Causal Nexus among Export, Eternal Debt and Economic Growth: The Case of Bangladesh

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Researchers have always been concerned about the key determinates of economic growth. However, to the best of our knowledge, very little attention has been paid to empirically examine the relationship between economic growth, exports and external debt servicing in Bangladesh economy. This paper tries to investigate the impact of export and external debt on the economic growth of Bangladesh. The annual data series over the period 1980-2014 has been used in this paper. The authors performed the Augmented Dickey Fuller (ADF) test to check if the variables are stationary, either at their level or at first differences. The study used the ARDL (Auto- Regressive Distributive Lag model) model to check if export and external debt are co-integrated with economic growth of Bangladesh. According to the findings, export and external debt, both are co-integrated with Economic Growth for lag 2, 3 and 4. Finally, authors applied the Granger causality test and results revealed that export and economic growth has strong affects each other- both in short run and long run. However, impact of External Debt on Economic Growth prevails only in long run; no short run causality was found. Moreover

Field of Research: Economics

1. Introduction

Accelerating economic growth is the center of policy making for both developed and developing economy. However, for the complex and multidimensional nature of economic growth, economists and policy makers has hypothesized and argued about its determinant over time. Among other variables, export and external debt is denoted as a crucial component for developing countries like Bangladesh. In 1970s, when Bangladesh originated as an independent country, it was a relatively closed economy and noted as "the bottomless basket". Nevertheless, with trade openness in 1980s, Bangladesh established themselves in the world market and now competing with many developed economies. According to the export-led hypothesis, Bangladesh's rapid economic growth was mainly contributed by the significantly high level of export and a stable interest rate over the time. On the other hand, external debt is a vital macroeconomic component for any developing country for their growth and development. Previously noted as a low middle income country, Bangladesh had a subsequently higher level of external debt from various developing agencies as well as developed countries, to gain the extra momentum to achieve a higher level of economic growth.

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To the best of our knowledge, no empirical study focused on the direct relationship between these three variables: economic growth, export and external debt in Bangladesh from 1980 to 2014. A similar study was conducted in Pakistan by Afzal et al. (2008) and in Lebanon by Saad (2012). The relationship between external debt and economic growth was hypothesized in Rahman (2012) and Shah and Pervin (2012) in Bangladesh. For the relationship of export was illustrated in Moniruzzaman (2002) and Mamun & Nath (2005). However, these paper deals with limitations such as: Rahman (2012) analyzed the data from 1972-2010 and Moniruzzaman (2002) analyzed the dataset from 1972-2008.Due to the Liberation war in 1972, there were drastic fluctuation in economic growth, export and external debt. What authors are looking for is a more or less stabilized recent period to actually capture the potentiality of Bangladesh for these two macroeconomic variables. This study aims to address the lack of studies combining both export and external debt with economic growth. The following four questions were addressed in this study:

1. Is there any long-run relationship between export, external debt and economic growth?
2. Is there causality running in either directions or both directions?

The effect of export and external debt on economic growth could be both direct and indirect. As economic growth is channeled by various determinants and often linked with one another. Assuming that the aggregated effects of these channels would reflect in aggregated economic activity, authors have constructed the paper. Therefore, they used a bivariate analysis for its appropriateness to distinguish and interpret the model to establish an empirical relationship between them. The rest of the paper is organized as following: section 2 provides a brief literature review, section 3 shed light on the Bangladesh's scenario regarding economic growth, export and external debt, section 4 illustrates methodology and data set used, section 5 focused on the result of the econometric analysis and section 6 has the concluding remarks.

2. Literature Review

Numerous studies have been conducted to identify the relationship between the macroeconomic variables: economic growth, export and external debt in developed as well as developing nations. Acknowledging the importance of export and external debt on economic growth, many researchers and policy makers are now focusing their attention here. However, as the studies address either the impact of export or external debt on economic growth and for the variation of socio-economic structure for different economy, no policy could be recommended based on that.

