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EXPORT-LED GROWTH HYPOTHESIS: FURTHER ECONOMETRIC EVIDENCE FROM SOUTH ASIA

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This paper examines the export-led growth (ELG) hypothesis for five South Asian countries through cointegration and multivariate Granger causality tests. Strong support for a long-run relationship among exports, imports, and real output for all the countries except Sri Lanka were found. Feedback effects between exports and GDP for Bangladesh and Nepal and unidirectional causality from exports to output in the case of Pakistan were found. No causality between these variables was found for Sri Lanka and India, although for India GDP and exports did induce imports. A feedback effect between imports and GDP was also documented for Pakistan, Bangladesh, and Nepal, as well as unidirectional causality from imports to output growth for Sri Lanka. These and other findings are discussed from the standpoint of the export-led growth hypothesis.

Keywords: export-led growth hypothesis, multivariate Granger causality test, VAR model, economic growth in South Asian countries
JEL classification: F43, O41, O57

I. INTRODUCTION

There has been a debate in the literature over the suitability of trade policy for promoting economic growth and development (Todaro and Smith 2003, p. 556). Since the mid-1970s in most developing countries, there has been considerable shift towards export promotion strategy. This approach postulates that export expansion leads to better resource allocation, creating economies of scale and production efficiency through technological development, capital formation, and employment generation.

Theoretical agreement on export-led growth (ELG) emerged among neoclassical economists due to the success of the free-market, and outward-oriented policies of

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the East Asian Tigers (World Bank 1993).[1] Export-led growth hypothesis has not only been widely accepted by academics (Feder 1982; Krueger 1990), and evolved into a "new conventional wisdom" (Tyler 1981; Balassa 1985), but it also has shaped the development of a number of countries as well as the policies of the World Bank (World Bank 1987).

The proponents of the hypothesis and free trade point out that the Latin America economies that followed inward-oriented policies under the import substitution strategy showed poor economic achievements (Balassa 1980). In order to correct economic imbalances, many developing countries were forced to further stimulate their export-led orientation through implementing adjustment and stabilization programs. It was thought that promoting exports would enable developing countries to correct imbalances in the external sector and assist them in their full recovery. Numerous empirical research studies have been done on the relationship between exports and economic growth. However, the results remain inconsistent both for the developed and developing countries and the topic continues to attract research attention.

This paper endeavors to reinvestigate the dynamic relationships among exports, imports,[2] and real GDP for the South Asian countries of India, Pakistan, Bangladesh, Nepal, and Sri Lanka.[3] For examining the long-run relationship among these variables, the cointegration techniques of Johansen (1988) and Johansen and Juselius (1990) have been used. To check the directions of causality among these variables, the study uses the Granger causality test based on Toda and Yamamoto (1995). To date this test does not seem to have been employed in the South Asian context.

The rest of the paper is organized as follows. Section II deals with a brief review of the existing empirical studies. Section III discusses the data and methodological issues. Section IV presents this study's empirical findings, while Section V sets forth its conclusions.

[1] In reality the tigers' success was not left to the market but resulted as much from carefully planned intervention by the governments. As Amsden (1989) states, the approach behind the emergence of the new "Asian Tigers" is a strong, interventionist state, which has willfully and abundantly provided tariff protection and subsidies, changed interest and exchange rates, managed investment, and controlled industry using both lucrative carrots and threatening sticks.

[2] If we study the long-run relationship and causality structure without including important variables (in our case imports) it will lead to invalid inference as causality tests are sensitive to model selection and function form (Gujarati 1995). For further details see Riezman, Whiteman, and Summers (1996), Lutkepohl (1982), Caporale and Pittis (1997), and Caporale, Hassapis, and Pittis (1998). Developing economies, such as the South Asian countries, where domestic resources are sufficient, export expansion still requires the import of some goods that do not exist in the domestic market as well as capital goods and technology which play a key role in the manufacturing of export-driven goods.

[3] This issue is important because the determination of the causal pattern between exports and economic growth has important implications in determining the policies and policymakers for the appropriate growth and development strategies to adopt.

