

# **THE STAGE OF ECONOMIC DEVELOPMENT, EXPORTS, ANDECONOMIC GROWTH: AN EMPIRICAL INVESTIGATION**

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## **ABSTRACT:**

This paper analyzes the impacts of export growth and the stage of economic development on economic growth. Countries are grouped according to stages of development determined by per capita GDP for 1990. Multiple regression analysis is applied to estimate the relationship between export and economic growth at various stages of economic development. It is shown that labor investment and exports have varying impacts on economic development at different stages of economic growth. Further, we find that export growth is a positive contributor to economic development in low-income countries as well as middle-income countries. The impact is however stronger in middle-income countries than in low-income countries. This implies that policies that encourage exports would facilitate economic growth in less developed countries.

## **INTRODUCTION**

The determinants of economic growth have received considerable attention in economic development literature for many years. Of all factors, export has received the greatest attention. Several studies have established a positive relationship between export expansion and economic growth. Some of such studies include Balassa (1978), Feder (1982), Kavoussi (1984), Ram (1985), Tyler (1989), Fosu (1990), and Kugler and Dridi (1993). Most of these studies bunch all countries together regardless of the level of economic development. While much work has

been done to study the impact of export growth, comparatively, little has been done to analyze the effect of the stage of economic development on economic growth.

The purpose of this paper is to analyze the impacts of export growth at different stages of economic development on economic growth. Countries are grouped according to stages of development determined by per capita GDP for 1990.

Data from 107 developed and less developed countries are used in this study. The data are obtained from the World Bank's "World Development Reports," 1992. This source contains information on growth rates of various economic variables affecting economic development for various countries.

### EXPORTS AND GROWTH

Three major arguments have been put forth to explain the effect of export on economic development. These include economies of scale, competition, and foreign exchange.

The economies of scale argument stresses the benefits derived from expanding the scale of production. For countries with small markets, exports enable them to expand their markets and hence take advantage of the economies of scale. The competition argument stresses the importance of competition in the world market and the possible externalities effect on other domestically produced commodities. Competition with other countries forces a country to reduce inefficiency, and improve the quality of its products in order to compete favorably. This effort improves skills and ultimately, productivity in other sectors of the economy. Finally, exports enable countries to earn much needed foreign exchange. This may be more important for less developed countries (LDCs) that import a large proportion of their capital goods from industrialized countries.

These factors imply a positive relationship between export expansion and economic growth. However, the economies of scale and foreign exchange

arguments seem more valid in LDCs given their levels of technological improvements and the sizes of their domestic markets. The competition argument would be less true for less developed countries because they will be unable to compete with the industrialized countries in open world markets. This is due to their relatively lower skilled labor, and lower level of technology utilization. The resulting reduction in the demand for their goods in the world market could retard economic growth in these countries.

Various economists have studied the effects of export expansion. Balassa (1978), using data from eleven countries, studied the effect of export growth on economic performance and found a positive and significant effect of export growth on output. Kavoussi (1984) divides his data into less-income and middle-income countries and found a positive relationship between export growth and economic growth in both groups of countries. Kugler and Dridi (1993) studying eleven countries found that while for some countries, there was no common trend of export and other macroeconomic variables, for a majority of the less developed countries, export growth was also important in improving other sectors of the economy.

Some country-specific studies have also confirmed the importance of export for economic growth. Khan and Saqib (1993), studying Pakistan found a strong and positive association between export expansion and economic growth, but concluded that more than 90% of the contribution of export was indirect. Chen and Tang (1990), studying Taiwan also confirm the impact of export growth, but point out that the effect was mainly due to economies of scale.

The impact of export growth at different stages of economic development was hinted by Michaely (1977). Using 41 less developed countries, he found that the effect of export growth was significant only after some minimum level of economic development. Tyler (1981), Feder (1982), and Chow (1987) have basically defined this level of economic development at which export becomes important as middle-income , or newly industrializing country designation. However, Mbaku (1989),

studying 37 African countries found, not only that export is important for low-income countries, but that the impact of export expansion is stronger in low-income LDCs than in middle-income LDCs. Hotchkiss, Moore, and Rockel (1994), using a sample of 110 less developed countries found that while export expansion is important in both low-income and middle-income countries, it is more important in middle-income countries because of the lack of significant sector-externality effect for low-income countries, and the greater productivity differential in middle-income countries.

This study uses data from both LDCs and industrialized countries to estimate the effect of the stage of economic development on the importance of export growth as a determinant of economic growth.

#### EMPIRICAL MODEL AND METHODS

A simple model that is based on an aggregate production function with labor, capital, and export as inputs in the production process is utilized in this paper. The model is specified as:

$$Y = f(L, K, X) \tag{1}$$

where Y is the real GDP, L is labor input, K is capital input, and X is export. If equation (1) is totally differentiated and manipulated, the growth equation below is obtained:

$$Y(g) = a_2L(g) + a_3K(g) + a_4X(g) \tag{2}$$

where  $Y(g)$ ,  $L(g)$ ,  $K(g)$ , and  $X(g)$  all denote growth rates of the real GDP, labor force, capital, and export respectively. Addition of a constant term,  $a_1$ , and an error term,  $e$ , to equation (2), yields the regression model:

$$Y(g) = a_1 + a_2L(g) + a_3K(g) + a_4X(g) + e \quad (3)$$

which is specified for three stages of economic development to obtain:

$$Y^l(g) = b_1 + b_2L(g) + b_3K(g) + b_4X(g) + e \quad (4)$$

$$Y^m(g) = g_1 + g_2L(g) + g_3K(g) + g_4X(g) + e \quad (5)$$

$$Y^h(g) = d_1 + d_2L(g) + d_3K(g) + d_4X(g) + e \quad (6)$$

where the superscripts l, m, and h denote low-income, middle-income, and high-income countries respectively.

