

# ORIGINAL RESEARCH: Impact of globalization and trade openness on economic growth in Bangladesh

Muhammad Meraj<sup>1</sup>

## Abstract

We investigate the impact of globalization and openness in trade on the economic growth of Bangladesh by econometric testing using an autoregressive distributed lag (ARDL) model and the Granger causality test. The key variables used in the study are in log transformation i.e. the log of GDP, log of exports and log of imports. In order to examine the existence of a causal relationship (both long run and short run) between economic growth and globalization in terms of trade openness measured by exports and imports of Bangladesh, the Granger causality was used with vector autoregression (VAR) methodology along with two different approaches for testing of cointegration: Johansen cointegration and autoregressive distributed lag (ARDL). The results of the error correction model (ECM) and Granger causality test suggest a causal relationship between GDP and exports and imports. The exports show bidirectional Granger causality with economic growth, but imports do not Granger cause GDP and exports. This indicates a positive impact for globalization over trade and economic growth in the least developed countries (LDCs) such as Bangladesh. This vital connection may become a footstep for those LDCs who are reluctant to open up their trade barriers. The empirical findings suggest bidirectional causality between exports and GDP, with impacts of globalization in terms of exports affecting economic growth (GDP). Accordingly, more export oriented policies may be recommended with strong checks on imports because expansion of exports may generate more foreign exchange for payment of import bills as well as enhance capital accumulation.

**Keywords:** Bangladesh, Economic growth, Exports and imports, Globalization, Granger causality, Trade openness

## Introduction

Globalization refers to an increasingly integrated global economy with less trade barriers, unrestricted capital mobility, economical labor and laissez-faire economy which implies less government intervention (Merriam-Webster 2012). Being a broad concept, globalization can also be defined in other ways, as Looney and Frederiksen (2004) explain: “globalization means quite different things to different people. To some scholars, globalization per se is not the means to the desired end”. Here, we focus on globalization in terms of ‘free trade’ and ‘trade openness’. Free trade refers to policies whereby a government does not interfere with imports or exports. It does not require that the government refrain from all control and taxation of imports and exports; however, it does not pursue actions that may hurt international trade, such as tariff barriers, quotas and other restrictions (Merriam-Webster 2012).

Bangladesh was ruled by four military regimes in the very first decade after its creation in 1971, but from 1982 shifted its strategy from import substitution to outward orientation which resulted in rapid economic growth. After the end of martial coups in 1982, the policy makers of Bangladesh adopted more liberalized trade policies which provided a new dimension to the economy. This turned out to be the right pathway for economic growth as the International Monetary Fund (IMF) ranked Bangladesh as the 47<sup>th</sup> largest economy in the world in 2010 with a GDP of approximately US\$270 billion and an annual growth rate of 6%. Since 2002, the economy has grown at a rate 4% to 6% per year. The recent data of per capita income of Bangladesh show increase from US\$460 in 2006 to US\$484 in 2007, US\$509 in 2008, US\$532

---

<sup>1</sup>Graduate School of Asia Pacific Studies, Ritsumeikan Asian Pacific University (APU), Beppu City, Oita, Japan  
e-mail: Muhame12@apu.ac.jp mairu22@hotmail.com

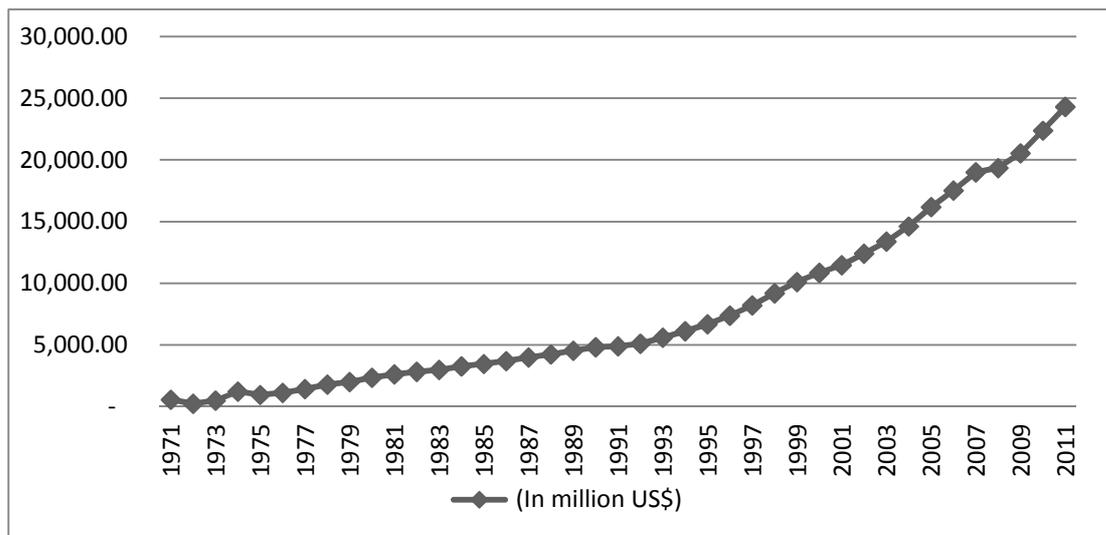
in 2010 and US\$588 in 2011 (constant 2000US\$) (World Bank Report, 2012). High population growth, a relative lack of energy supplies and capital investments in infra-structure, and bad governance with high corruption in the public sector hinder its economic development.