Ajmi et al. (2015) and Chang et al. (2013) both studied the relationship between export and economic growth in South Africa. Chang et al. (2013) used panel Causality Analysis, which was further developed by Ajmi et al. (2015) by using linear Non-linear Granger Causality test. Chang et al. (2013) paper suggested a unidirectional causality running from economic growth to exports for Mpumalanga only; for Gauteng, a bi-directional causality between exports and economic growth, yet no causality was found in any direction between economic growth and exports for the rest of provinces. Whereas, Ajmi et al. (2015) used Hiemstra and Jones nonlinear, this results in a unidirectional causality from GDP to exports. In addition to this, they used a more powerful and less biased nonlinear test, the Diks and Panchenko (2006) test. However, both papers advocated policies that have the potential to expand South Africa's domestic market through exporting more both in terms of volume and

diversified goods and services. As increased level of export would result in increase in income and employment, it would ultimately enhance overall economic growth of the county. They also pointed out that the policy makers need to be aware of the sensitivity of GDP to the changes in export and vice versa, although the causal relationship varies over time. As for the component external Debt, Babu et al. (2014) analyzed the East African Community using panel Fixed Effect of external debt on economic growth and using annual data from 1970 to 2010, they concluded that negative impact of external debt on GDP percapita growth rate. They also incorporated the Levin-Lin-Chu the Hausman Specification test to verify the panel Fixed Effect. Based on Solow growth model augmented, they designed the entire paper.

Using forty-four developed countries' two hundred years' data, Reinhart & Rogoff (2010) found out that government debt and real GDP growth has a weak relationship where the debt/GDP ratios below a threshold of 90 percent of GDP. On the other hand, emerging economies has a lower threshold for external debt (public and private). As the researchers indicated, the emerging economies face more difficulties to move away from their debt burden comparing to the advanced economy. These difficulties were mainly influenced largely by denominated in a foreign currency. Furthermore, the researchers conducted the "debt intolerance" analysis, which suggested that, as debt levels, risk premier tends to rise sharply, facing highly indebted governments with difficult tradeoffs. For the countries that were committed and sincere to fully repaying their debts, often enforce policies such as contractionary fiscal policy to increase their credibility among investors. Along with including over 3700 annual observations, the study also incorporated a wide range of political systems, institutions, exchange rate arrangements, and historic circumstances.

The study of Ayadi and Ayadi (2008) illustrated the impact of debt on the growth and investment in Nigeria and South Africa. They used econometric methods such as: Ordinary Least Squares (OLS) and Generalized Least Squares (GLS) and three neoclassical models for their analysis. With the negative impact of debt (and its servicing requirements) on growth is confirmed in Nigeria and South Africa as a result, they recommended policies such as: to invest and find external loans only for very high priority, well-appraised, and self-liquidating projects.

According to Clement et al. (2003), a considerable reduction in external debt would directly increase per capita income growth by about 1 percentage annually. The study conducted on for low income countries, including Bangladesh, which qualifies as IMF's Poverty Reduction and Growth Facility. Using the data from the World Bank's Global Development Network Growth, Global Development Finance database and World Development Indicators (WDI) database and analyzing with the Fixed Effects and system GMM estimates, the study projected that External Debt directly and indirectly through public investment, affects per capita income growth of the selected 55 low income countries.

To establish the relationship between external public debt, exports and economic growth, two studies based on Pakistan and Lebanon is examined in Afzal et al. (2008) and Saad (2012). Afzal et al. (2008) used Vector Error Correction Models (VECM) and augmented Vector Auto Regressive (VAR) methodology for causality developed which was developed by Toda and Yamamoto to strengthening co-integration technique. In addition to this, they also used unit root tests such as: ADF, Phillips Perron and Johansen's co-integration test. On the other hand, Saad (2012) selected Vector Error Correction Models (VECM) and Granger Causality Technique to analyze the relationships. Afzal et al. (2008) focused on

reviewing the export led growth hypothesis for Pakistan. Although, a reverse of shape of growth-driven exports exists, the export-led growth hypothesis was resulted as invalid for Pakistan. Furthermore, unidirectional Granger causality presence is found in GDP and export, which runs from GDP to export and Debt servicing and GDP that runs from Debt servicing to GDP for the time-period from 1970-71 to 2007-08. They proposed policy recommendation such as: changing export combination and create investment friendly environment to attract foreign firms in Pakistan. Noted as rarely examined relationship in Lebanon by Saad (2012), conducted an empirical analysis for the period of 1970-2010 and this paper also includes a fourth variable, exchange rate. They discovered bidirectional Granger causality between GDP and external debt servicing, as it is a crucial problem for Lebanon for its effect of crowding out public finances as the debt-service charges are relatively high. For export to economic growth, unidirectional causality was found out and this explains the ups and downs in export for the given time-period.

