THE ECONOMIC JOURNAL OF NEPAL

Vol. 34, No. 4 October-December 2011 Issue No. 136

CONTENTS

Bilkisu Aliyu Abubakar, Tukur Garba, Abubakar Abdullahi Sokoto, and Malami M. Maishanu	239	Corporate Board Gender Diversity and Performance: Evidence from Nigerian Stock Exchange
Lekha Nath Bhattarai and Deepak Raj Paudel	261	Impact of Economic Factors on Decision Making Power of Rural Nepalese Women Entrepreneurs
Amtul Hafeez Gondal	276	Socio-Economic Impact on Participation in Decision Making of Husbands and Wives in Pakistan
Md. Mahmudul Hassan	297	Exports, Imports, and Growth Nexus in Bangladesh: Facts from Causality and Cointegration Analysis
Maheshwar Prasad Yadav	310	Role of Key Factors for Biogas Development: A Case of Nepal
Dhurba Raj Shiwakoti	319	Book Review: Deepak Chawla and Neena Sondhi (2011). Research Methodology Concepts and Cases.

A Quarterly Publication of the Central Department of Economics
Tribhuvan University, Kirtipur, Kathmandu, Nepal

The Economic Journal of Nepal, Vol. 34, No. 4, October-December 2011 (Issue NO. 136) © CEDECON-TU

Exports, Imports, and Growth Nexus in Bangladesh: Facts from Causality and Cointegration Analysis

Md. Mahmudul Hassan*

Abstract

Export and import play an important role in economic development and growth. Accordingly the importance of these variables is a field of research. This paper uses a theoretically consistent technique to investigate legitimacy of the export led growth (ELG) hypothesis for Bangladesh considering the variable import as well. The paper investigates the Granger-causality test among exports, imports, and economic growth in Bangladesh over the period 1980-2011 as well as the modern cointegration test also. The outcome of the study exists no long run relation between the variables and so no short run relation as well. The causality test finds one way causality running from export to GDP indicating the victory of ELG hypothesis for Bangladesh.

Introduction

Export-led growth (ELG) is an economic development approach in which export and foreign trade play a vital role in a country's economic growth and development. There has been a wide-ranging comprehensive swing towards the ELG tactic in recent years. This change has been found to be due to the actual and potential economic benefits this strategy accords to both developing and developed countries in a similar way. Export growth is said to result in augmented output, employment and consumption, all of which lead to a boost in the demand for a country's output (Jung & Marshall, 1985). Besides, a strong export sector enlarges the domestic market so that firms achieve economies of scale and thus lower unit costs. This may be likely because an export sector allows a country to trade along its lines of comparative advantage, (Tyler, 1981, p.127). This leads to efficient resource distribution. This efficiency forces firms to implement modern know-how and bring into being quality products that congregate the demands of stylish consumers in global markets (Mayer, 1995).

Besides, trade may also help a country with positive export externality which leads economic growth (Bradford, 1994; Feder, 1983; Sengupta & Espana, 1994). Moreover,

* Hassan is a Lecturer, Department of Economics, School of Social Science, Asian University of Bangladesh. E-mail: mhsnju@gmail.com

trade may facilitate a developing country to overcome the ax-ante saving-investment gap and the ax-ante import-export gap (Chenery & Strout, 1966).

These reimbursements of the ELG strategy have led, not only to the adoption of this strategy by many countries, but also to a burgeoning of many studies to test the pragmatic legitimacy of the premise (Shan & Sun, 1998; Marin, 1992; Islam, 1998; Ghatak, Milner & Utkulu, 1997; Ghatak & Price 1997; Ukpolo, 1994). Nonetheless, there are still questions as to whether the ELG tactic will also be advantageous to the small resource-based economy of Bangladesh. The paper will focus this question. Specifically, the objective of this paper is to assess whether export revenues can lead to noteworthy economic growth in a country like Bangladesh. To achieve this, the paper uses both statistical data and time series econometric analysis to test the causal relationship between exports (including import) and economic growth.