Currently the trend of exports from Bangladesh has shifted away from raw materials to more finished products; the major exports are garments, textiles, jute and jute goods, ships, leather, frozen fish and seafood, pharmaceuticals and ceramics. Bangladesh is abundant in fish and sea foods, fruits and vegetables. The majority of the labor force is employed in the agricultural (45%), industrial (30%) and the service sectors (25%). The service sector plays a major and dominant role in the economy; growth of Bangladesh was resilient to the global financial crisis and recession during the period 2008-09 thanks to garment exports, totaling \$12.3 billion in fiscal year (FY) 2009 and remittances from overseas Bangladeshis, totaling \$11 billion in FY10 (CIA World Fact Book, 2012).

According to Hultman (1967) a country's trade is closely associated with its stage of development and level of industrialization. Along with economic advancement of a nation, the structure of its foreign trade changes to follow a shifting pattern of available resources and its comparative advantage. In most development planning exercises, the significance of export for domestic growth has been appreciated through the acquisition of foreign exchange by the export of goods and services (Sultan 2008). Over the years the volume of exports in Bangladesh has substantially increased; the strategy of outward orientation has worked well. The growth of exports has also enhanced the capacity to remain solvent for its imports.

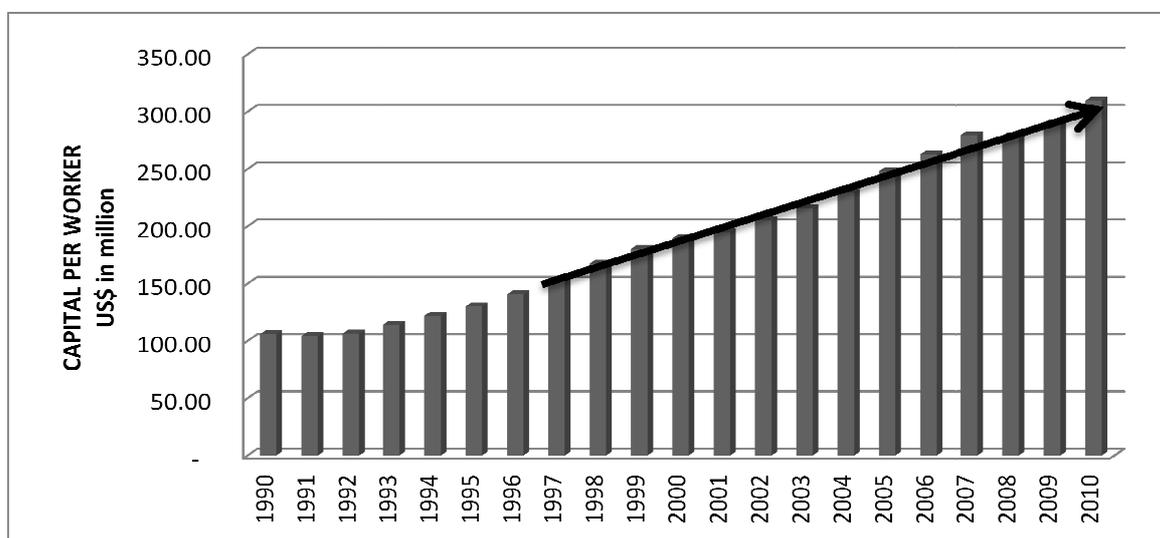
It is beneficial to use the excess foreign exchange earned from export proceeds for acquisition of economic capital accumulation (specifically for plant and machineries), to enhance the productive capacity of the country and shift the 'production possibility frontier' (PPF) of the country outward. Taylor (1998) and Wacziarg (2001) support the idea that trade liberalization works only in combination with other appropriate policies e.g. investment may be a key link through which openness affects growth. Sultan (2008) stresses that trade policies must be integrated with economic growth and development strategies. Trade openness is a better strategy for rapid economic growth; if we assume that export is the only crucial factor for economic progress, we may neglect the role of imports. Theoretically imports can have a powerful role in economic growth due to the potential of capital accumulation for productivity enhancement; in other words, technological improvement leads a long run impact on economic growth in terms of physical capital accumulation.

