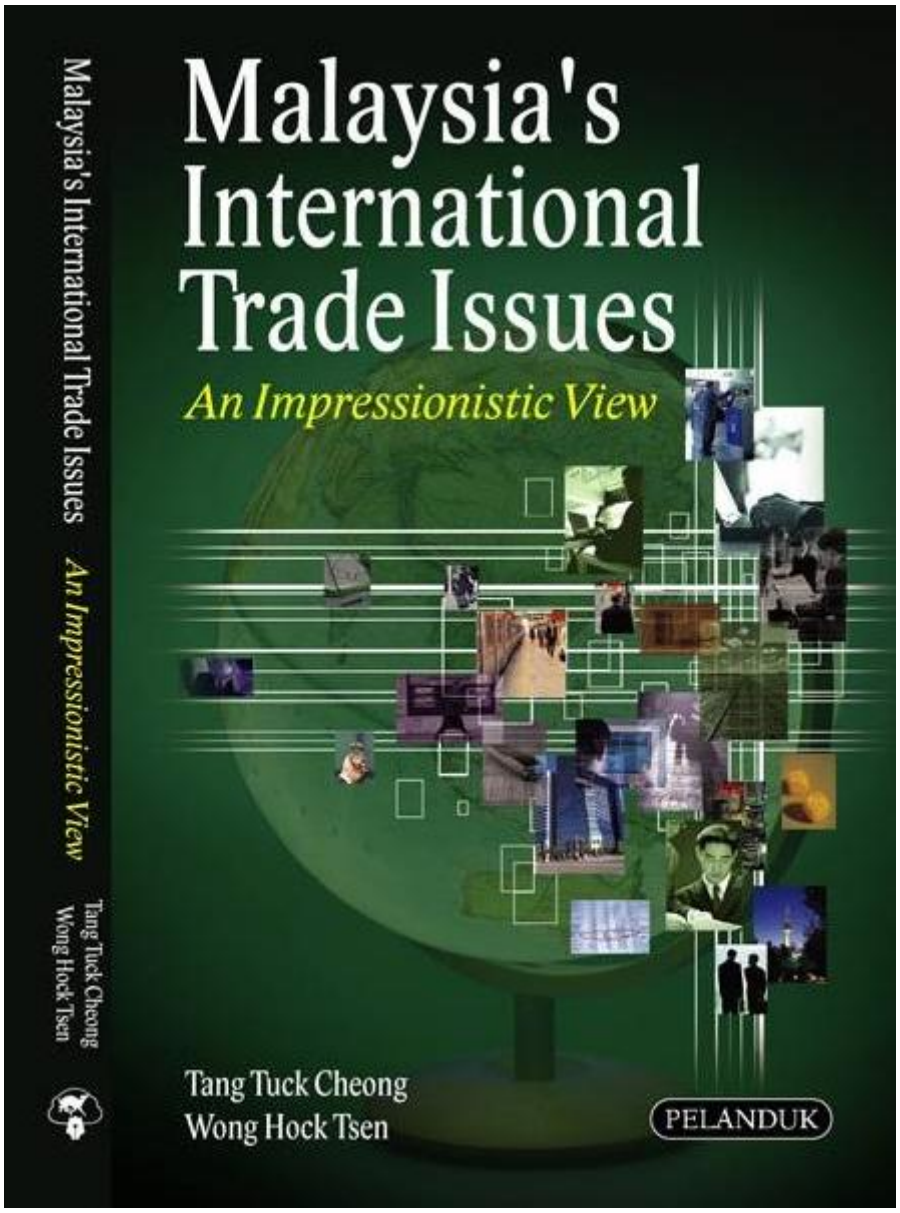
Malaysia's International Trade Issues
An Impressionistic View
Tang Tuck Cheong
Wong Hock Tsen
PELANDUK
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Preface

International trade is a rapidly evolving field in global economy. In particular, the issues arisen have had substantial impact on applied work that was carried out by researchers and policymakers in formulating trade and development policies. As a consequence of the fast development of time series econometrics there are no textbooks that provide an in-depth review on the possible issues relating to international trade in Malaysia.

This book helps to fill this gap. It is the product of our empirical research in international trade over a sustained period of time at Monash University Malaysia as a tutor, and more recently in the wake of Wong Hock Tsen's career part at Universiti Malaysia Sabah. However, we do not consider it a representative academic textbook that provides comprehensive coverage of the topics consistent with international trade, but assume the readers to have some background in trade theory and international finance, as well as time series econometrics (such as unit root, co-integration, Granger causality and so on). Beside being a supplementary textbook that provides examples of international trade

using Malaysia case, this book is meant to be useful as a reference for research students from Bachelor degrees, Masters degrees, as well as PhD candidates, and also to researchers in defining their research topics/issues in Malaysian international trade. In short, it is aimed to provide a direction of the empirical issues on Malaysian international trade towards research and journal articles as well.