Review of Literature

Well actually the literature on the role of exports as one of the deterministic factors of economic growth is a very aged perception. Both Adam Smith and David Ricardo argued in favor of global trade as an important factor of economic expansion. The ELG paradigm has received a lot of attention following the highly successful East Asian export-led growth strategy during the 1970s and 1980s, and especially because of the overall breakdown of import substitution policies in most of African and Latin American countries.

Export growth helps in better utilization of the resources leading to total increase in factor productivity. This hypothesis is in essence studied for the developing and the less developing nations. Authors like Balassa (1978 and 1985), Jung and Marshall (1985), Ram (1985), Chow (1987), Bahmani-Oskoee, Mohtadi and Shabsigh (1991), Bahmani-Oskoee and Alse (1993), Levin and Raut (1997), Khalifa Al-Youssif (1997) have focused on export led hypothesis and their contribution to economic growth. The exports has led to the advantages of economies of scale, increased capacity utilization, technology transfer etc. There are some studies that exactly do not substantiate to the conclusions of export led hypothesis. Clarke and Kirkpatrick (1992) use pooled data for 80 developing countries from 1981-1988 to estimate the impact of trade policy reform on the economic performance and conclude that trade reform does not affect economic performance.

Data and Analysis

All the data of the corresponding variables i.e. the real GDP, export and import are collected from the World Bank website that is from the World Development Indicator. The data set is annual, spanning 1980/81 through 2010/11. The dependent variable is the annualized real GDP, and the explanatory variables are the annual real export and import. To test if the series are non-stationary or contain a unit root, we focus on the Augmented Dickey-Fuller (ADF) and Phillips-Peron (PP) test. We have used EVIEWS 6 as statistical software package.

Theoretical Background

The import substitution strategies ask for to endorse hasty industrialization of the home production to surrogate the imports required to advance economic maturity. Consequently, the government involves import trade barriers as import quotas, tariffs etc. On the other hand, outward-looking development (or export led growth) strategies involve strategies supporting manufacturing sectors. This structure argues that global trade promotes specialization in production of export products, which in turn boosts the efficiency stage (Helpman, Krugman, 1985, Boomstrom, 1986) and causes the general level of skills to mount in the export segment.

However, to construct relation among the concerned variables i.e. export, import and growth, the following equation is considered to which constant and error term are incorporated.

$$Y_t = \alpha + \beta_1 X_t + \beta_2 M_t + \varepsilon_t \qquad [1]$$

Estimation

Econometric Methodology

Transforming all the variables into natural log forms, finally our baseline equation is as follows which is just equation [1]:

$$\ln Y_t = \alpha + \ln \beta_1 X_t + \ln \beta_2 M_t + \varepsilon_t \qquad [2]$$

The equation was estimated as an OLS regression. The estimated coefficients of the baseline equation are reported in table 1.

Table: 1 Regression Analysis

(STATA presentation)

regress lngr lnx lnm

Source	SS	df	MS
Model	1.69618861	2	.848094307
Residual	1.83441323	29	.063255629
Total	3.53060185	31	.113890382

Number of obs	= 32
F(2, 29)	= 13.41
Prob > F	= 0.0001
R-squared	= 0.4804
Adj R-squared	= 0.4446
Root MSE	= .25151

lngr	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
lnx	.4736865	.1709633	2.77	0.010	.1240272	.8233458
lnm	-.1031421	.3250015	-0.32	0.753	-.7678448	.5615606
_cons	.7185716	.6197028	1.16	0.256	-.5488629	1.986006

Unit Autoregressive Root Tests

In order to scrutinize the stationarity properties of the data, a univariate analysis of each of the three time series (real GDP, real exports, and real imports) was carried out by testing for the presence of a unit root. Augmented Dickey Fuller ź ADF, t-tests ź Dickey and Fuller, 1979 and Phillips and Perron (1988) Z(uâ) -tests for the individual time series. The null hypothesis of these tests is that series are non-stationary. The ADF tests assume that the error terms are statistically independent and have a constant variance. This assumption may not be true of all the data used, and so the Phillip-Perron test is used to relax the above assumptions and permit the error disturbances to be heterogeneously distributed.

