

# Does Bangladesh Have Export-Led Growth? An Empirical Study using Cobb-Douglas Production Function

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**Abstract** ---*This study tries to analyse whether there exist a relationship between exports and output and if there is evidence of export-led growth in the context of Bangladesh. Using a Cobb Douglas production function framework along with Johansen Cointegration test and Vector Error Correction Model for the period 1972-2012, the study finds considerable evidence for export led growth in Bangladesh. When the bi-directional causality is tested with the VECM, the possible causality from output to export is strongly rejected based on this study. While the paper suggests plausible export led growth hypothesis, the other key finding is that in the context of Bangladesh, there is import led growth too. Import can aid in growth through technology diffusion and innovation through spill over effect.*

**JEL Classification:** F43, O4

**Keywords-** Export-led growth, Bangladesh, Cointegration, Vector error correction model.

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## 1. INTRODUCTION

The export-led hypothesis has gone through its share of considerable debate and empirical research. Post the 1970s, many developing countries started to promote relatively more trade-liberalized policies in support of openness and increased efficiency form intentional competition. Many strongly disagrees with the export-led notion (for example, Krugman (1994), Rodrick (1995), Palley (2001)). It is believed that export-led growth (ELG) is not that simple as it is said to be. Trade liberalization needs to be complemented with proper government interventions and domestic policies and institutions. Some also suggested that it is not exports that lead to higher productivity; rather it is some other factors such as labour or capital accumulations. But on the contrary, Latin America started to perform well with relatively more outward-oriented policies compared to their prior restricted policies. And with the East Asian Tigers' success with free market and trade liberalization policies, it tends to favour ELG somewhat for developing countries. With the emerging Asian countries showing success with globalization and liberalization, Bangladesh also followed. Bangladesh got its independence in 1971 and after that it went through different trade policies till date. Started off being characterized by restrictive with high import tariffs and import substitution policies, the country took significant steps during the 1980s. They took over a relatively more trade liberalized policies, took advantage of low cost labour and there was a considerable rise in exports especially in ready-made garments. During the contemporary period, the performance on economic growth accelerated too. So the question arises, whether Bangladesh has export-led growth which is the prime objective of this study. To empirically test this, the paper uses time series annual data from the period 1972-2012 and two fold investigation, first the Johansen (1988) procedure to test for any potential relationship between export and output growth. The second part is the test for causality which is conducted using Vector Error Correction Model (VECM) which examines the short run and long run relationship among the variables and also the direction of causality if there is uni-directional relationship between growth and export or bi-directional or none. The study finds considerable support for export led growth in Bangladesh where export effects growth both in the long run and short run. However, no evidence is found for any causality form output growth to export. The other important insight from this is paper is developing countries like Bangladesh can also benefit from imports through increased efficiency from foreign competition and also from faster technology acquisitions. The paper is organised as follows, section 2 reviews the existing literature and evidence for export led hypothesis for Bangladesh and other countries. Section 3 discusses the data and methodology used for this paper. Section 4 outlines the empirical estimates and finally section 5 concludes the paper.

## 2. THEORETICAL BACKGROUND

Export led growth gained its importance both theoretically and empirically in the recent past. Different researches postulate the effects of export for growth based on diverse theories. Palley (2011) explains the ELG as a part of the benefits of economic openness and globalization where advantage of openness is explained using three different strands: The Heckscher-Ohlin-Samuelson theory of comparative advantage for the benefit of trade. The second theory being the

Krueger (1974) explanation of benefits of openness to avoid rent reeking which generate for import substitution policies and keeping a closed economy. And the third explanation is based on the Nelson-Phelps model where openness helps in technology diffusion and spill over which aids in higher productivity (Nelson-Phelps (1966), Benhabib and Spiegel (1994)). Paul (2011) explained ELG under the Keynesian growth theory where economic growth is explained through increase in aggregate demand which can be brought about through increase in export.

