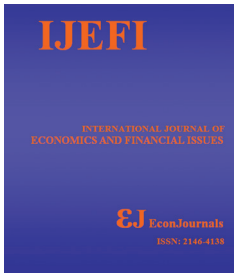

International Journal of Economics and Financial Issues

ISSN: 2146-4138

available at http: www.econjournals.com

International Journal of Economics and Financial Issues, 2022, 12(6), 113-126.

Does Foreign Aid have an Expected Role in the Economic Growth of Bangladesh? An Analysis in ARDL Approach

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Received: 29 August 2022 **Accepted:** 03 November 2022 **DOI:** https://doi.org/10.32479/ijefi.13664

ABSTRACT

Bangladesh, a lower-middle-income country in South Asia and expected to be a developing country by 2024, is one of the most densely populated countries in the world, with 166.30 million (WDI, 2021) people. Foreign Aid (FA) plays a vital role in the economic development of Bangladesh. Foreign Aid, loans, and grants generally, which we call Official Development Assistance (ODA) (in this study, we have used the term "Foreign aid") have increased gradually over the years after the liberation of Bangladesh with the increase of per capita GDP. In our study, we have conducted a single country investigation on Bangladesh and examined the impact of Foreign Aid on the Economic growth of Bangladesh from 1971 to 2019. The ARDL bounds test methodology was applied in the study, followed by the unit root test and the bound test for cointegration. Several diagnostic tests were conducted to check the stability and reliability of the model. The obtained results revealed that Foreign Aid has a significant and positive impact on the Economic growth of Bangladesh in the long- and short-run. The coefficients of the variables of our study refer that a one unit increase in foreign Aid would intensify 0.24 units of Economic growth in Bangladesh. In line with Foreign Aid, Gross capital formation also has a significant positive impact on the country's economic development. On the contrary, trade openness has a negative but insignificant impact both in the short and long run. Besides, population growth negatively and significantly impacts economic growth in the long run. In this study, finally, we have recommended some policy implications for the Government of Bangladesh.

Keywords: Foreign Aid, Official Development Assistance, ARDL, Economic Growth, Bangladesh
JEL Classification: F-34, F-35, O-53

1. INTRODUCTION

Bangladesh is a lower-middle-income South Asian country. It is a land of 166.30 million (World Development Indicators, 2021) people with a growth rate of 7.9% and a per capita income of $2,503 (2021), ranked as the 35th nation according to GDP. Bangladesh's economy is promising for development and growth, and it is trying to reach a middle-income country by 2025, which is very much possible (LightCastle Report, 2020). Bangladesh achieved independence in 1971 and rapidly opened its economy to the world market. But it was not so easy for a newly-born, war-torn country to make room in the world market. Major economic reforms in the 1980s and 1990s helped her to achieve 5.41% average annual GDP growth since 1991 (Ahamad et al., 2019). Bangladesh is considered the second-fastest growing economy in the world, recording an increasing 7.1% GDP growth in 2016 (Report, 2019). In Asia, the economy of Bangladesh accomplished the highest GDP growth in fiscal 2018-19 at 8.2% (Report, Asian Development Bank, 2020).

Foreign Aid (FA) is one of the most critical factors in the economic development of a country as well as in maintaining "International

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Relations" these days (Lew and Arvin, 2015). The United Nations (UN) considers FA one of the most significant assets in to fight against poverty alleviation. FA has increased gradually over the years after the liberation of Bangladesh. It can be categorized based on the conditions, terms, source, and use. FA might be in the form of a loan, Aid, or a grant (Agarwal, 2019). FA is always an essential tool for financing the budget deficit of Bangladesh. It is mentioned that 31% of the estimated budget deficit had been covered by foreign Aid in 2017-18 and 2018-19, which is very high compared to recent years (Chattopadhyay, 2018). Bangladesh got US$ 6.21 billion as Official Development Assistance (ODA) from its donor partners in 2018-19 and US$ 6.35 billion in the 2019-20 fiscal year (Kabir, 2019).

Even though the economy was stagnant in Bangladesh in fiscal 2019-20 owing to the Covid-19 epidemic, the Government did not face a significant problem because of the good inward FA flows from abroad (Rahim, 2020). If we look at the statistics of the present FA inflow during the Covid-19 pandemic, the Government of Bangladesh has realized a satisfactory amount of FA disbursement from its development associates (Saif, 2020). In another report, it was mentioned that Development partners had disbursed $7.2 billion through the Fiscal Year 2019-20, which was $6.5 billion during FY2018-19 compared to last year (Report, The Business Standard, 2020). According to the Bangladesh Economic Relations Division (ERD) preliminary report, the disbursement growth was 11%. In line with it, the starting channel of FA accomplished $49.55 billion, at the beginning of FY2020-21, compared to $47.26 billion last year (Report, The Business Standard, 2020). During this time, the development partners disbursed $275.73 million as grants and $6996.24 million as loans in FY19-20. The study of Saif (2020) exposed that it was possible to achieve this accomplishment owing to the Asian Development Bank (ADB), the World Bank, Asian Infrastructure Investment Bank (AIIB), and International Monetary Fund (IMF) having disbursed budgetary support consistent with their promise.

The impact of FA on the economic growth of a country or region is still controversial. The detailed studies displayed that some countries have been capable of using FA effectively to enhance economic growth; on the other hand, some other countries failed (Jena and Sethi, 2020). In a study, Burnside and Dollar (2000) exhibited that the effect of FA widely depends on the recipient countries' governance. A good number of studies disclosed that foreign Aid plays a significant positive role in the economic development of a country (Dalgaard et al., 2004; Fayissa and El-Kaissy, 1999; Feeny, 2007; Gomanee et al., 2005; Islam, 1992; Juselius et al., 2014). Some empirical studies reveal that foreign aid has no impact on economic growth (Alvi et al., 2008; Herzer and Morrissey, 2013; Mallik, 2008; Ovaska, 2003; Papanek, 1973; Svensson, 1999). Moreover, some studies documented that the effect is mixed (Babalola and Shittu, 2020; Sultana, 2019). So discussion based on the literature mentioned above illustrated that Foreign aid's impact on economic growth is not a single phenomenon; instead, it is mixed.

Among the studies conducted on Bangladesh, some studies found that Foreign Aid has a significant positive impact on Economic growth (Ahamad et al., 2019; Alamgir, 1974; Hossain, 2014). On the contrary, some studies indicated that foreign aid negatively affects the economic growth of Bangladesh (Quazi, 2005; Sen et al., 2019). Between these two, a few researchers documented the mixed effect of it, or the researchers could not attain any conclusion depending on their results (Amin and Murshed, 2017).

By going through the literature of the past followed by our argument, we perceive that various researchers conducted lots of studies to document the impact of FA on economic growth utilizing various variables such as trade openness, technological innovation, Infrastructure, Inflation, Gross capital formation, final Government consumption, etc. These studies had been conducted in a panel or single country or in a comparison of two or more countries, and they have applied different methods of investigation. Sometimes the findings of their research are inconclusive. In our study, we will investigate the effect of FA on the economic growth of Bangladesh, including a few independent variables: Trade openness, Gross capital formation, and Population growth for the 1st time. The variable Population growth has been used as a proxy for the Labour force. We would apply the dynamic Auto-Regressive Distributed Lag (ARDL) approach to determine the influence of FA on Bangladesh's economic growth from 1971 to 2019. In our investigation, we would utilize the traditional Unit root tests, the Bound test of cointegration, and several Diagnostic tests to counter-check the stability and reliability of the model.

