Export Determinant of Economic Growth in Asean Developing Countries 1987-2005

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In recent years, Vietnam has gained impressive growth since the economic reform in 1986. The average growth of more than 7.5%, and especially 8.4% in 2005, has ranked Vietnam among the fastest growing countries in the world (GSO, 2006). This is a result of the process of transition from centrally planned economy to market economy. The key element of this success is the openness of the economy, and the foreign trade has expanded its role in stimulating growth in Vietnam. The export growth rate is over 20% in 2003, and expected to be around 20% this year (WB, 2006). Indeed, exports have been contributing remarkably to the economic growth, and Vietnamese exports are quite similar to those of five other ASEAN developing countries including Malaysia, Indonesia, the Philippines and Thailand. Thus, it is useful to investigate the relationship between exports and economic growth in these countries through the findings of determinants of economic growth.

The econometric method is based on the neoclassical model, using panel data of five countries during the past nineteen years. The empirical findings reveal that capital; labor force, export growth, spending on education, and external debts are determinants of growth. In which, external debt and spending on education have negative effects on growth while the rest has positive impacts on economic growth. In relation with the role of exports, the study has found that exports have positive effects on economic growth in these countries, and this result is consistent with those in previous studies. It also suggests that the opened-door policy in these countries has been effective and it should be considered carefully in order to contribute more to economic growth.

Since some data are missed and not available, so it will reduce the observations of regression model.

I. LITERATURE REVIEW

1. Growth theories

In the second haft of the twentieth century, there are three waves of growth theory: firstly, the work of Harrod and Domar (or Keynesian Growth), then neoclassical model of Solow, and last, endogenous growth theory by Romer and Lucas.

The model of Roy Harrod (1939) and Evsey Domar (1946) is based on Keynesian economics. The simple equation of Harrod-Domar model states that the growth rate of GNP($\Delta Y/Y$) is determined by national savings ratio, s, and the capital-output ratio, k ($\Delta Y/Y = s/k$). This implies that an economy has to save and invest as much as possible in order to get high growth rates. The more they can save and invest, the faster they can grow (Todaro, 1994).

Solow (1956) and Swan (1956) have developed the neoclassical growth model. It is an aggregate, constant-returns-to-scale production function that combines labor and capital (Agenor and Montiel, 1996).

$$g = g_A + \alpha_K g_K + \alpha_L g_L$$

Where α_i is the elasticity of output with respect to input i, g_K, g_L and g_A is the growth rate of capital, labor, and total factor productivity respectively.

And last, Romer (1986) and Lucas (1988) reach a new boom of researches on economic growth and this is called endogenous growth theory.

a. Externalities and increasing returns

Robelo (1991) has developed the AK model along the way that considers all production inputs as some forms of reproducible capital including physical capital and human capital. The implication of the steady-state growth per capita equation is that an increase in the saving rate will raise the growth rate per capita. In addition, the AK model implies that poor nations with the same characteristic of technological degree as other nations always grow at the same rate as rich countries, regardless of the initial level of income (Agenor and Montiel, 1996).

b. Human capital and knowledge

The accumulation of human capital is one particular source of externalities that has been emphasized in recent growth theories. In his model, Lucas (1988) has developed the model showing that in the long run, the growth rate of both capital and output per worker is equal, whereas the rate of human capital growth and the ratio of physical to human capital converge to a constant. Since the growth rate is determined by the rate of investment in human capital, the externality implies that with more investment in human capital, the growth would be higher.

Romer (1986) has proposed another approach by considering the source of externality is the stock of knowledge rather than the stock of human capital. The production of goods and services depends on not only private knowledge but also the aggregate stock of knowledge. Next, Romer (1990) has ex-

plained endogenously the decision to invest in technological change with a model based on a distinction between a research sector and the rest of the economy. In this work, he states that firms cannot benefit all from knowledge production, implying that the social rate of return exceeds the private rate of return to certain forms of capital accumulation. This leads to a conclusion that tax and subsidy can promote the rate of economic growth (Romer, 1990).

