Pakistan Journal of Social Sciences 3 (1): 145-151, 2005

Export and Industrial Development in Bangladesh: An Econometric Investigation for Two Way Causation

Md. Nesarul Karim
Department of Finance, University of Chittagong, Chittagong, Bangladesh

Abstract: Bangladesh pursued export-led growth strategy since early eighties, though, for developing countries doubts have been expressed by many. Empirical findings on these regards have led to mixed conclusion. The one of the findings, the most important and critical, of Michael (1977), Heller and Porter (1978), is that a minimum level of economic development is needed before the particular phase where export growth can positively influence on economic growth. This paper investigates the causal relationship between export growth and industrial development in Bangladesh by applying a modified Granger test following Bahmnee Oskooee *et al.* (1991The paper attempts to verify the conflicting conclusion of Begum (1998) and Nath (1997) with an extended data set regarding the role of export in development process in LDCs.

Key words: Export, industrial development, economic growth, causality test

Introduction

There has been an inconclusive debate on the role of trade and on the choice of trade strategy for the development process of developing countries. This is the debate between trade economists and trade pessimists. Economist like (Prebisch, 1959; Singer, 1950; Myrdal, 1957 and Nurkse, 1961), and others have suggested an inward-oriented approach for development of LDCs. Nurkse saw declining demand from developed countries for disappearing the role of exports as engine of growth in twentieth century unlike nineteenth century. Prebisch and Singer found deterioration of terms of trade as a factor making trade unfavorable for the growth of LDCs. On the other hand economist like (Bhagwati, 1978; Kruger, 1978; Chenery, 1961 and Balassa, 1977, 1978), and others strongly advocated the export-led growth strategy in the line of liberalization and globalization principle for developing countries and they opined that export could be an engine of growth under free trade mechanism. The IMF and World Bank (1987) have been extending their support in favor of export-led growth approach.

Bangladesh, during seventies – as a newly born sovereign and independent state, also favored the 'import-substitution strategies (Islam, 1973)[1]. A few years after independence, the government of Bangladesh pursued a public ownership strategy in the form of mixed economy to attain a socialistic pattern of the society, which was abandoned at the end of 1975. Finally, since early 80's the government of Bangladesh has started liberalizing foreign trade and deregulating the economy as an officially declared policy. The policy of import-substitution has been replaced by the strategy of export-led growth (Begum *et al.*, 1998).

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 line of argument behind the prescription of export-led growth strategy for Bangladesh is one, which is commonly put forward for all developing countries for overcoming the deficit balance of payment as a consequence of increasing demand of import of productive inputs. After having practicing the export-led growth strategy more than two decades, the present position of Bangladesh economy may be analyzed to understand the validity of the basic premise with which the import substitution policy was replaced. It is noteworthy that, export growth played an important role behind the development of the present advanced countries, when they were in their pre-industrial phase. The structure of their economies gradually shifts from primary industries (i.e. agriculture) to secondary industries (i.e. manufacturing) and finally to tertiary (i.e. service). Therefore, growth of manufacturing industries in Bangladesh can be considered as a proxy to measure her first stage of industrial development. Balassa argued that the development of the manufacturing sector is a ' part and parcel of overall economic development', (Balassa, 1981, essay – 1 – as quoted in Chow, 1987, p. 56.)

Economist, however, have conceived three different situations:

i A definite unidirectional causality from export expansion to development of manufacturing industries, (MX → MI).

ii A definite unidirectional causality opposite to (i), (MI → MX).

iii A bi-directional causality, (MX ↔ MI).

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. In the third situation, export growth and development of manufacturing industries have a reciprocal causal relationship. 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. Investigating the causal relation between the growths of manufactured exports and industrial development in Bangladesh will have important implications for development strategies. The intention of this study is to test causality between the growth of manufactured exports and development of manufacturing industries in Bangladesh. Our objective is to empirically validate the proposition that there exist a causal relationship between expansion of manufacturing goods (GRMX) and growth of manufacturing industries (GRMI).