Despite having lots of studies on our selected topic, the justification of the selection of this topic is that the conducted studies are haphazard, and sometimes the results are inconclusive. Bangladesh has been receiving FA for more than 50 years (Since independence) to ascertain the country's economic development. But the impact is still not very clear and remarkable. Subsequently, there is a lot of room and scope for further study on this matter. It should be mentioned here that FA is necessary for Bangladesh to accomplish two main gaps: The first one is to fill up the domestic saving-investment gap, and another one is the export-import gap which is also designated as the foreign exchange gap (Islam, 1999). Therefore, by analyzing the situation of these factors in Bangladesh, this study would contribute to understanding the topic more deeply and suggest some valuable policy recommendations for the effective use of FA in the sustainable economic development of Bangladesh. Resultantly, this research holds great importance in the literature arena and would fill up the gap in the economic literature using a robust econometric methodology.

The specific objectives of this study are: (i) To determine the magnitude and direction of the impact of FA on the economic growth of Bangladesh. (ii) To examine the form of the short-run and long-run effects of FA on economic growth. (iii) To find out the impact of foreign aid on the economic growth of Bangladesh based on the macroeconomic policy environment. (iv) To document and suggest the policy implications for the Bangladesh Government to formulate a comprehensive policy for the better usage of FA to ensure the smooth economic development of the country.

The principal contribution of our study revealed that FA has a significant and positive impact on the Economic growth of

Bangladesh in the long run as well as in the short run. The coefficients of the variable indicate that a 1(one) unit increase in foreign aid would intensify Bangladesh's 0.24 units per capita GDP (Here, a proxy of Economic growth). Though FA does not bring only Capital, it also brings modern technology, skilled human resources, experience, and expertise from developed countries. In line with FA, Gross capital formation also has a significant positive influence on the Economic growth of Bangladesh in the long run and short run. Thirdly, our investigation exhibited that population growth has a negative and significant impact on Economic growth in the long run. This is very significant and holds great importance for the policymakers of Bangladesh. Finally, in this study, we have recommended some policy implications for the Government of Bangladesh, such as there should be a transparent record of FA utilization, head of the sectors should be able to use foreign aid properly, foreign loan interest must be paid within the specified time and Government should follow zero tolerance toward corruption.

The First chapter, which is the Introduction section of this study, presents the background of the study, motivations of the study, objectives of the study, and contribution of the study. The literature review on FA and economic growth is displayed in the Second chapter. The Third chapter illustrates an overview of the FA scenario in Bangladesh. The economy of Bangladesh, FA inflow, and GDP scenario of Bangladesh are elaborated here. The theoretical framework has been discussed in detail, and the theoretical model is formulated in the fourth chapter. The Fifth chapter has exhibited the methodology followed by the discussion of the results of our research. Chapter sixth has exposed the concluding remarks with recommendations and policy implications.

2. BRIEF REVIEW OF THE LITERATURE

The study of various researchers documented that FA has a significant positive impact on economic growth. It is demonstrated both from the enormous articles and empirical works of literature on FA and Economic growth experienced in different areas of the world over the past decades.

The number of empirical research about the impact of foreign aid on the economic growth of Bangladesh is not so much. Most papers are article types, and the researchers utilized different newspapers, essays, articles, and opinions from scattered sources. They have given their ideas by evaluating the other researchers' findings. Those researchers found mixed results in their study.

Applying ARDL bound tests approach Uddin et al., (2020) expressed that ODA and GDP are co-integrated in the long run in Bangladesh. Sen et al. (2019) applied six separate models and revealed that foreign aid has an outstanding contribution to Bangladesh's economic growth. On the contrary, their investigation exhibited that after 1996 this contribution had a declining trend because of the rising rate of innovative and infrastructural development, growing literacy rate, and skilled labour capital. Ahamad et al., (2019) study revealed that per capita FA positively influenced the Gross National Income of Bangladesh in the long run. Policy measures taken by Bangladesh have a significant role behind them. Accurate information about foreign donors can play a positive role in the attitudinal change in FA, foreign policy, and domestic government legitimacy of Bangladesh (Dietrich et al., 2018).

Amin and Murshed (2017) could not document the positive effect of FA on the economic development of Bangladesh. The same result was found in the study of Mamun (2020). Quazi (2005) indicated that foreign Aid plays a negligible effect on the economic development of Bangladesh. On the contrary, foreign loans positively generate higher output growth by increasing investment projects and human capital building. FA produces decreasing returns because of capacity constraints by the institutions to operate the foreign Aid in a thoughtful way in Bangladesh (Hossain, 2014).

The studies, other than Bangladesh, have been operated from multiple points of view, and their results are also multi-dimensional. Taking seven middle-income countries of South and South-East Asia, Sharma and Kautish (2019) exposed that aid policy interaction has a significant and positive impact on economic growth in this region. Orji et al., (2019) revealed that foreign Aid has a positive and significant effect on capital formation in Nigeria. Similar results were obtained by Yahyaoui and Bouchoucha (2019) for Tunisia, Chirwa and Odhiambo (2019) for Zambia, Mehmood and Seror (2019) for Pakistan, Bhattarai (2009) for Nepal, Sakyi (2011) for Ghana, Rao et al., (2020) for South-East Asia and South Asian countries.

Covering six variables such as inflation, trade openness, bilateral aid, multilateral aid, and aid from the UK, US, and Japan, Sultana (2019) exposed that foreign Aid does not have a practical long-run impact on the economic growth of Pakistan. On the contrary, Japanese Aid and multilateral Aid play a significant positive role in the country's economic growth. FA inflow significantly abridged economic growth in Uganda in the short-run and long-run (Edward and Karamuriro, 2020). Similar results were documented by Weerasingha and Mustafa (2019) for South Asian countries, Sakurai (2020) for Vietnam, and a study by Akram (2011) reveals that the effect of foreign Aid is trivial related to the economic growth of Pakistan in the short-run and long-run.

In A PANEL OF 57 developing countries, Stojanov et al., (2019) presented that Developing countries economic growth is negatively influenced by the uncertainty related to the flows of official development assistance (ODA) and Aid. In a study using panel data of 39 African countries, Mwakalila (2019) revealed that external debt and FA play a strong negative effect on the African economy. In addition, this research exposed that some African countries with durable governance indicators have benefitted from foreign Aid and loans to improve their economy. In a critical study, Asongu et al., (2019) applied the interactive Quantile regressions approach and revealed that FA negatively impacts the economic growth of the panel countries. It refers that FA is essential but not an appropriate policy tool to overcome the detrimental effects of terrorism on economic growth. Foreign Aid and its numerous components, as well as workers' remittances, play a strong positive and significant long-run influence on the

economic development of Jordan (Husein, 2019). A study in a panel of South Asian Association for Regional Cooperation (SAARC) countries by Tahir, Estrada, and Afridi (2019) exhibited that FDI and FA influence economic growth positively. On the contrary, Foreign debt and trade flow significantly negatively affect economic growth.