International trade issues are the stuff that makes headlines, albeit by emphasising catchy phrases. The coverage of this book is mainly dictated by recent research on the specific issues of international trade done for the case of Malaysia. Among them are economic integration, trade flows, exports-led growth thesis, sustainability of Malaysia's external imbalances, *J-curve* phenomenon, balancing item of balance of payments accounts, and intra-industry trade.

It will indeed contribute to the understanding of some of the issues in the Malaysia's international trade and ultimately lead towards more significant research works.

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CHAPTER 1

Introduction

As a small and open economy such as Malaysia, international trade is an area of interest to policymakers, and researchers. And, Malaysia has now been classified as a lower-middle income and newly exporting country. In fact, a major characteristic of the Malaysian economy is its openness. Since the formation of Malaysia in 1967, the degree of openness has increased significantly. The value of gross imports and exports of goods and services as a percentage of Gross Domestic Product (hence after, GDP) has shown an upward trend. The ratio increased steadily from 78.7 percent in 1970 to 110.0 percent in 1980 and 211.3 percent in 2002 (Table 1.1).

On the other hand, the import share (on GDP) increased significantly from 37.3 percent in 1970 to 54.3 percent in 1980 and 96.5 percent in 2002 (Table 1.1). During the same period the import structure has also changed

dramatically. An import of manufactures is a major contributor to total imports that was 56.9 percent in 1997, and increased to 82.2 percent (1990) and 83.5 percent (2002). The share of food imports decreased significantly from 12.1 percent in 1970 to 5.3 percent in 1990, 4.9 percent in 2000, and 4.7 percent in 2002. However, for the agricultural raw materials, and ores and metals are more stable in terms of the share to total imports. Agricultural raw materials recorded 2.1 percent share on total imports in 1970 and decreased to 1.4 percent in 1990, 1.3 percent in 2000 and 1.2 percent in 2002. For the ores and metals, it contributed 5.8 percent share of total imports in 1970, but 3 percent in 2000 and 2.9 percent in 2002. Fuel import was 12.1 percent on total imports in 1970, but decreased to 5.3 percent in 1990, 4.9 percent in 2000 and 4.7 percent in 2002.

The export share (on GDP) was 41.4 percent in 1970, and increased steadily to 56.7 percent in 1980 and 114.8 percent in 2002 (Table 1.1). Meanwhile, similar to the import structure, an export of manufactures had been increasing its share from 6.5 percent in 1970 to 18.8 percent in 1980, 53.8 percent in 1990 and now it is a major contributor to total exports that was about 80 percent in 2000 and 2002. The share of food exports decreased significantly from 12.6 percent in 1970 to 5.5 percent in 2000, but increased to 6.1 percent in 2001 and 7.6 percent in 2002. This is similar to the situation for the agricultural raw materials. Ores and metals are more stable in terms of the share to total exports.

Agricultural raw materials recorded 50 percent share on total exports in 1970 and decreased to 13.8 percent in 1990, 2.6 percent in 2000 and 2.1 percent in 2001. For the ores

and metals, it contributed 22.6 percent share of total exports in 1970, but only 1 percent in 2000 and 0.9 percent in 2002. For the fuel exports, its share to total exports decreased from 24.7 percent in 1980 to 18.3 percent in 1990, 9.6 percent in 2000 and 8.7 percent in 2002. The figures documented above were calculated from the *World Tables*, World Bank.

The trade balance share (on GDP) was 4.1 percent in 1970, and reduced to 2.4 percent in 1980. However, it increased to 18.3 percent in 2002. Generally, trade balance share is increasing over the period 2000-2004. In other words, Malaysia exports more than its imports. The question is whether it is a good indication that Malaysia had achieved the sustainability of external trade balance.

Table 1.1: Openness, Import Share, Export Share and Trade Balance of Malaysia (percentages)

Year	Openness	Import Share	Export Share	Trade Balance
1970	78.7	37.3	41.4	4.1
1980	110.0	54.3	56.7	2.4
1990	147.0	72.4	74.5	2.1
1995	192.1	98.0	94.1	-3.9
2000	229.6	104.8	124.8	20.0
2001	214.3	98.0	116.3	18.4
2002	211.3	96.5	114.8	18.3
2003	207.6	93.3	114.3	21.0
2004	221.0	99.7	121.3	21.6

Source: *Economic Report, various issues, Ministry of Finance*

From the above descriptive view, the rapid increase in trade (imports and exports), and changes to the import and

export structure reflect the dynamic process of development experienced by the Malaysian economy. The shifts from import substitution industrialisation in the 1960s to export-oriented industrialisation in the 1970s, and industrialisation based on heavy industries in the 1980s, together with sound macroeconomic policies, enabled the economy to achieve rapid economic growth and significant structural changes. The economy has been transformed from an agriculture-based economy to a manufacturing based economy with export orientation.