As for the studies based on Bangladesh, Rahman (2012) and Shah and Pervin (2012) both investigated the relationship between external debts on economic growth. Using The ADF, PP Test, Granger Causality Test and Co-integration Models, Rahman (2012) resulted that there is indeed a long-run relationship between GDP and External Debt for the time-period of 1972-2010. Shah and Pervin (2012) analyzed debt overhang and crowding out effect of external public debt on economic development and concluded that there is a significant negative effect of external public debt service and positive effect of external public debt stock on GDP growth in the long run. Moreover, their paper failed to find evidence of debt overhang, but a strong presence of crowding out was discovered. For the export sector, the paper Moniruzzaman (2002) and Mamun and Nath (2005) validated a strong positive relationship between export and economic development. However, for the lack of empirical evidence consisting export, external debt and economic growth of recent time, provided the scope for further research.

3. Overview of Bangladesh's Scenario

In order to elaborate the scenario of Bangladesh, the paper is constructed in such way where section 3.1 discusses about Bangladesh's economic growth, section 3.2 illustrates the export sector in Bangladesh and finally, section 3.3 demonstrated the condition of external debt in Bangladesh.

3.1 Economic Growth of Bangladesh

Emerging as a middle low income country, Bangladesh has shown a tremendous growth perspective over the decade. The growth rates did not experience sharp declines since the 2000s.Reaching at a peak on 2007 at 7.1 percent; GDP growth rate was more or less stable over the time. This brings about the potential of the country to grow more if the proper policies are implemented. Targeted to achieve the status of Middle Income Country by 2021, Bangladesh is already in the transitional path as it is undertaking and focusing on various pro-growth policies and strategies.

Figure 1: GDP growth rate from 1983 to 2015 in Bangladesh.
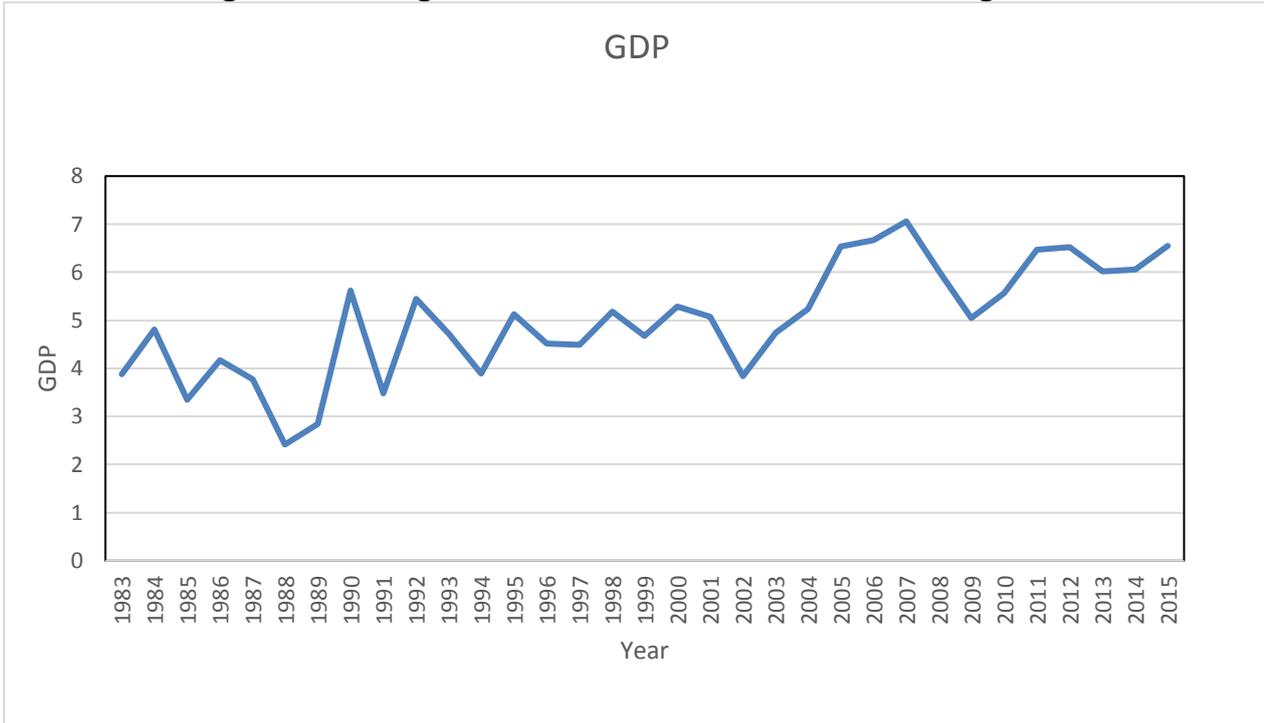
Source: The World Bank. (2015)

Figure 1 shows the trend of GDP growth rate over time, showing the possibilities of Bangladesh Economy to grow more given the proper momentum. Started from below 4 percent in 1983, with much ups and down, it stabilized from 2012 and now reached a GDP of more than 6 percent in 2015.

