Pakistan Journal of Social Sciences 3 (1): 157-165, 2005


# Test of Two-Way Causation Between Export and Economic Growth: An Empirical Evidence of Bangladesh Economy

[1]Ajit Kr. Ray and [2]Md. Nesarul Karim
[1]Department of Commerce, University of North Bengal, India; [2]Department of Finance, University of Chittagong, Chittagong, Bangladesh

**Abstract:** Bangladesh, like other South Asian countries, had actively pursued import-substitution strategies (ISS) upto the early eighties. Although many have shown that the effectiveness of such strategy is not unconditional for under-developed countries, the policy of ISS has been replaced by the strategy of export-led growth (Begum *et al.*, 1998) in Bangladesh. There are two aspects of the problem – economic growth can help expansion of export and, on the other hand, export can promote economic growth by increasing aggregate demand. This two-way causation has been studied in the literature of development economics from various approaches (Michaely, 1977; Balassa, 1978; Tyler, 1981; Kavoussi, 1984 and Chow, 1987). Different methodologies have been developed in the literature to test causality in a bivariate model. (Sims, 1972 and Granger, 1969). Many economists have verified these models empirically mainly for the countries where manufacturing industries occupy an important position in the economy. We have verified, following Sims for testing two-way causation, economic data of Bangladesh where manufacturing industries are yet to take dominant position and thus , with data-set extending up to 1999, have tried to reconcile the contradictory conclusion arrived by two independent studies by (Begum *et al.*, 1998 and Nath, 1997).

**Key words:** Export, economic growth, causality test

## Introduction

Literature on development strategies of developing and underdeveloped Countries is extensive. The debate on the issue, that whether the development strategies would be based on Ricardian theory ( or Heckscher-Ohlin– the other major theories that have dominated this field[1]) of comparative advantage or on the theory of ' import substitution' , is endless and inconclusive[2]. During the sixties and seventies, import substitution strategies were much more acceptable to planners and policy makers of any developing or underdeveloped country against the desire of developed nations.[3] Bangladesh, during seventies – as a newly born sovereign and independent state, also favoured the ' import substitution' strategies [4] (Islam, 1973) and continued to pursue actively such strategies up to 1982. Since the early 80' s the Government of Bangladesh has been liberalizing foreign trade, deregulating the economy and the policy of import-substitution has been replaced by the strategy of export-led growth. ( Begum *et al.*, 1998 )

It is well recognised that in the dynamic framework, export has both direct and indirect effects. Three distinct relationships can be conceived of between the export sector and the rest of the economy in the process of economic growth : exports can be (a) leading, (b) a balancing and (c) a lagging sector of the economy. Where export serves as a leading sectors, the stimulus to economic growth comes from abroad. An increase in exports induces new demand for various inputs and brings about an increase in the incomes of factors of production. Pressure on domestic capacity stimulates a change in the technology, which in turn calls the attention of entrepreneurs to new investment opportunities.

The success of export-led growth process in Korea, Taiwan, Hong Kong and Singapore during 1965–1982 and recently in Malaysia, Indonesia and Philippines has set an example for export-led growth model. Export-led growth strategy has been prescribed indiscriminately for all developed countries like Bangladesh where the presence of ' internal stimulus' to growth, as emphasized by Nurkse and empirically found by Attri (1991) for LDCs, is doubtful. The argument behind the prescription of export-led growth strategy for Bangladesh is as follows: The country needs imports of capital goods, intermediate inputs and technology for rapid growth. Increase production of food and other essentials for maintaining health, enhancing productive capacity of vast masses of people and the poverty alleviation programme require import of some essentials. Exports earnings of Bangladesh covered only 66.36% (Bangladesh Bank – 2001) of import bill. The rest of its import bills are met from foreign aids and grants. As a result not only the burden of its foreign debt is increasing at a faster rate but also it has been creating serious problems of debt servicing. This state of affairs cannot be allowed to continue for long time. It is, therefore, imperative to increase export earnings so that the ever-increasing import bills could be met as far as possible from the nation' s resources. The only way out of this situation and elixir of economic growth, as envisaged by a section of the experts and government planners under new global economic milieu, is to accelerate export.

