

IS THE EXPORT-LED GROWTH HYPOTHESIS VALID FOR SRI LANKA? A TIME SERIES ANALYSIS

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ABSTRACT

The export-led growth (ELG) hypothesis suggests that there is a strong positive linear relationship between a country's exports and economic growth. For many years, theoretical and empirical studies have examined the causal relationship between exports and economic growth and found that this relationship is one of interdependence rather than of unilateral causation. This paper intends to investigate the casual effects of short and long run relationship between Export and Economic Growth and determine the recent trends, developments and obstacles Exports in Sri Lanka. The paper builds its analysis on the available literature on theoretical and empirical forecasting and applies on Sri Lanka Export Market. Annual time series data on Gross Domestic Production, Export, Gross fixed capital formation, employment and inflation, which cover the 1977–2018 period, have been used in this study for the analysis. The data are taken from sources such as economic surveys of Sri Lanka, World Bank Reports, Central Bank Reports of Sri Lanka, UNCTAD (United Nations Conference on Trade and Development) Reports, and IMF reports. All data figures are expressed in rupees millions, unless otherwise percentage. The main purpose of this study employed empirical econometrics time series analysis Export –led growth hypothesis for Sri Lankan by testing using ADF unit root test, Johansen Co-integration test, Vector Error Correction (VEC) modelling and Granger casualty test. Ordinary Least Square method (OLS) is used to estimate and explain the regression model of the study. The findings of this article reveal that export which promotes economic growth, capital investment and employment in the short- and long-run for Sri Lanka. We find that the reported results confirm the validity of export-led growth hypothesis for Sri Lanka. That is, openness indeed leads to higher economic growth.

Keywords: export led growth, co-integration test, openness and trade liberalization

INTRODUCTION

The nature of the relationship between exports and national output growth has been one of the most debated in the recent past, yet with little consensus in the theoretical and empirical literature in international trade and development economics. Central to this debate is the question of whether strong economic performance is export-led or growth-driven. This question is important because the determination of the causal pattern between export and growth has important implications for policy-makers' decisions about the appropriate growth and development strategies and policies to adopt. Aiming at a rapid economic growth, governments of the developing world have pursued export promotion strategies, with the belief that export might overcome natural limits and constraints to economic growth which exists in their domestic

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economies. Sri Lanka is not an exception to this case, which implemented export oriented strategies, particularly after opening up the economy in 1977.

The export-led growth (ELG) hypothesis suggests that there is a strong positive linear relationship between a country's exports and economic growth. This interesting question has been the subject for a number of research works in the recent past. Many econometric analyses have been performed to identify the export causality towards economic growth with varying degree of results. The main objective of this paper is to examine the relationship between Export and Economic growth in Sri Lanka during 1977-2018 in order to understand the major determinants of Exports movements. The paper sets out the following specific objectives are to determine the recent trends, developments and obstacles Exports in Sri Lanka, Test co- integration relationship between Economic Growth and Exports affecting Sri Lanka and short run and long run relationship in Economic Growth and Exports in Sri Lanka.

LITERATURE REVIEW

THEORETICAL FRAMEWORK

In general, causality from exports to real output is denoted as 'ELG hypothesis,' while the reverse causal flow from real output to exports is termed 'growth-driven exports'. ELG hypothesis reflects the view that export-oriented policies help to stimulate economic growth. Export expansion can be a catalyst for output growth both directly, as a component of aggregate output, as well as indirectly through efficient resource allocation, greater capacity utilization, exploitation of economies of scale, and stimulation of technological improvement due to foreign market competition. Furthermore, export growth through an expanded market base allows for the exploitation of economies of scale for open economies and promotes the transfer and diffusion of technical knowledge in the long run (Helpman and Krugman 1985; Grossman and Helpman 1991). Exports can be viewed as economies of scale that are external to the individual firms in the non-export sector but internal to the overall economy. This ELG hypothesis implies that the rate of export growth will lead to economy-wide efficiency and productivity growth.

Theoretical agreement on export-led growth (ELG) emerged among neoclassical economists due to the success of free-market, and outward-oriented policies of East Asian Tigers, namely Hong-Kong, Singapore, South Korea and Taiwan. Export-led growth hypothesis has not only been widely accepted by academics and evolved into a "new conventional wisdom", but, it also, has shaped the development of a number of countries as well as the policies of the World Bank. However, the reality of the tigers does not support this view of how their export success was achieved. The production and composition of export was not left to the market but resulted as much from carefully planned intervention by the governments. The approach behind the emergence of this new 'Asian Tiger' is a strong, interventionist state, which has

willfully and abundantly provided tariff protection and subsidies, change interest and exchange rates, management investment, and controlled industry using both lucrative carrots and threatening stick.

EXPORTS AND GROWTH. A BRIEF LITERATURE REVIEW.

The argument considering the role of exports as a determinant of economic growth is extremely old, going back to the classical school of thought, represented by Adam Smith who believed in the importance of international trade to productivity improvements by expanding the size of markets thereby enabling the realization of economies of scale. Later, David Ricardo indicated that if two countries trade with each other and specialize according to their comparative advantages, both countries gain from trade.