Augmented Dickey-Fuller Test

Said and Dickey (1984) enhance the essential autoregressive unit root test to accommodate general ARMA (p, q) models with unidentified orders. Their test is known as the Augmented Dickey Fuller (ADF) test which is based on estimating the following regression:

$$y_t = \beta' D_t + \phi y_{t-1} + \sum_{j=1}^{p} \psi_j \Delta y_{t-j} + \varepsilon_t \qquad [3]$$

Where D_t is a vector of deterministic terms (constant, trend etc.). The p (lagged difference terms) and Δy_{t-j} are used to estimate the ARMA arrangement of the errors, and p value is set so that the error ε_t is successively uncorrelated. The error term is assumed to be homoskedastic. The extent of the deterministic terms depends on the implicit behavior of y_t under the alternative hypothesis of trend stationarity. Under the null hypothesis, y_t is I (1) which implies that ϕ = 1. The ADF t-statistic and normalized prejudice statistic are based on the least squares estimates of (4.3) and are given by

$$ADF_t = t_{\phi-1} = \frac{\phi - 1}{SE(\phi)} \qquad [4]$$

$$ADF_n = \frac{T(\hat{\phi} - 1)}{1 - \hat{\psi}_1 - \cdots - \hat{\psi}_p} \qquad [5]$$

$$\Delta y_t = \beta' D_t + \pi y_{t-1} + \sum_{j=1}^{p} \psi_j \Delta y_{t-j} + \varepsilon_t \qquad [6]$$

$\pi = \phi - 1$. Under the null hypothesis, Δy_t is I(0) which implies that $\pi = 0$. The ADF t-statistic is then the usual t-statistic for testing $\pi = 0$ and the ADF normalized **bias** statistic is $T\hat{\pi}/(1 - \hat{\psi}_1 - \cdots - \hat{\psi}_p)$. The test regression (4.4) is often used in **practice** because the ADF t-statistic is the usual t-statistic reported for testing the significance of the coefficient y_{t-1}. The $S+FinMetrics$ function unitroot follows this convention.

The Phillips –Perron Test

Phillips and Perron (1988) developed a number of unit root tests that have become fashionable in the analysis of monetary time series. The Phillips-Perron (PP) unit root tests vary from the ADF tests largely in how they deal with sequential correlation and heteroskedasticity in the errors. In particular, where the ADF tests use a parametric autoregression to estimate the ARMA arrangement of the errors in the test regression, the PP tests disregard any sequential correlation in the test regression. The test regression for the PP tests is given by

$$\Delta y_t = \beta' D_t + \pi y_{t-1} + u_t \qquad [7]$$

$$u_t = I(0)$$

Where u_t is I(0) and may be heteroskedastic. The PP tests correct for any sequential (or serial) correlation and heteroskedasticity in the errors u_t of the test regression by directly modifying the test statistics $t_{\pi=0}$ and $T\hat{\pi}$. These modified statistics, denoted Z_t and Z_π are given by

$$Z_t = \left(\frac{\hat{\sigma}^2}{\hat{\lambda}^2}\right)^{1/2} \cdot t_{\pi=0} - \frac{1}{2}\left(\frac{\hat{\lambda}^2 - \hat{\sigma}^2}{\hat{\lambda}^2}\right) \cdot \left(\frac{T \cdot SE(\hat{\pi})}{\hat{\sigma}^2}\right)$$

$$Z_\pi = T\hat{\pi} - \frac{1}{2}\frac{T^2 \cdot SE(\hat{\pi})}{\hat{\sigma}^2}(\hat{\lambda}^2 - \hat{\sigma}^2)$$

The terms $\hat{\sigma}^2$ and $\hat{\lambda}^2$ are consistent estimates of the variance parameters.