We, however, can conceive three different situations:

i. a definite unidirectional causality from export expansion to the national income or development of manufacturing industries,
ii. a definite unidirectional causality opposite to ( i )
iii. a bi-directional causality

In case of the first situation, export will promote the growth of national income and lead to structural transformation in the developing countries like Bangladesh. The second situation would imply the development of basic infrastructure or a minimum level of development in order to expand the country's export. It is important to note that the absence of any definite causative process implies that alternative strategy other than export-promotion should be needed for structural transformation of a country like Bangladesh. Thus, investigating the causal relation between the growth of exports(X) and the growth of GDP(Y) in Bangladesh have important implications for development strategies. The intention of the present study is to test causality between the growth of national income and the growth of export in Bangladesh. Our objective is to empirically validate the proposition that there exist a causal relationship between growth of GDP(Y) and growth of export(X).

**A Brief Note on Previous Empirical Studies:** Development economists have investigated the effects of export expansion upon the economies of less developed countries (LDCs) from different angles. Contribution of export growth to developing countries have been assessed by its influence on the change of (i) national income (Michaely, 1977); (ii) production of non-export goods (Heller and porter, 1978); (iii) capital efficiency and capability to manage external shocks (Balassa, 1978, 1985); (iv) the scale effects and externalities (Tyler,1981); (v) resource reallocation (Feder,1982); (vi) the total factor productivities (Kavoussi,1984; (vii) industrial development (Chow,1987) and (viii) capacity to absorb new spilovers of world technology ( Edwards, 1992 ).

Many researchers have investigated the causal effects of export growth on economic growth and concluded that causal effects are not consistent across samples of countries. Table 1 summarizes the previous studies of export–led growth with their methods, samples and results.

The table shows that causality from export growth to economic growth exists only in a very few countries. Majority of the countries of the world exhibits no clear causal relationship between exports(X) and GDP(Y).

Some economists have raised the question whether the role of export on economic growth is unconditional or depends upon the fulfillment of certain requirements. (Michael, 1977 and Heller and Porter, 1978), found that a minimum level of development is needed before the particular phase where export growth can positively influence on economic growth. Michealy (1977) argued that "growth is affected by export performance only once countries achieve some minimum level of development". (Michealy, 1977).

Helleiner' s (986) study of low–income countries ( inward-oriented sub-Saharan countries ) for the period 1960–80 provides further support for Michealy's finding for the least developed countries.

However, literature in the context of Bangladesh is limited. Rahman ( 1993 ) evaluated the effect of export on economic growth applying an add hoc regression model of GNP covering the period 1972-73 to 1985–86. He also performed Granger–causality test between manufactured exports and manufactured GDP based on annual data for 1972-73 to 1990-91 at current price and argued that causality running from exports to industrial development in Bangladesh. (Finding based on data at current prices, instead of constant prices, is always doubtful). Under two-sector framework Nath(1997) verified the pattern of export-growth link in the context of Bangladesh economy for almost the same period of 1972-73 to 1991-92. However, applying Granger causality test, conclusion drawn by Nath was the opposite of that of Rahaman and he concluded that '.....there has not been found causal relation in any direction' (Nath, 1997). On the other hand Begum *et al.* (1997) investigated the effect of exports on economic growth based on two-sector Autoregressive Conditional Heteroscedastic model and found that export growth had significantly increased economic growth through its positive impact on total factor productivity in the economy. They also performed Granger causality test as a supplementary verification of the above mentioned key finding of their structural econometric model and found that export growth had caused GDP growth at 2.5% level of significance. The period covered by them was 1961 to 1992. We thus observe contradictory findings of these studies by employing different methodologies and approaches. Rationality of inclusion of time series data for the period of 1961 to 1971 in Begum's study on export-led growth strategy of Bangladesh, when it was a part of Pakistan, is not well understood. Moreover, Bangladesh initiated its economic liberalisation policy from 1982 and the process acquired momentum in 1991 when a new industrial policy had been adopted in line with the new strategy. It is, therefore, unlikely that the effect of export-led growth strategy would be reflected in their study. Besides these, reported contradictory results of the studies on causal relationship between export and economic development of Bangladesh by Nath and Begum et el deserve further investigation. Our present study is, therefore, an endeavour to resolve the contradictory findings of earlier research with data series extended up to 1999.

