International Journal of Business and Technopreneurship
Volume 1, Issue 2, June 2011

Role of Manufacturing Export in Industrial Development of Bangladesh: An Analysis under Production Function Frame Work

Nesarul Karim[1]

ABSTRACT

Government of Bangladesh has started liberalizing foreign trade and deregulating the economy as an officially declared policy since early 80's. The policy of import-substitution has been replaced by the strategy of export-led growth. At present export occupies the focal position in reformulated development strategy of Bangladesh. This paper investigates the relationship between growth of manufacturing export and industrial development in Bangladesh by applying production function frame work. Empirical findings on these regards have led to mixed conclusion.

Keywords: Government of Bangladesh, Primary Export, Manufacturing Export, Industrial Development.

I. INTRODUCTION

Export occupies the focal position in reformulated development strategy of Bangladesh since the policy of economic reform and structural adjustment has been adopted by the country. 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). 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):56]. Therefore, growth of manufacturing industries in Bangladesh can be considered as a proxy to measure her first stage of industrial development. We, however, can conceive three different situations:

i) a definite unidirectional causality from export expansion to development of manufacturing industries, [MX $\rightarrow$ MI].
ii) a definite unidirectional causality opposite to (i) , [MI $\rightarrow$ MX].
iii) a bi-directional causality, [MX $\leftrightarrow$ 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.

[1] Dr. Nesarul Karim, Professor, University of Chittagong, Bangladesh. nesarri@yahoo.com

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. The intention of this study is to test the relationship 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 positive relationship between expansion of manufacturing goods (GRMX) and growth of manufacturing industries (GRMI). Rest of the paper is organized as follows: Section – 2 represents a brief discussion on previous empirical studies, section 3 - describes data, methodology, and model specifications; section – 4 presents empirical results and discussion and section – 5 contains conclusion.

II. 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 both from demand and supply side approach. The findings of these studies are rigorous. In some studies, positive link between export and economic growth has been found. 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), 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 faced by the economy'. This two-way relation has been studied in the development economy literature from various approaches. One of the approaches is to establish link between economic parameters with the export-led growth. A list of such studies is presented in Table 1.

Table – 1: A List of Studies on the Link between Development Parameters & Export-Led Growth.

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

The above table indicates that there can be numerous essential links in the model of export-Led growth hypothesis. However, many refinements have been used in assessing the empirical evidence for export-led growth. Table 2 presented below summarises some previous empirical works examining the supply characteristics of export commodity.

Table – 2: A List Of Studies Of Export-Growth Link: Production Function Model

Authors	Nature of the Study	Other variables	Coefficient of export growth
Balassa (1978 , p:186)	A cross sectional analysis of 10 DC(1960 – 73)	Domestic investment/output, foreign investment/output, Labour force growth,	0.04
Begum, S. et al (1998, p:107)	Time series study of Bangladesh (1962 – 92)	Labour Force, Investment	0.957
Emery (1967, p: 478)	A cross sectional analysis of 50 DC (1953 – 63).	Current account	0.330
Fajana (1979, p: 75)	Time-series analysis on Nigeria (1954 – 74,)	Trade balance, current account	1.095
Feder (1982, p:128)	A cross sectional analysis of 31 LDC (1964 – 73)	Labour force growth, Investment /output	0.422
Greenway et al. (1994, p : 161)	Time series study on Pakistan (1971– 85)	None	1.971
Kavoussi (1984, p: 247)	A cross sectional analysis of 73 DC (1960 – 78,)	Growth rate of capital stock and labour force	0.105
Lubitz (1973 : p.318)	A cross sectional analysis of 11 LME(1954 – 69)	Capital Formation, Manufactured Export	0.430
Michaely (1977, p: 52)	A cross sectional analysis of 41 LDC(1950 – 73)	None	0.523
Nath N. C. (1997, p:19)	Time series study of Bangladesh(1972 – 92)	Domestic Saving, Labour Force, Foreign Investment	0.290
Ram (1885, p:419)	A cross sectional analysis of 73 LDC (1960 – 77)	Labour force, Capital input Countries dummies	0.148
Ram (1987, p:64)	A cross sectional analysis of 88 DC (1960 – 82)	Labour force, Capital input Investment output ratio	1.55
Tyler (1981, p:128)	A cross sectional analysis of 55 MILDC (1960–77)	Labour force growth, Investment growth	0.570
Vivodas (1973, p:343)	A cross sectional analysis of 22 LDC (1956 – 67)	Country dummies	0.200
Williamamson	A cross sectional analysis Of 22 LAC (1960 – 74)	Country Dummies, Direct Investment, Other Foreign Capital.	na

