

**BALANCE OF PAYMENT CONSTRAINED
GROWTH: THE CASE OF SELECTED
ASEAN COUNTRIES**

BY

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ABSTRACT

This study provides an empirical evidence of the economic performance of the four ASEAN countries: Indonesia, Malaysia, The Philippines and Thailand based on the application of Thirlwall & Hussain law (1979,1982). In the model developed by Thirlwall and Hussain (1979,1982) the expenditure of a country cannot indefinitely grow faster than income and the economic performance of a country is constrained by its balance of payment position. So it is therefore argued that over the long run countries will grow at a rate consistent with the equilibrium in their balance of payment. The empirical results of this paper indicate that the economic growth of these four countries is constrained by their balance of payment position particularly the constraint on demand since the evidence shows that there is a close association between the income growth predicted by the Thirlwall & Hussain's Balance of Payment Constrained (BPC) growth model to the actual growth during the 1970-1998 period. The empirical findings also supported Thirlwall & Hussain's expectation that their extended version of the BPC model will give a closer prediction of the actual growth than that predicted by the BPC simple model developed by Thirlwall (1979).

خلاصة

هذه الدراسة تقدم بيئة مسحية للأداء الاقتصادي لأربع دول من دول مجموعة جنوب شرق آسيا (ASEAN) وهي: إندونيسيا، ماليزيا، الفلبين، تايلاند : والبيئة مؤسسة على تطبيق قانون ترلوال وحسين (Thirlwall & Hussein law) 1979، 1982. ففي النموذج الذي صممه ترلوال وحسين (1979، 1983) والذي ينص على أنه لا يمكن أن تتضخم إنفاقات الدولة أكثر، أو أسرع من الدخل الوطني، و أن الأداء الاقتصادي للدولة تحدده الموازنة العامة ميزان المدفوعات. لذا يحتج بأنه على المدى الطويل فإن الدول ستتمو بنسبة متلازمة لنسبة توازن ميزان مدفوعاتهم. فنتائج الدراسة المسحية الواردة في هذه الورقة تشير إلى أن النمو الاقتصادي في هذه الدول الأربعة يحدده موقف ميزان المدفوعات والموازنة، لدى كل واحدة منها خاصة العامل المحدد على الطلب، وذلك لأن البيئة تشير إلى الترابط الوثيق بين النمو في الدخل الذي تتبأ به نموذج ترلوال وحسين لنمو ميزان المدفوعات المحدد (BPC) وبين النمو الحقيقي خلال الحقبة الزمنية الممتدة من 1970 - 1998. والنتائج المسحية كذلك تؤيد توقع ترلوال وحسين في أن نموذج (BPC) المعدلة المعطلة سيعطى تنبؤا للنمو الحقيقي أكثر دقة مما تتبأ به النموذج المبسط (BPC) والذي صممه ترلوال في سنة (1979).

APPROVAL PAGE

I certify that I have supervised and read this study and that in my opinion, it conforms to acceptable standards of scholarly presentation and is fully adequate, in scope and quality, as a research paper for the degree of Master of Economics.



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This research was submitted to the Department of Economics and is accepted as partial fulfillment of the requirement for the degree of Master of Economics



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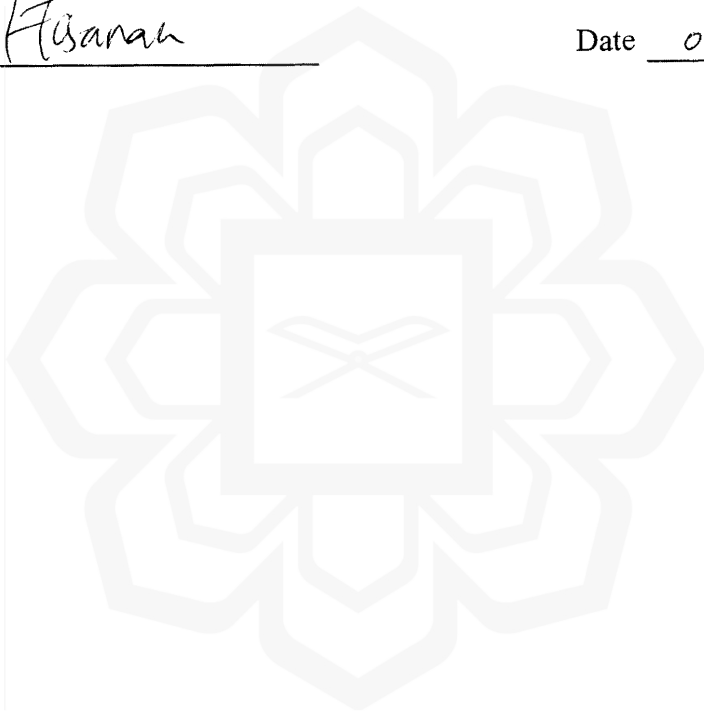
DECLARATION

I hereby declare that this research is the result of my own investigation, except where otherwise stated. Other sources are acknowledged by footnotes giving explicit references and a bibliography is appended.