Table 1: Previous Time-series studies of export-led growth

| Author(s) | Methods | Sample | Results* |
|---|---|---|---|
| Jung and Marshall (1985) | Granger-causality | 37 LDCs | X → Y in Indonesia, Egypt, Costa Rica and Ecuador |
| Chow (1987) | Sims's version of Granger-causality | Argentina, Brazil, Hong Kong, Israel, Korea, Mexico, Singapore, Taiwan | No causality in Argentina; X→Y in Mexico; X→Y in all others |
| Darrat (1987) | White (1980) [arbitrary, up to 4 lags] | Korea, Taiwan, Singapore, Hong Kong | x→Y in Korea |
| Ram (1987) | Time series regression; aggregate production function specification, incorporating possible export externalities | 88 LDCs | x-Y in 38 or 37 countries (depending on specific model being estimated); positive but insignificant relationship in another 35 or 40 |
| Kunst and Marin (1989) | Granger-causality [AIC & arbitrary up to 8 lags] | Austria | OECD GDP Productivity |
| Ahmad and Kwan (1991) | Granger-causality on pooled sample; [AIC for lag length] | 47 African countries | no X→Y in any of several specifications; little causality overall |
| Bahmani-Oskooee *et al.* (1991) | Standard Granger-causality, [Final Prediction Error (FPE) | 20 LDCs | x→Y in 10 (including those for which tests conflict); unidirectional positive relationship for lags ) in Nigeria & Taiwan only |
| Afxentiou and Serletis (1991) | Granger-causality [Schwartz Criterion (SC) for lags] | All countries classified as industrial by IMF (16) | X→Y in U.S.; Y→X in Norway, Canada, Japan (with 10-yr lag in Canada, Japan) |
| Kugler (1991) | Johansen/Juselius procedure ADF for stationary, AIC for lags. | US, Germany, Japan, UK, France, Switzerland | Exports enter cointegrating vector only in Germany and France |
| Nandi *et al.* (1991) | Sims Test | India | X→Y |
| Marin (1992) | Granger-causality [Bayesian Information Criterion (BIC) for lags] | Germany, U.K., U.S., Japan | X→Y for all four, but little impact as measured by sum of AR coefficients |
| Serletis (1992) | Granger-causality, [SC for lags] | Canada | X→Y except for post-WWII period |
| Bahmani-Oskooee and Alse (1993) | Regression analysis of error-correction model, [ADF for stationary] | Colombia, Greece, Korea, Malaysia, Pakistan, Philippines, Singapore, South Africa, Thailand | X→Y for all but Malaysia (X and Y not cointegrated in Malaysia) |
| Dodaro (1993) | Granger-causality | 87 LDCs | X→Y (positive effect) in 7; Y→X (positive effect) in 13 |
| Ghartey (1993) | FPE, Hsiao (1979) [FPE, BIC for lags] | U.S., Japan, Taiwan | X→Y in Taiwan, Y→X in U.S., terms of trade→X in Japan |
| Oxley (1993) | Schmidt, 1976; [ADF and Johansen tests for unit roots and FPE for lags] | Portugal | Y→X |
| Ukpolo (1994) | Time series regression of output on disaggregated exports | Congo Republic, Kenya, Morrocco, Nigeria, Senegal, Sierra Leone, Tanzania, Togo | X→Y for non-fuel primary products |
| Riezman *et al.* (1995) | Conditional linear Feedback By Gewek( 1984 ) | 126 countries in the Summers and Heston ( 1991) data set | X→Y in 30 countries, Y→X for 25 countries. |
| Henriques *et al.* (1996) | VAR | Canada | Y→X |
| Richards (2001) | Modified Granger, [ADF for Stationary, AIC for lags] | Paraguay | No causality. |

* X→Y implies export causes economy's output and Y→ X implies the reverse

## Materialsn and Methods

In this study we have used the data of export and GDP published by Export Promotion Bureau ( EPB ) and Bangladesh Bureau of Statistics ( BBS ) respectively. Export data are deflated by unit value indexes of export (Base, 1984-85 ) to make it compatible with GDP data. We then used the practical technique of testing causality in a bivariate model proposed by Sims (1972). This technique suggests that the variable 'Y' can be regressed on past and future values of ' X' and ' if causality runs from ' X' to ' Y' only, future values of ' X' in the regression should have coefficient insignificantly different from zero, as a group' (Sims, 1972). Therefore, for our present study of both way causative process, we have the following linear equations with distributed lags:

$$Y_t = a_0 + \sum_{i=1}^{3} a_i X_{t-(i-1)} + \sum_{i=1}^{2} b_i X_{t+i} + u_i \qquad (1)$$

$$Y_t = c_0 + \sum_{i=1}^{3} c_i X_{t-(i-1)} + u_2 \qquad (2)$$

$$X_t = \alpha_0 + \sum_{i=1}^{3} \alpha_i Y_{t-(i-1)} + \sum_{i=1}^{2} \beta_i Y_{t+i} + e_i \qquad (3)$$

$$X_t = \lambda_0 + \sum_{i=1}^{2} \lambda Y_{t-(i-1)} + \mu \qquad (4)$$

where Y stands for growth rate of GDP and X stands for growth rate of Export.

We have, therefore, the null hypothesis (Ho) that export growth 'X' does not cause growth of national income 'Y' for equations (1) and (2). Similarly the null hypothesis for equations (3) and (4) is that income growth 'Y' does not cause growth of export 'X'.

In order to test the hypothesis that coefficients for future values of explanatory variables are jointly equal to zero, F-statistics will be calculated by the following equation:

$$F = \frac{(RSS_{i+1} + RSS_i) \;/\; (df_{i+1} - df_i)}{RSS_i / df_i} \qquad (5)$$

Where $RSS_i$ is the residual sum of squares and $df_i$ is the degrees of freedom for i = 1 for equations (1) and (2) and i = 3 for equations (3) and (4). Thus 4 degrees of freedom for equations (1) and (3) and 2 degrees of freedom for equations (2) and (4) are lost. In order to compensate the loss of degrees of freedom due to distributed lags we considered the periods of the study from 1973-74 to 1998–99, though, Bangladesh adopted exports promotion strategies since early 80's.

Time series analysis of such equations through standard OLS models requires that the variables for a country must be non-stationary. Otherwise, estimation may be misspecified and estimated coefficients will, therefore, be biased and invalid. As a consequence, the statistical inferences drawn from OLS analysis will show spurious results and will be considered invalid. If all the series are non-stationary, we need to determine appropriate lag length for each variable. The stationary test of the variables with the help of Dickey-Fuller and Augmented Dickey-Fuller test is necessary. As sets of time series data are taken for the study, the data are first tested for their stationary characteristics, to avoid the error of spurious regression. On the basis of the Dickey-Fuller (DF) and Augmented Dickey-Fuller ( ADF ) test a multi-step procedure is applied for testing the stationary characteristics of the data sets. For practical purpose, the ADF test is applied to regress in the following forms:

$$\Delta y_t = \delta Y_{t-1} + u_t \qquad (i)$$

$$\Delta Y_t = \beta_1 + \delta Y_{t-1} + u_t \qquad (ii)$$

$$\Delta Y_t = \beta_1 + \beta_2 t + \delta Y_{t-1} + u_t \qquad (iii)$$

Where t is the time trend variable. In each case the null hypothesis is that $\delta = 0$, that is there is a unit root. If the error term $u_t$ is autocorrelated the following modified Augmented Dickey-Fuller ( ADF ) test will be employed.

$$\Delta Y_t = \beta_1 + \beta_2 t + \delta Y_{t-1} + \alpha_i \sum_{i=1}^{m} \Delta Y_{t-1} + \mu \qquad (iv)$$

If the computed absolute value of the 'τ' statistic ( i.e. $|\tau|$ )> ADF critical values, then we do not reject the hypothesis that the time series data is stationary. If , on the other hand, $|\tau| <$ ADF critical values, the time series is non-stationary. After examining the stationary characteristic of the data the next step in the analysis is to test the causal relationship between GDP and Exports of Bangladesh.

Though the direction of causality may depend critically on the number of lagged terms included, the choice of the lag lengths for dependent and independent variable is determined by Akaike (1974) information criteria ( AIC ). That lag value is chosen as optimal that minimizes the AIC.