A Brief Discussion on Previous Empirical Studies: Literature on economic growth has focused considerable attention on determining the effect of export on economic growth. During the last three-decade or so, innumerable empirical studies have been done in relation to export and economic growth[2]. The findings of these studies are rigorous. In some studies, there has been found positive link between export and economic growth. Among all these studies, prominent are: (Emery, 1967; Vivodas, 1973; Balassa, 1978, 1985; Williamson, 1978; Mizaels, 1968; Fajana, 1979; Tyler, 1981; Feder, 1982; Kavoussi, 1984; Ram, 1985, 1987; Greenway *et al.*, 1994 and Begum *et al.*, 1998).

There are two aspects of the relation between export and economic growth. Economic growth and particularly growth of manufacturing industries can help expansion of exports. On the other hand, export can promote economic growth by increasing aggregate demand. This two-way relation has been studied in the development economic literatures from various angels, such as

(1) National income (Michaely, 1977),
(2) Production of non-export goods (Heller and Porter, 1978)
(3) Capital efficiency and capability to mange external shocks (Balassa, 1978,81)
(4) The scale effects and externalities (Tyler, 1981)
(5) Resources reallocations (Feder, 1982)
(6) The total factor productivities (Kavoussi, 1984)
(7) Structural transformation (Jung *et al.,* 1985 and Chow, 1987)
(8) Capacity to absorb new spillovers of world technology (Edwards, 1992)

Most of these studies proved that there exists a positive association between export – growth and economy's growth rate and that exports play a key role as an additional factor in the process of economic growth, But only a few of them have investigated the specific impacts of exports on the development of manufacturing industries of LDCs, who have actively pursued export-led growth strategy. (Balassa, 1981 and Chow, 1987) has shown that export growth has significant influenced over the process of industrial development in the newly industrialized countries.

Testing the direction of causality, some economist like (Jung and Marshall, 1985; Chow, 1987; Nandi *et al.,* 1991; Ghartey, 1993; Ukpolo, 1994 and Riezman *et al.*, 1995) found support for the export-led growth hypothesis. On the other hand (Darratt, 1986; Ahmed *et al.,* 1991; Oxley, 1993; Jim Love, 1994; Henriques and Sadorsky, 1996 and Richards, 2001), observe that exports growth did not cause economic growth. However a number of studies using new time series methodology have found inconsistent evidence on the link between exports and growth. For example Bahamni-Oskooee *et al.* (1991), Sharma and Dhakal (1994), conducted cross-countries studies of LDCs and arrived at mixed results regarding the causal relation from exports to economic growth. Analyzing the economic data of the Arab countries Khalifa (1997) finds that export and economic growth are in fact cointegrated. He however did not specifically address the issue of the causal relationship between the variables. A number of studies on individual country have attempted econometrically to treat the issue of causality that is central to export-led growth hypothesis. Among these studies, prominent are: Sengupta *et al.* (1994, Korea), Kwan *et al.* (1996, Taiwan), Ghatak *et al.*, 1997, Malaysia). From these studies there emerges no conclusive pattern of causality between exports and economic growth.