II. EXPORTS–ECONOMIC GROWTH NEXUS

Empirical studies regarding the relationship between exports and output growth can generally be separated into two categories: (i) cross-sectional analysis and (ii) country-specific time-series studies. Both categories of studies, nevertheless, indicate that the debate on the nexus is far from settled.

A. *Cross-Sectional Studies*

Within a neoclassical framework, exports and growth performance have been examined both through Spearman rank correlations (Kravis 1970; Michaely 1977; Bhagwati 1978), and through the use of ordinary least squares (Balassa 1978, 1985; Tyler 1981; Kavoussi 1984; Ram 1987; Heitger 1987; Fosu 1990; Lussier 1993). In both sets of studies, exports have emerged as an important factor in determining economic growth. Similarly, Gonclaves and Richtering (1986) in a 70-country sample found substantive correlation between GDP growth and export growth rate and change in export/GDP ratio. Contrary to these studies, however, Colombatto (1990) in his 70-country sample rejects the export-led growth hypothesis.

Cross-sectional empirical investigations can explain to some extent why growth differs across a wide spectrum of countries. Nevertheless, this type of cross-sectional investigation has deficiencies which casting doubts on the reliability and validity of the findings. In these studies, countries in similar stages of development are grouped together, implicitly assuming a common economic structure and similar production technology. Thus the results reported in these studies are clearly vulnerable to criticism. Moreover, cross-sectional analyses ignore the shifts in the relationship between variables overtime within a country. Exports and economic growth is a long-run phenomenon that cannot be fully captured by cross-sectional analysis.

B. *Time-Series Studies*

The recent evidence from time-series analysis fails to unequivocally support a robust exports–economic growth nexus. Jung and Marshall (1985), for instance, based on the standard Granger causality tests, analyzed the relationship between export growth and economic growth using time-series data for 37 developing countries and found evidence for the export-led growth hypothesis in only four countries. Similarly results from Bahmani-Oskooee, Mohtadi, and Shabsigh (1991) and Dodaro (1993) are mixed. Darrat (1986, 1987) rejects exports–economic growth causality for three out of four countries included in his sample. However, Chow (1987) in a sample of eight newly industrialized countries (NICs) found strong bidirectional causality between export growth and industrial development in seven.

Using the error correction modeling (ECM) approach, Bahmani-Oskooee and Alse (1993) reexamined the relationship between export growth and economic growth for 9 developing countries and found strong support for the export-led growth hypothesis for all the countries included in their sample. Likewise, Dutt and Ghosh (1996) found support for the export-led growth hypothesis in half of their sample countries. Xu (1996) found support for export-led growth in 17 out of 32 developing countries he studied.

Al-Yousif (1997), using a multivariate model for Malaysia, supported the export-led growth hypothesis as a short-run phenomenon, while El-Sakka and Al-Mutairi (2000) found mixed results regarding the direction of causality in 16 Arab countries.

Ghartey (1993), using a vector autoregressive (VAR) model for Taiwan, the United States, and Japan, found export-led growth in Taiwan, economic growth Granger-causes export growth in the United States, and a feedback causal relationship existing in Japan. Against this, Kwan, Cotsomitis, and Kwok (1996) found mixed results for Taiwan, while Boltho (1996) found that domestic forces rather than foreign demand propelled longer-run growth in Japan. Ahmed and Harnhirun (1996) rejected the export-led growth hypothesis for five ASEAN economies, while Gupta (1985) found bidirectional association between exports and economic growth for Israel and the Republic of Korea.

Nandi and Biswas (1991), Bhat (1995), and Ghatak and Wheatley (1997) found evidence of an exports–economic growth nexus for India, while Xu (1996) rejected the export-led growth hypothesis for India.

Khan and Saqib (1993) used a simultaneous equation model and found a strong relationship between export performance and economic growth in Pakistan. Meanwhile Mutairi (1993) found no such support for the period 1959–91, while Khan, Malik, and Hassan (1995) found strong evidence of bidirectional causality between export growth and economic growth for Pakistan.