Hossain, M. A., Haseen, L. and Jabin, N. (2009) have examined the external economic sectors of Bangladesh and noted that the export base is narrow as there are very few countries in the international trade market of Bangladesh. Neoclassical growth theory postulates that technological change is the main driving force of economic growth; a steady state growth may be accomplished by stabilization of three factors i.e. labor, capital and technology. Adjustment in labor and capital is required to maintain long-run growth with the help of technological advancement in order to increase productivity. During 1990s Bangladesh showed multi-factor productivity (Rahman and Yusuf, 2010). In the Solow-Swan model of economic growth, contribution of labor in total productivity is twice as high as the share of capital (Krauth, Chapter 1: 6). The initial growth path of Bangladesh shows it was able to accumulate capital despite tough challenges. Figure 1 shows the trend of 'gross capital formation' in Bangladesh from its liberation year 1971 to 2011. The higher productivity capacity of Bangladesh has allowed fulfilling the domestic as well as international demand through higher exports; and higher export proceeds mean higher economic growth.



**Figure 1:** Gross capital formation in Bangladesh. After independence, initially investment was very low relative to GDP but during 1980s the investment to GDP ratio increased significantly and enhanced the capacity for higher productivity. (Source: author's compilation of WDI, World Banks' data)

According to exogenous growth models like the neoclassical, accumulation of capital or higher ratio of capital per worker leads to higher growth (Rahman and Yusuf, 2010). The ratio of capital per worker has steadily increased in Bangladesh during the era of 1990 -2011 as shown in figure 2.



**Figure 2:** The growth of capital per worker in Bangladesh. (Source: author's compilation of WDI, World Banks' data)

Globalization in terms of trade openness and economic growth has been studied by many researchers with sometimes different conclusions but the main objective of this study is to test the impact of globalization in terms of trade openness on the economic growth of Bangladesh using advanced econometric testing i.e. 'auto regressive distributed lag' (ARDL) with 'error correction model' (ECM) and 'Granger causality'. Al-Mamun and Nath (2005) studied the export led growth for Bangladesh using the

'error correction model' (ECM) on time series data and found unidirectional causality from exports to growth. Hossain et al. (2009) conducted a similar sort of study in an export-import-income framework with the help of 'error correction model' (ECM) on annual data and reported a 'Granger causality' direction running from exports to income and suggested that an export promotion strategy could contribute to economic growth in Bangladesh; this justifies the increasing level of trade openness in Bangladesh.

Sultan (2008) found no significant relationship in the growth rate of exports and the growth rate of GDP; using the annual data for 1965-2004 from 'world development indicators' by the World Bank and the International Financial Statistics of International Monetary Fund (IMF), he found a pair-wise Granger causality after converting the data by logarithmic transformation. It appeared that the growth of total exports Granger causes the growth of GDP positively but not vice versa.

A similar study was done by Kónya (2004) wherein he tested the export led growth or growth led export using Granger causality between real exports and real GDP in twenty five OECD countries. He arrived at some mixed results and conclusions: no causality existed between economic growth and exports in the Netherlands and Luxembourg, while exports caused growth in Iceland, growth increased exports in Japan, Canada and Korea, and bidirectional causality existed between economic growth and exports in the UK and Sweden.

Maneschiold (2008) analyzed the export led growth hypothesis for Argentina, Brazil and Mexico using causality and cointegration techniques within an 'error correction framework'. He divided the data into two periods i.e. before and after the break in which the break is about the introduction of the NAFTA (for Argentina and Mexico). He concluded that export was the leading variable in cointegration between GDP and exports in Argentina but in both of the two periods GDP was the leading variable in Mexico. The causal relationship was bidirectional for Argentina and Mexico in the period after the break but unidirectional from exports to GDP in the period before the break. Unidirectional causality from export to GDP was found in Brazil. This study supports the export led growth for both industrial and developing countries.