3.2 Export Scenario of Bangladesh

Since the inception of independence, country Bangladesh was a relatively closed economy and their trade ratio was at less than one-seventh. In1980s, Bangladesh realized the importance of trade openness and adapted policies that enhanced export and import significantly. Before implementing the trade policies, export items were mainly raw jute and few jute goods, which were accounted nine-tenths of the total export revenue of US$377 million during the fiscal year 1972-73. (Taslim and Haque, 2011) But now, Bangladesh has established themselves in the world market for a variety of exportable goods, especially in the world apparel market. During the Global Recession of 2008-2009, Bangladesh was able to tackle the fiscal pressure through channeling export and thus, proving to be a strong competitor in the world apparel market. Capturing a lion share of the RMG market of USA, EU and Canada, Bangladesh is also enjoying the duty-free markets in Japan and Australia.

With much advancement, export sector also deals with major drawbacks which hinder further development. Poor state of infrastructure, especially gas and electricity, is denoted as a chronicle problem. As the majority of the labors are either unskilled or semi-skilled, they are not aware of work-place safety issues. To avoid such incident, and capture further opportunities emerge in the global market, it will need to improve the quality (productivity) of its workforce and management substantial increase in the skill. On a contrary note, Adikary (2010) has illustrated the significantly negative and diminishing impact of trade openness on the economic growth rate. Although, trade openness is supported theoretically, the

104

researcher projected the opposite result. According to him, the exchange rate depreciation, large volume of imported materials and negative trade balance position may act as the catalyst for such reversed trend.

Figure 2: Export of goods and services (as a percentage of GDP) in Bangladesh


Exports of good and services (% of GDP)
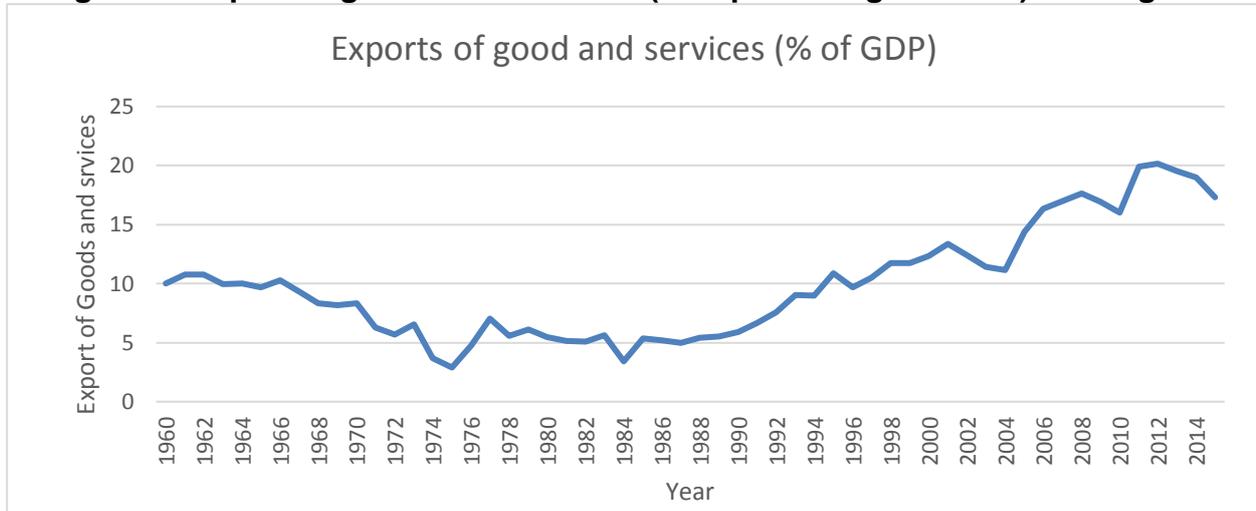
Source: The World Bank (2015).

Figure 2 shows the progress of Exports of goods and services as a percentage of GDP in Bangladesh over the time. Started from 10 percent in 1960, export faced a major decline during 1972 to 1983 for the Liberation War and Global Recession. However, after implying trade openness in 1980s, the trend of export gradually increased over time.