FA plays a detrimental effect on both the Income and Price levels in the Sri Lankan economy (Maitra, 2019). It intensifies private sector growth through infrastructural development with capitalist political philosophy. A government with socialist philosophy utilizes most of its FA for social interventions directly with the view of enlightening human capital (Tawiah et al., 2019). FA flows play a positive influence on economic growth for upper-middle-income countries. In the case of lower-middle-income countries, it is the same but with diminishing returns, whereas, for the least developed countries, the results of the analysis patronize the big push theory (Harb and Hall, 2019).

FA might not be a prerequisite for its development. FA may influence differently depending on the receiver countries' level of development, local investment, expertise in using Aid, public investment, etc. (Pham and Pham, 2020). In line with it, FA may be useful for some countries which lie in the first stages of their development process with intermediate circumstances. Moreover, this study reveals that FA may save an emerging country from being to be collapsed, congregating towards its low steady-state, or starting an economic take-off. The researchers also commented that more dependence on FA might make a country dependent on Aid which may be detrimental to a country's economy.

The empirical study of Babalola and Shittu (2020) in a panel of 16 West African countries disclosed that foreign Aid exercises a neutral impact on economic growth. Still, the effect goes negative when the institutional variable is integrated into the investigation. Their study also reveals that the combined effect of FA and institutions on economic growth is that it lessens the negative impact of FA on economic growth. Jena and Sethi (2020) revealed that FA has a significant long-run along with short-run association with investment, trade openness, financial deepening, economic growth, and price stability of the countries. In a detailed study Liu et al., (2020) revealed that financial deepening and Trade openness has a positive impact on attracting Foreign direct investment, which is another important element of the Economic growth of a country like FA.

Maruta et al., (2020) exposed that education aid has a positive influence on the economic growth of aid recipient countries of Africa, Asia, and South America. The research also exhibited that education aid is more effective in South America, whereas health aid is more effective in Asia; on the contrary, agricultural Aid is more effective in Africa. The study based on the impact of Canadian Aid on the mining sector of Peru by Brown (2020) disclosed that the extractive turn in Canadian Aid refers to an enhance in commercial self-interest, at the cost of philanthropic poverty reduction and denying principal elements of the legislated mandate of Canadian assistance. The study of Yahyaoui and Bouchoucha (2020) documented that FA does not play a positive role in economic growth. Aid uselessness is more critical in low-income African countries than in middle-income African countries. Aid efficiency is stimulated with the presence of good institutions.

By reviewing the past and modern literature, we notice that various researchers conducted lots of studies to document the impact of FA on economic growth utilizing different variables such as trade openness, technological innovation, Infrastructure, Inflation, Gross capital formation, Government final consumption, etc. In our study, we are going to investigate the effect of FA on the economic growth of Bangladesh, including a few independent variables: Trade openness, Gross capital formation, and Population growth for the 1st time.

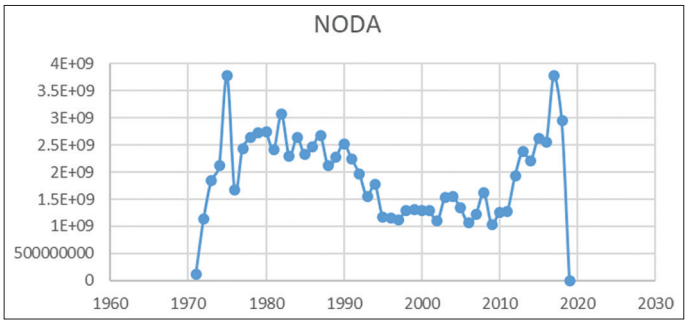
3. FOREIGN AID, LOAN, AND GRANTS SCENARIO OF BANGLADESH: AN OVERVIEW

Bangladesh is now a lower-middle-income country and is expected to get the honour of a developing country by 2024. Bangladesh has achieved tremendous development in the economic sector for the last few decades despite numerous problems such as natural calamities, political turmoil, population, etc. However, Bangladesh is one of the most important South Asian countries. Strategically necessary geographical location and cheap labour facility have made her one of the fastest-growing economies in South Asia. FA has increased gradually over the years after the liberation of Bangladesh with the increase in per capita GDP. FA is always an essential tool for financing the budget deficit of Bangladesh. It is mentioned that 31% of the calculated budget deficit is to be covered by foreign Aid, which is very high compared to recent years (Chattopadhyay, 2018). Bangladesh got USD 6.21 billion in Official Development Assistance (ODA) from its donor partners in 2018-2019 and USD 6.35 billion in the 2019-2020 fiscal year (Kabir, 2019). The average foreign Aid received by Bangladesh was USD 1.563 billion from June 1972 to 2019.

After the independence, Bangladesh received an excellent volume of FA in food aid and disaster relief. Over time, foreign aid inflows progressively increased with the country's economic growth, and the Aid became diversified gradually. Starting with $270.8 million disbursements in 1972, the Aid disbursed enhanced to $901.3 million in 1975, $1.27 billion in 1985, $1.81 billion in 1990, and $1.5 billion in 1999 6.35 billion in 2019. Previously, Bangladesh depended more on foreign loans than it is today. Allocation of these funds as a part of the Annual Development Program (ADP) of Bangladesh exhibited the Government's stable stand toward the welfare of the people and the overall development of the country (LightCastle Report (2), 2020).

Figure 1 has been illustrated by ourselves by using WDI data in Excel. Bangladesh demonstrated outstanding performance by taking the development indicators under consideration. FA plays a vital role in this development process. All types of government-funded and Foreign-aided Projects are included in the Annual Development Program (ADP), the central operational document of the Government of Bangladesh's 5-Year Plan. Maintaining a

Figure 1: Net official development assistance inflow in Bangladesh (in Billion)



high GDP growth rate, Bangladesh is a development miracle to the Countries, International bodies, and organizations (LightCastle Report (2), 2020). The dependence on FA has been reduced by flourishing her industries like Ready-made Garments (RMG), Pharmaceutical Industries, excellent production of Agricultural products, etc. These industrial and agricultural progress have boosted her economic growth and development. Notwithstanding that, ODA has been playing a significant positive role in Bangladesh to achieve the Sustainable Development Goals and moving forward.

4. THEORETICAL FRAMEWORK AND MODEL DEVELOPMENT

The principal objective of FA is to lessen poverty by promoting the economic growth and development of a country or region. There are different theories of FA on economic growth, and one theory that has become successful in a particular area may not work in the same way in the other region. Different Schools of thought have diverse views on it. As the entire world is the research laboratory of economic researchers, the models and theories that they invented are very much crucial for mankind; the reason is the application of a wrong theory or model would terminate the existing financial and economic system of the world, which might destroy the human race (Boldeanu and Constantinescu, 2015).