More recently, several seminal theoretical works, for example, Rivera-Batiz and Luis and (1991), have provided a framework to understand and analyze the relationship between exports and economic growth. It is argued that expanding exports can raise total factor productivity through their favourable effect on economies of scale and other externalities such as technology diffusion, higher skilled labour and improved management skills, and capacity utilization. Moreover, since an export-led development strategy does not discriminate against exports in favour of the home market, it brings incentives for domestic resources closer to international opportunity costs and hence closer to what will generally produce efficient outcomes.

In addition, there is some evidence of threshold effects. Michaely (1977) uses a sample of forty-one less developed countries for the period 1950-73 and indicates that although there is a statistically significant positive correlation between exports and economic growth, growth is affected by export performance only once countries achieve some minimum level of development. In a study of fifty three non-oil developing countries, Seghezza (1996) points out that the positive effect of the growth of exports share is only important for the more industrialized countries.

Export composition also matters. It has been indicated that exports of manufactured products are much less cyclically sensitive than exports of primary commodities. Therefore, countries whose exports contain mainly the manufactured products suffer less from cycle downturn or recovery, to the extent that their share in world markets for manufactures is still small (Harrison 1996; Srinivasan and Bhagwati 2001). This view is supported by a number of empirical studies, including Greenaway, Morgan, and Wright (1999), which constructed a panel of sixty-nine countries and found that those developing countries that specialized in manufactured products were more likely to benefit from export-led growth than those which specialized in food and/or other primaries.

Muhammad and Ravinthirakumaran (2015) investigated the impact of exports on the economic growth in Bangladesh and results shows that there is strong positive and

significant effects on economic growth. Emery (1968), Kravis (1970), and Kunst (1989). This group of studies used bivariate correlation—the Spearman rank correlation test—to illustrate the effects of the Export Led Growth Hypothesis. The general conclusion was that high levels of economic growth are significantly associated with high levels of export growth.

Dilrukshini (2009) investigated the relationship between exports and economic growth in the three of largest exporting countries in the world such as European Union, United States and Japan. The result of the study suggested that export have causal effect on the development process for the countries of European Union and USA while there is no causal relationship between the examined variables in Japan.

Nevertheless, it should be noted that with regards to the direction of causality between exports and economic growth, since exports are a major component of GDP, causality may run from exports to growth or vice versa. A sizeable empirical works, which studied several groups of less developed countries and/or individual countries, such as Malaysia, Paraguay, and the Asian newly industrializing countries (NICs) (Korea, Taiwan, Hong Kong, and Singapore), have found no conclusive evidence on the causal relationship between exports and growth in these countries or groups.

DATA AND METHODOLOGY

Annual time series data on Gross Domestic Production, Export, Gross fixed capital formation, employment and inflation, which cover the 1977–2018 period, have been used in this study for the analysis. The data are taken from sources such as economic surveys of Sri Lanka, World Bank Reports, Central Bank Reports of Sri Lanka, UNCTAD (United Nations Conference on Trade and Development) Reports, and IMF reports. All data figures are expressed in rupees millions, unless otherwise percentage.

$$GDP_t = \beta_0 + \beta_1 EXPO_t + \beta_2 GFCC_t + \beta_3 EMP_t + \beta_4 INF_t + \mu_t$$

(1)

Where dependent variable is gross domestic production (GDP) and the independent variables are export (EXP), gross fixed capital formation (GFCF), employment (EMP) and inflation (INF), μ_t is the error term. For the purpose of estimation, the above equation could be rewritten as follows by taking the log on both sides and econometric results were determined via using the programme “Eviews 7.1”

$$LGDP_t = \beta_0 + \beta_1 EXPO_t + \beta_2 GFCC_t + \beta_3 EMP_t + \beta_4 INF_t + \mu_t \quad (2)$$

The main purpose of this study employed empirical econometrics time series analysis Export –led growth hypothesis for Sri Lankan by testing using ADF unit root test, Johansen Co-integration test, Vector Error Correction (VEC) modelling and

Granger casualty test. Ordinary Least Square method (OLS) is used to estimate and explain the regression model of the study.

RESULTS AND DISCUSSION

Test for Stationary (unit root test)

Augmented Dickey Fuller test was used to determine the level of integration of the variables in the model. The result of unit root test is presented in Table 1

Table: - 1 Augmented Dickey-Fuller test of unit root (Period: 1977-2018)

| (Variables) | (Level) | | | | (1 st Differences) | | | |
|---------------|-----------------------|-------------|---------------------------|-------------|-------------------------------|-------------|-------------------|-------------|
| | Intercept | | Trend & Intercept | | Intercept | | Trend & Intercept | |
| | τ - statistic | P- value | τ - statisti c | P- value | τ -statistic | P- value | τ -statistic | P- value |
| LGDP | -1.0986 | 0.9998 | -0.3148 | 0.9980 | -4.2280** | 0.0210 | -4.6197** | 0.0380 |
| LEXPO | -1.0888 | 0.7100 | -1.9916 | 0.5866 | -6.5917*** | 0.0000 | -6.5824*** | 0.0000 |
| LG FCC | -1.4426 | 0.5510 | -2.4658 | 0.3421 | -5.4013*** | 0.0001 | -5.4165*** | 0.0005 |
| LEMP | -1.4471 | 0.9988 | -2.5759 | 0.2927 | -4.7832*** | 0.0004 | -5.4029*** | 0.0004 |
| LINF | -1.4576 | 0.5241 | -2.5674 | 0.3241 | -4.0396** | 0.0333 | -4.6448** | 0.0344 |