Rana (1985) estimated an export-augmented production function for 14 Asian developing countries including Pakistan. The evidence supported the argument that exports contribute positively to economic growth. Anwar and Sampath (2000) examined the export-led growth hypothesis for 97 countries including Pakistan, India, and Sri Lanka for the period 1960–92. They found unidirectional causality in the case of Pakistan and Sri Lanka and no causality for India.

Ahmed, Butt, and Alam (2000), using a trivariate causality framework, rejected the export-led growth hypothesis for all but one (Bangladesh) of the countries they studied. Kemal et al. (2002) found strong support for long-run causality from export to GDP for Pakistan and India, and bidirectional causality for Bangladesh, Nepal, and Sri Lanka. The study also found short-run causality from exports to GDP for Bangladesh and Sri Lanka, and reverse short-run causation from GDP to exports for India and Nepal. For Pakistan they found no causal relationship.

Some studies have found that the effect of exports on economic growth depends on the level of development of the country concerned (Tyler 1981; Dadaro 1991;

Michaely 1977; Singer and Gray 1988; Watanabe 1985) and the composition of exports themselves (Kavoussi 1985; Dadaro 1991). Furthermore, some authors (Yanghmaian and Ghorashi 1995) maintain that a long and complex process of structural change and economic development precedes both export expansion and economic growth.

The above studies clearly show that the results are inconclusive.

III. DATA AND METHODOLOGICAL ISSUES

A. *Data*

The annual data were drawn from the IMF's *International Financial Statistics* (CD-ROM).[4] The exports, imports, and GDP of the five countries of the region were converted into real terms using the respective consumer price indices. The logarithmic plots of the time series are shown in Figure 1. This figure demonstrates that individually the real GDP (y), the real exports (x), and the real imports (m) of each country exhibit strong upward trends implying that these variables may move together.

B. *Methodology*

The objective of this study is to investigate the dynamic relationship among the variables, i.e., real output (GDP), real imports, and real exports. For the examination of the long-run relationship among these variables, we used the cointegration test developed by Johansen (1988) and Johansen and Juselius (1990). For examining causality, we used the Granger causality test based on Toda and Yamamoto (1995).

The following procedures were used. Firstly, since both the cointegration test and Toda-Yamamoto Granger causality test require a certain stochastic structure of the time series, a stationary test is performed to determine the order of integration for each time series using the augmented Dickey-Fuller test (ADF) (1979) and Phillips-Perron test (PP) (1988).