Under the null hypothesis that $\pi = 0$ = 0, the PP Z_t and Z_π statistics have the same asymptotic distributions as the ADF t-statistic and normalized bias statistics. One improvement of the PP tests over the ADF tests is that the PP tests are vigorous to broad forms of heteroskedasticity in the error term u_t. Another advantage is that the user does not have to identify a lag length for the test regression. The result of the unit root test is displayed in table 2 and 3 respectively.

Table: 2 Unit Root Test (non-stationarity)

Variables***	Lag	ADF At Level		PP At Level		Decision
		Intercept	Trend & Intercept	Intercept	Trend & Intercept	Order of Integration
LnGDP	1	-1.987	-4.317*	3.990***	-.896***	I(0)
LnX	1	-0.80	-2.835	-0.296	-.943***	I(0)
LnM	1	0.331	-2.199	0.151	-3.362**	I(0)

Notes: 1) *Denotes significance level at 5% and 10%; **denotes significance level at 10%While***denotes significance level at 1%, 5% and 10%.

2) The test statistics value of PP test is based on Spectral estimation method-Bartlett Kernel and the Bandwidth is New-West Bandwidth automatic selection by the software itself.

*** lnGDP = Ln of Bangladesh Real GDP. The Nominal GDP is deflated by the GDP Deflator. lnX = Ln of Bangladesh Export in billion and lnM = Ln of Bangladesh Import in billion

Table: 3 Unit Root Test (stationary)

Variables	Lag	ADF At First Difference		PP At First Difference		Decision
		Intercept	Trend & Intercept	Intercept	Trend & Intercept	Order of Integration
LnGDP	1	-7.343***	-7.302***	-3.990***	-10.377***	I(1)
LnX	1	-6.547***	-6.425***	-0.296*	-11.457***	I(1)
LnM	1	-0.883***	-4.463**-	-11-665***	-7.031***	I(1)

Notes: 1) *denotes significance level at 5% and 10%; **denotes significance level at 10%While***denotes significance level at 1%, 5% and 10%.

2) The test statistics value of PP test is based on Spectral estimation method-Bartlett Kernel and the Bandwidth is New-West Bandwidth automatic selection by the software itself.

Cointegration Test

Johansen Full-Information Maximum Likelihood Method

Although Engle-Granger (1987) first proposed cointegration techniques, there are some shortcomings in their methodology. First, Engle-Granger method gives deliberate choice of the endogenous variable to put on the left-hand side of the model. They also ignore the possibility of more than one cointegrating vector when more than two variables are included in the model. On the contrary, in the Johansen multivariate approach, all the variables are explicitly endogenous so that no arbitrary normalization has to be made without testing. Thus, the study also employed the Johansen cointegration test technique using Trace Statistic and Maximum Eigenvalue statistic. The time series variables of our model (equation 2) for investigating the effect on growth, incorporated in this paper, is considered to follow the first order Vector Auto Regressive (VAR) representation defined as:

$$\ln Y_{i,t} = \Pi_{11} \ln Y_{i,t-1} + \Pi_{12} \ln X_{i,t-1} + \Pi_{13} \ln M_{i,t-1} + \varepsilon_{\ln Yi,t}$$

$$\ln X_{i,t} = \Pi_{21} \ln Y_{i,t-1} + \Pi_{22} \ln X_{i,t-1} + \Pi_{23} \ln M_{i,t-1} + \varepsilon_{\ln Xi,t} \qquad [8]$$

$$\ln M_{i,t} = \Pi_{31} \ln Y_{i,t-1} + \Pi_{32} \ln X_{i,t-1} + \Pi_{33} \ln M_{i,t-1} + \varepsilon_{\ln Mi,t}$$

Now, subtracting lagged dependent variables from equations [8], the following matrix notation can be constructed:

$$\begin{bmatrix} \Delta \ln Y_{ij} \\ \Delta \ln X_{ij} \\ \Delta \ln M_{ij} \end{bmatrix} = \begin{pmatrix} \Gamma_{11} & \Gamma_{12} & \Gamma_{13} \\ \Gamma_{21} & \Gamma_{22} & \Gamma_{23} \\ \Gamma_{31} & \Gamma_{32} & \Gamma_{33} \end{pmatrix} \begin{bmatrix} \Delta \ln Y_{ij} \\ \Delta \ln X_{ij} \\ \Delta \ln M_{ij} \end{bmatrix} \begin{bmatrix} \varepsilon_{\ln Y_{ij}} \\ \varepsilon_{\ln Y_{ij}} \\ \varepsilon_{\ln Y_{ij}} \end{bmatrix}$$