Name: ALFIAH HASANAH

Signature Alfiah

Date 05-02-2002



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BALANCE OF PAYMENT CONSTRAINED GROWTH: THE CASE OF SELECTED ASEAN COUNTRIES

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*To my dearest parents, brother and sisters
H. Hamzah, Hj. Elis Wisnayati, Bernat Hakimudin, Eva L Hasanah
and Rahma Dhanial Rizanti*

*And to my Beloved husband
Agus Edi Permadi*

May Allah bless and guide us always

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CHAPTER 1

INTRODUCTION

ASEAN represents an eclectic group of market economies in which the external sector plays an important role. Indonesia, Malaysia, Philippines and Thailand are among the founding members of the Association of South East Asian Nations (ASEAN), which was formed at the Bangkok Declaration in 1967.

Given the high degree of economic openness in the region, it is no wonder that the external sector plays a catalyst role in stimulating economic growth. At the same time openness also implies exposure of ASEAN economies to external fluctuations. Thus the economic performance of ASEAN countries is strongly influenced by international market forces.

From the macroeconomic profile of these four countries, decades after their independence, the average per capita income for the group as a whole was less than US\$230 in 1970 but it increased to more than US\$1280 in 1990. There are also some wide inter-country variations in per capita income. In 1990, among the group of four, Indonesia with per capita income of US\$560 ranked the lowest, while Malaysia with per capita income \$US2,360 ranked the highest. All of the four economies managed to increase their per capita income significantly with an average of more than US\$2500 over the 1970 –1997 period.

In as much as the emphasis in this study is on the importance of exports for generating economic growth, these countries as a group have experienced significant growth in real GDP and real export in recent years. This can be seen when we look at the data covering the period between 1980-1990 and 1990-1995 when each country had recorded significant growth in real GDP and real export. For the period between 1980-1990 average GDP growth of the group was 5.0% and between 1990-1995 it was 6.8%. Average export growth of the group for the period between 1980-1990 was 8.5% and between 1990–1995 it jumped to 17.7%.

The two key questions that economists interested in economic growth raised are why the growth rates differ across countries and why these differences appear to persist for long periods of time.

One of the approaches to the analysis of growth is that of Thirlwall (1979) which is based on the demand side of the economy rather than the supply side. The central idea of this theory is both extremely simple and intuitively appealing. In the long run an economy cannot grow at a rate which generates an ever widening balance of payments deficit. Therefore, the equilibrium growth rate is that which equalizes the growth rate of imports with that of exports.

Thirlwall (1979) proposed a model explaining that rates of economic growth differ between countries because of the differences in balance of payment constraint which is the differences in the income elasticity of import and export. This constraint gives limit to the level of economic growth that could be attained by a country and came to be known as balance of payment constrained growth.

Thirlwall in his model argued that if a country expands towards its capacity level, bottleneck in particular sectors of the economy will raise the aggregate level of import in excess of the capacity to export, which will result in a contraction of the economy. Bottleneck in capital goods is one of the problems faced by developing countries. An attempt to grow faster has resulted in an increase in domestic demand for capital goods to support the industrialization strategy. Therefore the increase in the demand for capital goods will increase import and create balance of payment problems.

Thirlwall argued that every country will have a growth rate consistent with the balance of payment equilibrium on both the current account and the capital account. If we specify the equilibrium equation and the determinants of export and import demand, we can see that the major factors that are important to the level of economic growth consistent with BOP equilibrium is growth of exports and income elasticity of demand for imports.

The extended version of the Balance of Payment Constraint Growth (BPC) model has been modified by Thirlwall and Hussain (1982) to allow for a persistent disequilibrium in the BOP which makes it more relevant to the experience of “developing countries” that often have a continuous current account deficits, financed by capital inflow. In their work Thirlwall and Hussain (1982) argued that the level of economic growth of a country is determined by the rate of growth of export, real capital flow and income elasticity of import.