LDC =**Less Developed Countries,** DC = **Developed Countries,** MILDC = **Middle Income Less Developed Countries.** LME=**Leading Manufacturing Exporters Countries.**

Most of the studies proved that there exists a positive association between growth rate of export and economy, and that exports play a key role as an additional factor in the process of economic growth. Except Fajana (1979), Greenway et al. (1994), Nath (1997) and Begum, et al. (1998), these studies have been done on cross - section data of different countries.

A section of economists, therefore, consider that adopting a structural econometric model as the principal method of analyzing is better than the causality test. We, therefore, undertake to study the extent of impact of export as factor input on national output in this study. It seems that the study will be helpful in getting rid of all controversy relating to selection of methodology and we will also be able to reconcile the result of the study with the one that we have already obtained from the earlier research of causality test.

III. METHODOLOGY AND SOURCES OF DATA.

The research is based on both secondary and primary sources of information and data. The published documents of the Ministry of Commerce, GOB, and the Export Promotion Bureau, the Bangladesh Bureau of Statistics, the National Board of Revenue, the Bangladesh Bank (Central Bank of Bangladesh) and other concerned authority have been consulted for secondary data and information. The data used in this study cover the period from 1972–73 to 2006–2007. The collected data are then analyzed by means of appropriate statistical tools. Data of primary export and export of manufactured commodity are deflated by unit value indices of export (Base:1984-85) to make it compatible with GDP data.

The Model and Related Issues:

Bangladesh has been stressing on export-led growth and proportion of its export contribution to GDP has increased. The economy of the country in general and manufacturing export in particular, has been gradually increased. So it apparently indicates that export-led growth strategy plays an important role in the economic development of Bangladesh. For an objective analysis of export- growth link of the country, we like to study the role of exports in economic growth in the framework of a straightforward production function model that considers export as similar to that of production input. In order to test whether Primary Export (Px) or Manufacturing Export (Mx) makes an individual contribution to growth of GDP, we have included both Px & Mx separately as explanatory variables of economic growth. It is believed that Mx may be a better proxy of the structural transformation of the economy. We also like to test whether external factors or domestic factors play an important role in the determination of level of GDP of the country. For this , we regress Total Export (Tx) , Primary Export (Px) and Manufacturing Export (Mx) against GDP along with other two explanatory

variables capital (K) and labour (L). So the functional form of the model may be specified as follows:

$$Y = f\ (K, L, Tx, Px, Mx) \quad (1)$$

Where: Y = Aggregate real out put (GDP);

L = Labour input;
K = Capital input;
Tx = Total export;
Px = Primary export; and
Mx = Manufacturing export

To ensure the reliability of statistically significant result in the time series analysis, we have run the regression in terms of rate of growth of the variables using a logarithmic relationship. The model is estimated stepwise by the Ordinary Least Squares (OLS) method. Therefore for practical purpose, taking log-difference and manipulating the terms slightly, the following are the empirical specifications of the model to be estimated:

$$\Delta \ln Y = \alpha_0 + \alpha_1 \Delta \ln K + \mu_1 \quad 2$$
$$\Delta \ln Y = \beta_0 + \beta_1 \ln L + \mu_2 \quad 3$$
$$\Delta \ln Y = \delta_0 + \delta_1 \Delta \ln Tx + \mu_3 \quad 4$$
$$\Delta \ln Y = a_0 + a_1 \Delta \ln Mx + \mu_4 \quad 5$$
$$\Delta \ln Y = b_0 + b_1 \Delta \ln Px + \mu_5 \quad 6$$
$$\Delta \ln Y = \lambda_0 + \lambda_1 \Delta \ln K + \lambda_2 \Delta \ln Tx + \mu_6 \quad 7$$
$$\Delta \ln Y = \pi_o + \pi_1 \Delta \ln K + \pi_2 \Delta \ln Px + \mu_7 \quad 8$$
$$\Delta \ln Y = \phi_0 + \phi_1 \Delta \ln K + \phi_2 \Delta \ln Mx + \mu_8 \quad 9$$
$$\Delta \ln Y = \Omega_0 + \Omega_1 \Delta \ln K + \Omega_2 \Delta \ln L + \mu_9 \quad 10$$
$$\Delta \ln Y = c_0 + c_1 \Delta \ln K + c_2 \Delta \ln Mx + c_3 \Delta \ln Px + \mu_{10} \quad 11$$
$$\Delta \ln Y = d_0 + d_1 \Delta \ln K + d_2 \Delta \ln Mx + d_3 \Delta \ln Tx + \mu_{11} \quad 12$$
$$\Delta \ln Y = e_0 + e_1 \Delta \ln K + e_2 \Delta \ln Px + e_3 \Delta \ln Tx + \mu_{12} \quad 13$$
$$\Delta \ln Y = \gamma_0 + \gamma_1 \Delta \ln K + \gamma_2 \Delta \ln Tx + \gamma_3 \Delta \ln Px + \gamma_4 \Delta \ln Mx + \mu_{13} \quad 14$$
$$\Delta \ln Y = \chi_0 + \chi_1 \Delta \ln K + \chi_2 \Delta \ln Tx + \chi_3 \Delta \ln Px + \chi_4 \Delta \ln Mx + \chi_5 \Delta \ln L + \mu_{14} \quad 15$$

where $\Delta \ln$ indicates log difference of the variables , all appropriately suffixed α , β , δ, a, b, λ, π, ϕ, c, Ω, d, e , γ, & χ are the coefficients of the variables and similarly suffixed μ are random terms.

IV. OLS RESULTS AND INTERPRETATION:

Findings of the estimated parameters of OLS equations described in 2 to 15 are presented in table 3. Goodness of fit (R^2), auto-correlation (DW) and statistic for test of significance (t & F) are provided appropriately for each OLS equation. Equations 2 to 6 are being used to introduce each of our explanatory variable i.e., Capital (k), Labour (L), Total Export (Tx), Primary Export (Px), and Manufacturing Export (Mx) individually against the total output (Y). Results show that only three variables, namely, Capital, Primary Export, and Manufacturing Export appear significant as explanatory variables with varying degree of goodness of fit and level of significance. While capital is significant at 5% level, other two are significant only at 10% level. Other two variables, labour and total exports do not imply significant influence on Y individually. While labour seems to explain only 0.004 percent with positive coefficient, the variable total export, though better (R^2 = 0.02) than labour but not only fail to explain substantial or cognizable part of variation, the coefficient being negative, the relation is totally unacceptable theoretically. We, therefore, introduce variables stepwise and 'manufacturing export' appears to be most promising as an element of the set of explanatory variables along with capital.

Thus the estimation of the OLS equations 9 is done and the results of the estimation reveal that these two variables jointly are able to improve the level of explanation of the variable. Both the coefficients are significant at 5% level and the value of R^2 increases to 0.51. If we introduce the other significantly contributory variable 'Primary export' with capital, than also it improves the value of R^2 than its value in case of individual contribution and both the coefficients appears significant. However, value of R^2 is less than the value we get in case of the contribution of capital and Mx. Since, in both case, R^2 improves, coefficient do not change their sign and remain significant, we prefer to introduce these three variables together following the OLS equation 25.

Table 3: OLS Results: Equation 2 – 15 (GDP 'Y' as Dependent Variable; Period 1972-73 to 2006-2007)

Eq	β_0	K	L	Tx	Px	Mx	R^2	DW	F
2	0.1	0.70							
	(6.43)*	(3.28)*					0.31	2.60	10.8
3	0.02**		0.29						
	(1.72)	-	(.32)				0.004	2.82	0.10
4	0.02			-0.03					
	(6.78)*			(-0.74)			0.02	2.92	0.55
5	0.02				0.04**				
	(7.64)*				(1.89)		0.13	2.37	3.65