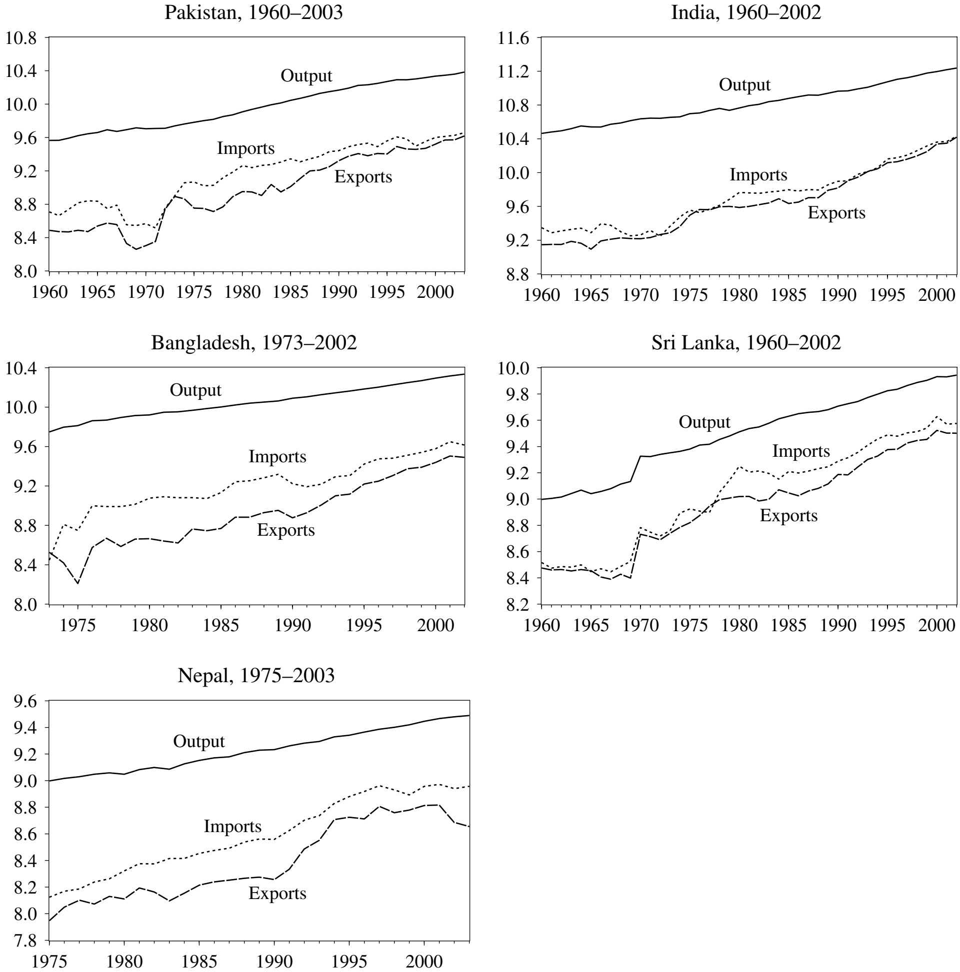
Secondly, since one of the critical parts of the cointegration test and Toda-Yamamoto Granger causality test is to determine the lag length k in the level VAR system, the lag length of the level VAR system was determined by minimizing the Akaike information criterion (AIC) and the Schwarz Bayesian criterion (SBC).

Thirdly, to conduct the cointegration test, the standard maximum likelihood method of Johansen (1988) and Johansen and Juselius (1990)[5] was applied, and the following unrestricted VAR model was estimated.

[4] The data for Pakistan is from 1960 to 2003; India, 1960 to 2002; Bangladesh, 1973 to 2002; Sri Lanka, 1960 to 2002; and Nepal, 1975 to 2003.

[5] Treating all variables to be endogenous, the JJ test is noted to offer several advantages over the two-step residual-based test of Engle and Granger (1987). See Masih and Masih (2000).

Fig. 1. Logs of Output, Exports, and Imports in South Asian Countries



$$Y_t = A_0 + \sum_{j=1}^{p} A_j Y_{t-j} + \varepsilon_t, \tag{1}$$

where $Y_t = (y, x, m)$ is an 3×1 vector of nonstationary $I(1)$ variables, A_0 is a 3×1 vector of the constants, p is the number of lags, A_j is a 3×3 matrix of estimable parameters, and ε_t is a 3×1 vector of the independent and identically distributed innovations. If Y_t is cointegrated, equation (1) can be generated by a vector error correction model (VECM):

$$\Delta Y_t = A_0 + \sum_{j=1}^{p-1} \Gamma_j \Delta Y_{t-j} + \Pi Y_{t-1} + \varepsilon_t, \tag{2}$$

where $\Gamma_j = \sum_{i=j+1}^{p} A_i$ and $\Pi = \sum_{j=1}^{p} A_j - I$. Δ is the difference operator, and I is an $n \times n$ identity matrix. The rank of the matrix Π determines the number of cointegrating vectors, since the rank of Π is equal to the number of independent cointegrating vectors.

Finally, the direction of causality was found through the Toda-Yamamoto (1995) Granger causality test. This method was chosen for the following reasons:

(1) The standard Granger (1969) causality test for inferring leads and lags among integrated variables is likely to give spurious regression results and the F-test becomes invalid unless the variables in levels are cointegrated.

(2) The error correction model (Engle and Granger 1987)[6] and the VAR error correction model (Johansen and Juselius 1990)[7] as alternatives for the testing of non-causality between economic time series are cumbersome.