The ELG hypothesis gained recognition globally when it got credit for East Asian Tigers. With their impressive economic performance for decades, it is pertinent to connect the success with the liberal trade policies they followed during those times. The countries shifted from import substitution to relatively open export oriented policies which was followed by the impressive economic growth and also resulted in high export rates (around 20% or more) (Kokko, 2002). Radelet et al. (1997) also addressed that globalization through promotion of labour intensive manufactured exports have aided in economic growth for the East Asian economies. As indicated by the authors, the countries took export oriented policies allowing free trade, easily convertible currencies and providing macroeconomic stability. Export especially manufacturing export led growth allows specializing in their production using their comparative advantage of inputs fosters technological progress through global integration and through 'learning by doing' and also provides foreign exchange required for raw materials and capital goods (Radelet et al., 1997).

Bangladesh got liberated in 1971 and after that it went through different trade policies till date. Initially after liberation the country implemented highly restricted trade regime with import substitution policies. Post 1975, it started to move to a market economy and carried out the privatization process, liberalized the import policies and also moved from a fixed exchange rate to a semi-flexible exchange rate policy where taka was re-valued based on a trade weighted market basket (Paul, 2011). It continued to liberalize in the 1980's with government establishing export processing zones, more export-oriented industries and using *comparative advantage* of cheap labour, where the main highlights of exports are ready-made garments, jute and leather. With liberalization of trade policies, the country witnessed substantial growth in exports and also over the periods, the GDP growth has accelerated as well (Mamun and Nath, 2005). With liberalized trade policies and developing export processing zones to promote export, several empirical studies tried to investigate whether Bangladesh benefitted from an export led growth.

Paul (2011) used annual data for the period 1979-2010 to study for the export led growth hypothesis for Bangladesh. Using the GDP, export and import variables and with Johansen cointegration and Vector error correction estimations, the study found considerable evidence for export led growth for Bangladesh both in the long run and short run. Mamun and Nath (2005) also studied the ELG hypothesis for Bangladesh using quarterly data for the period 1976-2003. The paper used industrial production index as a proxy for Gross domestic product and two different types of exports: i) exports of goods and services and ii) exports of goods only to find any positive relation between export and growth. Using Engle-Granger cointegration test, the study found a cointegrating relation between export and growth. Even though the study found a long run relationship between export and industrial production but it failed to find any evidence of short run causality between the two variables

Ahmed and Uddin (2009) using annual data from 1976 to 2005 looked into the ELG hypothesis as well. Along with the variables GDP, exports and imports, the paper included remittance as well in the specification model. According to the authors, remittance is an important source of foreign exchange for developing countries and in the context of Bangladesh; it is mostly used to finance imported goods and used for investment in trade and business. Hence it plays a significant role for exports and imports of the country. Using the cointegration method and Vector Error Correction Mechanism, the study found a limited evidence for ELG hypothesis for the country. Some other papers have found evidence for Export - Led growth for Bangladesh such as Dodaro (1993) and Begum and Shamsuddin (1998). However their results may have some distortions for sampling bias as both the studies have used pre-independence data (1967-1986 and 1962-1970 respectively) and have excluded the years in which Bangladesh implemented liberalized trade and export policies.

Few studies have also looked into export-output relationship for Bangladesh along with other developing countries. For instance, Bahmani-Oskooee and Oyolola (2007) along with 43 other developing countries have tested for the ELG for Bangladesh using annual data from the 1960-2002 period. The study found a long run cointegrating relationship export and gdp growth; however the results may be subject to sampling bias for picking data prior to the independence of Bangladesh. Shirazi and Manap (2005) have also looked into the ELG hypothesis for a group of five South Asian countries (Bangladesh, Nepal, Pakistan, Sri Lanka and India) using Cointegration and Granger Causality tests. For Bangladesh for the period 1973-2002, the study found strong support for long run relationship between export, import and outputs. It also found strong feedback effects for output and exports and also for output and imports leading to substantial evidence for ELG.