6	0.2 (5.40)*					.04** (1.81)	0.15	2. 45	2.38
7	0.01 (4.60)*	0.08 (3.18)*		0.02 (0.63)			0.32	2. 56	5.44
8	0.01 (6.81)*	0.07 (3.61)*			0.04 (2.67)*		0.44	2.23	9.21
9	.01 (3.72)*	0.09 (4.65)*				0.09 (3.10)*	0.51	2.18	12.1
10	0.02 (2.02)	0.07 (3.19)*	-0.06 (-0.08)				0.31	2.61	5.15
11	0.01 (3.92)*	0.09 (4.41)*			0.02 (1.16)	0.07 (2.14)*	0.54	2.06	8.63
12	.01 (4.10)	0.08 (4.08)*		-0.05 (-1.36)		0.12 (3.35)*	0.55	2.26	8.96
13	0.02 (5.63)*	0.06 (2.56)*		-0.04 (-0.98)	0.06 (2.46)*		0.47	2.21	6.45
14	0.12 (4.88)*	0.68 (3.43)*		-0.09* (-2.34)	0.46 (2.22)*	0.11 (3.11)*	0.64	2.15	9.14
15	0.01 (2.29)*	0.07 (3.36)*	-0.13 (-0.22)	-0.09* (-2.29)	0.05 (2.17)*	0.11 (3.03)*	0.63	2.16	6.99

*** indicates't' statistics significant at 5% level. ** indicates't' statistics significant at 5% level**

Estimation results show that the level of explanation of variation improves from R^2 = 0.51 to R^2 = 0.54. None of the coefficient changes its sign adversely. However, while coefficients of capital and manufacturing export remain significant, the coefficient of primary export does not appear statistically significant. But as the value of R^2 improves & the coefficient remains positive, we can neither consider this variable superfluous nor detrimental. The situation, however, is not same when we consider other two variables, namely, total export and labour. Interestingly, when replacing 'primary export' we try to estimate 'total export' along with 'capital, and 'Mx' as given by the OLS equation 12, we find that the value of 'goodness of fit' is even better (R^2 = 0.55). But, the coefficient being negative, it appears detrimental to the causal relation. The situation does not change when the OLS equation is estimated. Finally, therefore, our OLS

analysis shows that primary export (Px) and Manufacturing export (Mx) have significant contribution to GDP (Y) along with the amount of the capital invested.

We thus get the following marginal productivities with respect to capital, Px and Mx:

$$\frac{\partial Y}{\partial K} = 0.09; \quad \frac{\partial Y}{\partial Px} = 0.02; \quad \text{and} \quad \frac{\partial Y}{\partial Mx} = 0.07$$

It seems to reveal that manufacturing export has greater marginal contribution to economy's output than primary export. Moreover, $\partial Y/\partial Mx$ is statistically significant, whereas $\partial Y/\partial Px$ is not. Results seem to answer the question that how the scarce resources are to be distributed efficiently to increase productive capacity of the economy of Bangladesh among primary export and manufacturing export sectors. The factor productivity in manufacturing export sector being greater, productive capacity of country would be enhanced if greater share of scarce resources is directed towards manufacturing export sector.

V. CONCLUSIONS

The weak positive interdependence between industrial output and manufactured export, possibly suggests that the industrial base of the country has not matured enough to induce export. On the basis of the results of this research it would be difficult to conclude that in the absence of serious initiatives for the development of domestic infrastructural facilities and other economic conditions, exports in Bangladesh would be able to play a leading role in transforming the nation's economy. However, with respect to the allocative justice of scarce resources in order to enhance productive capacity, the study shows that the marginal productivity of manufacturing export being more than the primary export, greater share of resources should be allocated to promote manufacturing export rather than primary export.

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*

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 Journal,* Vol. 43, No., 3, 1991, p. 20

Bahmani-Oskooee, Mohsen; Mohtadi, Hamid and Ghiath Shabsigh, (1991), 'Exports, Growth and Causality in LDCs: A RE-examination', *Journal of Development Economics,* Vol. 36, No. 2, pp. 405 – 15.

Balassa Bela, (1978), 'Exports and Economic Growth: Further Evidence', *Journal of Development Economics,* Vol. 5, No. 2, pp. 181 – 189.

Balassa Bela, (1978), 'Exports and Economic Growth', *Journal of Development Economics,* Vol. 5, No. 2, pp. 219 – 224.

Balassa, B., (1981), 'The Newly industrializing Developing Countries after the Oil Crisis' *Weltwirtschatliches Archive,* Band 117, Heft. 1, pp. 142 – 194.