Where $\Gamma_{11} = \Pi_{11}-1$, $\Gamma_{22} = \Pi_{22}-1$, $\Gamma_{33} = \Pi_{33}-1$, $\Gamma_{12} = \Pi_{12}$, $\Gamma_{13}=\Pi_{13}$, $\Gamma_{21} = \Pi_{21}$, $\Gamma_{23} = \Pi_{23}$, $\Gamma_{31} = \Pi_{31}$, $\Gamma_{32} = \Pi_{32}$ and lnY_{it}, lnX_{it} and lnM_{it} are integrated of order one i.e., $I(1)$. Johansen recommends two different likelihood ratio tests of the significance of the canonical correlations and thereby the reduced rank of the matrix: the trace test and maximum eigen value test i.e.

$$\lambda_{trace\,(r)} = -T \sum_{i=r+1}^{k} \ln(1 - \hat{\lambda}_i)$$

$$\lambda_{\max(r,r+1)} = -T \ln(1 - \hat{\lambda}_{r+1})$$

Here T is the sample size and $\hat{\lambda}$ is the i^{th} largest canonical association. The trace tests the null hypothesis of r cointegrating vectors against the alternative hypothesis of n cointegrating vectors. The maximum eigenvalue test, in contrast, tests the null hypothesis of r cointegrating vectors against the alternative hypothesis of $r+1$ cointegrating vectors. Asymptotic critical values can be got from Johansen and Juselius (1990).

Granger Causality

As mentioned earlier, the present study has adopted the Granger Causality Test to test the short-run nature and the direction of causality among annual real GDP, annual export and import in Bangladesh. The following bivariate Granger Causality model is estimated:

Causality between GDP and Export:

$$Y_t = \alpha_0 + \sum_{i=1}^{l} \alpha_i Y_{t-i} + \sum_{i=1}^{l} \beta_i X_{t-i} + u_t$$

$$X_t = \alpha_0 + \sum_{i=1}^{l} \alpha_i X_{t-i} + \sum_{i=1}^{l} \beta_i Y_{t-i} + v_t \qquad [10]$$

Table: 4 Granger Causality Test

Causality between GDP and Export:

Pairwise Granger Causality Tests
Sample: 1980 2011

Null Hypothesis:	Obs	F-Statistic	Probability	Decision
Lags: 1				
LNX does not Granger Cause LNGDP	31	23.8291	3.8E-05	Reject
LNGDP does not Granger Cause LNX		3.18527	0.08514	Reject
Lags: 2				
LNX does not Granger Cause LNGDP	30	7.03659	0.00377	Reject
LNGDP does not Granger Cause LNX		3.75362	0.03754	Reject
Lags: 3				
LNX does not Granger Cause LNGDP	29	3.58403	0.03006	Reject
LNGDP does not Granger Cause LNX		1.69455	0.19731	Do not Reject
Lags: 4				
LNX does not Granger Cause LNGDP	28	3.92485	0.01735	Reject
LNGDP does not Granger Cause LNX		1.41389	0.26747	Do not Reject
Lags: 5				
LNX does not Granger Cause LNGDP	27	5.83853	0.00296	Reject
LNGDP does not Granger Cause LNX		1.62788	0.20934	Do not reject
Lags: 6				
LNX does not Granger Cause LNGDP	26	6.15914	0.00303	Reject
LNGDP does not Granger Cause LNX		0.83838	0.56195	Do not reject
Lags: 7				
LNX does not Granger Cause LNGDP	25	3.89454	0.02613	Reject
LNGDP does not Granger Cause LNX		1.56636	0.25069	Do not reject
Lags: 8				
LNX does not Granger Cause LNGDP	24	2.3850	0.22699	Do not reject
LNGDP does not Granger Cause LNX		2.87710	0.43143	Do not reject