Thus, from the policymakers' and researchers' point of view, this is an interesting debate when discussing the specific trade issues available to Malaysia. This book aims to provide a review on the specific issues related to Malaysian international trade. More precisely, it highlights the various aspects of Malaysian trade-related issues particularly from the empirical perceptive. First, we discussed the issues on economic integration for ASEAN/AFTA (Chapter 2). We then review the issues on aggregate imports demand model, particularly in the aspects of co-integration. Chapter 4 provides a review of the export demand function for Malaysia. This book has also included an interesting issue that is to access the sustainability of exports-led growth thesis in Malaysia. Chapter 6 discusses the sustainability of Malaysia's external imbalances. Does *J-curve* phenomenon work well here? This question is answered in Chapter 7. We include an interesting issue that is the balancing item of balance of payments accounts in Malaysia. Then we discuss the issues of intra-industry trade in Malaysia. And, the last chapter concludes the book.

This book is not aimed to 'revisit' or 're-examine' the trade-related topics that were done in previous studies using econometrics techniques. Rather than dealing with the general trade issues, this book accounts for special issues that have not been empirically examined. However, it tries to review, criticise and finally make an insight on the implications.

CHAPTER 2

Economic Integration: ASEAN/AFTA

Introduction

The chapter gives an overview of ASEAN with particular focus on the impact of the formation of AFTA on trade flows in the ASEAN region. In fact, this agenda is debated by policymakers and researchers in developing and developed countries or other economic blocks in recent years.

An Overview of ASEAN

ASEAN was established on 8 August 1967 in Bangkok. Its five founder members are Indonesia, Malaysia, the Philippines, Singapore and Thailand. Brunei Darussalam joined on 8 January 1984, Vietnam on 28 July 1995, Laos and Myanmar on 23 July 1997, and Cambodia on 30 April 1999. The initial objectives of ASEAN were to foster regional security and intra-regional dispute resolution issues (*http://www.aseansec.org/*). ASEAN, a total area of 4,495,493 million square kilometres, has a combined population of

about 500 million and a combined GDP of USD737.48 million in 2000. The average GDP per capital of ASEAN was USD1,474, varying from USD315 in Laos to USD25,864 in Singapore. In 2000, real GDP growth rates in ASEAN were impressive, ranging from 3 percent in Brunei Darussalam to 9.9 per cent in Singapore. Growth rates of consumer price indices were rather stable in most ASEAN countries. Unemployment rates in ASEAN vary across countries, from 3.1 percent in Singapore and Malaysia to 7.4 percent in Vietnam (UNCTAD).

In the 1970s, economic goals became an important agenda for ASEAN. In 1972, a United Nations team of experts recommended that ASEAN countries take a number of measures, which would accelerate their industrial development on a regional scale through closer regional economic integration. The rational is that a larger ASEAN market, in the form of an ASEAN free trade area would encourage industrial development and intra-regional trade. In 1977, a preferential trading agreement (PTA) is signed to reduce tariffs on goods meeting rules of origin requirements with the aim to encourage closer regional cooperation through an expansion of intra-regional trade (Tan, 1996, pp.139-140). The PTA was not very successful, amongst others, because of its narrow commodity coverage and the half-hearted nature of the implemented process. The industrial cooperation schemes are also not very successful due to many reasons. The main one being the precedence of national over regional interests and lack of initiative and participate from private sectors (Yamazawa,

1992, p.1525; Athukorala and Menon, 1996; Tan, 1996, pp.140-155).

In January 1992, it was agreed to reactivate integration of ASEAN by establishing an ASEAN free trade area (AFTA) within 15 years. The idea was partly in response to the slow progress of effective trade liberalisation under the PTA and the formation of North American Free Trade Agreement (NAFTA) and the unification of the European Union market. Also, there was the possibility of diversion of Foreign Direction Investment (FDI) away from Southeast Asia towards North America and Western Europe (Tan, 1996, pp.159-160). Under AFTA, all ASEAN countries participate in a Common Effective Preferential Tariff (CEPT) scheme. Under the CEPT scheme, the countries of ASEAN would reduce intra-regional tariffs on all manufactured items including capital goods and processed agricultural products and remove non-tariff barriers over a 15-year period commencing 1 January 1993. However, in view of the economic challenges, the ASEAN Economic Ministers meeting on 22-23 September 1994 in Chiangmai, Thailand, agreed to shorten the time frame for the realisation of AFTA from 15 to 10 years, finishing by 1 January 2003 instead of 2008, and to include unprocessed agricultural products (UAPs) into the CEPT scheme (Tan, 1996, p.160). The numbers of products discussed under AFTA are given in Table 2.1.