## Results and Discussion

The following Table 1 represents the results of DF unit root test:

Table 1: Results of stationary test (n = 25), $H_{o:\delta = 0}$

| Stages | Calculated 't' value | | DF 'τ' critical values | | | |
|---|---|---|---|---|---|---|
| | GDP | Export | 1% | 2.5% | 5% | 10% |
| Constant and time trend | -10.20 | -6.26 | -4.38 | -3.95 | -3.60 | -3.24 |
| Constant, no time trend | -8.65 | -6.53 | -3.75 | -3.33 | -3.00 | -2.63 |
| No constant, no trend | -2.79 | -4.32 | -2.66 | -2.26 | -1.95 | -1.60 |

Source : (i) Critical values of 'τ' has been quoted from Philip Hans Franses, (1998, p82 ).

The result of the test indicates that computed absolute value of ' τ' statistic is greater than that of critical values i.e. $|\tau| >$ $DF_{critical}$ at 1% level in every step. That, the null hypothesis Ho:δ = 0 is being rejected at 1% level. Thus both the variables are stationary i.e. interrelationship between the variables is not time bound to make the regression result spurious.

However, for determination of appropriate lag length, we have computed the AIC values of the variables. Table 2 below presents the results of AIC test . From the table it exhibits that lags two is optimal in case of both the variables. Thus in our OLS estimation we use 2 lags for the variables.

Table 2: Results of AIC Test

| Lags: | GDP | Export |
|---|---|---|
| 1st | 51.94 | 93.06 |
| 2nd | 47.03* | 62.26* |
| 3rd | 48.36 | 92.77 |
| 4th | 49.87 | 94.28 |

Source: Calculated by the authors,. * Indicates optimal AIC

Four OLS equations (1) to (4) have been estimated and the F-statistics as given in equation (5) are calculated. OLS results are shown in appendix-I and II. The F-statistics and the results of hypothesis testing are shown in Table 3.

Table 3: Test of causality between export and growth of income

Equations (1) and (2)

The null hypothesis

$H_o$ : Export growth (X) does not cause growth of GDP (Y).

The statistic F = 0.68

Since 'F' is less than table value of $F_{0.05}$, we accept the null hypothesis.

Equations (3) and (4)

The null hypothesis

$H_o$ : Growth of GDP (Y) does not cause growth of Export (X)

The statistic F = 0.40

Since 'F' is less than table value of $F_{0.05}$, we accept the null hypothesis.

The econometric result in Table 3 shows clearly that 'no way' causality exits in Bangladesh. The implications of this are that neither the growth of exports causes growth of GDP, nor the growth of GDP causes growth of exports. As we have mentioned earlier that the absence of any definite causative process indicates that alternative strategy should be employed for structural transformation of Bangladesh but not the export-led growth.

## Conclusion

Our inference, therefore, contradicts the findings of both (Rahaman, 1993 and Begum *et al*., 1998) in favour of export-led growth hypothesis but supports the findings of Nath (1997) that "there has not been found causal relation in any direction". This study with an extended data-set up to 1999 seems to indicate that after a considerable period of more than one and half decade since the adoption of export-led growth strategy through economic liberalisation policy, the situation has not been changed from the position that was observed by Nath up to the period of 1992. However, some of the development indicators of Bangladesh show positive changes over the period 1972–73 to 1998–99. We have shown the calculated values of such indicators in appendix-III by dividing the whole period in three different phases: (i) a period prior to initiation of the openness of the economy starting from independence i.e. from 1972–73 to1981–82; (ii) a period of economic liberalisation prior to adoption of new industrial policy i.e. from 1982–83 to1990–91; and (iii) a period after introduction of said industrial policy-1992 i.e. from 1991–92 to 1998–99.

Average growth of export sector which was 9.65% during the period prior to economic liberalisation, marginally declined in the beginning (phase-ii: 19772-73 to 1981-82) but steadily attained the average level of 11.55% in the next period ( phase-iii:1991-92 to 1998-99). The average share of manufacturing exports in total exports of the country increased from 54.06% to 56.72 % in phase-ii and then to 75.06% in the said third phase. On the other hand, the average share of primary exports on the aggregate of the national exports, which was 32.08% initially, shows a decreasing trend. In the first period of economic liberalisation it declined to 21.89% and then further to 10.10% during 1991-92 to1998–99. Furthermore, mean agriculture-GDP ratio was at 46.44% before economic liberalisation but then decreased steadily to 40.06% at early stages of openness and ultimately to 33.49% during the period 1991-92 to1998-99. This declining trend of share of agriculture in GDP is compensated by increase in share of industry from 10.67% to 11.01% in those respective periods. However, this study reveals that export is in no way contributing in achieving such positive changes.