#### THE DATA

The reliability of data from LDCS poses a difficult problem for researchers studying these countries. The World Bank has, however, developed relatively reliable data for many of these countries. Data for this study come from the World Bank's WORLD DEVELOPMENT REPORT, 1992. Data were obtained for 107 countries including developed and less developed countries. The countries were divided into low-income, middle-income, and high-income countries following the groupings used by the World Bank in this publication. A country was considered low-income if its per capita GNP in 1990 was \$610 or less. Countries with per capita GNP between \$611 and \$7619 were classified as middle-income. High-income countries are those with per capita GNP above \$7620.

The dependent variable is the average growth rate of the GDP between 1980 and 1990. The independent variables include the average growth rates of investment,

population, and export for the same period. Investment was used as a proxy for capital while population was used as a proxy for the labor force. The average growth rate of population is preferred to any estimate of the labor force in LDCs for two reasons. Firstly, it is more readily available for many LDCs. Secondly, it tends to be more accurate than estimates of the labor force in LDCs currently in existence.

Table 1: Regression results for economic growth

| Variables           | All Countries       | Low income            | Middle income       | High income           |
|---------------------|---------------------|-----------------------|---------------------|-----------------------|
| L(g)                | 0.0763<br>(0.5296)  | -1.2365**<br>(2.3572) | 0.0099<br>(0.0484)  | 0.6764***<br>(1.7680) |
| K(g)                | 0.2074*<br>(6.9303) | 0.0909***<br>(1.8477) | 0.2674*<br>(5.9049) | 0.1015<br>(1.0962)    |
| X(g)                | 0.1848*<br>(5.8229) | 0.1682*<br>(3.2364)   | 0.2159*<br>(5.0603) | 0.1169<br>(1.0862)    |
| Adj. R <sup>2</sup> | 0.5203              | 0.4634                | 0.6482              | 0.0928                |
| F                   | 39.3293             | 11.0748               | 32.3161             | 1.6134                |
| N                   | 107                 | 36                    | 52                  | 19                    |

\* Significant at the 0.01 level. \*\* Significant at the 0.05 level. \*\*\* Significant at the 0.10 level

## RESULTS AND ANALYSIS

The results of the regressions are presented in table 1. Model 1 uses the pooled data. Models 2, 3 and 4 are for the low-income, middle-income, and high-income countries respectively. In model 1, the R<sup>2</sup> is 0.52. The growth rates of capital and exports have significantly positive impacts on economic development measured by the growth rate of the GDP. Labor growth has a positive impact, but is not significant at the 10 percent level.

For the regressions using segmented data, the R<sup>2</sup>s are 0.46, 0.65, and 0.09 for the low-income, middle-income, and high-income countries respectively. Labor growth is significant in low-income and high-income countries. It however, retards

development in LDCs while it is positively associated with economic development of high-income countries. This can be explained by the excessive supply of labor in LDCs, and the relative scarcity of labor in high-income countries compared to LDCs. Similar results have been obtained for labor by Dipietro, Sawhney, and Jampani (1993) except that they did not find labor to be significant in low-income countries.

Capital growth is positively related to economic growth in all the regressions. It is, however, significant only in the low-income and middle-income regressions reflecting the relative scarcity of capital in LDCs. The magnitude of the capital growth estimate is larger for the middle-income countries than for the low-income or high-income countries. This implies that the importance of capital growth for economic development increases as a country becomes more developed up to some point beyond which it diminishes.

Export growth is found to be positively associated with economic development at all three stages of economic development, but is significant in only the low-income and middle-income countries. The fact that LDCs tend to have economies that are not diversified may account for this increase in the importance of export growth. The relatively small sizes of their internal markets also mean that they must seek external markets in order to take advantage of the economies of scale.

The estimate for export in the low-income regression is 0.1682 compared to 0.2159 for the middle-income regression. Hotchkiss, Moore, and Rockel (1994) suggested that the larger magnitude of the effect of export growth in middle-income countries is due to a positive externality effect from the export sector, not present in low-income countries.

These results contradict some studies that argue that export growth is not important in low-income countries (Tyler 1981, Feder 1987, and Chow 1987), but support the results of Ram (1987), and Hotchkiss, Moore, and Rockel (1994). It is found here that though export growth is important for economic growth in low-

income countries, its contribution to economic growth is stronger in middle-income countries than in low-income and high-income countries.

### CONCLUSIONS

This paper presents estimates of the determinants of economic development at various stages of economic development. It is shown that the three variables have varying impacts on economic development at different stages of growth. Further, we find that export growth is a positive contributor to economic development of low income countries as well as middle-income countries. The impact is however stronger in middle-income countries than in low-income countries. This implies that policies that encourage exports would facilitate economic growth in less developed countries.

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