The formation of AFTA is viewed as an attempt to form an inward-looking regional entity, since it offers its members certain privileges that are not extended to non-members. It also has the potential to lead to further

Table 2.1: Distribution of Product Groups according to "Fast Track", "Normal Track" and Excluded Products under AFTA (number of HS lines at 9 digit level)

Country	Fast Trade	Normal trade	Temporarily excluded	General exception	Unprocessed agriculture products	Total
Brunei Darussalam	2,420	3,659	208	201	56	6,544
Indonesia	2,816	4,539	1,654	50	324	9,383
Malaysia	3,166	5,611	627	98*	541	10,023
Philippines	1,033	3,418	714	28	398	5,591
Singapore	2,205	3,517	—	120	—	5,842
Thailand	3,509	5,254	118#	26*	415	9,322

Notes: Normal track refers to reduction of tariff rates above 20% to 20% by 1 January 1998 and subsequently from 20% to 0-5% by 1 January 2003; and reduction of tariff rates at or below 20% to 0-5% by 1 January 2000. Fast track refers to reduction of tariff rates above 20% to 0-5% by 1 January 2000 and reduction of tariff rates at or below 20% to 0-5% by 1 January 1998.

* denotes products; # denotes HS 10-digit level.

Source: *Cuyvers and Pupphavesa (1996).*

discriminatory measures against non-members particularly in the form of increases in tariffs over and above pre-regionalisation levels. AFTA constitutes a clear departure from this approach. It is widely regarded as a move towards open regionalism — the formation of a regional identity that would strengthen rather than weaken the member's extra-regional linkages (Athukorala and Menon, 1996).

Moreover, the formation of AFTA is viewed as a first step to many ASEAN countries to open their domestic markets to the world. Also, a free trade area could be as a first step towards a customs union. However, a customs union is not considered in ASEAN in view of the large divergences in tariffs among member countries. Furthermore, a customs union could have more negative impact of trade diversion because it requires countries that have lower tariffs to raise their tariffs against the rest of the world. AFTA relates only to international trade and there are no rules for the elimination of the many national distortions. Intra industry trade in ASEAN is expected to increase with the lower adjustment costs. However, ASEAN countries mostly have similar relative factor endowments and few complementarities. Thus, differences in production costs between the ASEAN countries and the rest of the world are mostly large, but small in the ASEAN countries (Cuyvers and Pupphavesa, 1996).

Trade in ASEAN

It is a historical fact that extra-regional rather than intra-regional trade has been the engine of growth for ASEAN economies. The economic success of these countries has

emanated from their ability in becoming increasingly integrated into the global trading system through the pursuance of outward-oriented growth policies. However, there has been some growth in intra-regional trade in recently year (Table 2.2). Generally, the bulk of trade is accounted for by Singapore and Malaysia.

Generally, Malaysia experienced trade deficit with Indonesia while experienced trade surplus with Singapore, Thailand and Vietnam for the period 1986-2004. For the Philippines, trade deficit or surplus was mixed. In 1986, trade deficit with Indonesia was RM2,37.5 millions. The trade deficit decrease to RM7.8 millions in 1990. However, trade deficit increased to RM1,980.3 millions in 2000 and RM4,273.0 millions in 2004. For trade with the Philippines, Malaysia experienced trade surplus before Asian financial crisis 1997-1988. However, after the crisis, Malaysia experienced trade deficit. In 1986, trade surplus with the Philippines was RM300.4 millions. In 1998, Malaysia experienced trade deficit of RM1,131.8 millions. In 2000, the trade deficit decreased to RM876.1 millions, but increased to RM2,992.3 millions in 2004 (Table 2.2).

In 1986, trade surplus with Singapore was RM1,759.2 millions and it increased to RM5,634.8 millions in 1990. Trade surplus with Singapore continued to increase even during the Asian financial crisis. In 2000, trade surplus was RM21,851.7 millions and increased to RM25,144.1 millions in 2004. Malaysia had trade deficit with Thailand in 1986 with the amount of RM184.6 millions. In 1990, Malaysia experienced trade surplus of RM901.2 millions. In 2000, trade surplus increased to RM1,322.5 millions. However,

Table 2.2: Exports, Imports and Trade Balance of Malaysia with Indonesia, the Philippines, Singapore, Thailand and Vietnam (RM millions)