### 3. DATA AND METHODOLOGY

The empirical model used for this paper is based on the neoclassical production function used for investigating the export led hypothesis for Chile by Herzer, Nowak-Lehmann and Siliverstovs (2006). So at time  $t$ , the simple neoclassical production function is represented as:

$$(1) \quad Y_t = A_t K_t^\alpha L_t^\beta$$

Where  $Y_t$  represents aggregate output of Bangladesh at time  $t$ ,  $K_t$  is the physical capital,  $L_t$  is the labor force and  $A_t$  is the level of total factor productivity. Taking in per capita terms we write the above Cobb Douglas function as:

$$(2) \quad y_t = A_t k_t^\alpha$$

Where  $y_t$  is the per capita income,  $k_t$  is the per capita. With the objective of finding the relationship between export and economic growth, the total factor productivity can be denoted as :

$$(3) \quad A_t = f(\text{Ext}, \text{IM}_t, C_t) = EX_t^\delta IM_t^\gamma C_t$$

Where  $\text{Ext}$  denotes the exports of Bangladesh at time  $t$ ,  $\text{IM}_t$  is the total imports and  $C_t$  represents other exogenous factors. Imports are included in the TFP as it can aid in productivity through technology diffusion. Many literatures and theories have indicated that import is an important means through which advanced technology is transferred from one region to another (Gross & Helpman (1991), Xu (2000), Engelbrecht (2002)). Also omission of import can lead to omission variable bias in the estimation. Combining equation 2 and 3 gives:

$$(4) \quad y_t = EX_t^\delta IM_t^\gamma C_t k_t^\alpha$$

Taking Ln on each side gives the linear function:

$$(5) \quad \ln y_t = C_t + \delta EX_t + \gamma IM_t + \alpha k_t$$

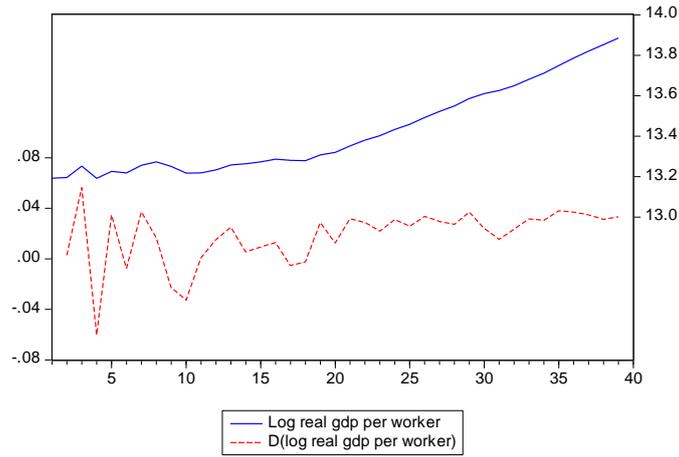
The empirical testing for this paper involves annual data for Bangladesh for time period 1972-2012. All the data has been retrieved from the World Development Indicators (2014).

### 4. EMPIRICAL RESULTS

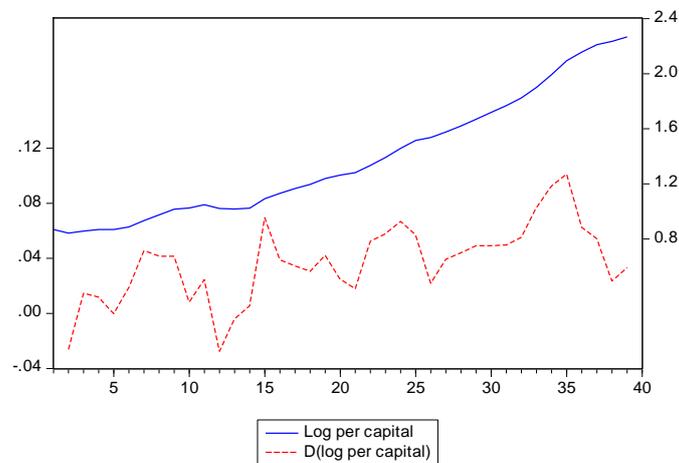
At first prior to the main tests, It is necessary to test for the order integration/unit root test for all the variables<sup>1</sup>. If a variable is of unit root, it will be integrated of order  $I(d)$  where  $d \geq 1$ . For example, if Log output per capita is unit root of order  $I(1)$ , then it is non-stationary in log level terms and it is first difference stationary  $I(0)$ . Only variables which are unit root and their linear combination gives error term to be  $I(0)$  will depict cointegrating relationship. An informal visual test for unit root can be done by comparing the time plots of each variable in the level and in their respective first difference.