Anderson (2007) studied and tested the export led growth hypothesis for the economy of China wherein he concluded that Chinese economy has shown export led growth. Palley (2002) tested the hypothesis that export led growth for one country may be caused by export displacement for another country. He found significant evidence of crowding out among countries, where export to the U.S. from the four East Asian Tiger economies (South Korea, Taiwan, Singapore and Hong Kong) showed a large crowding out effect from China. Similarly Japanese exports to the U.S. have demonstrated a large crowding out effect from Mexico.

Shahbaz et al. (2011) have studied a similar relationship in Pakistan's economy. They used the data period from 1960 to 2003. They applied cointegration and multivariate Granger causality, developed by Toda and Yamamoto (1995). Their empirical findings confirmed that a long run relationship existed between import, export and output growth with unidirectional causality from export to output growth but no significant causality between import and export growth. Hye and Siddiqui (2011) found similar results in a study of Pakistan. In their investigation, they used the 'autoregressive distributed lag' (ARDL) and 'rolling window regression' methods and found a relationship between exports and growth. There was a significant long run relationship between real GDP and real Exports.

Herzer, D., Lehman, F. N. and Siliverstovs, B. (2006) studied the same idea for the economy of Chile in a production function framework by using annual time series data. They investigated how manufactured and primary exports affected economic growth via an increase in productivity. They used several single

equations and system cointegration techniques and found productivity enhancement for manufactured exports and productivity limitation for primary exports.

Afzal, M., Butt, A. R. and Rehman, H. (2010) investigated human development, exports and economic growth in Pakistan. They examined the relationship in 'autoregressive distributed lag' (ARDL) framework by using the data set from 1970-71 to 2008-09 and found that cointegration existed among economic growth, real exports, physical capital and human development, with human development taken as a dependant variable; there was unidirectional Granger causality from real GDP to real exports in a number of causality frameworks they built. Their study did not support export led growth for Pakistan's case; it was rather growth driven exports.

Canuto (2010) favored the idea of export led growth in the context that a lot of the recent growth in exports of developing countries resulted from demand in other developing countries. Therefore developing countries can rely on South-South trade for recovery from the global financial crisis of 2007-2009. China is actually the leading country in the recovery process based on its strong import demand. Thus the formation of an 'export led growth' where South-South trade has a major role would be important; the liberalization of South-South trade through appropriate policies, especially through non-tariff measures can help support the process.

Smith (2001) investigated the validity of the export led growth hypothesis among developing countries with a case study in Costa Rica. He didn't use the traditional neo-classical theory of production through estimation of the augmented Cobb-Douglas production function but instead used exports as a third input, to examine 'total factor productivity' (TFP) growth. He analyzed the data for the period 1950 to 1997 and applied several econometric procedures to find cointegration and short run and long run relationships. The empirical results confirmed an export led growth in this particular case and also showed the inverse effects of physical investment and population on the economic performance of Costa Rica from 1950 onwards. He does not believe in the export led growth hypothesis as an engine for growth or the promotion of exports as a comprehensive development strategy, but believes that the export led growth hypothesis probably only works to a certain extent in a few developing countries.