(3) Toda and Phillips (1993) have provided evidence that the Granger causality tests in ECMs still contain the possibility of incorrect inference and suffer from nuisance parameter dependency asymptotically in some cases.

The above reasons imply that there is no satisfactory statistical basis for using Granger causality tests in levels or in difference VAR systems or even in ECMs (Toda and Yamamoto 1995; Zapata and Rambaldi 1997). Moreover, Toda and Yamamoto's Granger causality test is a simple procedure requiring the estimation of an "augmented" VAR that is applicable irrespective of the integration or cointegration present in the system. It uses a modified Wald (MWALD) test to test for restrictions on the parameters of the $VAR(k)$ model. This test has an asymptotic chi-squared distribution with k degrees of freedom in the limit when a VAR $[k + d(\max)]$ is estimated (where $d(\max)$ is the maximal order of integration for the series in the system). Two steps are involved in implementing this procedure. The first step includes determination of the true lag length (k) and the maximum order of integration (d) of the variables in the system. The level $VAR(k + d)$ is then estimated. The second step is to apply standard Wald tests to the first k VAR coefficient matrix only in order to conduct inference on Granger causality.[8]

[6] This methodology involves transforming the suggested relationship into an error correction model (ECM) and identifies the parameters associated with causality. If the case involves more than two cointegration vectors, this is not easy work.

[7] Further, there is growing concern among applied researchers that the cointegration likelihood ratio (LR) tests of Johansen (1998) and Johansen and Juselius (1990) have often not provided the degree of empirical support that might reasonably have been expected for a long-run relationship. Furthermore, using a Monte Carlo experiment, Bewley and Yang (1996) argued that the power of LR tests is high only when the correlation between the shocks that generate the stationary and nonstationary components of typical macroeconomic series is sufficiently large and also that the power of LR tests deteriorates rapidly with over-specification of lag length. This concern has also been supported by the simulation studies of Ho and Sorensen (1996).

[8] Notice that the additional lags (d) are unrestricted, their function is to ensure that the asymptotical critical values can be applied when tests for causality between integrated variables are conducted.

IV. FINDINGS

A. *Order of Integration*

Before testing for cointegration, we tested for unit roots to find the stationarity properties of the data. Augmented Dickey-Fuller (ADF) *t*-tests (Dickey and Fuller 1979) and Phillips and Perron (PP) (1988) tests were used on each of the three time series for each country. The lag length for the ADF tests was selected to ensure that the residuals were white noise.

The results of the ADF tests both with and without trend as recommended by Engle and Granger (1987) and the Phillips and Perron (1988) tests again with and without trend are reported in Table I.

Table I shows that the null of unit root cannot be rejected for any of the three-level variables, which means that all the time series in levels are nonstationary. However, the null hypotheses of the unit root is rejected for first differenced variables, indicating that all the variables of each country are first differenced stationary or integrated of order one, $I(1)$.

B. *Testing for Cointegration*

Two time series are cointegrated when a linear combination of the time series is stationary, even though each series may individually be nonstationary. The lag length for the VAR system was determined using AIC and SBC. Tests for cointegration between the variables on levels were then conducted. The lags used for different countries suggested by both criteria in the VAR are shown in Table II. Moreover, since the data are of annual periodicity, an inspection of the results suggests that serial correlation is not a problem when we set the order of the VAR at suggested lags for each country.

Table II reports the λ-max and trace tests to identify the number of cointegrating vectors. Note that Reinsel and Ahn (1992) argued that in a model with a limited number of observations, the likelihood ratio tests can be biased toward finding cointegration. In order to obtain the adjusted estimates, they suggested multiplying the LR test statistics (λ-max and trace) by a factor $(T - nk)/T$, where T is the effective number of observations, n is the number of variables in the model, and k is the order of VARs. Table II presents these adjusted statistics.