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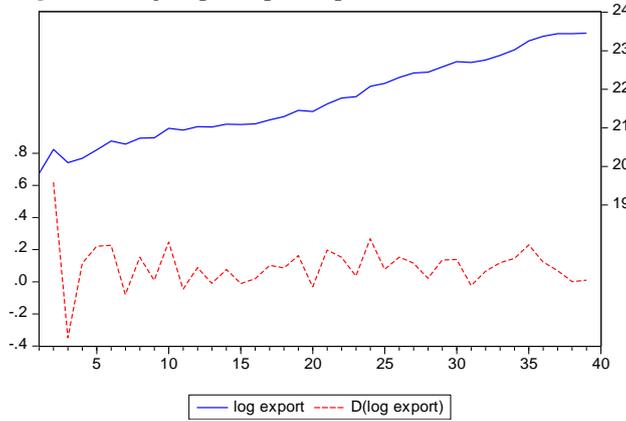
<sup>1</sup> The variables should be of unit root process to test for long run cointegrating relationship.



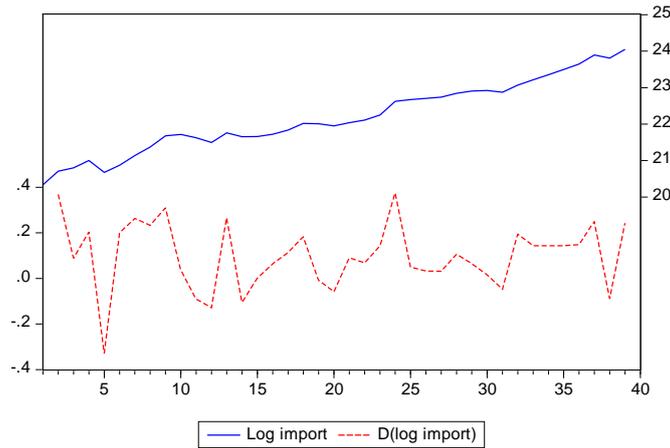
**Figure 1:** Log real gdp per worker and its first difference



**Figure 2:** Log of per capita capital and its first difference



**Figure 3:** Log of export and its difference



**Figure 4** : Log of import and its first difference

From the graphs above, it seems that all the variables are non-stationary in the levels and stationary in their first difference. There is no prominent trend visible from the graphs in their log levels. Though in the context exports and imports, there is a slight upward trend from mid-80's which could be possible for the trade liberalization regimes adapted during that period.

Now to formally test for unit root and for I (1), Augmented-Dicky Fuller (ADF) test is implemented in the log levels and in the first differences.