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), Heller, P. S. and Porter, R. C. (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 (1986) study of inward-oriented sub-Saharan low-income countries for the period 1960 – 80 substantiate further Michealy's finding for 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. Whatever his findings may be, question may be raised on use of data at current price instead of constant price. Under two-sector framework Nath (1997), verified the causal relationship between export and non-export sector of Bangladesh economy for the period of 1972-73 to 1991-92. Applying Granger causality test, conclusion drawn by Nath was that '...there has not been found causal relation in any direction' (Nath, 1997). On the other hand Begum *et al.* (1998) performed Granger causality test as a supplementary to verify the key findings of their structural econometric model and express the views that exports growth causes GDP growth at 2.5% level of significance. The period covered by them was 1962 to 1992. We, however, observe some methodological differences between Nath and Begums *et al* along with contradictory findings. Nath (1997) employed log-linear equations while Begum *et al.* (1998) used the linear equations. Inclusion of time series data for the period of prior to independence, 1962 to 1971 in Begum' s *et al* studies, may cast doubts about the validity of export data of a part of the Pakistan, now called Bangladesh. Bangladesh became an independent state in 1971). The contradictory results from these two studies deserve further investigation of causal relationship between exports and Bangladesh economy. Moreover, Bangladesh initiated its economic liberalization 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 where the period covers upto 1992 only. Our present study is an endeavor to verify the contradictory findings of earlier research with an extended data series and by employing different methodologies. Hence our study does not in any way duplicate the earlier effort. The intention of this study is to test causality between the growth of manufactured exports and development of manufacturing industries in Bangladesh. Our objective is to empirically validate the proposition that there exist a causal relationship between growth of manufacturing goods (GRMX) and growth of manufacturing industries (GRMI).

Data and Methodology: The annual data used in this study covers the period from 1972–73 to 1998–99. In the analysis, we have used the data of manufactured commodity and GDP of industrial output published by Export Promotion Bureau (EPB) and Bangladesh Bureau of Statistics (BBS) respectively. Data of manufactured commodity are deflated by unit value indexes of export (Base: 1984-85) to make it compatible with GDP data. It is well recognized that if the time series variables are non-stationary, then the estimated OLS results may be misspecified. As time series data sets 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) & 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:

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

$$\Delta Y_t = \beta_1 + \delta Y_{t-1} + u_t \qquad (2)$$

$$\Delta Y_t = \beta_1 + \beta_2 t + \delta Y_{t-1} + u_t \qquad (3)$$

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 is employed.

$$\Delta Y_t = \beta_1 + \beta_2 t + \delta Y_{t-1} + \alpha_i \sum_{i=1}^{m} \Delta Y_{t-1} + \mu \qquad (4)$$

If the computed absolute value of the 'τ' statistic (i.e. $|\tau|$) is greater than ADF critical values, then the alternative hypothesis that the time series data is stationary is not to be rejected. If, on the other hand, $|\tau|$ is less than ADF critical values, the time series is proved to be statistically non-stationary and thus the null hypothesis to be accepted.

After examining the stationary characteristic of the data set the next step in the analysis is to test the causal relationship between GDP of Industrial Output and Manufactured Exports. We then used the practical technique of modified Granger methodology for testing causality, proposed by Bahmani *et al.* (1991) and as shown by Richards (2001). Therefore, for our present study we have the following linear equations with distributed lags:

$$GRMI_t = a_0 + \sum_{i=1}^{m} a_i \, GRMI_{t-i} + u \qquad (5)$$

$$GRMI_t = a + \sum_{i=1}^{m} \alpha_i \, GRMI_{t-i} + \sum_{i=1}^{n} \beta_i \, GRMX_{t-i} + \mu \qquad (6)$$

$$GRMX_t = b_0 + \sum_{i=1}^{K} b_i \, GRMX_{t-i} + e \qquad (7)$$

$$GRMX_t = b + \sum_{i=1}^{K} \gamma_i \, GRMX_{t-i} + \sum_{i=1}^{L} \lambda_i \, GRMI_{t-i} + e_i \qquad (8)$$

Where GRMI is the rate of growth of GDP to industrial output and GRMX is the growth rate of manufactured exports. 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 minimize the AIC. At first we regressed the dependent variables on its own lagged value. In the second stage lagged values of the independent variables are added to the model. If the addition of the lagged values of the independent variable reduces the AIC we conclude that the independent variables 'causes' the dependent variable.