FA comes into a country through two channels: one is through the Governmental channel, and the other is through Private firms and Non-Government Organizations (NGOs). But in Bangladesh, most of the FA comes through Government. The increase in FA assists the Government in investing more in the investible priority sectors, increasing the government expenditure. The consequences of the upsurge in government expenditure will increase the number of projects in a country which will help in enhancing the employment rate of the country in the long run. More employment means more money to save and will increase domestic savings. A good volume of domestic savings would enhance GDP, which would have a significant positive impact on the economic growth of a country.

Theorists have indicated that FA accelerates economic development accompanied by the limited national savings and foreign exchange restrictions of beneficiary developing nations (Kargbo, 2012). Nwaogu and Ryan (2015) denoted the Harrod-Domar (H-D) economic development model, which is noteworthy in the past literature. According to this model, an economy has three essential elements: investment (regarded as savings), Income (considered as growth), and capital-output ratio. Henceforward, when the ratio of capital-output remains constant, the economic growth rate will be affected by the investment rate. White (1974) exposed that if a country assumes its investment equals savings, it would be regarded as an emerging country with low savings. The consequence is limited investment and lower economic growth. So, FA would assist in enhancing domestic savings, amplifying investment, and resulting in higher economic growth.

If the rate of domestic savings of a country or region is lesser than the investment rate, the savings gap arises (Irandoust and Ericsson, 2005). FA assists in covering this savings gap. In line with it, the foreign exchange gap occurs if a country's trade openness declines compared to the requisite foreign exchange. Therefore, FA is an essential source for covering this foreign exchange gap. The dual-gap theory has a significant contribution to the development model by highlighting the domestic savings gap and the foreign exchange gap (Anoruo and Ahmad, 2001). In the course of time, many development theories were invented, criticizing the parts of the H-D model's hypotheses (Kargbo, 2012).

The Keynesian model expressed that FA might be an essential determinant of growth by enhancing consumption. Sato (1964) exposed that the neoclassical growth theory is predominantly inspired by the Solow model in the long-run growth. The Solow model was created as a substitute for the H-D model to explain the critical assumptions of fixed proportions in production. Solow developed a continuous production function in the neoclassical growth model linking inputs and outputs of labour and Capital that are substitutable and demonstrate reduced returns to scale.

Since the neoclassical growth model had some lacking, the endogenous growth theory was introduced, which exposed the endogeneity of capital in the economic development process (Arrow, 1962; Romer, 1986). Another feature of this theory was the assumption of growing returns which is opposite to constant returns of capital. This theory exhibited the importance of human capital in the economic growth procedure as well as the significance of FA on economic growth as an aid in the system of technical assistance. In line with it, the assumption of growing returns to the capital of the new growth model advocates that foreign Aid will play a significant positive role in the development process in the long run of a country or region.

In this study, we are going to reveal the effect of FA on the Economic growth of Bangladesh. The theoretical foundation of our research would be based on the two-gap model (Orji et al., 2019). It is mentioned that the two-gap model elaborates the Harrod-Domar growth model, whereas economic growth is determined by physical capital formation. According to this model, the output of a country is determined by the rate of savings and the productivity of investment (Orji et al., 2019). We know that if domestic savings are not abundant to finance the investment to achieve the targeted growth rate, there will be a savings gap. Moreover, there is also a foreign exchange gap. It refers to that all investment goods cannot

be produced domestically. These two gaps are incorporated to formulate the two-gap model (Orji et al., 2019).

The Harrod-Domar model entails that output growth is a function of additions to the stock of capital (Orji et al., 2019; Orji et al., 2014).

$$Y = f(\Delta k) = f(I) \quad (1)$$

Here Y refers to the growth of output, K indicates the capital stock, and I denotes the investment. On the contrary, the standard macroeconomic national income identity exposed that:

$$E = C + I + G + (X - M) \quad (2)$$

$$Y = C + S + T \quad (3)$$

In this equation, E denoted aggregate expenditure, Y states aggregate income, S refers private savings, G mentions government expenditure, T stands for tax, X and M designate Export and Import correspondingly. From the illustration of the two-gap model, we find that

$$E - Y = (I - S) + (G - T) + (X - M) \quad (4)$$

With a view to the economy to be attained at equilibrium, $E-Y$ must be equal to zero, then we get:

$$(I - S) + (G - T) = (M - X) = F \quad (5)$$

In this equation, F denotes foreign aid (or capital) inflow. If we ignore the fiscal balance (G-T), then the equation stands:

$$I = F + S = F + sY \quad (6)$$

Here' S' is the economy's propensity to save.

Our principal equation exhibited that the total investible resources (I) requisite for the economic growth of a country or region are the total of the private domestic savings (S) and foreign aid (or capital) inflow (F). Replacing the obtained fact of Equation (1) in Equation (6)

$$Y = f(\mathrm{I}) = f(F, S) \quad (7)$$

Where F refers to foreign Aid (FA) and S denotes domestic savings.

In this study, we will investigate the impact of Foreign Aid (FA) on the Economic Growth of Bangladesh. GDP per capita (GDPPC) is the proxy of Economic Growth, the Dependent Variable. FA, as well as Gross Capital Formation (GCF), Trade openness (TO), and Population Growth (PG) are the Independent variable. Following the study (Jena and Sethi, 2020; Kargbo, 2012; Orji et al., 2019), we are going to utilize the two-gap model for our study. The linear functional association between the Dependent variables and Independent variables stands:

$$GDPPC = f(\mathrm{ODA}, \mathrm{GCF}, \mathrm{TO}, \mathrm{PG}) \quad (8)$$

Based on the discussion of the past literature and following the study of (Fan et al., 2019; Fan et al., 2018; Jena and Sethi, 2020; Kargbo, 2012; Orji et al., 2019), the model specification for our study is displayed below:

$$GDPPC_t = \beta_0 + \beta_1 ODA_t + \beta_2 GCF_t + \beta_3 TO_t + \beta_4 PG_t + \varepsilon_t \quad (9)$$

Here, β_0 = Intercept, β_1, β_2, β_3, β_4 = Slopes of the ODA, GCF, TO and PG, consequently

$\varepsilon_{t\,=}$ stochastic error term of the model, t = period of the study.

Including the natural logarithm of the variables, the equation is as follows:

$$lnGDPPC_t = \beta_0 + \beta_1 lnODA_t + \beta_2 lnGCF_t + \beta_3 TO_t + \beta_4 PG_t + U_t \quad (10)$$

5. METHODOLOGY AND RESULTS ANALYSIS

This study's main objective is to analyze the impact of FA on the GDP growth of Bangladesh.

5.1. Data Specification and Statistical Analysis

In this study, we will utilize the time series data from 1971 to 2019 to operate an inquiry on the effect of FA on the Economic growth of Bangladesh. We would apply the Autoregressive Distributed Lag (ARDL) approach as the principal method proposed by (Pesaran and Shin, 1998). This study would apply the time series data from the world-renowned source-the World Development Indicators (WDI) which is widely utilized in major economic empirical analysis. The GDP per capita (GDPPC) has been applied as the proxy of Economic growth following the study of Sharma and Kautish (2019). We have used Net Official Development assistance and Official Aid Received (ODA) as a proxy for foreign Aid (FA) received by Bangladesh, which is supported by the study (McArthur and Sachs, 2019; Orji et al. (2019)). The Gross Capital Formation (GCF) is utilized as the proxy of Capital Growth (CG) which is supported by the study by Orji et al. (2019). Population growth has been used as a proxy for the growth of the labour force following the study of Ekanayake and Chatrna (2010). For Trade Openness, we will utilize the total of Exports and Imports as a percent of GDP. The data is in constant USD 2015. We have converted all-time series data to their natural logarithm form except for Trade openness and Population growth because these two variables are in the percentage (ratio) form. The data sets are illustrated in the Table 1.