**Table 1:** Results of the ADF Regressions

Series	ADF Statistic $H_0$ :unit root	Inference
<i>log output per capita</i>	-0.621153	I(1)
$\Delta \log output per capita$	-5.880275	I(0)
<i>log per capita capital</i>	-0.981290	I(1)
$\Delta \log per capita capital$	-3.343534	I(0)
<i>log export</i>	-1.353781	I(1)
$\Delta \log export$	-12.01908	I(0)
<i>log import</i>	-2.824551	I(1)
$\Delta \log import$	-6.587038	I(0)

The results show that all the variables are non-stationary in the log levels and stationary in their first difference<sup>2</sup>. The optimal lag length is chosen based on Schwarz Info criterion which chooses the optimal lag length to remove the problem of auto-correlation<sup>3</sup>. The unit root test is conducted with using trend and intercept in the log-levels and an intercept only in the first difference avoiding using trend as it would generate quadratic trend which is explosive. Also none of the variables have generated borderline stationarity or non-stationarity problem, hence we can move on to the cointegration test as all the variables are I(1) , meaning the null hypothesis of 'unit root' against the alternative of no 'unit root' is accepted in the log levels and rejected in the first difference.

**Table 2:** Johansen Cointegration Test

Hypothesized no of cointegrating vector(s)	Unrestricted Cointegration Rank Test (trace)		Unrestricted Cointegration Rank Test (Maximum Eigenvalue)	
	Trace Statistic	Critical Value	Max. Eigenvalue Statistic	Critical Value
None	84.54148**	69.81889	40.66298**	33.87687
At most 1	43.87850	47.85613	23.34549	27.58434
At most 2	20.53301	29.79707	12.46259	21.13162

<sup>2</sup> Detailed results will be available upon request.

<sup>3</sup> Rule of thumb can also be used where lag length is set based on f+1, where f=frequency of the data.

Note: Trace test indicates 1 cointegrating equation(s) at the 0.05 level. Max-eigenvalue test indicates 1 cointegrating equation(s) at the 0.05 level. \*\*\*, \*\* and \* denote that the corresponding estimates are statistically significantly at 1%, 5% and 10% level respectively

Johansen Cointegration test is used to examine the long run relationship. The results from table illustrates that the null hypothesis of no cointegrating relationship is rejected 5% level of significance. And the null hypothesis of at most one cointegrating and at most two cointegrating relationship are not rejected. So there is an association among the variables. With the presence of cointegration, the next step is the test for the long run and short run causalities among the variables. Concluding about export led growth by only looking at the results of the Johansen test is not enough as there are possibilities of growth led export or even bi-directional relation between export and growth. Few studies have also explored the possibilities of growth led export (e.g. Henriques and Sadosky (1994), Konya (2004), Dar et al. (2013)). To test for the long and short run causalities, Vector Error Correction Model (VECM) is used first with income per capita as the dependent variable and then with export.

**Table 3:** Vector Error Correction Model with output as the dependent variable

ECT	-0.360896*** (0.080486)
Output per capita(-1)	0.268640* (0.142648)
Output per capita(-2)	0.007609 (0.134681)
Capital per capita(-1)	-0.111200 (0.137328)
Capital per capita(-2)	0.157830 (0.138708)
Export(-1)	0.049904 (0.032230)
Export(-2)	0.046327* (0.023455)
Import(-1)	0.058639** (0.028168)
Import(-2)	0.014715 (0.023383)
Constant	0.035148*** (0.007948)

Note: (-1) and (-2) represent one and two period lags respectively of the variables. The Standard errors are given in parentheses. \*\*\*, \*\* and \* denote that the corresponding estimates are statistically significant at 1%, 5% and 10% level respectively

From table 3 we can see that error correction term (ECT) which is the coefficient of the cointegrating model where the residual is taken is negative and statistically significant at 1% level. So the error correction term is significant and negative which implies there exist long run causality from capital, exports and imports towards output per capita. For the short run causalities from the choice variables to the dependent variable, first the Wald test is conducted to check the joint significance of lags of the variables towards output per capita. And the result shows evidence of joint significance of the variables.<sup>4</sup> This implies that there exists a short run causality running from the lags towards output per capita.