These positive changes in development economics indicators along with the result obtained by this study provides the conclusion that greater emphasis in allocating national resources to export sector may prove to be counter productive. Michael' s finding in this direction may be useful in explaining the present situation of Bangladesh. Thus an alternative strategy of development other than export-led growth strategy is needed, at least for a short-run period, for continuance of the progress of this development process as long as the minimum level of development , as suggested by Michael , has not been achieved. Since a conducive minimum level of development is pre-requisite to export-led growth strategy for an underdeveloped country like Bangladesh, allocation of resources should have been directed to achieve that level.

Appendix I

Estimation of the model Equation (1) and (2) (Dependent Variable 'Y' )

| Equation | Intercept | $X_t$ | $X_{t-1}$ | $X_{t-2}$ | $X_{t+1}$ | $X_{t+2}$ | $R^2$ | DW | F |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 4.81* | 0.007 | 0.018 | -0.033 | -0.031 | -0.02 | 0.20 | 1.92 | 0.78 |
| | (3.90) | (0.23) | (0.67) | (-1.11) | (-1.20) | (-1.20) | | | |
| 2 | 3.90* | 0.02 | 0.03 | -0.02 | - | - | 0.11 | 1.81 | 0.83 |
| | (5.79) | (0.78) | (1.27) | (-0.64) | | | | | |

Figures in the parenthesis indicate Corresponding – 't' values

*Indicate significance at 5% level.

Appendix II

Estimation of the model Equation (3) and (4)(Dependent Variable 'X')

| Equation | Intercept | $Y_t$ | $Y_{t-1}$ | $Y_{t-2}$ | $Y_{t+1}$ | $Y_{t+2}$ | $R_2$ | DW | F |
|---|---|---|---|---|---|---|---|---|---|
| 3 | 22.07 | 0.29 | -2.65 | -1.08 | -1.34 | 1.93 | 0.26 | 1.10 | 2.07 |
| | (1.07) | (0.15) | (-1.63) | (-0.75) | (-0.67) | (1.07) | | | |
| 4 | 24.72* | 0.41 | -2.87* | -0.96 | - | - | 0.19 | 1.61 | 2.13 |
| | (2.16) | (0.23) | (-2.15) | (-0.79) | | | | | |

Figures in the parenthesis indicate Corresponding – 't' values

*Indicate significance at 5% level.

Appendix III

Development Indicators of Bangladesh Economy 1972-73 to 1998-99.

| Indicators | 1972-73 to 1981-82 | 1982-83 to 1990-91 | 1991-92 to1998-99 |
|---|---|---|---|
| Mean agriculture-GDPratio | 46.44 | 40.06 | 33.49 |
| | (0.05) | (0.06) | (0.06) |
| Mean industry-GDP ratio | 10.67 | 9.93 | 11.01 |
| | (0.07) | (0.02) | (0.04) |
| Average growth rate of export | 9.65 | 8.79 | 11.55 |
| | (0.02) | (0.02) | (0.01) |
| Average share of manufactured goods in exports | 54.06 | 56.72 | 75.06 |
| | (0.12) | (0.16) | (0.05) |
| Average share of primary goods in exports | 32.08 | 21.89 | 10.10 |
| | (0.27) | (0.20) | (0.15) |

Calculated by the authors ( data source mentioned in the methodology )

Figures in the parenthesis indicates co-efficient of variation

## References


Afxentiou, P. C. and A. Serletis, 1991. Exports and GNP Causality in the Industrial Countries : 1950 – 1985, Kyklos 44:167-179.

Akaike, H., 1994. Anew Look at the Statistical Model Identification, IEEE Transactions on Autumatic Control, AC-19, pp:716-723.

Attri . V. N., 1991. Export-led Growth in Developing Countries: ( 1960-80 ), The Indian Economic J., 43: 20

Bahamni-Oskooee, Mohsen, Mohtadi, Hamid and Ghiath Shabsigh, 1991. Exports, Growth and Causality in LDCs: A RE-examination, J. Development Economics, 36:405–15.

Bahmani-Oskooee, M. and J. Alse, 1993. Export Growth and Economic Growth : An Application of Cointregation and Error-Correction Modeling, J. Developing Areas.

Balassa Bela, 1978. Exports and Economic Growth : Further Evidence, J. Development Economics, 5:181–189.