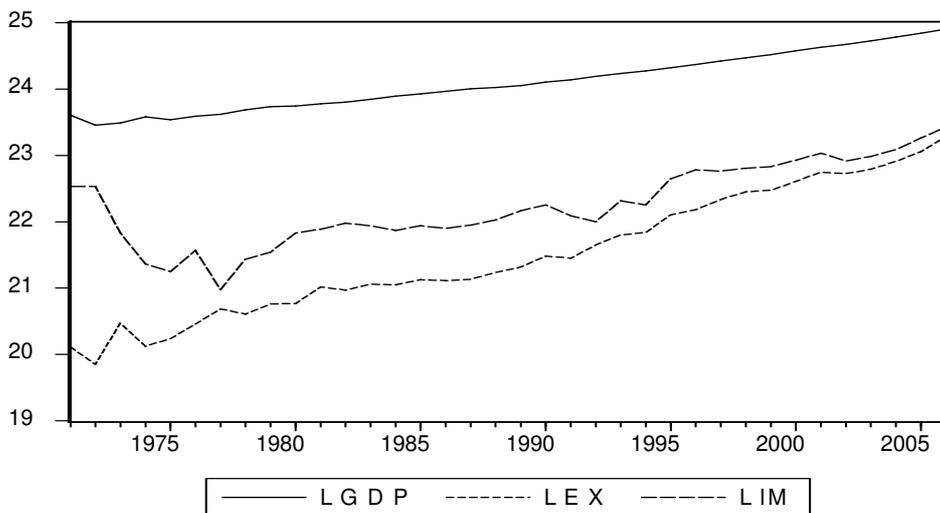
Smith (1901) pioneered in establishing the theory of trade on the basis of 'absolute advantage'. According to him the division of labor leads to specialization which creates efficient productivity and more output. Countries produce and export products to trading partners to which they have an absolute advantage by being specialized. Subsequently Ricardo (1821) favored the Smith's theory of 'absolute advantage' and supplemented the idea further saying that even if a country has an absolute disadvantage but a comparative advantage in production of one good it should produce that good and export it to its trade partner. Bhagwati (1978) stated that free trade and globalization bring specialization to a nation's productivity, which has been documented and also commonly discussed in the literature on economic development.

The advocates of export led growth emphasized that there is only an engine for growth i.e. exports, especially for countries like Hong Kong, Singapore, Korea, China and Bangladesh. The promotion and expansion of exports in external trade open the gate of growth, and export led growth leads to better resource utilization and increased efficiency due to large scale manufacturing. It also enhances labor productivity due to specialization, higher wages and better employment opportunities in order to meet the higher export demand, and provides incentives to the entrepreneurs to attain the economies of scale due to high productive efficiency. Incentives for the country are to get more foreign exchange inflow which ultimately increases the trade surplus which is important for the improvement of 'current account balance'.

## Data and Methodology

The data set used in this study is secondary and has been collected from ‘World Development Indicators’ published by the World Bank, and includes annual data of exports of goods and services, imports of goods and services, and GDP for the period of 1971 to 2005. The base year for the three data series is 2000 with the values mentioned in a constant U.S. dollar.

All the three series are transformed into natural logarithms. The variables EX, IM and GDP are used for exports, imports and GDP, respectively. For compilation of data Microsoft Excel and econometric software package E-Views was used. Figure 3 shows the graphical trend of the three series over time. Since all three variables trend over time, it is possible to have a causal connection between the variables.



**Figure 3:** This figure shows the graphical trend of the three series of the log of exports, imports and GDP (from top to down, respectively) over time.

## Findings and Discussion

### Testing for order of integration:

For testing the stationary properties of variables, we used the ‘augmented Dickey-Fuller and Philips-Perron unit root testing’ procedures. Table 1 shows the results; all three variables are I(1) i.e. non-stationary at level and become I(0) i.e. stationary after first differencing applied.

**Table 1:** Unit root testing (note: \* shows significance at 10% level and \*\* shows significance at 5% level)

Variables	Augmented Dickey-Fuller		Philips-Perron	
	At level	$\Delta$	At level	$\Delta$
Lgdp	2.089	-7.387*	2.337	-10.986*
Lex	0.371	-12.419*	1.641	-12.893*
Lim	-0.360	-5.623*	-0.381	-5.622*

The test equation can be specified with an intercept and a trend, as shown below:

$$\Delta Z_{it} = \alpha_{i0} + \alpha_{i1}t + \gamma Z_{it-1} + \sum_{j=1}^p \beta_{ij} \Delta Z_{it-j} + \varepsilon_{it}$$

In which,  $Z_i$  is the variable of interest, where  $i= 1,2,3$  indexes the variable (i.e.  $Z_1 = y$  and  $Z_2= x$ ),  $\alpha_{i0}$  represents the intercept,  $t$  is the time trend,  $\Delta Z_i$  for the augmented terms,  $p$  shows the appropriate lag length of the augmented term and  $\varepsilon_i$  shows the white noise error. The ‘augmented Dickey-Fuller test’ is basically a test of significance for the coefficient of  $\gamma$  in this equation, and is commonly used for the stability of its critical values. The results were also verified by Dickey-Fuller and Philips-Perron (1988) tests.

**Testing for cointegration with the Johansen-Juselius technique:**

After confirming that all variables of the study are integrated of order 1, I(1) we proceed to test the cointegration between the variables. According to Iqbal (2011) “two time series are cointegrated when a linear combination of the time series is stationary. Since non-stationary time series do’nt return to their long run average value following a disturbance, it is important to convert them to stationary process because regressing one non-stationary series to another non-stationary series may lead to spurious results.”