	Indonesia			The Philippines			Singapore			Thailand			Vietnam		
Year	X_I	M_I	TB_I	X_P	M_P	TB_P	X_S	M_S	TB_S	X_T	M_T	TB_T	X_V	M_V	TB_V
1986	109.7	347.2	-237.5	592.4	292.1	300.4	5,530.1	3,770.9	1,759.2	828.2	1,012.8	-184.6	3.7	40.3	-36.6
1990	16,134.8	10,500.0	5,634.8	2,625.1	1,723.9	901.2	762.9	770.7	-7.8	941.4	388.5	552.9	16.5	112.1	-95.6
1995	34,235.1	22,041.3	12,193.8	6,391.6	4,630.2	1,761.4	2,222.2	2,779.6	-557.4	1,507.0	1,042.9	464.1	589.5	295.6	294.0
1996	36,550.6	24,119.6	12,431.0	7,312.4	5,949.2	1,363.2	2,787.1	3,292.2	-505.1	2,199.2	1,831.1	368.1	741.4	346.3	395.1
1997	40,021.7	26,325.0	13,696.7	7,266.8	7,754.5	-487.7	3,064.8	3,700.0	-635.2	2,968.7	2,321.8	646.9	741.4	346.3	395.1
1998	44,683.4	28,458.5	16,224.9	8,367.0	8,032.1	334.9	3,469.3	5,291.0	-1,821.6	3,818.6	4,950.4	-1,131.8	1,285.0	475.4	809.6
1999	46,088.2	30,978.6	15,109.6	9,419.8	8,460.1	959.8	4,190.9	5,959.8	-1,768.9	4,092.8	5,610.3	-1,517.5	1,309.5	855.5	454.0
2000	62,956.1	41,104.3	21,851.7	12,365.3	11,042.8	1,322.5	5,987.5	7,967.9	-1,980.3	6,168.9	7,045.0	-876.1	1,657.0	1,616.2	40.8
2001	52,196.4	32,725.7	19,470.7	11,713.8	10,207.9	1,505.9	5,569.5	7,876.6	-2,307.1	4,573.8	6,386.9	-1,813.0	1,644.4	1,089.6	554.8
2002	55,954.0	33,418.5	22,535.5	13,871.9	11,122.7	2,749.2	6,330.8	9,018.1	-2,687.4	4,791.9	9,050.7	-4,258.8	2,331.5	1,085.1	1,246.4
2003	56,972.7	33,720.3	23,252.3	15,738.1	12,889.9	2,848.1	7,298.2	10,099.0	-2,800.8	4,905.9	10,826.0	-5,920.1	2,774.7	1,251.7	1,523.0
2004	65,296.4	40,152.3	25,144.1	20,843.7	20,016.8	826.9	10,329.9	14,602.9	-4,273.0	6,748.6	9,740.9	-2,992.3	3,912.1	2,025.4	1,886.7

Notes: X denotes exports. M denotes imports. TB denotes trade balance (X-M).

Source: *Asia Database, CEIC Database on DX software (School of Business, Monash University Malaysia, 2005).*

trade surplus with Thailand decreased to RM826.9 millions in 2004 (Table 2.2).

The trade values of Malaysia with Vietnam were small compared with the trade values of Malaysia with Indonesia, the Philippines, Singapore and Thailand. In 1986, trade deficit of Malaysia with Vietnam was RM36.6 millions and increased to RM95.6 millions in 1990. For 1995-2004, Malaysia gained trade surplus from trade with Vietnam. In 1995, trade surplus was RM294.0 millions. Trade surplus decreased to RM40.8 millions in 2000. In 2004, trade surplus increased to RM1,886.7 millions (Table 2.2).

The formation of AFTA is expected to make easier the transfer of inputs and outputs across borders among the countries in ASEAN. In response, many foreign firms located in the region have adopted international production strategies, contributing to intensified regional trade linkages. For example, the Mitsubishi Corporation has launched a brand-to-brand car parts complementation scheme which involves a regional division of labour among Malaysia, Thailand and the Philippines. Malaysia concentrates on the production of door panels and other stamped parts, Thailand specialises in the manufacture of fuel tanks, consoles, bumpers and windshields, while the Philippines focuses on the production of transmission part (Athukorala and Menon, 1996, p.81).

Conclusion

On the whole, the trade of Malaysia in the ASEAN region was mainly with Singapore, Thailand, Indonesia and the Philippines. The trade of Malaysia was relatively limited with other ASEAN countries. For the past decades, Malay-

sia generally experienced trade surplus with Singapore and Thailand while experienced trade deficit with Indonesia.

The formation of AFTA is likely to increase trade among ASEAN countries. However, there are few issues remain unclear. Can trade surpluses of Malaysia with Singapore and Thailand be sustained with the lower import tariffs of Malaysia and Thailand? Will trade deficit of Malaysia with Indonesia further increase with more imports from Indonesia? The trade surpluses or deficits of Malaysia with other ASEAN countries are interesting to examine. Malaysia is expected to have more trade with ASEAN countries. Moreover, intra-industry trade of Malaysia with ASEAN countries is expected to increase with the lower adjustment costs. Will this help to improve the overall trade balances of Malaysia? In other words, will the Malaysian trade remained as it is or deteriorate? Moreover, will exports of Malaysia on the whole be more stable with more diversifications of export markets and will imports of Malaysia increase? Are these going to have an impact on the Marshall-Lerner condition of Malaysia? Is the impact of crisis such as the Asian financial crisis 1997-1998 to the Malaysian economy be minimised with the more diversification of export markets? Is the exports-led growth hypothesis for Malaysia hold with more exports to ASEAN countries? Indeed, they are many more issues and questions to be raised with the formation of AFTA on international trade of Malaysia.