Balassa Bela, 1985. Exports, Policy Choices and Economic Growth in Developing Countries After the 1973 Oil Shock, J. Development Economics, 18:23–35.

Bangladesh Bank, 2001. Economic Trends, Vol. xxvi, pp: 43.

Begum , S. and A. F. M. Shamsuddin, 1998. Export and Economic Growth in Bangladesh, J. Development Economics, 35:89-114.

Bhagwati, J., 1978. Foreign Trade Regimes and Economic Development: Anatomy and Consequences of Exchange Control Regimes , National Bureau of Economic Research, New York.

Bureau of Statistics, 2000. National Accounts Statistics of Bangladesh, Statistical Division, Ministry of Planning, Government of Bangladesh.

Bureau of Statistics, 1993. Twenty Years of National Accounting of Bangladesh 1972 – 73 to 1992 – 93, Statistical Division , Ministry of Planning, Government of Bangladesh.

Chenery, H. B., 1961. Comparative Advantage and Development Policy, American Economic Review, March.

Chow, P. C. Y., 1987. Causality Between Export Growth and Industrial Development :Empirical Evidence from the NICs, J. Development Economics, 26:55-63.

Darrat, A. F., 1987. Are Exports an Engine of Growth ? Another Look at the Evidence, Applied Economics, 19: 277 – 283.

Dodaro, S., 1993. Exports and Growth : A Reconsideration of Causality, J. Developing Areas, 27:227 – 244.

Edwards, S., 1992. Trade Orientation , Distortions and Growth in Developing Countries, J. Development Economics, 39:31– 57.

Emery, R. F., 1967. The Relation of Exports and Economic Growth, Kyklos, 20:470–486.

Export Promotion Bureau, 2000. Export from Bangladesh : 1972 –73 to 1998 – 99, Motijheel Commercial Area, Dhaka, Bangladesh.

Fajana, O., 1979. Trade and Growth : The Nigerian Experience, World Development, 7:73–78.

Feder Gershon, 1982. On Exports and Economic Growth, J. Development Economics, 12:59–73.

Ghartey, E. E., 1993. Causal Relationship Between Export and Economic Growth: Some Empirical Evidence in Taiwan, Japan and the US Applied Economics, 25:1145 – 52.

Ghatak, Subrata and Milner, Chris and Utku Utulu, 1997. Exports, Exports Compositions and Growth: Cointegration and Causality Evidence for Malaysia, Applied Economics, 29:213 – 223.

Government of The People Republic of Bangladesh, 1979. Export policy 1979-80, Ministry of Commerce.

Granger, C., 1969. Investigating Causal Relations by Econometric Models and Cross Spectral Methods, Econometrica, 37:424- 438.

Greenway, D. and Sapsford, 1994. What Does Liberalisation Do for Exports and Growth, Weltwirschaftliches archive, Band 130, pp:152–73.

Helleiner, G., 1986. Outward Orientation, Import Instability and African Economic Growth : An Empirical Investigation in S. Lall and F. Stewart ( eds ), Theory and Reality in Development , London: Macmillan.

Heller, P. S. and R. D. Porter, 1978. Exports Growth: Am Empirical Re-investigation", Economic Growth, J. Development Economics, 5:191 - 193.

Henriques, I. and P. Sadorsky, 1996. Export-led Growth or Growth-Driven Exports? The Canadian Case, Canadian J. of Economics, 29:540–555.

Islam Nurul, 1973. National Import Substitution and Inward–looking strategies : Policies of Less Developed Countries, in Streeton, p(ed).

Jim Love, 1994. Engines of Growth – The Export and Government Sectors, The World Economy.

Jung, W. S. and P. J. Marshall, 1985. Export, Growth and Causality in Developing Countries, J. Development Economics, 18:1–12.

Kavoussi, R. M., 1984. Export Expansion and Economic Growth : Further Empirical Evidence, J. Development Economics, 14: 241–250.

Khalifa Al-Yousif and Yousif, 1997. Exports and Growth : Some Empirical Evidence from the Arab Gulf States, Applied Economics, 29:693- 7.

Krueger, A. O., 1978. Foreign Trade Regimes and Economic Development : Liberalisation Attempts and Consequences, National Bureau of Economic Research, New York.