Causality between GDP and Import:

Pairwise Granger Causality Tests
Sample: 1980 2011

Null Hypothesis:	Obs	F-Statistic	Probability	Decision
Lags: 1				
LNM does not Granger Cause LNGDP	31	12.5138	0.00143	Reject
LNGDP does not Granger Cause LNM		5.93219	0.02149	Reject
Lags: 2				
LNM does not Granger Cause LNGDP	30	1.20321	0.15775	Do not Reject
LNGDP does not Granger Cause LNM		0.38461	0.68467	Do not Reject
Lags: 3				
LNX does not Granger Cause LNGDP	29	1.91910	0.25675	Do not reject
LNGDP does not Granger Cause LNX		2.76359	0.06613	Do not reject
Lags: 4				
LNX does not Granger Cause LNGDP	28	1.87798	0.15585	Do not reject
LNGDP does not Granger Cause LNX		3.05238	0.04227	Do not reject
Lags: 5				
LNX does not Granger Cause LNGDP27	27	1.65852	0.20166	Do not reject
LNGDP does not Granger Cause LNX		1.78160	0.17363	Do not reject
Lags: 6				
LNX does not Granger Cause LNGDP	26	1.37670	0.29449	Do not reject
LNGDP does not Granger Cause LNX		1.34346	0.30673	Do not reject
Lags: 7				
LNX does not Granger Cause LNGDP	25	0.98926	0.51229	Do not reject
LNGDP does not Granger Cause LNX		1.27170	0.38213	Do not reject
Lags: 8				
LNM does not Granger Cause LNGDP	24	1.32032	0.33316	Reject
LNGDP does not Granger Cause LNM		1.30455	0.33934	Do not Reject

Causality between GDP and Import:

$$Y_t = \alpha_0 + \sum_{i=1}^{l} \alpha_i Y_{t-i} + \sum_{i=1}^{l} \delta_i M_{t-i} + u_t$$

$$M_t = \alpha_0 + \sum_{i=1}^{l} \alpha_i M_{t-i} + \sum_{i=1}^{l} \beta_i Y_{t-i} + \varepsilon_t \qquad [11]$$

The number of lagged terms to be introduced in the Granger Causality Test is an important practical question in the analysis. In the present study the above models were estimated up to eight lags to see the changes or variations in the results (if any). However, except a little bit no considerable changes and variations in the estimated different lag models were found. The results of pair wise Granger Causality Test conducted between GDP v/s Export (equation 10) and GDP v/s Import (equation 11) is reported in table 4.

Empirical Results

Table 1 shows regression analysis of the considered variables. The coefficient on export is positively correlated with the growth rate. A one-percentage point increase in export is associated with a 0.4736 percentage point increase in growth. Import variable has negative sign. A one-percentage point increase of import is associated with a 0.1031 percentage point decrease in growth. That is import tends to affect our growth negatively. It has negative contribution on growth. This indicates the victory of export led growth. However, the size of the coefficient of import is very small. Finally, R-Sq and R-Sq (adj) both show moderate (low) values.

Table 2 and 3 shows the result of unit root test. Table 3 confirms that all the variables are stationary in the first differenced series i.e., *I(1)* in all the cases. The results provide the basis for the test of long run relationship among the variables. Table 5 reports Johansen–Juselius Cointegration results. Both the 'trace statistic' and 'eigenvalue test' leads to the acceptance of the nul hypothesis of $r = 0$ (no cointegrating vectors) against the alternative hypothesis $r > 0$ (one or more cointegrating vectors), the null of $r \leq 1$ against the alternative of $r > 1$ (two or more cointegrating vectors) while the null of $r \leq 2$ against the alternative of $r = 3$ (three or more cointegrating vectors) cannot be rejected at 5 percent and 1 percent level of significance. The results provide evidence that there is no cointegrating relationship among the variables in our model.