5.2. Descriptive Statistics and Correlation of Variables

We have initiated our inquiry with traditional statistical apparatuses such as descriptive statistics and correlation matrix. The results are presented in Table 2.

The table above indicates the mean, median, and standard deviation of the series. The results of the Jarque-Bera test reveal that the residuals or error terms of the variable Foreign Aid, Trade openness,

Table 1: Explanation of variables

Variables	Expressed as	Proxy for	Explanation	Expected sign	Data source
GDP per capita	GDPPC	Economic growth	GDP per capita is gross domestic product divided by midyear population	Dependent variable	WDI
Foreign aid	ODA	Net official development assistance and official aid received	It consists of disbursements of loans and grants made on concessional terms by DAC	+	WDI
Trade openness	TO	Trade openness	Export plus import divided by GDP.	+	WDI
Gross capital formation	GCF	Capital growth	GCF consists of outlays on additions to the fixed assets of the economy plus net changes in the level of inventories	+	WDI
Population growth	PG	Labor force	It is the escalation in the total of individuals in the population	_	WDI

Table 2: Descriptive statistics and correlation of variables

Variables	GDPPC	ODA	TO	GCF	PG
Mean	566.273	1.97E+09	0.230	1.64E+10	1.901
Median	459.613	1.97E+09	0.156753	8.95E+09	2.002
Std. Dev.	254.994	7.61E+08	0.140	1.72E+10	0.587
Jarque-Bera	14.059	0.417	6.446	14.993	4.339
Probability	0.000	0.811	0.039	0.000	0.114
Correlation					
	LNGDPPC	**LNODA**	**TO**	**LNGCF**	**PG**
LNGDPPC	1.000				
LNODA	0.068	1.000			
TO	0.730	−0.245	1.000		
LNGCF	0.910	0.126	0.456	1.000	
PG	−0.838	0.139	−0.879	−0.637	1.000

Source: Author's own calculation in E-Views

and Population growth are normal. But it is not typical in the case of per capita GDP and Gross Capital Formation (GCF). Which means they are not normally distributed. To avoid this problem, we will convert these data into their natural logarithm form, and we will take the first difference. In addition, since we will cross-check it after running our model, we could proceed with the investigation.

The correlation matrix illustrates a highly positive correlation between Gross capital formation and GDP Per Capita (Economic growth). The above table shows a negative correlation between population growth to GDP per capita and Gross capital formation. Similarly, Trade openness is negatively correlated with FA. This indicates that when the trade openness increases, Bangladesh needs less foreign Aid. On the contrary, trade openness is highly and positively correlated with Economic growth but negatively correlated with population growth.

5.3. Model Specification

In our study, we are going to use GDP per capita (GDPPC) as the Dependent variable and Foreign Aid (FA), Gross Capital Formation (GCF), Trade Openness (TO), and Population Growth (PG) as Independent variables. According to the discussion of our theoretical framework section (Section-4), we have formulated our model as follows:

$$lnGDPPC_t = \beta_0 + \beta_1 lnODA_t + \beta_2 lnGCF_t + \beta_3 TO_t + \beta_4 PG_t + U_t \quad (11)$$

5.4. Unit Root Test

It is essential to authenticate the stationarity of time series data before switching to the next level of analysis. Though, the unit root test is not obligatory in the ARDL technique because this method could operate in the presence of cointegration among the variables of order I(0) or I(1) or a mix of these two. On the other hand, Pesaran and Shin (1998) and Pesaran et al., (2001) have given their consent that none of the variables should be integrated in the order I(2) in ARDL Bounds Test. If the variables are integrated into an order I(2), they would nullify the methodology of the technique. To test the stationarity characteristics of time series data, numerous unit root tests are available. They are ADF, PP, DF-GLS, KPSS, ERSPO, Ng-Perron, and some other special unit root tests as Zivot–Andrews unit root test. Therefore, to determine the stationarity of the data, the PP unit root test and Augmented Dickey-Fuller (ADF) approach would be utilized to test the unit root of the variables in our study according to the suggestion of Pesaran and Shin (1998) and Pesaran et al. (2001). The results obtained from the ADF and PP unit root tests have been presented in Table 3.

The findings of the ADF tests indicate that among the four variables, only Trade openness (TO) is significant at 1% level *I*(0); other variables are not significant. But all four variables are significant at 1% in the first difference *I*(1). Following the ADF test, PP Test refers that only foreign Aid (LNODA) is significant at 1% level *I*(0), and no other variable is significant at a level *I*(0). Again all four variables are significant at 1% in the first difference *I*(1).

The results obtained from the ADF and PP unit root tests indicate that the order of integration of the variables is a mix of *I*(0) and *I*(1), but none of them is significant at *I*(2). So these results fulfil the conditions to use of the ARDL approach in this study.

5.5. Test of Cointegration in ARDL Bounds

In this study, our data is Time series data. The time series investigation to document the impact of Foreign Aid on Bangladesh's Economic growth follows the cointegration method, which is employed to estimate the long-run effect of Foreign Aid on Economic development. This technique would be applied accompanied by an Error correction model (ECM), which delivers estimation for the short-run and the adjustment term once cointegration is found to be present. Moreover, in our study, we have covered the time series tenure from 1971 to 2019, a comparatively long series that offers the benefit of attaining sufficient degrees of freedom. In line with it, it can incorporate more independent variables into the model, producing a less unbiased estimation.

There have been three major techniques of cointegration that are frequently used in the research. They are the Johansen likelihood

Table 3: ADF and PP unit root test

Variables	ADF (Level)		ADF (First difference)		PP (Level)		PP (First difference)	
	Intercept	Trend AND intercept	Intercept	Trend and intercept	Intercept	Trend and intercept	Intercept	Trend and intercept
lnODA	−1.567	−2.617	−11.040***	−10.710***	−6.312***	−6.361***	−13.142***	−12.666***
	(0.490)	(0.274)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
To	−1.788	−4.613***	−5.739***	−6.114***	−1.384	−3.007	−5.818***	−6.189***
	(0.381)	(0.002)	(0.000)	(0.000)	(0.582)	(0.140)	(0.000)	(0.000)
lnGCF	−1.157	−3.082	−10.293***	−11.037***	−1.450	−2.989	−9.642***	−10.653***
	(0.685)	(0.122)	(0.000)	(0.000)	(0.549)	(0.145)	(0.000)	(0.000)
PG	−1.543	−2.465	−8.682***	−9.343***	−0.483	−1.872	−3.908***	−4.313***
	(0.501)	(0.342)	(0.000)	(0.000)	(0.885)	(0.653)	(0.004)	(0.006)

*, ** and *** indicate statistical significant at the 10%, 5% and 1% level respectively, Source: Author's own calculation in E-Views

approach, the Engle-Granger two-step procedure, and the latest Autoregressive Distributed Lag (ARDL) bounds test method to determine the cointegration developed by Pesaran et al., (1999). The Engle and Yoo (1987) approach, which has applied a two-step process, is restricted to a bivariate model and cannot be used in our study because our models have more than two variables. Consequently, according to the demand analyzing the features of our variables, we have applied the Autoregressive Distributed Lag bounds test approach to determine the cointegration of the Foreign Aid-Economic growth relationship.