The table also shows that using either statistic, the null hypotheses of no cointegration stand rejected for all the countries except Sri Lanka because both statistics are greater than their critical values. However, the null hypothesis of at most one cointegrating vector cannot be rejected in favor of $r = 2$. Thus the empirical support for one cointegration vector implies that all three variables, namely, imports, exports, and economic growth, are cointegrated and follow a common

TABLE I

Stationary Test Results

Countries	Variables	ADF Test		PP Test	
		Without Trend	With Trend	Without Trend	With Trend
India	E	1.701	–1.684	1.713	–1.740
	ΔE	–5.769**	–6.255**	–5.787**	–6.255**
	M	1.344	–3.303	1.416	–2.322
	ΔM	–6.111**	–6.400**	–6.111**	–6.407**
	Y	1.309	1.432	2.456	–1.432
	ΔY	–6.880**	–7.224**	–6.880**	–8.857**
Sri Lanka	E	–0.248	–2.928	0.248	–2.948
	ΔE	–7.255**	–4.853**	–7.255**	–7.164**
	M	–0.478	–2.331	–0.389	–2.456
	ΔM	–6.346**	–6.265**	–6.683**	–6.787**
	Y	–0.762	–2.121	–0.773	–2.121
	ΔY	–7.010**	–7.010**	–7.030**	–7.013**
Pakistan	E	–0.106	–2.185	–0.502	–2.143
	ΔE	–7.041**	–6.968**	–8.684**	–8.802**
	M	–0.665	–2.253	0.548	–2.305
	ΔM	–7.047**	–6.986**	–7.152**	–7.067**
	Y	–0.138	–3.573	0.146	–1.748
	ΔY	–5.880*	–5.798**	–6.045**	–5.978**
Bangladesh	E	–0.242	–4.383*	–0.597	–4.391**
	ΔE	–6.438**	–6.302**	–8.118**	–8.949**
	M	–2.888	5.936*	–2.8436	–5.850*
	ΔM	–9.421**	–9.222**	–9.253**	–8.972**
	Y	3.384	–0.752	–0.907	–3.679
	ΔY	–9.104**	–4.329**	–8.293**	–8.097**
Nepal	E	–1.277	–1.117	–1.270	–1.444
	ΔE	–4.399**	–4.360**	–4.399**	–4.360**
	M	–1.324	–1.119	–1.264	–1.507
	ΔM	–4.499**	–4.582**	–4.483**	–4.565**
	Y	1.782	–2.890	0.865	–2.746
	ΔY	–2.788*	–6.927**	–8.059**	–10.110**

Notes: 1. ADF = augmented Dickey-Fuller; PP = Phillips-Perron; and Δ = first difference.
2. E, M, and Y denote the natural logarithms of exports, imports, and output, respectively.
** and * represent statistical significance at the 1 percent and 5 percent level, respectively.

long-run path. This is consistent with our "a priory" expectation that all these variables are cointegrated. Therefore, the cointegration analysis provides a justification for the inclusion of imports in the analysis of export-led growth hypothesis for South Asian countries as mentioned earlier.[9]

[9] See footnote 1.

TABLE II

JOHANSEN COINTEGRATION TEST RESULTS
(Variables: Output, exports, and imports)

Null	Alternative	λ-Max Statistics	Critical Value		Trace Statistics	Critical Value	
			5%	1%		5%	1%
A. India (lag = 2)							
$r = 0$	$r = 1$	21.22**	22.97	26.81	37.826**	29.68	35.65
$r \leq 1$	$r = 2$	12.75	14.07	18.63	16.60	15.41	20.64
$r \leq 2$	$r = 3$	4.06	3.76	6.65	4.93	3.76	6.65
B. Sri Lanka (lag = 1)							
$r = 0$	$r = 1$	19.60	29.68	35.68	10.454	34.911	25.57
$r \leq 1$	$r = 2$	9.51	15.41	20.04	7.143	19.96	18.63
$r \leq 2$	$r = 3$	2.015	3.76	6.05	2.015	3.76	6.65
C. Pakistan (lag = 2)							
$r = 0$	$r = 1$	32.60**	22.00	26.81	49.42**	34.91	41.07
$r \leq 1$	$r = 2$	12.75	15.67	20.2	16.82	19.96	24.60
$r \leq 2$	$r = 3$	4.06	9.24	12.97	4.06	9.24	12.97
D. Bangladesh (lag = 2)							
$r = 0$	$r = 1$	31.19**	20.97	25.52	43.78**	29.68	35.65
$r \leq 1$	$r = 2$	10.76	14.07	18.63	10.56	15.41	20.04
$r \leq 2$	$r = 3$	1.81	3.76	6.65	1.81	3.76	6.65
E. Nepal (lag = 2)							
$r = 0$	$r = 1$	25.50*	20.97	26.81	30.86*	29.68	41.07
$r \leq 1$	$r = 2$	4.55	14.07	20.20	5.37	15.41	20.05
$r \leq 2$	$r = 3$	0.82	3.76	6.65	0.81	3.76	6.65