Table 5 shows Pairwise Granger Causality Tests of the variables presented by Eviews. At first stage (equation 10) we have done the causality between GDP and export. Up to two lags, there is feedback or bilateral causality between GDP and export. However starting from lags three to lag seven we get a new result but the same that is export causes GDP but GDP does not Granger causes export. But at eight lags, there is no statistically perceptible relationship between the two variables. This reinforces the point that the outcome of the Granger causality test is sensitive to the number of lags introduced in the model. However our conclusion is export Granger causes GDP but GDP does not. And at second stage (equation 11) we have done the causality between GDP and import. At first lags there is feedback relation between GDP and import. But just after that up to lags seven both GDP and import are independent from each other i.e. no statistical visible relation exists. However at eight lags, we observe import causes GDP but GDP does not Granger cause import. This again reminds us the point made earlier that the direction of causality critically depends on the number of lagged terms included in the model. So finally our conclusion is no bilateral relation between GDP and import.

Table: 5 Johansen Jusilius Test

Trend: constant; Number of observation = 30
Sample: 1982 – 2011; Lags = 2
vecrank lngdp lnx lnm, trend(constant) max levela

Hypothesis	□max			□trace		
Null	r = 0	r ≤ 1	r ≤ 2	r = 0	r ≤ 1	r ≤ 2
Alternative	r = 1	r = 2	r = 3	r = 1	r = 2	r = 3
	19.8411*	8.3272*	1.6195*	28.7877*	9.9467*	1.6195*
5% critical value	(20.97)	(14.07)	(3.76)	(29.68)	(15.41)	(3.76)
1% critical value	(25.52)	(18.63)	(6.65)	(35.65)	(20.04)	(6.65)

Notes: (i) r = number of cointegrating vectors; (ii) The lag order for each VAR is chosen by AIC as shown in parenthesis; (iii) * denote acceptance of the null hypothesis at the 5% and 1% significance level respectively meaning no cointegration i.e. no long run relation. (iii) The numbers in bold format are the calculated value of ë -Max statistics (□max) and Trace statistics (□trace) respectively.

Conclusion

In the theoretical literature that has evolved during the last three decades, there has been greater focus on the critical role of export and import sector as important vehicle to speed up economic growth. Most economists have argued that opening up of economies is an effective strategy of achieving faster economic growth. It is asserted that export growth emanating from outward oriented economic policies leads to augment GDP growth. Also, there is potential for reverse causality, i.e. GDP growth leads to export growth. These issues are still debatable, and there is contradictory empirical evidence which rejects the hypothesis of such relationships between economic and export growth. Through the cointegration test we see that there exists no long run relation among the variables. However, the broad consensus among economists as well as among policy makers is that there is a close symbiotic relationship between GDP growth and export growth. The result of causality test suggests one way causality running from export to GDP. So what we think is that promoting exports via export promotion policies will contribute to economic growth in Bangladesh.

References

Bahmani-Oskoee, M., & Alse, J. (1993). Export growth and economic growth: An application of cointegration and error-correction modeling. *Journal of Development Areas*, 27, 535-542.

Bahmani-Oskoee, M., Mohtadi, H.,& Shabsigh, G. (1991). Exports, growth and causality in LDCs: A re-examination. *Journal of Development Economics*, 36, 405-415.

Balassa, B. (1978). Exports and economic growth: Further evidence. *Journal of Development Economics*, 5, 181-189.

Balassa, B. (1985). Exports policy choices and economic growth in developing countries after the 1973 oil shocks. *Journal of Development Economics*, 18, 23-35.

Blomstrom, M. (1986). Foreign investment and productivity efficiency: The case of Mexico. *Journal of Industrial Economics* 15, 97–110.

Bradford, C. I. (1994). From trade-driven growth to growth-driven trade: Reappraising the East Asian development experience. Organization for Economic Co-operation and Development.

Chenery, H., B., & Strout, A. M. (1966). Foreign assistance and economic development. *The American Economic Review*, LVI(4), Part I.