CHAPTER 3

Co-integration Analysis on Malaysian Aggregate Imports Demand

Introduction

A single equation estimate of aggregate demand for imports (goods and services) is an enduring work in the area of international economics. Import demand equation has been widely estimated using recently developed econometrics techniques for the purpose of examining a country's trade flows behaviour. This chapter aims to provide a review on the existing studies on the estimating aggregate import demand equation for Malaysia. In the concluding section, several suggestions are made for further research.

Generally speaking, the imports demand specification commonly employed in empirical exercises is a traditional form for the demand function, that is, regressing the volume of imports on the level of real income and relative prices. Economy theory, however, typically provides a platform in formulating the import demand function which

is based on the theory of comparative advantage, the Keynesian trade multiplier or the new trade theory (imperfect competition theory of trade). Each of these theories estimates different impacts of income and prices on the determination of trade. Firstly, the neoclassic trade theory of comparative advantage – Heckscher-Ohlin framework, focuses on how the volume and direction of international trade are affected by changes in relative prices, which in turn are explained by differences in factor endowments between countries. This theory is not concerned with the effects of changes in income on trade. In this relation, the neoclassical import demand function is rooted in microeconomic consumer behaviour and general equilibrium theory. Secondly, however, the Keynesian import demand function is based on macroeconomic multiplier analysis. Under this framework, relative prices are assumed rigid and employment is variable and International capital movements adjusted to restore the trade balance. Therefore, this model focuses on the relationship between income and import demand at the aggregate level (and in the short term). The relationship can be defined by a few ratios such as the average and marginal propensity to import and the income elasticity of imports. The last theory, new trade theory explains the effects of economies of scale, product differentiation, and monopolistic competition on international trade. This theory illuminates a new link between trade and income that is if part of international trade is driven by the scale of output and if income is used as a proxy for scale, then the role of income in explaining imports demand will go beyond that defined both in the

previous discussed frameworks, where income only affects purchasing power. The approaches that are usually used under this school, to define an imperfectly competitive market are the Marshallian, Chamberlinian, and Cournot approaches (Hong, 1999, pp.1-2).

The Importance of Import Demand Estimates — Co-Integration Analysis

What makes import demand analysis, in particular co-integration approach as an important topic for research of international trade literature from the eyes of researchers as well as policymakers? Conventionally speaking, the importance of estimating import demand function is mainly due to its contribution to trade and industry policy formulation using the estimated prices elasticity to import demand. Reinhart (1995, pp.290-291) has documented that devaluation could only improve trade balance, if in the first place it translates into a real devaluation, and second if trade flows respond to relative prices in a significant and predictable manner. The author further added that the evidence of effectiveness of devaluation policy on balance of trade often came in the form of significant *t*-statistics on the relative price variable in static or long run specification of import demand *or* export supplied. A novel work on evaluating the favourability of devaluation policy is from Heien (1968) who described the effectiveness of devaluation: "for any country a value of the price elasticity (import demand) between -0.5 and -1.0 is necessary to ensure success of exchange depreciation". Alternative approach is the Marshall-Lerner condition that indicates that a stable

foreign exchange market if the sum of price elasticity of demand for imports and the demand for exports, in absolute terms, exceeds one. In this case the exchange rate policies can be used to correct the balance of payments imbalance. Using single import demand model, however, if the estimated long run price elasticity is close to (or higher than) one, or higher than 0.5, we can optimistically safe-guard Marshall-Lerner condition as documented in Tang and Mohammad (2000), and Tang and Nair (2002) by considering the estimated long run price elasticity of demand for Malaysian exports to be -4.06 as found in Arize (1990).

Literature Review for The Case of Malaysia

Many researchers have carried out empirical studies on the Malaysian import demand. Early studies which used single equation of Ordinary Least Squares (partial adjustment framework) and as a part of macroeconometric models of the Malaysian economy are Mohammad (1980), Semudram (1982), Awang (1988), and MIER Annual Model (1990). A note to be pointed out is the assumption that there is an underlying equilibrium relationship between the quantity of imports and its determinants included in the model. If the underlying assumption that there exits a long run relationship is false, attempting to estimate the traditional formation is invalid. Thus, caution has to be seriously considered by the policymakers who use those estimates for policy formulations. In fact, the issue of nonstationarity and co-integration tests are published by Engle and Gragner (1989) is in 1989, and the researchers have started

and widely applied those approaches in early and mid-1990. Here, the studies of interest are those considered the issue of nonstationarity, and the application of co-integration tests. The available published works accounting for this matter are numerous, and have outlined in Table 4.1 for aggregate import demand analysis. Similarly, using Johansen's multivariate test, and annual data, Tang (2002) has estimated the Malaysian imports equations by disaggregating the import variable into import for consumption goods, import for investment goods, and import for intermediation goods.