** and * represent statistical significance at the 1 percent and 5 percent level, respectively.

Table III presents the long-run equation, which is derived by normalizing on output based on the estimated cointegration coefficient. As expected all the signs are positive indicating that both exports and imports contribute positively to economic growth for the South Asian region. India has the highest export elasticity of output (0.546), followed by Pakistan (0.491), Bangladesh (0.291), and Nepal (0.052). It shows that except for Nepal, exports are playing a significant role in the economic growth of these countries. Since we could not find any evidence of cointegration for Sri Lanka, the long-run relationship was not estimated. On the other hand, imports are one of the important factors in the economic growth of Nepal followed by Bangladesh, Pakistan, and India.

C. *Testing for Causality*

As mentioned above, a multivariate Granger causality (Toda and Yamamoto 1995) procedure was used to study causal dynamics among the exports, imports, and real output (GDP) of the five countries.

TABLE III

ESTIMATED COINTEGRATION COEFFICIENT DERIVED BY NORMALIZING ON Y

Country	Constant	Exports (E)	Imports (M)
India	5.2837	0.546	0.028
		(0.101)	(0.109)
Pakistan	4.192	0.491	0.150
		(0.111)	(0.128)
Bangladesh	5.268	0.291	0.238
		(0.044)	(0.056)
Nepal	4.535	0.052	0.597
		(0.087)	(0.089)

Notes: 1. Standard errors are enclosed in parentheses.
2. Sri Lanka is not presented here because we do not find any evidence of cointegration for this country.

The results from Table I clearly suggest that none of the variables are stationary in levels. Nevertheless, the first differences of these series are stationary. In the present case this means that $d_{max} = 1$. We then estimated a system of VAR in levels with a total of $d_{max} + k$ lags, where k equals the lag length for the systems of the different countries shown in Table II.

Using this information, the system of equations was jointly estimated as a "seemingly unrelated regression equations" (SURE) model by maximum likelihood. The computed MWALD test statistics are shown in Table IV.

Table IV shows that the null hypothesis "Granger no-causality from exports to growth" can be rejected at the 1 percent level of significance for Pakistan, the 5 percent level of significance for Bangladesh, and the 10 percent level of significance for Nepal. The converse is true only for Bangladesh and Nepal indicating a feedback effect between exports and economic growth for both countries. Converseness for Pakistan could not be documented implying unidirectional causality running from exports to output growth. This confirms the ELG hypothesis for Pakistan, Bangladesh, and Nepal. Our results find no evidence that can support the export-led growth hypothesis in the case of India and Sri Lanka. These results are in line with Anwar and Sampath (2000) and Xu (1996) for India, and Abhayaratne (1996) for Sri Lanka.