Kugler, P., 1991. Growth, Exports and Cointegration : An Empirical Investigation, Weltwirtschaftliches Archiv, 127: 73 - 81.

Kunst, R. M. and D. Marin, 1989. On Exports and Productivity : A Causal Analysis, Review of Economics and Statistics, pp: 699–703.

Kwan, Andy, C. C., A. Cotsomities, Jhon and Benjamin Kwok, 1996. Exports, Economic Growth and Exogeneity: Taiwan 1953–88, Applied Economics, 28:467 - 71.

Lal, D. and S. Rajapatirana, 1987. Foreign Trade Regions and Economic Growth in Developing Countries, World Bank Research Observer, 2:189 - 217.

Lubitz, R., 1973. Export-Led Growth in Industrial Economies, Kyklos, 25:307 - 21.

Marin, D., 1992. Is the Export-Led Growth Hypothesis Valid for Industrialized Countries? Review of Economics and Statistics, pp:678 - 688.

Michael Michaely, 1977. Exports and Growth: An Empirical Investigation, J. Development Economics, 4: 49–53.

Myrdal, G., 1957. Economic theory of Underdeveloped Regions, London.

Nandi, S. and B. Biswas, 1991. Export and Economic Growth IN India : Empirical Evidence, The Indian Economic J., 38:53–59.

Nath Narayan Chandra, 1997. Export Growth Link in LDC' s – A Case Study of Bangladesh, Bangladesh Institute of Development Studies Research Reports, No. 151, Dhaka.

Nurkse, 1959. The Patterns of Trade and Developmen', Stockholm, (reprinted Oxford Backwell, 1962.)

Nurkse, R., 1961. International Trade and Development Policy, in his Ellis ( ed ) Economic Development for Latin America, St. Martins Press, New York.

Oxley, L., 1993. Cointegration, Causality and Export-led Growth in Portugal, 1965 - 1985, Economics Letters, 43:163 -166.

Peter, C. Y. and Chow, 1987. Causality Between Export Growth And Industrial Development: Empirical Evidence from the NICs, J. Development Economics , 26:55–63.

Prebisch, R., 1959. Commercial Policy for Developed Countries, American Economics Review, Paper and Proceedings, pp:251–56.

Rahman, M. A., 1993. Export and Economic Development of Bangladesh', Yong Economist Association, Dhaka.

Ram, R., 1985. Exports and Economic Growth : Some Additional Evidence, Economic Development and Cultural Change, 33:425- 25.

Ram, R., 1987. Exports and Economic Growth in Developing Countries : Evidence from Time Series and cross-sectional Data, Economic Development and Cultural Change, 36: 51–72.

Richards and G. Donald, 2001. Export as a Determinant of Long-Run Growth in Paraguay, 1966 - 96, The J. Development Studies, 38:128–146.

Riezman, R., Peter M. Summers and Charles H. Whiteman, 1995. The Engine of Growth or its Handmaiden? A Time Series Assessment of Export-led Growth, Empirical Economics, 21:77–110.

Sachs, I., 1973. Out-ward-Looking Strategies: A Angerious Illusion'? in Streeton, P. (ed), 'Trade Strategies for Development', Macmillan pp: 52–52.

Sengupta, Jati and Juan R. Espahana, 1994. Exports and Economic Growth in Asian NICs :An Econometric Analysis for Korea, Applied Economics, 26:41–51.

Serleties, A., 1992. Export and Growth and Canadian Economic Development, J. Development Economics, 38:133–145.

Sharma, Subash C. and Dharmendra Dhakal, 1994. Causal Analysis between Exports and Economic Growth in developing Countries, Applied Economics, 26:1145–57.

Sims, Christopher, 1972. Money ,Income and Causality, American Economic Review, 62:540 – 552.

Singer, H. W., 1950. The Distribution of Gains Between Borrowing and Investing Countries, American Economics Review, 40: 473–85.

Tyler, W. G., 1981. Growth and Exports Expansion in Developing Countries: Some Empirical Evidence, J. 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.

Vivodas, Constentin S., 1973. Exports, Foreign Capital Inflow and Economic Growth, J. International Economics, 3: 337 – 349.

Williams, J. H., 1929. The The Role of Exports and Foreign Capital in Latin American Economic Growth, Southern Economic J., 45:410–20.

World Bank, 1987. World Development Report– 1987, Washington D .C., World Bank.