Now looking at the coefficients separately, it is seen that the coefficient for the second lag of exports is positive and significant at 10% level. However the first lags is positive but statistically insignificant. This gives somewhat evidence of the export led growth where considering a dynamic situation; export can lead to economic growth in couple of or subsequent years. With both the ect and one of the lags being significant, it is insightful for policy implication to promote export especially targeting growth for both short run and long run benefits. Another finding which is to be noted is that coefficient for the first lag of import is also significant and positive. These findings can trigger the question whether Bangladesh also has import-led growth. It could be possible Bangladesh being a least developed country, access to better technology through imports can enhance their productivity. Also if export products require imported intermediate goods,

<sup>4</sup>Detailed results will be available upon request.

import can enhance GDP growth (Grossman & Helpman, 1991). The first lag of output per capita is positive and significant which indicates that increase in output in turn positively affects economic growth for the following year. The lags for per capita capital are not statistically significant which implies that there is no short run effect running from capital towards growth.

For the next model, VECM is conducted with export as the dependent variable to check if there is a possible long run and short run causality from output to export. From table 4 it can be seen that the error correction term is positive and insignificant. This implies there are no long run causalities from the choice variables towards export. For the short run casualties, none of the coefficients of the lags are statistically significant. The joint significance based on the Wald test is also insignificant. Thus the overall empirical results suggest that the direction of causality is uni-directional where export effects output growth and there is no long run or short run effect running from output growth to export.

**Table 4:** Vector Error Correction Model with export as the dependent variable

ECT	-0.123762 (0.202142)
Export(-1)	-0.224362 (0.228593)
Export(-2)	-0.112502 (0.166357)
Output per capita(-1)	0.125225 (1.011743)
Output per capita(-2)	-0.863657 (0.955238)
Capital per capita(-1)	0.926922 (0.974012)
Capital per capita(-2)	1.026935 (0.983801)
Import(-1)	0.000554 (0.199786)
Import(-1)	-0.031997 (0.165844)
Constant	0.065100 (.0563745)

Note: (-1) and (-2) represent one and two period lags respectively of the variables. The Standard errors are given in parentheses. \*\*\*, \*\* and \* denote that the corresponding estimates are statistically significant at 1%, 5% and 10% level respectively

#### ***4.1 Further analysis for the post-independence period***

Before coming down to a conclusion, it is worth to investigate is there was any unpredictability in the first few years of the data which were right after the post-independence period. By the looking at the residuals from the cointegration regression in figure 5, it clearly shows a large disturbance in the first few years of the data. The irregularity is natural for the political instability during the post-independence of a country. Hence it is important to do a robustness check whether the unpredictability gives any biased results or not. To account for this, a dummy variable is included for the period 1972 to 1978 to capture the possible effect of those years.

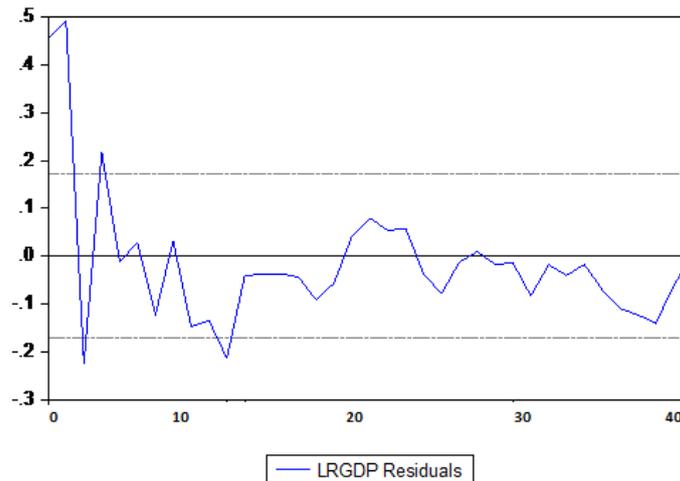


Figure 5: Residual Plot from the Cointegration Regression

**Table 5: Vector Error Correction Model with output as the dependent variable and with dummy variable**

ECT	-0.402806*** (0.087318)
Output per capita(-1)	0.197383* (0.134699)
Output per capita(-2)	0.052049 (0.139816)
Capital per capita(-1)	-0.072562 (0.132946)
Capital per capita(-2)	-0.116462 (0.134670)
Export(-1)	0.065968* (0.035022)
Export(-2)	0.058026** (0.025383)
Import(-1)	0.056647** (0.027455)
Import(-2)	0.012621 (0.022523)
Constant	0.032186*** (0.007319)
Dummy	-0.020656* (0.010056)