Two cointegration testing techniques were used: Johansen (1990) and the ‘auto regressive distributed lag’ (ARDL) technique by Pesaran, M. H., Shin, Y. and Smith, R. J. (2001). For the Johansen (1990) technique the number of cointegrating vectors must be known which include the trace statistics as well as maximum Eigen value test statistics. The trace test statistics for a null hypothesis which says there are at most  $r$  cointegrating vectors can be shown as:

$$\lambda_{trace}(r) = -T \sum_{i=r+1}^g \ln(1 - \lambda_i)$$

The maximum Eigen value statistics for testing the null hypothesis of  $r$  cointegrating vectors against the alternative hypotheses of  $r+1$  cointegrating vector is given by:

$$\lambda_{max}(r) = -T \ln(1 - \lambda_{r+1})$$

The trace statistics test implies that the time series under consideration is cointegrated (Table 2).

**Table 2:** Johansen cointegration testing (note: \* indicates rejection of  $H_0$  at 1% level. Likelihood ratio test (LR) indicates 1 cointegrating vector of group of variables.)

Hypothesized Cointegrating $H_0$	No. of Relationships $H_1$	Test Statistics LR	5% Critical Value	1% Critical Value
$r = 0$	$r > 0$	50.602*	39.04	45.370
$r \leq 1$	$r > 1$	17.446	23.37	28.800
$r \leq 2$	$r > 2$	07.579	11.55	15.780

The result of Johansen cointegration testing shows 1 cointegrating vector between the variables, which is the evidence of a long run relationship among exports, imports and GDP of Bangladesh.

**The ‘auto regressive distributed lag’ (ARDL) technique:**

Pesaran et al. (2001) developed another method for finding cointegration among variables which is based on an ARDL model augmented by level variables. Contrary to the Engle Granger and Johansen approach, pre-testing of the unit root is not needed because the test can be applied on both I(0) and I(1) variables. This is seen as a major advantage over the ARDL approach.

Iqbal (2011) realized this by conducting a comparative study on three cointegration techniques (E.G, Johansen and ARDL) and noted that the ‘auto regressive distributed lag’ (ARDL) technique provided better predictions as compared with other cointegration methods. Also these tests are subject to pre-test bias that can distort the size of the test. Therefore it is recommended for these tests to use a bigger size for significance such as 10% but not 5%. With the ARDL method such pre-test bias is not an issue. The general equation of the ARDL is as below:

$$\Delta y_t = \alpha_0 + \sum_{i=1}^m \beta_i \Delta y_{t-i} + \sum_{i=1}^n \theta_i \Delta x_{t-i} + \phi EC_{t-1} + \varepsilon_t$$

The specification of the model of this study is the following:

$$\Delta Lgdp_t = \gamma_0 + \sum_{i=1}^4 \gamma_{1i} \Delta Lgdp_{t-i} + \sum_{i=1}^4 \gamma_{2i} \Delta Lex_{t-i} + \sum_{i=1}^4 \gamma_{3i} \Delta Lim_{t-i} + \alpha Lgdp_{t-1} + \beta Lex_{t-1} + \phi Lim_{t-1} + \varepsilon_t$$

As a first step we specify 4 lags on 1<sup>st</sup> difference of each variable i.e. log of GDP, log of exports & log of imports (on the basis of AIC & SBIC criteria) and run the regression on the above equation. Then we apply the F-test of zero restriction:

$$\alpha = \beta = \phi = 0$$

Table-3 shows the evidence of significant cointegration among the three variables i.e. log (GDP), log (exports) and log (imports) as:

$$\alpha \neq \beta \neq \phi \neq 0$$

**Table 3:** ARDL cointegration testing (F/Wald-Test of zero restriction)

F Test value = 5.628 (p.val=0.0087)		
Critical values	I(0)	I(1)
5%	3.79	4.85
10%	3.17	4.14

critical values from table C1-iii Pesaran et.al (2001)

Since the possibility of co-integration is shown (as suggested in the ARDL), the ‘error correction model’ can be formulated as follows:

$$\Delta Lgdp_t = \gamma_0 + \sum_{i=1}^4 \gamma_{1i} \Delta Lgdp_{t-i} + \sum_{i=1}^4 \gamma_{2i} \Delta Lex_{t-i} + \sum_{i=1}^4 \gamma_{3i} \Delta Lim_{t-i} + \lambda EC_{t-1} + \varepsilon_t$$

The ‘error correction term’ was formulated using the long run coefficients in the above model.