If there exists any causal relationship between dependent and independent variables, we then try to identify the direction of causality. For this, following Bahmani *et al.* (1991), we take the sum of the coefficients $\Sigma\beta i$ and λ_i related to the independent variables of the two estimated equations. If $\sum\beta_i > 0$ then we conclude that the growth of manufactured exports causes industrial growth to increase i.e. GRMX → GRMI. If, on the other hand $\sum\lambda_i > 0$ then the conclusion will be opposite. In order to test the significance of the coefficients a joint 'F' test. As shown in equation (9) is employed.

$$F = \frac{(SSE_r - SSE_u)/n}{SSE_u/\{T-(m+n+1)\}}$$

Where SSE_r is the sum of squares of residuals of the restricted under the test of the hypothesis that either $\sum\beta_i$ or $\sum\alpha_i = 0$. SSE_u is the sum of squares of the residuals of the unrestricted model. T , n and m refers to the number of observations and the lag lengths of the independent and dependent variable.

Results and Discussion

The following Table1 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			
	GRMI	GRMX	1%	2.5%	5%	10%
Constant and time trend	-13.48	-5.51	-4.38	-3.95	-3.60	-3.24
Constant, no time trend	-12.44	-5.52	-3.75	-3.33	-3.00	-2.63
No constant, nor trend	-8.23	-3.72	-2.66	-2.26	-1.95	-1.60

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

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 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 been computed the AIC values of the variables.

Table 2: Results of AIC Test

Lags:	GRMI	GRMX
1st	69.23	98.29
2nd	68.22	98.28*
3rd	68.13*	100.03
4th	69.38	101.21

Source: Calculated by the Authors * Indicates optimal AIC.

Table 3: Summary of granger causality test

	$GRMI_{(3)}$ causes $GRMX_{(2)}$
	AIC before inclusion of independent variables = 63.17
Model: 5 & 6	AIC after inclusion of independent variables = 66.86
	$\Sigma\beta_i$ = 0.12 Test of the restriction $\Sigma\beta_i$ = 0 is not rejected at 0.05 level
	F = 1.39, F0.05 = 3.42.
	$GRMX_{(2)}$ causes $GRMI_{(3)}$
Model: 7 & 8	AIC before inclusion of independent variables = 94.50
	AIC after inclusion of independent variables = 98.21
	$\Sigma\lambda_i$ = 0.35 Test of the restriction $\Sigma\lambda_i$ = 0 is not rejected at 0.05 level
	F = 0.26, $F_{0.05}$ = 3.03.

Subscripts of the variables indicate respective lag value)

Table 4: Estimation of the model Equations (5) and (6) (Growth rate of Manufacturing Industry (GRMI) as dependent variables)

Equation	Intercept	$GRMI_1$	$GRMI_2$	$GRMI_3$	$GRMX_1$	$GRMX_2$	$GRMX_3$
5	3.28**	-0.006	0.10	0.20**	-	-	-
	(1.86)	(-0.03)	(0.54)	(1.93)			
	R^2 = 0.18	DW = 1.78		F = 1.43			
6	2.00	0.03	0.02	0.19**	0.03	-0.01	0.10**
	(0.98)	(0.14)	(0.09)	(1.79)	(0.63)	(-0.19)	(1.94)
	R^2 = 0.35	DW = 1.68		F = 1.45			

Figures in the parenthesis indicate corresponding 't' values.
**Indicates significance at 10%

Table 5: Estimation of the model Equations (7) and (8) (Growth rate of Manufacturing Export (GRMX) as dependent variable)

Equation	Intercept	$GRMX_1$	$GRMX_2$	$GRMI_1$	$GRMI_2$	R^2	DW	F
7	20.33*	-0.20	-0.34**	-	-	0.16	1.89	1.93
	(4.03)	(-1.01)	(-1.79)					
8	17.84*	-0.16	-0.33	0.05	0.30	0.18	1.94	1.03
	(2.61)	(-0.76)	(-1.56)	(0.06)	(0.68)*			

Figures in the parenthesis indicate corresponding – 't' values.
**Indicate significance at 10%