3.3 Scenario of External Debt in Bangladesh

External Debt is considered as the extra push for socio economic development in a country. Bangladesh has received External Debt from developed nations, developing agencies and financial institutes for the reasons like higher investment, higher consumption and education, health, enhancing agriculture etc. Although, External debt aims to fulfill the deficit of developing countries, it has negative effect on the growth. Some countries may experience a positive effect as the external debt may increase the capital inflow, which increase the investment and growth. But for the developing countries like Bangladesh, inefficiencies, problems like moral hazard and adverse selection occurs, which leads to accepting debts that will hinder the growth profile. Rahman (2012) and Shah and Pervin (2012) both concluded that External Debt indeed has a negative effect on the GDP growth of Bangladesh.

Figure 3: External debt stocks as a percentage of GNI in Bangladesh.
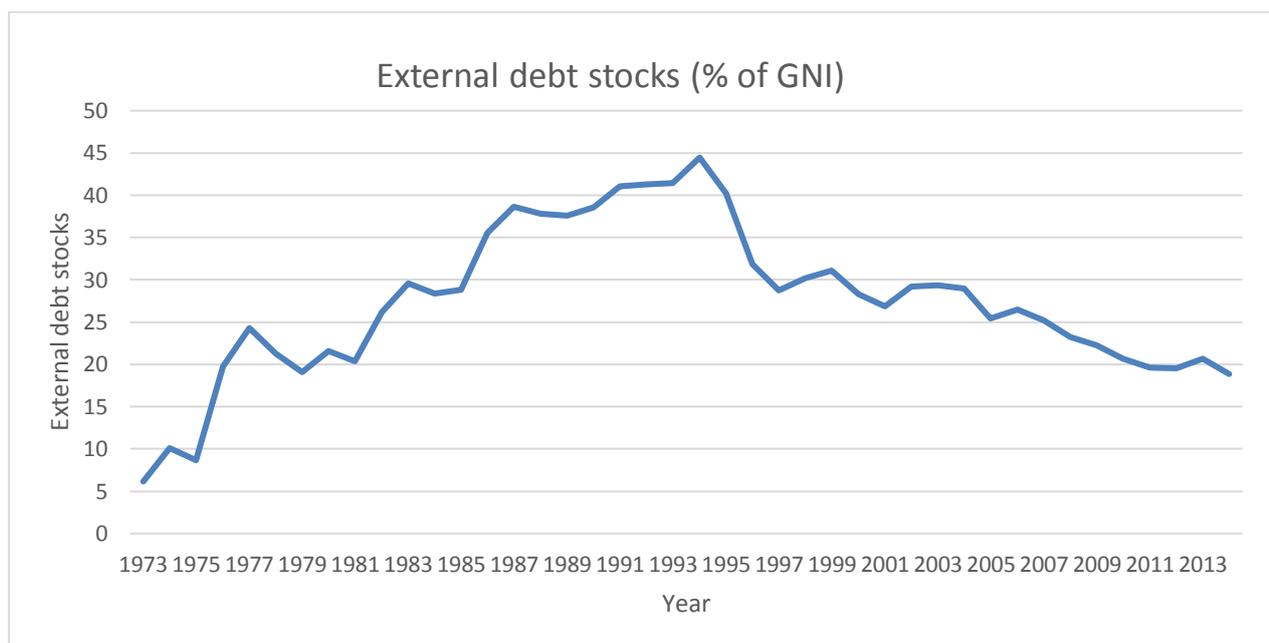
Source: The World Bank (2015)

Figure 3 illustrates that the External Debt substantially increased after the Liberation War in Bangladesh until 1995, then Bangladesh reduced the external debt burden gradually over time and 2013, it is still on the declining trend.

4. Methodology

This paper aims to examine the equilibrium relationship and the direction of causality on economic growth by export and external debt in Bangladesh. The measure of GDP growth rate can be considered as an indicator of economic development. For export and external debt, Exports of goods and services are used as a percentage of GDP and External debt stocks as a percentage of GNI. Thus, a simple linear function of the following form has been hypothesized:

$$\text{GDP} = \beta_0 + \beta_1 Export + \beta_2 Debt \tag{1}$$

Where the dependent variable, GDP is the annual Gross Domestic Product data and the independent variables export is Exports of goods and services as a percentage of GDP and Debt is the External debt stock as a percentage of GNI of Bangladesh. All the variables are denoted in a percentage form.
The study concentrates over the period 1983-2014 and the data for GDP, Export and External Debt of Bangladesh for the above mentioned time period is collected from the World Bank.