**Granger causality in ECM-VAR:**

Empirical findings shown in Table 4 suggest that the export led growth hypothesis is valid for the case of Bangladesh. Granger causality is running from exports to GDP bi-directionally but not from imports to GDP and vice-versa.

**Table 4:** Granger causality (Note: \*, \*\* indicate significance at 5% and 10%, respectively)

Dependent variable	Significant level of F statistics		
	$\Delta Lgdp$	$\Delta Lex$	$\Delta Lim$
$\Delta Lgdp$	-	9.212*	1.989
$\Delta Lex$	2.456**	-	0.307
$\Delta Lim$	2.103	1.909	-

**Conclusion**

We have investigated the impact of globalization and free trade on the economic growth of Bangladesh by econometric testing using 'auto regressive distributed lag' (ARDL) and Granger causality, to show the importance of globalization in terms of enhancing the volume of foreign trade in Bangladesh as one of the least developed countries of Asia. The Granger causality ran bi-directionally from exports to GDP implying that export was the key factor determining the growth of Bangladesh during the period under consideration.

A limitation of this study is the lack of a specific variable to indicate 'openness in trade' in the tests; the improvement in trade imbalance may have contributed to the GDP growth in Bangladesh. However, we assumed that there was a correlation between the improvement in trade imbalance and openness in trade. We referred to the changes in the economic policies of Bangladesh since its independence till present to demonstrate a historical trend of gradually enhanced openness in trade.

The conclusion of our study may also require an assumption that the increase in volume of trade has contributed to 'technological change' which could be calculated as residuals in the economic growth model. However, other factors could have contributed to technological change during the period being tested. Our assumption was that other factors related to economic growth have been quite neutral during the period. Since this study could not cover the whole aspect of the problem under consideration, because of its limited scope, further reading in this area is suggested.

Finally, the empirical findings of this study and the review of the current situation of Bangladesh in international trade suggest the following policy recommendations, in that order:

- a) To enhance economic growth, the government may adopt stronger export promotion strategies in Bangladesh. Free trade policies may be implemented i.e. lowering trade and tariff barriers and relaxation of trade barriers so that bilateral trade with neighboring countries may increase.
- b) Development of infra-structure may facilitate exports, as well as provision of uninterrupted energy supplies. Other possible solutions include enhancing the incentives on exports like duty drawback / rebate and refund payments.