We have calculated the long-run impact of Foreign Aid on the economic growth of Bangladesh with other variables utilizing the ARDL model (1, 4, 2, 3, 3). We have already mentioned that the ARDL method utilizes the F-test to accomplish the existence of cointegration among the variables we have documented. The study of Pesaran and Pesaran (1997) exposed that the first value (upper critical bound) of the F-test refers that all the variables being *I (1)*. The second (the lower critical bound) value discloses that they are I(0). Whether the F-statistic's estimated value comes above the upper value of this group, the null hypothesis is rejected. If the F-statistic value falls beneath the lower critical bound, the null hypothesis of no cointegration cannot be dismissed. Finally, if the value stands within the lower critical bound and the upper critical bound, it exposes that the decision is inconclusive (Fan and Hossain, 2018).

Intending to determine the cointegration among our variables, we have operated the bounds test, and the findings are displayed in Table 4.

The results of the ARDL bounds test documented that the result of the F-test is 17.4001. The value of the calculated F-statistic has crossed the upper bound at the 1% level of significance. These findings reveal that long-run relationships exist among Foreign Aid, Gross Capital Formation, Trade openness, Population Growth, and Economic growth.

5.6. ARDL Model Selection and Result Estimation

The ARDL model selection to conduct our research is based on a few contemplations. Unlike the Johansen likelihood approach for cointegration analysis, the ARDL technique evades the difficulty of the order of integration. The cointegration method of (Johansen, 1991; Johansen and Juselius, 1990) entails that variables must be in a similar order of integration (for example,

Table 4: Bound test for cointegration

F-statistic	17.4001	
Number of Independent Variable	4	
Critical Values	**Lower Bound**	**Upper Bound**
1%	3.29	5.173
5%	2.56	3.905
10%	2.2	5.173

Source: Author's own calculation in E-views

I(*1*)). Henceforth, the ARDL method is observed to carry the benefit of flexibility. In contrast, it can be utilized regardless of whether the variables are of the same order or different order of integration (Pesaran and Shin, 1998). The second reason, the study of Inder (1993) documented that estimations from ARDL approaches are much more trustworthy than other methods even if the dynamic structure is over-specified. In line with it, the magnitude of the t-tests from an estimator which uses an ARDL technique is much more dependable. Thirdly, Enns et al., (2014) exhibited that the ARDL approach to cointegration is more lucrative when the samples are small in size. In addition, this method is more effective than other VAR approaches. These results are also established by Pesaran et al. (1999) and Pesaran et al. (2001). They exposed that the ARDL model leaves behind substitute approaches such as the Phillip and Hansen's fully modified OLS when the sample size is small. Finally, Pesaran et al. (1999) disclosed that adjusting the ARDL model's order is sufficient to concurrently correct the residual serial correlation and the problem of endogenous regressors. This is also proved by Harris and Sollis (2003) and Yue and Constant (2010). The insertion of dynamics is displayed by (Inder, 1993; Pesaran and Shin (1998)) to correct the endogeneity bias. Some researchers expressed that Foreign Aid is endogenous, so the ARDL technique is appropriate for estimating the Foreign Aid-Economic growth relationship.

In the previous chapter, we formulated our linear functional model for our study as follows:

$$lnGDPPC_t = \beta_0 + \beta_1 lnODA_t + \beta_2 lnGCF_t + \beta_3 TO_t + \beta_4 PG_t + \varepsilon_t \quad (12)$$

Since we are going to utilize the Auto Regressive Distributive Lag (ARDL) approach for our study, we think that this model is suitable to capture the objective of our research. The ARDL method in an unrestricted error correction model (UCEM) is specified below:

$$lnGDPPC_t = \beta_0 + \sum_{i=1}^{n} \beta_{1i} \Delta lnGDPPC_{t-1} + \sum_{i=1}^{n} \beta_{2i} \Delta lnODA_{t-1} + \sum_{i=1}^{n} \beta_{3i} \Delta lnGCF_{t-1} + \sum_{i=1}^{n} \beta_{4i} \Delta TO_{t-1} + \sum_{i=1}^{n} \beta_{5i} \Delta PG_{t-1} + \alpha_1 lnGDPPC_{t-1} + \alpha_2 lnODA_{t-1} + \alpha_3 lnGCF_{t-1} + \alpha_4 TO_{t-1} + \alpha_5 PG_{t-1} + U_t \quad (13)$$

In the above mention equation, GDPPC is GDP per capita, ODA (Official Development Assistance) is the proxy of Foreign Aid, TO depicts Trade Openness, GCF indicates Gross Capital Formation, PG refers to Population growth (Proxy of Labor Force). "Δ" The first difference operator, "t-1" the subscripts of the exogenous variables representing lags in the logarithm and "*U*" the error term.

Taking our Foreign aid-growth centric model under consideration, the hypothesis is defined as follows:

$$H_0: \beta_1 = \beta_2 = \beta_3 = \beta_4 = 0$$

Against

$$H_1: \beta_1 \neq 0, \beta_2 \neq 0, \beta_3 \neq 0, \beta_4 \neq 0.$$

In the second step, we would calculate the long-run conditional ARDL (p, q1, q2, q3, q4) model by selecting the optimal orders of the ARDL approach in the variables. The Akaike information criteria (AIC) or the Schwartz/Bayesian information criteria (SIC or SBC) will be conducted. These selections are the functions of the residual sums of squares and are equivalent asymptotically (Ismail, 2019). We would apply the SIC to select the orders of the ARDL specifications, which carries a comparative advantage over the AIC. By operating a study to compare the AIC and SIC approach in the Monte Carlo method, Pesaran et al. (1999) exhibited that the ARDL-SIC exposes better results. Besides, they also indicated that the SIC had been a steady model-selection criterion, whereas AIC does not reflect that features. Furthermore, the SIC offers better performance in lag-length selection and model selection criterion (Pesaran and Shin, 1998).

We have calculated the long-run impact of foreign Aid on the economic growth of Bangladesh with other variables utilizing the ARDL (1, 4, 2, 3, 3). The results of the long-run dynamics are displayed in Table 5.

The results of the above table illustrate that foreign Aid and gross capital formation have a significant positive impact on the economic growth of Bangladesh in the long-run; whereas, trade openness has a negative but insignificant impact in the long run. In addition, population growth has a negative and significant impact on economic growth in the long run.