What features can we say from this piece of literature? Firstly, all the studies, except Tang (2003), found a long run relationship between imports and its determinants using annual data. The use of annual observations is in relation to the data unavailability in quarterly basis. Secondly, two methods of co-integration test used by them are Johansen multivariate test (system approach) and ARDL (single equation approach). Thirdly, the studies individually estimate aggregate import demand function in Malaysia using three types of formulation that are the traditional import demand function that is, regressing the volume of imports on the level of real income and relative prices; disaggregating the expenditure components into final consumption goods, investment expenditure, and exports; and the specification proposed by Xu (2002) that is to use national cash flow (NCF) variable rather than real GDP as proxy variable to real domestic activity. Finally, the estimated income and price elasticities are varied among the studies,

Table 3.1: Selected Studies on Co-integration of the Aggregate Import Demand in Malaysia

Author(s)	Annual data	Co-integrating Vector of Import Demand	Methods	Conclusion	Long Run Elasticities
Tang (2004b)	1960-1999	*Ln*M-*Ln*NCF-*Ln*RP-Time	ARDL	Co-integrated	*Ln*NCF= 0.21 *Ln*RP = -2.14
Tang (2003)	1960-2000	*Ln*M-*Ln*NCF-*Ln*RP-Time	ARDL	No Co-integration	
Tang & Nair (2002)	1970-1998	*Ln*M-*Ln*Y-*Ln*RP	ARDL	Co-integrated	*Ln*Y= 1.5 *Ln*RP = -1.3
Mohammad & Tang (2000)	1970-1998	*Ln*M-*Ln*FCE -*Ln*I -*Ln*EX -*Ln*RP	Johansen	Co-integrated	*Ln*FCE = 0.732 *Ln*I = 0.78 *Ln*EX = 0.385 *Ln*RP = -0.69
Tang & Mohammad (2000)	1970-1998	*Ln*M-*Ln*Y-*Ln*RP	Johansen	Co-integrated	*Ln*Y= 1.5 *Ln*RP = -1.8

Notes: *Ln* is natural logarithmic, M is real imports of goods and services, NCF is national cash flow (GDP-I-G-EX, where I = investment, G = Government spending, and EX = exports), FCE is final consumption expenditures, Y is real Gross Domestic Product, RP is the relative price of imports (ratio of import prices to domestic prices), and Time is trend variable. ARDL stands for Autoregressive distributed lag method for co-integration by Pesaran, Shin and Smith (2001).

except the estimates from Tang and Mohammad (2000), and Tang and Nair (2002). Perhaps, this issue opens a room for potential research. As we can observe from Table 3.1, this question can be intuitively linked to two possible explanations. These are, the model specification used for aggregate import demand, and the sample period as well as its span used in estimation.

A Visual Inspection of Co-Moving among Imports, GDP and Relative Prices of Imports

Using annual data 1960-2002 from the *World Tables*, World Bank, we visually inspect the interrelationships between imports of goods and services, real GDP and relative price of imports (in real terms, 1995 prices) as derived from transitional import demand formulation. The data were converted into index form for convenience. Surprisingly, as illustrated in Figure 3.1, co-moving does happen only between volume of imports and real GDP in an upward trend, but relative price for imports is moving constantly, and apart from the other two series. This may imply that a co-integrating relation found between import, real GDP, and relative price as documented in the existing studies may be from demand for imports and real GDP, and it does not imply import demand equation is related to real income and relative price.

In Figure 3.2, there is a strong positive correlation between volume of imports and real GDP in Malaysia. A positive linear relationship can be virtually detected — higher income, higher demand for imports.