The Romer model explains technological change as a result of investment in human capital or new ideas from researching. In addition, the authors have also considered the roles of the government, the effects of per capita income and wage rate of population.

2. The traditional theory of international trade and development

a. The law of comparative advantage

According to the law of comparative advantage, both nations can gain from trade even though one nation is less efficient than the other nation in producing both commodities. This law suggests that the first nation should specialize in the production of the commodities in which its absolute advantage is smaller and export this kind of good, which is said to have comparative advantage (Todaro, 1994).

b. The opportunity cost theory

According to this theory, the cost of one commodity is the amount of a second commodity that must be given up to let just enough resources to produce one additional unit of the first commodity. So, a nation with lower opportunity cost in the production of one commodity has a comparative advantage in that commodity. Trade between two nations is based on the difference in their relative commodity prices, which reflect their comparative advantage. This theory is considered as an advanced step of comparative advantage theory by relaxing the assumption of labor theory of value.

c. Relative factor endowments and international specialization: the neoclassical model

This model is developed from the work of Ricardo and refined in the twentieth century by two economists Eli Heckscher and Bertil Ohlin, so it's also called the Heckscher-Ohlin theorem. The Heckscher-Ohlin theorem can be stated as following: A nation will export the commodity whose production requires the intensive use of the nation's relative abundant and cheap factor and import the commodity whose production requires the intensive use of nation's relative scarce and expensive factor. In this, the H-O theorem isolates the differences in relative abundance among nations as the basic determinant of comparative advantage and international trade.

3. Effects of exports on growth

a. Effect of exports on demand

Firstly, it is easy to identify that exports have direct effects on economic growth since it is one of components of GDP. Blanchard (2000) has expressed the domestic demand for goods and services as following:

$$Z = C + I + G - M + X$$

Where Z represents for total output or GDP, C is consumption, I is investment, G is government spending, M is imports, and X is exports of goods and services from abroad. The equation suggests that exports have not only direct effects but also positive impacts on output growth.

Secondly, the multiplier effects as well as the effects of backward and forward linkages will enhance the effect of exports on demand. Linneman et al (1987) also add that multiplier effect appears in both employment and production since a direct increase in production, and employment will generate a multiple increase in production and employment in the economy.

Thirdly, export expansion can help to release the constraint of foreign exchange. The role of foreign exchange has just been mentioned in the two-gap model, which remains influential nowadays.

b. Effects of exports on savings and investment

Generally, exports are considered to have effects on savings. Maizels has introduced an equation expressing this relation that is as follows (Maizels, 1968: p69):

$$S_t = s_0 + s_1 Y_t + (s_2 - s_1) X_t$$

From the equation, it shows that besides total output, savings are dependent on the changes in exports between two years. The above equation is useful to show the effect of exports on savings. However, it does not give a clear implication about the direction of effect since this direction is based on the marginal propensity to save between two years.

Exports have effects on savings and as a result, it has effects on investment, both domestic and foreign ones, since savings are sources of investment.

c. Effects of exports on technological progress, human capital and productivity

Exports are considered to have positive effects on technology, human capital and thus to increased productivity. Exports enhance technological change through the transmission of technological progress, enhance human capital through learning-by-doing process and investment in human capital, and thus increasing labor productivity.

II. EMPIRICAL STUDIES

Table 1: Export determinant over economic growth

Author	GDP variable	Export variable	Conclusions
Sun and Parikh 1996	Growth rate of real GDP	Growth rate of exports	Provincial GDP growth is largely due to export expansion
Al-Yousif 1999	Real GDP	Real exports	Exports have a significant short-run casual effect of real output. .
Lloyd, Morrissey, and Osei 2001	Real GDP	Exports	Export growth has positive effects on GDP.
Nidugala 1994	Real GDP	Real exports	Export growth support GDPs growth in the 1980s. Manufactured exports have significant influence on GDP growth.
Gylfason 1998	Growth rate of real per capita GNP	Export ratio, primary exports over total exports	Export ratio has insignificant effect on real per capita GNP while primary export ratio is significant in growth equations for all countries.
Sheeney 1992	GDP growth	Ratio of exports over GDP	Exports have statistical insignificant effect on GDP growth.
Siddique and Selvanathan1998	GDP growth	Export growth	Export-led economic growth is not supported by the data in both total and manufactured exports.