Objectives of the Study

The main purpose of this study is to conduct an empirical study of the long-run rate of economic growth of the four South East Asian countries (Indonesia, Malaysia, Thailand and the Philippines) and determine whether the growth rates are consistent with their equilibrium balance of payment for the period 1970-1998. Specifically this paper will try to examine the applicability of Thirlwall and Hussain's (1982) proposition to the economic experience of these four countries. This study will investigate the empirical validity of the Balance of Payment Constrained Growth model (BPC) in its extended form, which includes exports and real capital flow as determinants of long term economic growth.

In our study we will investigate how well the balance-of-payment constrained growth model (BPC) fits the growth experience of the four countries for the period 1970-1999.

Specifically, the objectives of our study are as follows:

1. To investigate whether the level of economic growth of Indonesia, Malaysia, The Philippines and Thailand are consistent with their balance of payment equilibrium.
2. To compare the balance of payment constrained growth predicted in the extended model as formulated by Thirlwall and Hussain's (1982) to the actual rate of growth of these countries and to identify whether they show evidence(s) that support Thirlwall and Hussain's (1982) proposition.
3. To compare the income growth predicted in the extended version of the BPC model to that predicted by the simple model originally developed by Thirlwall

(1979) and to ascertain whether the extended model gives a closer prediction of the actual growth than the simple model.

4. To investigate whether exports and capital inflows have a significant influence on long-term economic growth.
5. To examine the relationship between economic growth and the level of income elasticity of import.

Significance of the Study

The four countries that we are investigating (Indonesia, Malaysia, Thailand and the Philippines) are developing countries that rely on export to quicken up their economic growth. Besides export, the import sector (related to consumption or capital goods) also plays an important role in fulfilling their economic objectives.

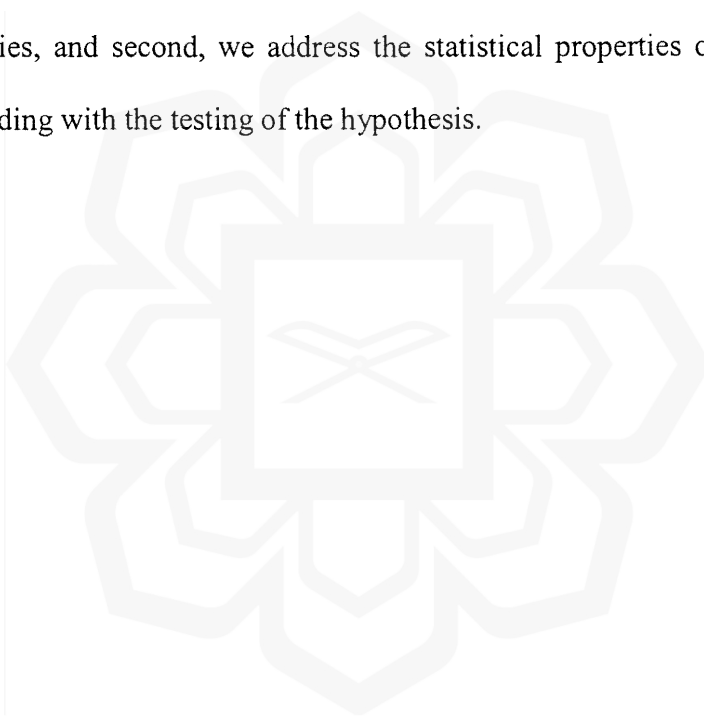
To clarify the economic growth in the four ASEAN countries it is helpful to ascertain the role of export as an engine of growth. Moreover the growth of export relative to the income elasticity of demand for imports is a good predictor of a country's growth performance and an answer to the growth rate differences between countries.

This paper will contribute to the existing literature on the economic performance of Indonesia, Malaysia, Philippines and Thailand either individually or as a group making up the four largest members of ASEAN with similarities in production and export patterns.

Numerous researchers have tested the Thirlwall (1979) hypothesis for developed and developing countries. However the application of the extended BPC model as

formulated by Thirlwall and Hussain (1982), which was meant for developing countries, has not been tested on a wide scale.

The applicability of Thirlwall and Hussain's (1982) hypothesis has been tested for Indonesia, the Philippines and Thailand for 1961-1985 period, but in the case of Malaysia only the Thirlwall's (1979) proposition has been tested. This study is also expected to contribute to the literature in the following ways: first, it uses more recent data and a different sample period to see whether the results are consistent with previous studies, and second, we address the statistical properties of the input data before proceeding with the testing of the hypothesis.