## References

- Afzal, M., Butt, A. R. and Rehman, H. 2010. A dynamic analysis of relationship among human development, exports and economic growth in Pakistan. *The Pakistan development Review*, 48,4 Part II: 885-920.
- Ahmed, A.D., Cheng, E. and Messinis, G.(2011), The Role of Exports, FDI and Imports in Development: New Evidence from Sub-Saharan African Countries, Victoria University, Working Paper Series, Centre for Strategic Economic Studies, *CSES Working Paper*, No. 39.
- Andereson, J. 2007. Is China Export Led? UBS Investment Research, Asian Focus.
- Canuto, O., Haddad, M. and Hanson, G. 2010. Export Led Growth V2.0, The World Bank Prem Notes Trade No. 148.
- Chow, P.C.Y. 1987. Causality between export growth and industrial development: empirical evidence from NICs, *Journal of Development Economics* 26: 55-63.
- CIA World Fact Book: <https://www.cia.gov/library/publications/the-world-factbook/geos/bg.html>
- Engle, R. F. and Granger, C. W. J. 1987. Cointegration and Error-Correction: Representation, Estimation and Testing, *Econometrica* 55: 251-76.
- Herzer, D., Lehman, F. N. and Siliverstovs, B. 2006. Export-Led Growth in Chile: Assessing The Role Of Export Composition in Productivity Growth, *The Developing Economies* 44(3): 306-28.
- Hossain, M. A., Haseen, L. and Jabin, N. 2009. Dynamics and Causality among Exports, Imports and Income in Bangladesh, *The Bangladesh Development Studies* 32(2):101-113.
- Hultman, C.W. 1967. Exports and economic growth: a survey, *Land Economics* 43: 148-157.
- Hye, Q.M.A. and Siddiqui, M.M. 2011. Export led growth hypothesis: Multivariate rolling window analysis of Pakistan, *African Journal of Business Management* 5(2): 531-536.
- Iqbal, J. 2011. Forecasting performance of alternative Error Correction Mode, *Munich Personal RePEc Archive*, Paper No. 29286.
- Johansen, S. and Juselius, K. 1990. Maximum Likelihood Estimation and Inference on Cointegration with Applications to the Demand for Money, *Oxford Bulletin of Economics and Statistics*, 52, pp. 169-210.
- Johansen, S. 1988. Statistical analysis of cointegration vectors, *Journal of Economic Dynamics and Control* 12: 231-254.
- Johansen, S. 1991. Estimation and hypothesis testing of co-integration vectors in Gaussian vector autoregressive models. *Econometrica* 59: 1551-1580.
- Khan, A. H. and Saqib, N. 1993. Exports and economic growth: the Pakistan experience, *International Economic Journal* 7: 54-64.
- Kokko, A. 2002. Export Led Growth in East Asia: Lessons For Europe's Transition Economics, Working Paper No. 142.
- Kónya, L. 2004. Export-Led Growth, Growth-Driven Export, Both or None? Granger Causality Analysis on OECD Countries, *Applied Econometrics and International Development* (by the Euro-American Association of Economic Development Studies) 4-1: 73-94.
- Krauth, B. (2004) *Newclassical Growth Theory*, chapter 1 (accessed on February 8, 2012) (Source: [http://www.sfu.ca/~bkrauth/econ808/808\\_1ec1.pdf](http://www.sfu.ca/~bkrauth/econ808/808_1ec1.pdf)).
- Looney R and Frederiksen, P.C. 2004. An assessment of relative globalization in Asia during the 1980s and 1990s, *Journal of Asian Economics* 15: 267-285.
- Mamun K.A.A and Nath, H.K. 2005. Export led growth in Bangladesh: a time series analysis, *Applied Economics Letter* 12: 361-364.

- Maneschiold, P. 2008. A Note on the Export-Led Growth Hypothesis: A Time Series Approach, *Cuadernos De Economia*, Vol. 45, pp 293-302.
- Palley, T.I. 2002. Export Led Growth: Evidence of Developing Country Crowding-out, *Economic Integration, Regionalism and Globalization*.
- Pesaran, M.H., Shin, Y. and Smith, R. J. 2001. Bounds Testing Approaches to the Analysis of Level Relationships, *Journal of Applied Econometrics* 16: 289-326.
- Rahman, J. and Yusuf, J. 2010. Economic growth in Bangladesh: experience and policy priorities. *Journal of Bangladesh Studies*.
- Ricardo, D. 1821. On the Principles of Political Economy and Taxation. *Library of Economics and Liberty*. <http://www.econlib.org/library/Ricardo/ricP5.html> (accessed October 19, 2012)
- Shahbaz, M., and Azeem, P., and Khalil, A. (2011): *Exports-led growth hypothesis in Pakistan: further evidence*. MPRA Paper No. 33617. [http://mpa.ub.uni-muenchen.de/33617/1/MPRA\\_paper\\_33617.pdf](http://mpa.ub.uni-muenchen.de/33617/1/MPRA_paper_33617.pdf)
- Smith, A. 1904. An Inquiry into the Nature and Causes of the Wealth of Nations. *Edwin Cannan, Library of Economics and Liberty*. <http://www.econlib.org/library/Smith/smWN13.html> (accessed October 19, 2012).
- Smith, M. 2001. Is the Export-Led Growth Hypothesis Valid for Developing Countries? A Case Study of Costa Rica, *Policy Issues in International Trade and Commodities*, Study Series No. 7.
- Sultan, P. 2008. Trade Industry and Economics Growth in Bangladesh, *Journal of Economics Cooperation* 29(4): 71-92.
- Taylor, A.M. (1998) On the cost of inward-looking development: price distortions, growth and divergence in Latin America, *Journal of Economic History* 58: 1-28.
- Toda, H.Y. and Yamamoto, T. 1995. Statistical Inference in Vector Auto regressions with Possibly Integrated Processes, *Journal of Econometrics* 66: 225-50.
- Wacziarg, R. 2008. Measuring the dynamic gain from trade, *The World Bank Economic Review* 15: 393-429.
- Yang, J. 2008. An Analysis of So-Called Export led Growth, IMF Working Paper, WP/08/220.