Sources: Summarized from Sun and Parikh 1996, Al-Yousif 1999, Lloyd, Morrissey, and Osei 2001, Siddique and Selvanathan 1998, Nidugala 1994, Sheeney 1992, and Gylfason 1998.

There are many empirical studies investigating export determinant of economic growth internationally.

To sum up, these empirical studies can be summarized in the following table.

III. MODEL SPECIFICATION

The model is constructed basing on the neoclassical production function model with some additional modifications.

1. Estimation results

With the production function, the empirical results are computed with sample of 95 observations (ASEAN-5), excluding 17 ones since missing as following:

$GDPg = 3.735^{*} + 0.188IGDP^{**} - 0.033Lg + 0.12Eg^{**} - 0.048DebtGDP^{**} - 0.49G\text{-}eduGDP^{**} - 0.02SECg + e_i$

R-squared is about 62.57%.

Where: GDPg: GDP growth; IGDP: the ratio of gross investment to GDP; Lg: labor growth; Eg: growth rate of total exports of goods and services; DEBTGDP: the ratio of total external debt to GDP; G-eduGDP: the ratio of public spending on education to GDP; and SECg: secondary school growth.

*, and **: statistically significant at 10% and 1% level of significant.

Some findings are drawn. Firstly, labor growth and secondary education growth also have positive coefficients, however, these coefficients are statistically insignificant. Secondly, they are the magnitudes of the coefficients. Among positive factors of economic growth with statistically significance of coefficients, investment or capital shows the strongest effect with 1 percent increase of the ratio of gross investment to GDP leading to an increase of 0.188 percent in GDP growth rate. Next, exports, one of determinants of growth, also have a contribution to the growth. When exports change 1 percent, GDP will change 0.120 percent in the same direction. Then, the ratio of external debt to GDP has a negative sign as expected and is highly statistically significant. This means that countries with higher debt to GDP ratio will result in lower economic growth. Last, the coefficient of the public spending on education is negative and statistically significant. This sign is not as expected and contrast with the results of Barro and Sala-I-Martin (1995). One explanation of this can be that, in these countries the public spending is not effective. It means that higher rate of public spending on education may not be necessary increase the school quality, which in turn affects positively the growth as suggested by Barro and Sala-I-Martin (1995).

IV. SOME SUGGESTIONS

The findings of the study have shown some implications for economic policy in the five ASEAN developing countries. In order to fostering economic growth, these countries should focus on the positive determinants of growth and at the same time limit the adverse effect of negative factors. From these points of view, it is clear that these countries should concentrate on both physical capital and human capital, and restrict the use of external debt as a source of growth and gradually substitute other kinds of investment for this source of finance.

For the case of Vietnam in particular, it should focus more on these determinants of economic growth.

First, capital is most important factor in fostering growth, so it is necessary to attract capital for investment. Besides government's investment, private investment is an important source. Vietnam should improve the investment environment such as infrastructure, administrative procedure, and bureaucracy as well as amendments to the FDI Law with a view to creating more favorable conditions for investors.

Then, policy should concentrate on human resource in terms of both quantity and quality. Technical skills and foreign language skills are important to effective cooperation. Proper attention must be paid to vocational training since it is an important source supplying skilled workers for the economy.

Next, export policy should aim at diversifying both commodities and trading partners. Especially on the way to WTO, the role of exports becomes more and more important in promoting growth and integration of Vietnam. For debt policy, the government should increase the efficiency of using debt and reduce the amount of external debt, and turn as much external debt into investments as possible. By doing so, we will reduce the pressure of payment in the future.■

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