Table 5: Estimated long-run result in ARDL

Dependent variable-economic growth				
Variables	**Coefficient**	**Std. Error**	**t-statistics**	**Probability**
LNODA	0.243	0.030	7.846	0.000
TO	−0.001	0.000	−1.631	0.114
LNGCF	0.313	0.026	11.77	0.000
PG	−0.150	0.036	−4.097	0.000
C	−2.331	0.379	−6.146	0.000

*, ** and *** indicate statistical significant at the 10%, 5% and 1% level respectively, Source: Author's own calculation in E-views

The coefficients of the variables of our study refer that the one unit increase in foreign Aid would intensify 0.24 units' Economic growth (refers to 0.24 units GDP per capita will increase) in Bangladesh. These findings indicated that foreign aid inflow plays a vital role in the country's economic development. In line with Foreign Aid, Gross capital formation also has a significant positive impact on the Economic development of Bangladesh. The empirical results of our study documented that a 1(one) unit increase in Gross capital formation would enhance 0.31 units' Economic growth (GDP per capita). Therefore, Capital formation has a high impact on the Economic Development of Bangladesh in the long run.

In the case of population growth, the coefficient is negative and significant. The findings exposed that a one unit increase in foreign Aid would lessen the economic growth by 0.15 units'. This is very significant and holds great importance for the country's policymakers. The impact of population growth on the economic development of Bangladesh is negative and significant. The reason is that Bangladesh is an overpopulated country with a small volume of land area, low education rate, lack of resources, high unemployment rate, high corruption at the Government level, and lack of good governance. In addition, Bangladesh has failed to convert its large population into a skilled and enriched labour force. This result is also supported by the study of Haiyun et al., (2021). Trade openness has a negative but insignificant impact in the long run. Therefore, we don't have to be worried about it.

The findings of our regression is similar to (Adams, 2020; Arndt et al., 2010; Bhavan et al., 2011; Burnside and Dollar, 2000; Chowdhury and Das, 2011; Cungu and Swinnen, 2003; Forson et al., 2015; Gomanee et al., 2005; Gounder, 2001; Haiyun et al., 2021; Hansen and Tarp, 2001; Headey, 2008; Irandoust and Ericsson, 2005; Jena and Sethi, 2019; Karras, 2006; Lloyd et al., 2001; Mallik, 2008; Minoiu and Reddy, 2010; Ndambendia and Njoupouognigni, 2010; Sharma and Bhattarai, 2013; Singh, 1985; Sothan, 2018; Tait and Chatterjee, 2015; Tang and Bundhoo, 2017).

On the other hand, The findings of our results are opposite of those (Ali and Isse, 2005; Boone, 1994; Gong and Zou, 2001; Guillaumont and Chauvet, 2001; Hossain and Mitra, 2015; Lensink and Morrissey, 2000; Mallik, 2008; Mitra et al., 2015; Yiew and Lau, 2018).

Then, we would accomplish the short-run dynamic parameters by estimating an Error Correction Model (ECM) connected with the long-run estimation in the third and the last stage. Moreover, the adjustment tenure that illustrates the speed of adjustment to disequilibrium is also estimated at this level.

Illustrating the long-run impact of Foreign Aid on economic growth with other variables, we are now displaying the short-run impacts in ARDL (1, 4, 2, 3, 3) for Bangladesh. The results are displayed in Table 6.

The findings of the short-run investigation exposed that short-run dynamics are also running, so as the long-run associations among the variables. In our analysis, the sign of lagged error correction term (C) has a negative and strong significance even at a 1% level. This numeral and sign signify that there has been a long-term connection running between the dependent variables and the independent variables. Moreover, the figure of the ECT coefficient is −0.6511, which indicates a faster and strong speed of adjustment to equilibrium. Consequently, it was documented from the analysis that 65% of the disequilibrium converges back to the long-term equilibrium within 1 year. The short-run results also exposed that foreign Aid has a positive and significant effect in the current period; on the other hand, it negatively impacts economic growth in the Lag 1 and 2 tenures. Among the other independent variables, the regression findings exhibited that Gross capital formation positively influences economic growth in the short-run in all periods. The labour force has a positive and significant effect on economic growth in the current period in the short run, which is confirmed by the sign and statistical significance of the coefficients. Still, it is not significant in lag I and 2. Though Trade openness is not significant in the long run, it is significant in the short run. As the coefficients of Trade openness are negligible in the short run, we can ignore it.

Under the ARDL approach Lag selection order of the variables is essential for the model's condition. Akaike information criterion (AIC) is applied in our research to determine the appropriate lag length for the model. The study of Lütkepohl (2006) indicates that AIC has supremacy for small data in comparison to any leg-length criterion such as Schwarz information criterion (SC) and Hannan-Quinn information criterion (HQ). AIC presents consistent and efficient results as compared to the final prediction error. The selected model for our study is ARDL (1, 4, 2, 3, 3).

5.7. Diagnostic Test of the Model

Our study would apply the traditional primary approaches to diagnose the model. In keeping with the ARDL Bounds test method, it is a vital and crucial assumption that the errors of equations (3) and (4) must be identically and independently distributed (iid) (Fan et al., 2019). To check the Normality of the errors of the model "Jarque-Bera" test, to test the Serial Correlation problem' Breusch-Godfrey Serial Correlation LM test' would be utilized. At last, "Breusch-Pagan-Godfrey" method would be utilized to check the heteroscedasticity of our model (Fan et al., 2019).

To validate the robustness and stability of our designated model, we have conducted Serial correlation (Q-Statistics and Breusch-Godfrey and Serial Correlation LM tests) and Heteroscedasticity test ("Breusch-Pagan-Godfrey" test). The outcomes are presented in Table 7.

The results obtained from the different diagnostic tests are provided in Table 7. According to our findings, the R^2 is 0.9106 and adjusted R^2 is 0.8771 of the model. The investigation findings demonstrated that more than 91% and 87% variations in the dependent variables are elucidated by the model and the rest by the error terms. The probability of F- statistics and observed R^2

Table 6: Estimated short-run results in ARDL

Dependent variable-economic growth				
Variable	**Coefficient**	**Standard Error**	**T-statistic**	**Probability**
C	−0.651	0.211	−3.078	0.004
LNGDPPC(-1)*	−0.279	0.099	−2.795	0.009
LNODA(-1)	0.067	0.019	3.422	0.002
TO(-1)	−0.000	0.000	−1.868	0.072
LNGCF(-1)	0.087	0.031	2.819	0.008
PG(-1)	−0.042	0.011	−3.725	0.000
D (LNODA)	0.009	0.009	0.995	0.328
D (LNODA(-1))	−0.037	0.015	−2.494	0.019
D (LNODA(-2))	−0.033	0.009	−3.404	0.002
D (LNODA(-3))	−0.015	0.006	−2.374	0.024
D (TO)	−0.000	0.000	−1.952	0.061
D (TO(-1))	0.000	0.000	2.107	0.044
D (LNGCF)	0.156	0.068	2.292	0.029
D (LNGCF(-1))	0.032	0.028	1.138	0.265
D (LNGCF(-2))	0.056	0.022	2.573	0.015
D (PG)	0.046	0.076	0.604	0.550
D (PG(-1))	−0.094	0.114	−0.826	0.415
D (PG(-2))	0.105	0.068	1.550	0.132

*, ** and *** indicate statistical significant at the 10%, 5% and 1% level respectively, Source: Author's own calculation in E-views

Table 7: Diagnostic test

Test	F test (Probability)	Observed R^2
Breusch-Godfrey serial correlation LM test	0.844	0.739
Breusch-Pagan-Godfrey Heteroskedasticity test	0.475	0.419
Jarque-Bera test	2.603	0.272
R^2	0.910	
Adjusted R^2	0.877	

Source: Author's own calculation in E-Views

tests illustrate that our model passed almost all the tests regarding Heteroscedasticity, Normality, and serial correlation tests. Under this circumstance, it is documented that this model is of good fit and passes almost all the diagnostic tests.