Chow, P. C. Y. (1987). Causality between export growth and industrial development: Empirical evidence from newly industrialized countries. *Journal of Development Economics*, 28(1), 265-276.

Chenery, H. B., & Strout, A. M. (1966). Foreign assistance and economic development. *American Economic Review*, June, 181-189.

Clarke, R., & Kirkpatrick, C. (1992). Trade policy reform and economic performance in developing countries: Assessing the empirical evidence. In R. Adhikari, C. K Kirkpartick and J. Weiss (eds), *Industrial and trade policy reform in developing countries*. Manchester: Manchester University Press.

Edwards, S. (1992). Trade orientation, distortion and growth in developing countries. *Journal of Development Economics,* 39, 31–57.

Engle, R. E., & Granger, C. W. J. (1987). Cointegration and error-correction: Representation, estimation, and testing. Econometrica, 55, 251–76.

Feder, G. (1983). On exports and economic growth. *Journal of Development Economics*, 12, 59-73.

Ghatak, S., & Price, S. W. (1997). Export composition and economic growth: Cointegration and causality evidence for India. *Weltwirtchaftliches Archiv*, 133(3), 538-553.

Ghatak, S., Milner, C., & Utkulu, U. (1997). Exports, export composition and growth: Cointegration and causality evidence for Malaysia. *Applied Economic*, 29, 213-223.

Helpman, E., & Krugman, P.R. (1985). *Market structure and foreign trade*. Cambridge: MIT Press.

Irwin, D. A. (2002). Did import substitution promote growth in the late nineteenth century? *NBER Working Paper No.* W8751, February.

Islam, M. N. (1998). Export expansion and economic growth: Testing for cointegration and causality. *Applied Economics*, 30, 415-425.

Jayanthakumaran, K. (2000). Industrialization: Import substitution to export promotion. *Working Paper Series,* No 00-09. Department of Economics, University of Wollongong Retrieved from: http://www.uow.edu.au/content/groups/public/@web/@commerce/@econ/ documents/doc/uow012101.pdf

Jung, W. S., & Marshall, P. J. (1985). Exports, growth and causality in developing countries. *Journal of Development Economics*, 18, 1-12.

Jung, W. S., & Marshall, P. J. (1985). Exports, growth and causality in development countries. *Journal of Development Economics*, 18, 1-12.

Khalifa Al-Youssif, Y. (1997). Exports and growth: Some empirical evidence from the Arab Gulf States. *Applied Economics*, 29, 693-697.

Levin, A., &. Raut, L. K. (1997). Complementarities between exports and human capital: Evidence from the semi-industrialized countries. *Economic Development and Cultural Change*, 46, 155-174.

Lucas, R. E. (1988). On the mechanics of the economic development. *Journal of Monetary Economics*, 22, 3–42.

Marin, D. (1992). Is the export-led growth valid for developed countries? *Review of Economics and Statistics*, 678-688.

Mayer, J. (1996). Learning sequences and structural diversification in developing countries. *Journal of Development Studies*, 33, 210-299.

Ram, R. (1985). Exports and economic growth: some additional evidence. *Economic Development and Cultural Change*, 33, 415-425.

Shafaeddin, M., & Pizarro, J. (2007). From export promotion to import substitution: Comparative experience of China and Mexico. University Library of Munich, Germany. Retrieved from: http://mpra.ub.unimuenchen. de/6650/

Sengupta, J. K., & Espana, J. R. (1994). Exports and economic growth in Asian NICs: An econometric analysis for Korea. *Applied Economics*, 26, 41-51.

Shan, J. & Sun, F. (1998). On the export-led growth hypothesis: The econometric evidence from China. *Applied Economics*, 30, 1055-1065.

Tyler, W. G. (1981). Growth and export expansion in developing countries: Some empirical evidence. *Journal of Development Economics*, 9, 121-130.

Ukpolo, V. (1994). Export composition and growth of selected low-income African countries: Evidence from time-series data. *Applied Economics*, 26, 445-449.