Source:-Output for use data sheet E-views7.1

Note. Significant levels- at 1%- * 5% - ** 10%-* respectively.**

The estimated results show that the null hypothesis of unit roots cannot be rejected for all the variables. Further, the results of the unit root test indicate that, all the variables are stationary in level forms. However, all the variables were identified as stationary in the first difference.

Long Run Regression Equation

We can rewrite the regression equation that is relevant to this study.

$$LGDP_t = \beta_0 + \beta_1 EXPO_t + \beta_2 GFCC_t + \beta_3 EMP_t + \beta_4 INF_t + \mu_t \quad (2)$$

$$LGDP_t = 13.9789 + 1.8071EXPO_t + 0.3632GFCC_t + 0.1033LEMP_t - 0.0027LINF_t$$

(3)

| | | | | | |
|-------------------|----------|----------|----------|-----------|----------|
| SE | (0.0422) | (0.2475) | (0.0422) | (0.02474) | (0.0018) |
| T test | 17.8857 | 7.3022 | 8.6012 | 4.8210 | -1.5140 |
| Probe (0.1395) | (0.0000) | (0.0000) | (0.0000) | (0.0000) | (0.0000) |

The estimated results show model given in Equation (3), the long-run test statistics indicate that the estimated coefficients of the long-run relationship are significant for all but in different significant levels. The estimated coefficient of Export (LNEXPO) has a positive significant impact on economic growth (LNGDP) at the 1 per cent level. This suggests, in the long-run, for a 1 per cent increase in the export, the economic growth, on average, increases by about 1.80 per cent. The investment variable (LNGFCF) and labour force variable (LNEMP) have the expected positive sign and are significant at the 1 per cent level. The macroeconomic stability variable, (LNINF), has an expected negative sign and is not significant level in the long-run. The long-run relationship between the variables indicates that there is Granger-causality in at least one direction which is determined by the F-statistic and the lagged error-correction term. In this model, R square is 0.69 (69%), it shows that model is accurate. Out of the 100% variation of the GDP growth, all these variables explains the 69% of that variation with this model. Only other factors explain the 1% variation of the GDP variation. The conclusion of this model is, this is a suitable model for the investigation of GDP growth in Sri Lanka.

Johansen Test for Co- integration

The results of the Johansen maximum likelihood test confirmed the rejection of the null hypothesis of no co-integration among the variables in Table 2.

Table 2. Johansen Co- integration Trade Statistic and Max-Eigen Value Results

| No of co-integrating equation | Trade statistic | 0.05 Critical value | P value | No of co-integration equation | Max-Eigen Value | 0.05 Critical Value | Probability value |
|-------------------------------|-----------------|---------------------|---------|-------------------------------|-----------------|---------------------|-------------------|
| None* | 89.56678 | 69.8188 | 0.0006 | None* | 35.77365 | 33.87687 | 0.0294 |
| At most 1* | 47.85613 | 47.8561 | 0.0125 | At most 1* | 22.49767 | 27.58434 | 0.1960 |
| At most 2* | 29.79707 | 29.7970 | 0.0334 | At most 2* | 16.54845 | 21.13162 | 0.1944 |

| | | | | | | | |
|------------|----------|---------|--------|------------|----------|----------|--------|
| At most 3* | 15.49471 | 15.4947 | 0.0646 | At most 3* | 13.14805 | 14.26460 | 0.0745 |
| At most 4* | 3.841466 | 3.8414 | 0.2061 | At most 4* | 1.598952 | 3.841466 | 0.2061 |

Source:-Output for use data sheet E-views7.1

Note. Significant levels- at 1%- * 5% - ** 10%-* respectively.**

In particular, the computed trace the maximum Eigen value statistic and there corresponding critical values indicate that the null hypothesis of no co-integration ($r=0$) can be rejected at 5 percent level of significance. Both maximum Eigen value and Trace test indicate one co integrating equation at 5 percent level of significance. This implies that there is a long run relationship among the variables.

CONCLUSION

In this article we empirically examined the validity of Export-led hypothesis for Sri Lanka by testing causality between export, economic growth with inclusion of capital, labour and inflation. There are many studies that have examined the export–growth nexus, but the findings are questionable. The reasons for the inconsistencies mainly include sample bias, the selection of appropriate proxies for variables, methodological deficiencies and the quality of data. The findings of this article reveal that export which promotes economic growth, capital investment and employment in the short- and long-run for Sri Lanka. We find that the reported results confirm the validity of export-led growth hypothesis for Sri Lanka. That is, openness indeed leads to higher economic growth.

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