Note: (-1) and (-2) represent one and two period lags respectively of the variables. The Standard errors are given in parentheses. \*\*\*, \*\* and \* denote that the corresponding estimates are statistically significant at 1%, 5% and 10% level respectively

Results from table 5 depict that the coefficient for the dummy variable is negative and significant which means which implies that the first few years of the data negatively affect output growth. In addition what is noteworthy is that the coefficient for the first lag of export is positive and significant. So now both the lags for exports are statistically significant. The magnitudes of the coefficients are relatively higher than the results without the dummy variable. Hence the first years may have created some biasness and inconsistency in the empirical estimates. All the other coefficients are relatively unchanged based on statistical significance. So based on this estimation, export-led growth is now strongly supported for both the long run and short run dynamics.

The dummy variable is also added for the next model where export is the dependent variable. The results from table show that the dummy is positive but insignificant which implies there is no plausible effect of the first few years of the

data on export. Also the empirical outputs are statistically similar to the results from the estimation without the dummy variable. Hence the direction of causality still remains uni-directional where exports aid in growth but not the other way around.

**Table 6: Vector Error Correction Model with export as the dependent variable and with dummy variable**

ECT	0.044080 (0.194136)
Export(-1)	-0.417277 (0.201963)
Export(-2)	-0.240790 (0.175369)
Output per capita(-1)	0.066404 (0.930637)
Output per capita(-2)	-1.436255 (0.965985)
Capital per capita(-1)	0.811856 (0.918525)
Capital per capita(-2)	1.078322 (0.930434)
Import(-1)	0.135411 (0.189689)
Import(-1)	0.047832 (0.155612)
Constant	0.075944 (0.050564)
Dummy	0.110398 (0.069476)

Note: (-1) and (-2) represent one and two period lags respectively of the variables. The Standard errors are given in parentheses. \*\*\*, \*\* and \* denote that the corresponding estimates are statistically significant at 1%, 5% and 10% level respectively

## 5. CONCLUSION

This paper studies the hypothesis for export led growth for Bangladesh using cointegration method. To avoid any specification bias, a neoclassical production function is used for the model where the total factor productivity is a function of exports and imports. After fulfilling the unit root test conditions, the Johansen cointegration test shows evidence for cointegrating relationship among the variables. The investigation is further extended using Vector Error Correction Model to outline the long run and short run effects and also if there is any bi-directional relationship between growth and exports. The results outline a long run and short run positive effect of exports on economic growth. However the possibility of the reverse effect of growth on export has been declined based on this study. For robustness checking, a dummy variable is also added to the VECM to capture any irregularities of the post-independence period which could potentially cause biasness in the empirical results. The empirical output strongly supports the export led-hypothesis where export can aid in economic growth after the inclusion of the dummy variable. One other noteworthy finding of this study is highlighting the possibility of import led growth as well. With a positive effect of imports on growth suggest that adequate import may be necessary for growth. It could be viable for a least developed country like Bangladesh, where access to better technology through imports can enhance their productivity. Also if export products require intermediate goods, imports can provide a variety of intermediaries (Grossman & Helpman, 1991). Collectively, based on this study, it implies international trade is essential for Bangladesh for immediate and long run economic growth. Export led hypothesis is also accompanied by import led growth as well. Further research should be employed for meticulous policy recommendations for finding the right threshold for exports and imports, imports tariffs and export-promotion strategies.