CHAPTER 2

LITERATURE REVIEW

For many years the dominant economic model used to analyse growth has been the Solow (1965) model. In conjunction with the intertemporal optimising procedures first introduced by Ramsey (1928), the Solow model has been the basis for the bulk of theoretical and empirical analysis of the issues for the last 40 years. The central idea of the Solow model is that long run growth is exclusively explained through supply side factors. Changes in GDP are the result of changes in factor inputs of labour and capital and the efficiency with which these factors are combined. The demand side is assumed to have strictly temporary effects.

The neoclassical approach to the question of why growth rates differ between countries, typified by the meticulous studies of, Denison (1967, 1985), Kendrick (1981) and Madison (1970, 1972) which concentrate on the supply side of the economy using the concept of production function. By this approach growth rate differences are explained in terms of differences in the growth of factor supplies and productivity.

In the Keynesian theory it is demand that 'drives' the economic system to which supply within limits can adapt. Taking this approach, growth rates differ because the growth of demand differs between countries. In an open economy, the dominant constraint is the balance of payments. Many research works have found out how closely the growth experiences of several developed countries approximate the rate of

growth of exports divided by the income elasticity of demand for imports, which we call the balance of payment constrained growth model.

The concept of balance-of-payment equilibrium growth rate was originally developed by A.P. Thirlwall (1979, 1982). In his theory, Thirlwall tried to explain the international growth rate differences between countries. He asserted that growth rates differ because the growth of demand differs between countries. The balance of payment condition will present a constraint to the level of economic growth that can be attained because the same rate of export growth in different countries will not necessarily permit the same rate of growth of output because import requirement associated with growth will differ between countries.

Thirlwall found that the rate of growth of export divided by the income elasticity of demand for import gives a good approximation of the actual growth experiences of major developed countries since 1950 and this rate of growth is known as the BOP constrained growth rate or BPC model for short.

Thirlwall and Hussain (1982) revised the original BPC model to explicitly allow for a persistent disequilibrium in the BOP and made it more applicable to developing countries because these countries are often able to maintain their ever growing current account deficit with capital inflows and tried to observe the impact of this capital movement on economic growth.

When they applied the extended model or the revised one to developing countries, they found out that the extended model gave a closer prediction of the actual growth than the simple model.

There have been numerous research works aims at testing the validity of Thirlwall's proposition using time series as well as cross section data. The main reason for this interest in this subject is that Thirlwall's hypothesis posses a challenge to the mainstream view that economic growth is supply determined.

BPC Model in Developed Countries

Thirlwall (1979) investigated the BPC model by applying two sets of data on the growth of output and exports. The data was for the period 1952-1976 from Kern (1978) and the other from Cornwall (1957) for the period 1951-1973. Thirlwall also applied the data of the income elasticity of demand for imports from Houthaker & Magee's estimates (1969) over the period 1951-1966. From the investigation Thirlwall found that there is a general tendency for the estimates of the balance-of-payments equilibrium growth rate in developed countries to be higher than the actual growth rate.

Bairam (1988) has applied the BPC model to a wider range of developed countries over a more recent time period of 1970-1985. He concluded that the results obtained consistently suggest that the overall economic performance of a country depends on the values of its income elasticities of exports and imports.

Atesoglu (1994) used the key prediction of Thirlwall & Hussain's model for Canada. By applying traditional OLS and regressing the income growth on the export growth, capital inflow and relative price during 1945-1990, the findings indicated that the growth in exports has been a significant and important source of the Canadian economic growth. The result also indicated that growth in relative prices has been an important determinant of economic growth while capital inflows do not appear to play an important role in the economic growth of Canada.

Recent investigation of the validity of BPC model involves methodology testing and more developed econometric techniques in order to obtain a robust investigation. Atesoglu (1997) begins by evaluating the methodology of testing Thirlwall's law by estimating the income elasticity of demand for imports using the test of stationarity and co-integration procedures as compared to traditional econometric procedures. The findings suggest that the international monetary regime is an important consideration in assessing the relevance of Thirlwall's BPC model to the US economy during the 1931-1994 period.