For Regression analysis with time series data, the time series are assumed to be stationary. However, many time series are non-stationary where the classical inferences are not valid. If the variables in a model are non-stationary, then the OLS estimations may lead to spurious regression and the t and F-tests become non-standard. To examine the stationary, it is necessary to conduct the unit root test. For this, authors used the Augmented Dickey Fuller

(ADF) test for this purpose. The ADF test is operated based on equation (4) and involves augmenting the DF equation by lagged values of the dependent variable, and ensuring that the error process is residually uncorrelated. Moreover, it captures the possibility that the dependent variable is characterized by a higher order autoregressive process.

$$\Delta Y_t = \alpha + (\beta-1)\, Y_t\text{-}1 + \psi_T + e_t \tag{2}$$

$$\Delta Y_t = \alpha + (\beta-1)\, Y_t\text{-}1 + \delta\, \Delta Y_t\text{-}1 + \psi_T + e_t \tag{3}$$

In the case of ADF test, the following testing procedure has been performed:

$H_0: \beta-1=0$ [i.e. the Y_t is non-stationary]

$H_A: \beta-1 \neq 0$ [i.e. the Y_t is stationary]

The unit root tests have non-standard and non-normal asymptotic distribution which are highly affected by the inclusion of deterministic terms, e.g., constant, time trend etc. A time trend is considered an extraneous regressor whose inclusion reduces the power of the test. However, if the true data generating process were trend stationary, failing to include a time trend also results in a reduction in power of the test. In addition, this loss of power from excluding a time trend when it should be present is more severe than the reduction in power associated with including a time trend when it is extraneous (Lopez et al. 2004).

As usual t-statistic is unreliable, because Y_t can be non-stationary; rather it is needed to use specially tabulated McKinnon т (tau) statistics values. If the computed value of т is greater than the critical DF value, that will result in rejecting the null hypothesis of non-stationarity, with α level of significance and accept the alternative hypothesis of stationarity. Otherwise, there is no sufficient evidence to reject the null hypothesis.

Introduced by Pesaran et al (1996) and Pesaran and Shin (1995), the ARDL approach of cointegration is becoming very popular now a days in the field of econometric analysis and now more preferable than other conventional co-integration approaches such as Engle and Granger (1987) and Johansen and Jusilas (1980).
The main advantage of ARDL approach is that it can be applied irrespective of whether the variables are I (0) or I (1) and this avoids the pre-testing problems which is associated with standard co-integration analysis that requires the classification of the variables into I (1) and I (0). Moreover, it also gives a stronger result when the sample size is relatively small.

The ARDL procedure operates in two stages. At the first stage, the long run relationship between the variables under investigation is tested by computing the F-statistics for testing the significance of the lagged levels of the variables in the error correction form of the underlying ARDL model (Pesaran and Pesaran, 1996). They have tabulated two sets of values for different number of regressors (k) and whether the ARDL model contains an intercept and/or trend. One set assumes that all the variables in the ARDL model are I(1), whereas another assumes all the variables are I(0).

If the computed F-statistics falls above the upper critical value, the null hypothesis of no long run relationship can be rejected without needing to know the orders of integration for the time series. Conversely, if the computed F value is below the lower critical value, the null

hypothesis cannot be rejected. Finally, if the computed statistics falls within the critical value band, the result is inconclusive.

The second step of the ARDL procedure is to estimate the long run and the short run coefficients and their inferences provided that there have already established the long run relationship between the variables.

The ARDL framework takes the following form:

$$\Delta Y_T = \beta_0 + \sum \beta_1 \Delta Y_{t-i} + \sum \beta_2 \Delta X_{t-i} + \beta_3 Y_{t-1} + \beta_4 X_{t-1} + \varepsilon t \qquad (5)$$

ARDL model is very sensitive in choosing the order of the distributed lag function and including the trend in the model. In Microfit 4.0 software, where an automatic choice of selecting the appropriate model is present. Regarding trend, the significance of the trend variable should be checked.

Finally, in order to check if there is any long run or short run relationship between the variables, Granger causality test is used. Granger-causality, introduced by Granger (1969, 1980, 1988), is one of the essential issue that has been much studied in empirical macroeconomics. Engle and Granger (1987) have indicated that the existence of non-stationarity, can give misleading conclusions in the Granger causality test. It is only possible to infer a causal long run relationship between non-stationary time series when the variables are co-integrated.