Table IV also shows that the null hypothesis "Granger no-causality from imports to growth" can be rejected at the 1 percent level of significance for Pakistan, and at the 5 percent level for Bangladesh and Nepal. Similarly the results in Table IV show that the null hypothesis "Granger no-causality from growth to imports" can also be rejected at the 1 percent level of significance for Bangladesh and Nepal, and the 10 percent level of significance for Pakistan. This again indicates a feedback effect between imports and output growth. Imports also cause output growth in the

TABLE IV

MULTIVARIATE GRANGER CAUSALITY TEST RESULTS

Country	Dependent Variable	Source of Causation		
		Output χ^2	Exports χ^2	Imports χ^2
India	Output	—	2.333	2.573
	Exports	1.947	—	1.738
	Imports	10.793**	20.270**	—
Sri Lanka	Output	—	0.926	5.42*
	Exports	0.235	—	0.334
	Imports	1.340	0.090	—
Pakistan	Output	—	17.08***	16.35***
	xports	5.595	—	6.71
	Imports	9.90*	8.429	—
Bangladesh	Output	—	8.21**	8.43**
	Exports	11.945***	—	7.62*
	Imports	24.279***	26.840***	—
Nepal	Output	—	8.21*	8.43**
	Exports	11.945***	—	7.627*
	Imports	24.279***	26.841***	—

***, **, and * represent statistical significance at the 1 percent, 5 percent, and 10 percent level, respectively.

case of Sri Lanka, but the converse is not true. In the case of India, output growth causes imports, but the converse is not true.

Our results show strong evidence of significant causality between imports and exports in the case of Nepal and Bangladesh. However, there is no significant causality between imports and exports for Pakistan. In the case of India, economic growth and exports do induce imports, but the converse could not be confirmed.

These results are contrary to those of Akbar and Naqvi (2000) and Ahmed, Butt, and Alam (2000), where the ELG hypothesis for Pakistan was not supported. Whereas Akbar and Naqvi (2000) did not find any role for imports in output growth, Ahmed, Butt, and Alam (2000) rejected the exports–economic growth nexus. In view of the findings on the ELG in the present study, the null findings of the just mentioned studies may well have been an artifact of the particular methodology (the standard Granger causality test) used. Our study confirms the long-run results of Kemal et al. (2002). However, the short-run results of Kemal et al. (2002) have been contradicted by our study. Probably the standard Granger causality test used is an oversimplified approach in examining the complexities of relationships in a causal model.

V. CONCLUSION

The suitability of trade policy for economic growth and development has been debated in the literature. Up until the mid-1970s, import substitution policies prevailed in most developing countries, then the emphasis shifted towards export promotion strategies in an effort to promote economic development. It was hoped that export expansion would lead to better resource allocation, creating economies of scale and production efficiency through technological development, capital formation, and employment generation. Thus export-led economic growth has been and continues to be a focus of debate among economists.

This paper reinvestigated the export-led growth hypothesis for South Asian countries through cointegration and multivariate Granger causality tests (Toda and Yamamoto 1995). The present study strongly supports a long-run relationship among the three variables for all the countries under study, except Sri Lanka. The results also show a feedback effect between imports and output growth for Pakistan, Bangladesh, and Nepal, unidirectional causality from imports to output growth for Sri Lanka, but no causality for India. It also found feedback effects between exports and output growth for Bangladesh and Nepal. However, it shows unidirectional causality from exports to output growth in case of Pakistan and no causality in case of Sri Lanka and India. Our results support the export-led growth hypothesis for Bangladesh, Pakistan, and Nepal, but not for India and Sri Lanka. However, output growth and exports do induce imports in the case of India. There is a strong feedback effects between imports and exports in the case of Bangladesh and Nepal. The present study gives support to the findings of Anwar and Sampath (2000) and Xu (1996) for India, and Abhayaratne (1996) for Sri Lanka. Our study, however, sharply contradicts the null findings of Akbar and Naqvi (2000) and Ahmed, Butt, and Alam (2000) for Pakistan.

Our study gives support to the long-run results of Kemal et al. (2002); however, it contradicts their short-run results. Probably the standard Granger causality test used is an oversimplified approach for examining the complexities of relationships in a causal model. It can be concluded by way of recommendation that these countries should continue with the import of necessary raw material for value addition and needed technology to expand capacity and improve productivity to increase output growth. Since the ELG model is found to be valid for Bangladesh, Pakistan, and Nepal, these countries should pay full attention to boost up their exports.

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