## 6. REFERENCES

- [1] Ahmed, H.A. &Uddin ,M.G.S. (2009). Exports, Imports, Remittance and Growth in Bangladesh : An Empirical Analysis. *Trade and Development Review*,2, 79-92.
- [2] Bahmani-Oskooee, M &Oyolola, M. (2007). Export growth and output growth: An application of bounds testing approach. *Journal of Economics and Finance*, 31(1), 1-11.
- [3] Begum, S. &Shamsuddin, A.F.M. (1998). Exports and economic growth in Bangladesh. *The Journal of Development Studies*, 35 (1),89-114.
- [5] Benhabib, J. & Spiegel, M. (1994). The role of human capital in economic development: Evidence from aggregate cross-country data. *Journal of Monetary Economics*, 39, 143-173.
- [6] Dar, A.B., Bhanja, N., Samantaraya, A. &Tiwari, A.K. (2013). Export led growth or growth led export hypothesis in India: Evidence based on time-frequency approach. *Asian Economic and Financial Review*.3,869-880.
- [7] Dodaro, S. (1993). Exports and Growth: A reconsideration of Causality. *The Journal of Developing Areas*, 27 (2), 227-244.
- [8] Engelbrecht, H. J. (2002). Human Capital and international Knowledge spillovers in TFP growth of a sample of developing countries: an exploration of alternative approaches. *Applied Economics*, 34, 831-841.
- [9] Grossman, G.M. &Helpman, E. (1991). *Innovation and Growth in the Global Economy*, MIT Press,Cambridge, MA.
- [10] Henrique, I. &Sadorsky, P. (1996). Export-Led growth or growth-driven exports?The Canadian Case.*The Canadian Journal of Economics*, 29(3), 540-555.
- [11] Herzer, D., Nowak-Lehmann, F. &Siliverstovs, B. (2006). Export-led growth in Chile.Assessing the role of export composition in productivity growth.*The Developing Economies*, 3, 306-328.
- Johansen, S. (1988).Statistical analysis of cointegration vectors.*Journal of Economic Dynamics and Control*, 12, 131-254.
- [12] Kokko, A. (2002). Export-led growth in East Asia: Lessons for Europe’s transition economies. *Working Papers No.142*.
- [13] Konya, L. (2004). Export-led growth, growth-driven export, both or none?Granger causality analysis on OECD countries.*Applied Econometrics and International Development*, 4(1).
- [14] Krueger, A.O. (1974). The Political Economy of the Rent-Seeking Society.*American Economic Review*, 64(3), 291-303.
- [15] Krugman, P. (1994). The myth of Asia’s miracle.*Foreign Affairs*,73.
- [16] Mamun, K.A.A. &Nath, H.K. (2005). Export-led growth in Bangladesh: a time series analysis. *Applied Economics Letters*, 12, 361-364.
- [17] Nelson, R. & Phelps, E. (1966). Investments in humans, technological diffusion, and economic growth. *American Economic Review*, 51, 69-75.
- [18] Paul, B.P. (2011). Revisiting Export-led growth for Bangladesh: A synthesis of cointegration and innovation accounting.*International Journal of Economics and Finance*, 3(6).
- [19] Radelet, S. , Sachs, J.D. & Lee, J.-W. (1997).Economic growth in Asia.*Development Discussion Paper*.
- [20] Shirazi, N.S. &Manap, T.A.A. (2005). Export-Led Growth hypothesis: Further Econometric Evidence from South Asia. *The Developing Economies*.

- [21] Thomas, I. P. (2011). The rise and fall of export-led growth. Working paper no.675 in *The Levy Economics Institute*.
- [22] Wade, R. (1988). The role of Government overcoming market failure: Taiwan, Republic of Korea and Japan. In Helen Hughes ed, *Achieving Industrialization in East Asia*, Cambridge University Press.
- [23] World Bank (2014), *World Development Indicators*. Retrieved January 1, 2015, from World Databank:
- [24] Xu, B. (2000). Multinational enterprises, technology diffusion, and host country productivity growth. *Journal of Development Economics*, 62, 477-493.