If Y and X are the variables of interest, then the Granger causality test determines whether past values of Y add to the explanation of current values of X as provided by information in past values of X itself. If past changes in Y do not help explain current changes in X, then Y does not Granger cause X. Similarly, to investigate whether X Granger causes Y by interchanging them and repeating the process. There are four likely outcomes in the Granger causality test: (1) neither variable Granger cause each other, (2) Y causes X but not otherwise, (3) X causes Y but not otherwise, (4) both X and Y Granger cause each other.

In this study, the causality test between GDP, Export and External Debt will be conducted. For this the following two sets of equations will be estimated:

$$\Delta DGDP_t = \alpha_1 + \beta_1 RES_{t-1} + \sum \alpha_{11} \Delta DGDP_{t-1} + \sum \alpha_{12} \Delta DEXP_{t-1} + \mu t \qquad (3)$$

$$\Delta DEXP_t = \alpha_2 + \beta_2 RES_{t-1} + \sum \alpha_{21} \Delta DEXP_{t-1} + \sum \alpha_{22} \Delta DGDP_{t-1} + \mu t \qquad (4)$$

$$\Delta DGDP_t = \alpha_1 + \beta_1 RES_{t-1} + \sum \alpha_{11} \Delta DGDP_{t-1} + \sum \alpha_{12} \Delta DDEBT_{t-1} + \mu t \qquad (5)$$

$$\Delta DDEBT_t = \alpha_2 + \beta_2 RES_{t-1} + \sum \alpha_{21} \Delta DDEBT_{t-1} + \sum \alpha_{22} \Delta DGDP_{t-1} + \mu t \qquad (6)$$

For all possible pairs of (x, y) series in the group. The reported F-statistics are the Wald statistics for the joint hypothesis $\beta_1 = \beta_2 = \beta_3 = \ldots\ldots = \beta_1 = 0$
As this paper examines the long run and short run relationship and the direction of causality, Small sample size might be problematic in finding the long run relationship. Eviews 7.1 have been used as statistical software packages for all the tests run in this study.

5. Findings

5.1 ADF Unit Root Test

In order to determine the integration of the data series for each variable, Unit root is used. The ADF statistics and the relevant critical values of all the variables in their level and first differed forms are given below in the Table 1 and 2.

Table 1: Augmented Dickey Fuller Unit Root Test for LTR and LGDP			
Panel 1: Levels			
	ADF Statistics (Only Constant)	ADF Statistics (Constant & Trend)	Decision Considering Trend
GDP	-1.7379	-4.6753	Stationary
EXPORT	-0.13198	-3.4355	Non-Stationary
DEBT	-1.4286	-3.2211	Non-Stationary
Panel 2: First Differences			
	ADF Statistics (Only Constant)	ADF Statistics (Constant & Trend)	Decision
DGDP	-	-	-
DEXPORT	-4.8784	-4.8616	Stationary
DDEBT	-5.0668	-5.8349	Stationary
Note: All regression is estimated with and without trend. Selection of the lag is based on Akaike Information Criterion (AIC). The optimal Lag selected for the ADF test are in the parentheses.			

The above results also imply that if equation (1) is estimated in level form of economic growth, export and external debt; would yield spurious results unless the variables are co-integrated. All the variables are stationary at I (1). As the results are stationary, it allows us to proceed to the next stage of testing for co-integration.

5.2 ARDL Co-integration Test

Firstly, the order of lags on the first differenced variables is obtained from unrestricted VAR model by means of AIC. In this paper, based on the AIC value, lag 2, 3 and 4 are taken as an optimal level. Lag 1 is excluded because as a rule of thumb it should include more than one lag for the annual data. The computed F-test statistics for each order of lag is presented in the following table where F-statistics is highly significant in lag 2, lag 3 and lag 4.

Table 2: ARDL Co-integration Test (F Test)	
Order of Lag	F Statistics without Trend
2	$F_{(3,24)}=4.7971$
3	$F_{(3,21)}=4.2943$
4	$F_{(3,18)}=6.4819$

Table 3 shows that, the computed F statistics (without trend) for lag 2, lag 3 and lag 4. But when trend is considered, then the computed F statistics with lag 2 and 3 are significant at 90% significance level and lag 4 is significant at 99%. All these results appear to indicate that null hypothesis of no co-integration is rejected; provide evidence for the existence of a long run relationship and to the final co-integration test.

5.3 Causality Tests

The Granger causality test has been done and the results are reported in table 7. The result shows that there is long run and short run causal relationship running from export to economic growth as the coefficient of error correction term is highly significant as well as for economic growth to export. Although, for external debt to economic growth, there in only long run causality is present, no short run causality is found in the results. On the other hand, regarding the causality running from economic growth to external debt, no causal relationship has been found between the variables.