Balassa Bela, (1985), 'Exports, Policy Choices and Economic Growth in Developing Countries After the 1973 Oil Shock', *Journal of Development Economics,* Vol. 18, No. 2, pp. 23 – 35.

Bangladesh Bank,
: *Economic Trends* , November, 2001
: *Scheduled Bank Statistic* , (various Issues)
: *Annual Report* (Different Years),
: circular No. 2, July 5, 1982. (Government of Bangladesh.)

Begum, S. and Shamsuddin A. F. M., (1998), 'Export and Economic Growth in Bangladesh' *Journal of Development Economics,* Vol.35, No.1, pp.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, *Journal of Development Economics,* Vol. 26, pp. 55 –63, North – Holland.

Darrat. A. F., (1986), 'Trade and Development: The Asian Experience', *Cato Journal,* Vol. 6, No. 2, pp. 695 – 700.

Edwards, S., (1992), ' Trade Orientation, Distortions and Growth in Developing Countries', *Journal of Development Economics,* Vol.39, No.1, pp.31– 57.

Emery, R. F., (1967), 'The Relation of Exports and Economic Growth', *Kyklos,* Vol. 20, No. 2, pp. 470 – 486.

Fajana, O., (1979), 'Trade and Growth: The Nigerian Experience', *World Development,* Vol. 7, No. 1, pp. 73 – 78

Feder Gershon, (1982), 'On Exports and Economic Growth', *Journal of Development Economics,* Vol. 12, No. 1/2, pp. 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.

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.

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, (197)8, 'Exports Growth : Am Empirical Re-investigation', Economic Growth', *Journal of Development Economics,* Vol. 5, No. 2, pp. 191 – 193.

Henriques, I. and P. Sadorsky, (1996), 'Export-led Growth or Growth-Driven Exports? The Canadian Case', *Canadian journal of Economics,* Vol.29, No.3, pp.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,* Vol, 17, No.2.

Jung, W. s. and Marshall, P. J., (1985), 'Export, Growth and Causality in Developing Countries', *Journal of Development Economics,* Vol. 18, No. 2, pp. 1 – 12.

Kavoussi, R. M., (1984), 'Export Expansion and Economic Growth: Further Empirical Evidence', *Journal of Development Economics,* Vol. 14, No. 1& 2, pp. 241 – 250.

Khalifa Al-Yousif, Yousif, (1997), 'Exports and Growth: Some Empirical Evidence from the Arab Gulf States', *Applied Economics,* Vol.29, No.6, pp. 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*, Vol. 28, No. 4, pp. 467 – 71.

Lal, D. and S. Rajapatirana, (1987), Foreign Trade Regions and Economic Growth in Developing Countries', *World Bank Research Observer,* Vol. 2, No. 2, pp. 189 – 217.

Lubitz, R., (1973), 'Export-Led Growth in Industrial Economies, Kyklos, Vol. 25, pp.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' *Journal of Development Economics',* Vol. 4, No. 1, pp. 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 Biswas B., (1991), 'Export and Economic Growth IN India: Empirical Evidence' *The Indian Economic Journal,* Vol. 38, no. 3, pp. 53 – 59

Prebisch, R., (1959), 'Commercial Policy for Developed Countries', *American Economics Review,* Paper and Proceedings, *No*. 49, 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,* Vol.33, No.2, pp. 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,* Vol. 36, No. 1, pp. 51 – 72.

Richards, Donald, G., (2001), 'Export as a Determinant of Long-Run Growth in Paraguay, 1966 - 96', *The Journal of Development Studies*, Vol. 38, No. 1, Oct. pp. 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*, Vol. 26, No. 1, pp. 41 – 51.

Sharma, Subash C. and Dharmendra Dhakal, (1994), 'Causal Analysis between Exports and Economic Growth in developing Countries', *Applied Economics*, Vol. 26, No. 12, pp. 1145 – 57.

Tyler, W. G., (1981), 'Growth and Exports Expansion in Developing Countries: Some Empirical Evidence', *Journal of Development Economics,* Vol. 9, No. 3, pp. 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' *Journal of International Economics*, Vol. 3, No. 4, pp. 337 – 349.

Williamson, R., (1978), 'The Role of Exports and Foreign Capital in Latin American Economic Growth', *Southern Economic Journal,* Vol. 45, no. 2, pp. 410 –20.