Mc Combie (1994) investigated the BPC model for three developed countries namely United States, United Kingdom and Japan. The empirical findings showed that in the long run the United States grew at its balance of payment equilibrium growth rate, in spite of running large balance of payment deficits for a number of years. The same findings were also found in the United Kingdom however in Japan, the growth of income was always below its balance of payment equilibrium growth rate, a phenomenon which is consistent with Japan's accumulation of current account surpluses over the post-war period.

Leon-Ledesma (1999) checked the validity of Thirlwall's law for the Spanish Economy for the 1985-1994 period. The results showed that the Spanish economy's growth rate has been very much close to the estimated BOP constrained growth for the period analyzed.

Paul Turner (1999) investigated the BOP constrained growth in the G7 economies by applying traditional OLS after tests for long run relationship. He found that Thirlwall's hypothesis can give empirical support through an econometric analysis of data.

BPC Model in Developing Countries

As far as developing countries are concerned, the application of the BPC model involved the original BPC model and also the extended model as formulated by Thirlwall & Hussain (1982). Empirical works have also been done to investigate the applicability of Thirlwall's model for developing countries.

After formulating the extended version of the BPC model, Thirlwall & Hussain (1982) applied it to developing countries using data from 1951 to 1969. They expected that the extended version of the BPC model (with capital flow) will give a closer predictive value of the actual growth rate than the original one especially for the developing countries. Their findings showed that the actual growth rate and that predicted by the extended model was very close as expected.

Perraton (1990) investigated the BPC model by taking 59 developing countries over the period 1970-1984. The result indicates that the predicted growth rate was close to the actual growth rate of the economy.

Research by Bairam (1990) and Bairam & Dempster (1991) also gave qualified support for the BPC model in developing countries. The difference between the actual growth experience and the estimated balance of payments equilibrium growth rate was generally small.

Moreno-Brid (1999) investigated Mexico's economic growth and BOP constrained growth by applying the co-integration test. With the use of the unit root test and the co-integration analysis he estimated the long run association between the growth of Mexico's real export and real output between 1950-96 and selected sub periods. The result showed a significant and positive co-integration between these two variables which gives support to the BPC model as a relevant hypothesis in explaining Mexico's long term economic growth.

Moreno-Brid & Perez (1999) investigated the validity of Thirlwall's law in Central America (1950-1996). From their empirical analysis they found strong evidence of a long run association between the rate of growth of real GDP, real export and the terms of trade for all Central American countries which gave support to BPC model as relevant tool of analysis of the long term growth of these small and open economies. From their investigation, the estimated parameters of the cointegrating vectors also suggested that export, rather than the terms of trade, is by far the most relevant explanatory variable of the income growth. Their result also showed that countries with the fastest long term rates of expansion of GDP compatible with balance of payment equilibrium in 1950-96 were those with relatively lower income elasticities of imports and higher growth of export.

The validity of Thirlwall's law was also investigated by M Ansari, M Hasherzaden and Y.Xi (2000) for South East Asian Countries for the period 1970-1996. Applying traditional import demand function after testing for stationarity and co-integration they found that both the income and price coefficients have their expected sign in all four cases. Testing the simple model of Thirlwall's BPC model they found that the average difference between actual and predicted growth rate is less than one percentage point although the result does not hold in the case of Thailand.

All the previous studies outlined above shows that investigations were focused on the application of the original BPC model either for developed or developing countries. Despite this not many works applying the extended model of the BPC model as formulated by Thirlwall & Hussain (1982) for developing countries has been undertaken. It is against this background that this paper intends to study and investigate the applicability of the extended BPC model for the four ASEAN countries namely: Indonesia, Malaysia, the Philippines and Thailand.

CHAPTER 3

METHODOLOGY AND DATA

Methodology Of The Study

In this study we will apply the extended model of BPC model developed by Thirlwall and Hussain (1982), starting from the initial condition that the current account is in disequilibrium so that the country allows for a capital flow.

The equation of the balance of payment is expressed as:

$$P_d \bullet X + F = P_f \bullet M \bullet E \dots\dots\dots (1)$$

Where:

X = volume of export

P_d = Domestic price of export

F = value of nominal capital flows measured in domestic currency,

$F > 0$ measures capital inflow

$F < 0$ measures capital outflow

M = volume of imports

P_f = Foreign price of imports

E = Exchange rate (measured as the domestic prices of foreign currency)

If we take the rate of growth of each variable of our model (by taking it's natural log and take the differential), then:

$$\ln(P_d X + F) = \ln P_f + \ln M + \ln E \dots\dots\dots (2)$$