Table 3(a): Granger Causality Test Statistics		
Dependent Variable: DGDP		
Null: DEXP does not cause DGDP		
Regressor	Coefficient	T-Ratio
INT	-0.68081	-4.8835
DEXP	0.35682	3.2165
DGDP(-1)	0.12859	0.90088
RES(-1)	-1.4173	-5.3723
Conclusion: Reject the null and conclude that export causes economic growth keeping other variables constant.		

Table 3(b): Granger Causality Test Statistics		
Dependent Variable: DGDP		
Null: DDEBT does not cause DGDP		
Regressor	Coefficient	T-Ratio
INT	0.070157	0.46202
DDEBT(-1)	-0.49764	-0.90821
DGDP(-1)	0.0060339	0.037282
RES(-1)	-1.1235	-3.7564
Conclusion: With the sufficient prove, we can reject the null hypothesis and conclude that the external debt causes economic growth keeping other variables constant.		

Table 3(c): Granger Causality Test Statistics		
Dependent Variable: DEXP		
Null: DGDP does not cause DEXP		
Regressor	Coefficient	T-Ratio
INT	0.43087	2.1368
DEXP(-1)	-0.21829	-1.3896
DGDP	0.77740	3.3332
RES(-1)	1.1271	3.3899
Conclusion: There are sufficient evidence to reject the null hypothesis and conclude that economic growth does encourage export, keeping other variables constant.		

Table 3(d): Granger Causality Test Statistics		
Dependent Variable: DDEBT		
Null: DGDP does not cause DDEBT		
Regressor	Coefficient	T-Ratio
INT	-0.062932	-0.13084
DDEBT(-1)	0.35584	2.0638
DGDP	-0.63253	-1.0935
RES(-1)	0.30303	-0.036762
Conclusion: Reject the null as there is sufficient prove that there is a short run relationship from external debt to economic growth.		

The Granger Causality test resulted that there is a short run and long run relationship between export and economic growth and it is bidirectional. However, External Debt can only create an impact on economic growth in short run; no long run relationship was found. The Granger Causality unidirectional, running from external debt to economic growth in Bangladesh.

6. Conclusion

This paper has attempted to analyze relationships between economic growth, export and external debt in Bangladesh and authors have found that export and economic growth has a short run and long run relationship. Moreover, the relationship between external debt and economic growth only exists in the short run, long run relationship was not found. In this paper, authors performed ADF test to check the stationarity of each series of variables, ARDL test for co-integration and Granger causality test to identify the direction of causality. It is found that both variables are stationary in their first differenced form, and there exists long run and short run co-integration between export and economic growth, whereas external debt and economic growth only has short run co-integration. Finally, the result of granger causality test revealed that causation of contribution is bidirectional for export and economic growth, and unidirectional causality from external debt to economic growth.

Further analyzing a recent data 1980 -2014 of Bangladesh to determine the possibility of future economic growth with the help of export and external debt. Due to political disturbance of previous in the previous time period, it was not included. This paper contributed to the existing knowledge by specifying the long run and short run relationships between the variables, which will help to implement specific policy and undertake projects those are in alliance with the causal relationships. So, in order to accelerate the economic growth, government should reinforce the policies that endorse export and discourage external debt. Trade openness should be encouraged. International as well as intra-national relationship must be strengthened and an optimal level of tax subsidy could be used as an instrument to promote export. Government of Bangladesh has already increasing Export Processing Zone (EPZ) and focusing on the expansion of the local industries, which indicates a favorable environment for the exporters. On the other hand, for the presence ofadministrative inefficiency, moral hazard, and adverse selection as a build in factor in administration, external debts are rarely utilized entirely. A reduced amount of external debt would directly reduce the fiscal burden and budget deficits. An efficient allocation of resources, used for repaying debts, could ensure a higher level of output in the economy.

This study has been vital in finding the preliminary results that will create a pathway for future research, including more variables such as: exchange rate, interest rate, inflation and identify their role in developing economy. In addition to this, how international treaties and relationship affected the export potential and external debt of a country could be analyzed more compactly. Moreover, for the insufficient data, the authors could not analyze the study for a longer period. As indicated, this preliminary study is limited in implication, so some of the possible extension of research could be using a multivariate model or panel studies or modeling the study using more detailed variables or including more macroeconomic variable that would help to promote pro-growth policies in Bangladesh.

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