5.8. Stability Test of the Model

The model that carries the features of the autoregressive characteristics in nature is needed to confirm the dynamic stability. Following the study of Pesaran et al. (1997) and Brown et al., (1975), we would apply recursive CUSUM and CUSUM of squares tests to confirm the stability of the model (Fan et al., 2019). To ensure the robustness of our analysis's long-run dynamics and short-run results, we have used the structural stability tests on the parameters based on the cumulative sum of recursive residuals (CUSUM) and cumulative sum of recursive residuals of squares (CUSUMSQ) tests. The graphical presentation is as follows:

The graphical representation of CUSUM and CUSUMSQ statistics is provided in Figures 2 and 3. It is established in research that if the plots of the CUSUM and CUSUMSQ stay within the 5% critical bound, it would confirm the constancy of the parameter and stability of the model. The graphical representation shows that the blue lines of both first graphs are in between the red lines. Therefore, we can say that our model is stable and has passed all the cross-checks.

Figure 2: Plot of the CUSUM test

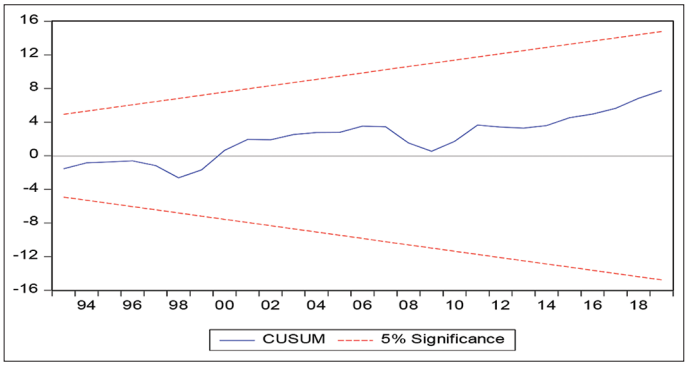
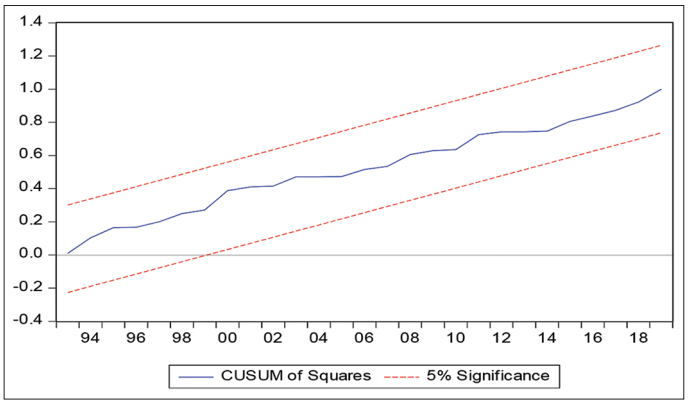


Figure 3: Plot of the CUSUM of square test



6. CONCLUSION AND POLICY IMPLICATION

Foreign Aid plays a vital role in global economic development around the world. It has helped more than one billion people to get rid of extreme poverty Since 1990 (USAID, 2021). It has facilitated to enhance the education, health, and economic development, which significantly contributes to human welfare. We have examined the long-run and short-run impact of Foreign Aid on the Economic growth of Bangladesh in our study. We have applied ARDL bound test methodology from 1971 to 2019. The findings of our analysis indicate that FA and gross capital formation have a significant and positive impact on the Economic growth of Bangladesh in the long run; trade openness has a negative but insignificant impact in the long run. In addition, population growth has a negative and significant effect on Economic growth in the long run. The coefficients of the variables of our study refer that a one unit increase in foreign Aid would intensify the economic growth of 0.24 units of Bangladesh. These findings indicated that foreign aid inflow plays a vital role in the economic development of the country.

In the case of population growth, the coefficient is negative and significant. The findings exposed that a one unit increase in foreign Aid would lessen the economic growth by 0.15 units'. This is very much significant and holds great importance for the policymakers of the country. The impact of population growth on the economic development of Bangladesh is negative and significant. The reason is that Bangladesh is an overpopulated country with a small volume of land area, low education rate, lack of natural resources, high unemployment rate, high corruption at the Government level, and lack of good governance. In addition, Bangladesh has failed to convert its large population into a skilled and enriched labour force. Trade openness has a negative but insignificant impact in the long run. Therefore, we don't have to be concerned about it.

Foreign Aid is not always necessary for a developing country to build mega infrastructures for its economic development. Bangladesh is the best example of it. A few years ago, The World Bank, IMF, JICA, and some other international donor organizations and developing partners of Bangladesh refused to finance the mega "The Padma Bridge Project" blamed for its corruption. Then Bangladesh decided to build this mega bridge on her mighty river, the Padma, with her finance. About 80% of works on this bridge have been completed, and it is expected to open for use by June 2022. Bangladesh is very successful in building this bridge through her own finance and has also increased her honor at the international level. Though International Donor Organizations and Developing Partners could not prove the corruption that took place in the initial stage of the project later on.

The necessity of Foreign Aid depends upon the development level of a country. Some countries with high economic development may not need Foreign Aid; instead, they are Donor countries. Some countries having an intermediate level of growth may use it to proceed to the next stage of development. Foreign Aid might help a developing country avoid failure or get an economic take-off. Nonetheless, more dependency on it is not so good for a country and might create other complexities (Pham and Pham, 2020). As Bangladesh is a lower-middle-income country, Foreign Aid is important for her to reach the next level of economic development.

Depending on the results of this study and the discussions above, the policy recommendations are as follows:

1. First, proper planning for the best use of FA funds must be formulated by Bangladesh Government. Priority sectors must be determined where FA would be utilized. In this regard, Bangladesh must follow policies given by donor organizations and developing partners. It will ensure the appropriate utilization of aid funds which will play a positive impact on the economic development of the country.
2. Highly literate, skilled, trained, and expert human resources in the Government sectors are very important to ascertain the proper distribution and utilization of the FA. Bangladesh Government should deploy eligible skilled persons for this purpose
3. Good governance and Institutional quality related to foreign Aid must be improved. Policymakers of Bangladesh should maintain political stability, increase wages, reduce income inequality, and proper steps to reduce the level of corruption
4. There should be a transparent record of foreign aid utilization, the head of the sectors should be able to use the foreign Aid properly, foreign loan interest must be paid within the specified time and the Government should follow zero tolerance toward corruption.

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