Table 2 below presents the results of AIC test and DF 'T' critical values for the variables:
The results of the above Table-2 shows that AIC for growth of manufacturing industries is optimal at lag 3, when the growth rate of manufactured export minimize the AIC at lag 2. Thus in our OLS estimation we use 3 lags in case of GRMI and 2 lags in case of GRMX variables.
For OLS analysis, equations (5) to (8) have been estimated and the values of 'F' statistic as given in equation (9) are calculated. OLS results are shown in Table 4 & 5. The 'F' statistic and the results of test of causality testing are shown in Table 3.
The econometric results in the above Table–3 clearly shows that the causal process is far less significant in the either direction in Bangladesh. The implications of this revelation is that neither the growth of manufacturing industries causes the growth of manufactured export, nor the growth of manufactured exports causes the growth of manufacturing industries in Bangladesh. However, we are able to detect a positive relationship running from industrial output to manufactured exports, but 'F' test on the corresponding restrictions fail to reject the null hypothesis. Thus the result of causality test is far from supporting the export-led growth hypothesis in Bangladesh.

Conclusion

Our inference contradicts the findings of both Rahman (1993) and Begum *et al.* (1998) in favor of export-led growth hypothesis. The weak positive interdependence between industrial output to manufactured exports, possibly suggest that (i) the industrial base of the country has not been matured enough to induce export (ii) the export sector stands in a competitive relationship with the rest of the economy and (iii) that a minimum level of development is needed to get desirable results of interrelation between export and industrialization. On the basis of the results of this study it would be difficult to conclude that in the absence of substantial development policy initiatives, Bangladesh exports will play a leading role in transforming the nations economy.

Notes:

1)Bangladesh followed import substitution strategies after independence was amply clear from the following statement of Prof. Nurul Islam, the than Deputy Chairman of Bangladesh Planning Commission and Director, Bangladesh Institute of Development Study " Import substitution has been and continues to be a major development strategy in the poor countries. In such an environment, both national and international, import substitution strategy appeared an appropriate policy as a step towards diversifying the structure of a developing economy.

References

Ahmad, J. and A. C. C. Kwan, 1991. Causality Between Exports and Economic Growth, Economic Letters, 37:243-248.

Akaike, H., 1974. Anew Look at the Statistical Model Identification, IEEE Transactions on Automatic Control, AC-19, pp:716 - 723.

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

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

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

Balassa Bela, 1978. Exports and Economic Growth, J. Development Economics, 5:219 - 224.

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, no. 2, p. 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.

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. North - Holland.

Darrat, A. F., 1986. Trade and Development: The Asian Experience, Cato J., 6:695 - 700.

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.

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 Exports and Economic Growth: Some Empirical Evidence in Taiwan, Japan and the US,Applied Economics, 25, pp:1145-1152.

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.

Greenway, D. and Sapsford, 1994. What Does Liberalization Do for Exports and Growth, Weltwirschaftliches archiv, Band 130, pp: 152 - 73.

Grossman and Helpman, Trade, Knowledge Spillovers and Growth. European Economic Review, 1991a. 35:517-526

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. 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: Liberalization Attempts and Consequences, National Bureau of Economic Research, New York.

Kwan, Andy C. C., Cotsomities, Jhon A. 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.

Maizels Alfred, 1968. Exports and Economic Growth of Developing Countries', Cambridge University press. Cambridge.

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

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

Nath Narayan Chandra, 1997. Export Growth Link in LDCs - A Case Study of Bangladesh, Bangladesh Institute of Development Studies Research Reports, No. 151, Dhaka.

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

Nurkse, 1959. The Patterns of Trade and Development', 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, 1865- 1985, Economics Letters, 43: 163-166.

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

Riezman, R. and Peter M. Summers, Charles H. Whiteman, 1995. The Engine of Growth or its Handmaiden? A Time Series Assessment of Exports-Led Growth, Working Paper, University of Iowa.

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

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

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.

Williamson, R., 1978. 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.