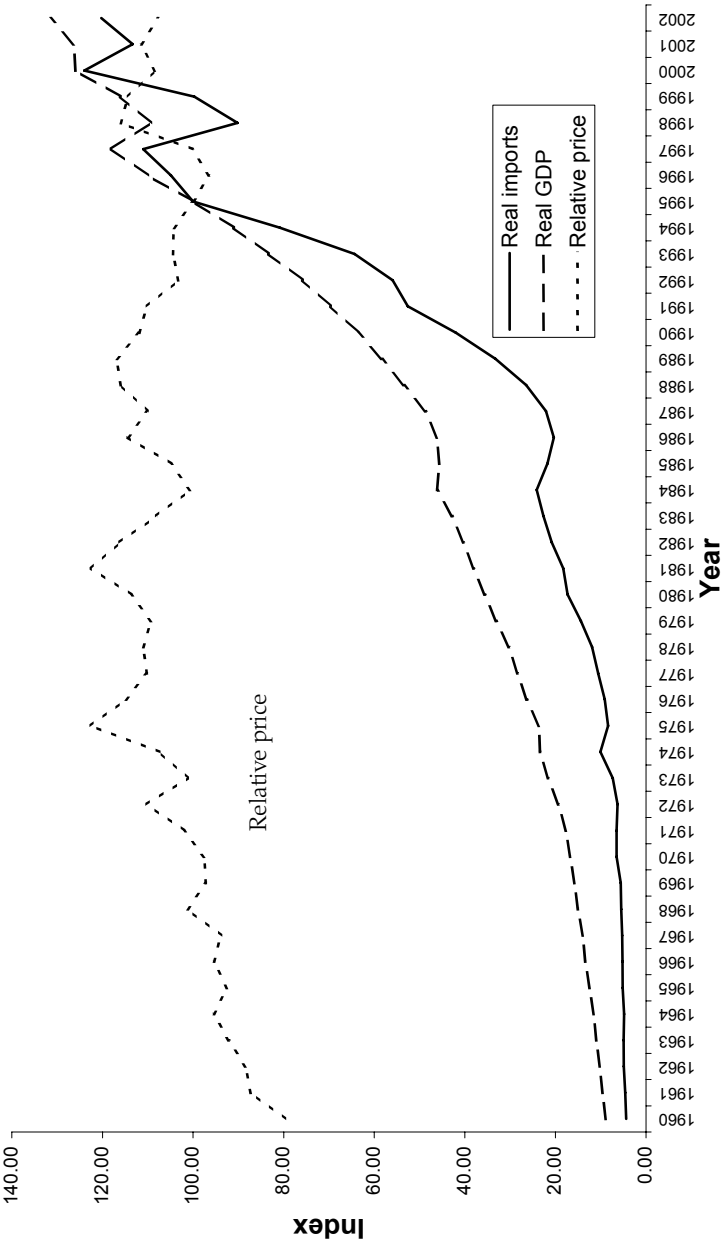
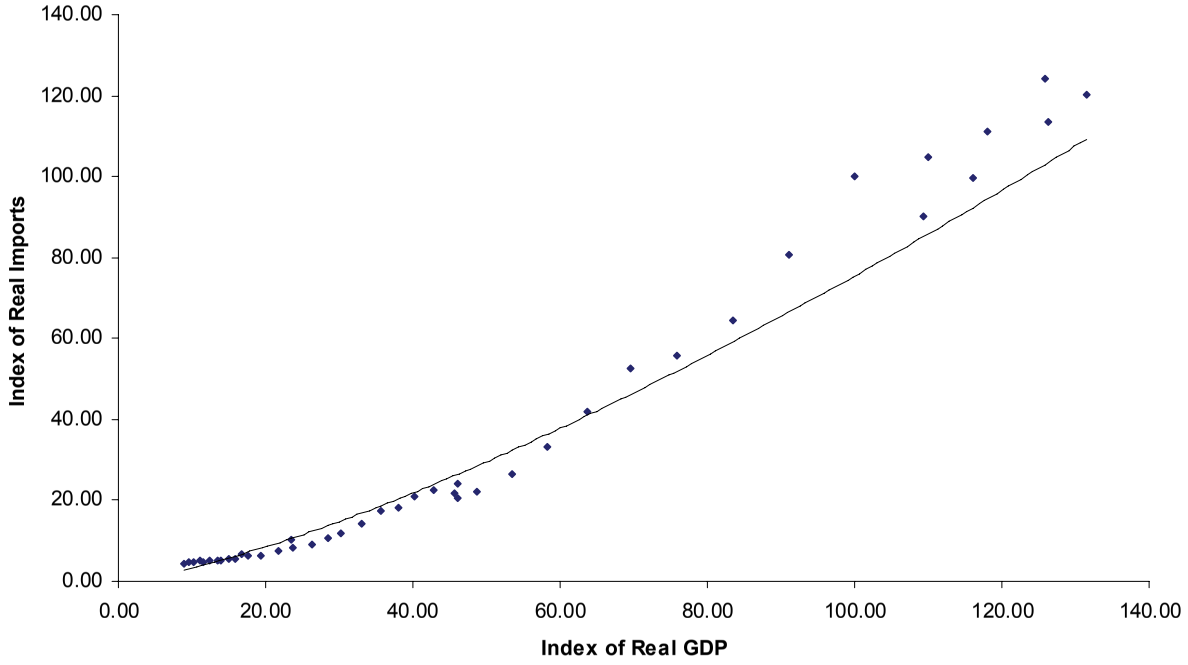


Figure 3.1: Plots of Indexes of Real Imports, Real GDP and Relative Price 1960-2002

Figure 3.2: Plots of Correlation between Indices of Real Imports and Real GDP, 1960-2002



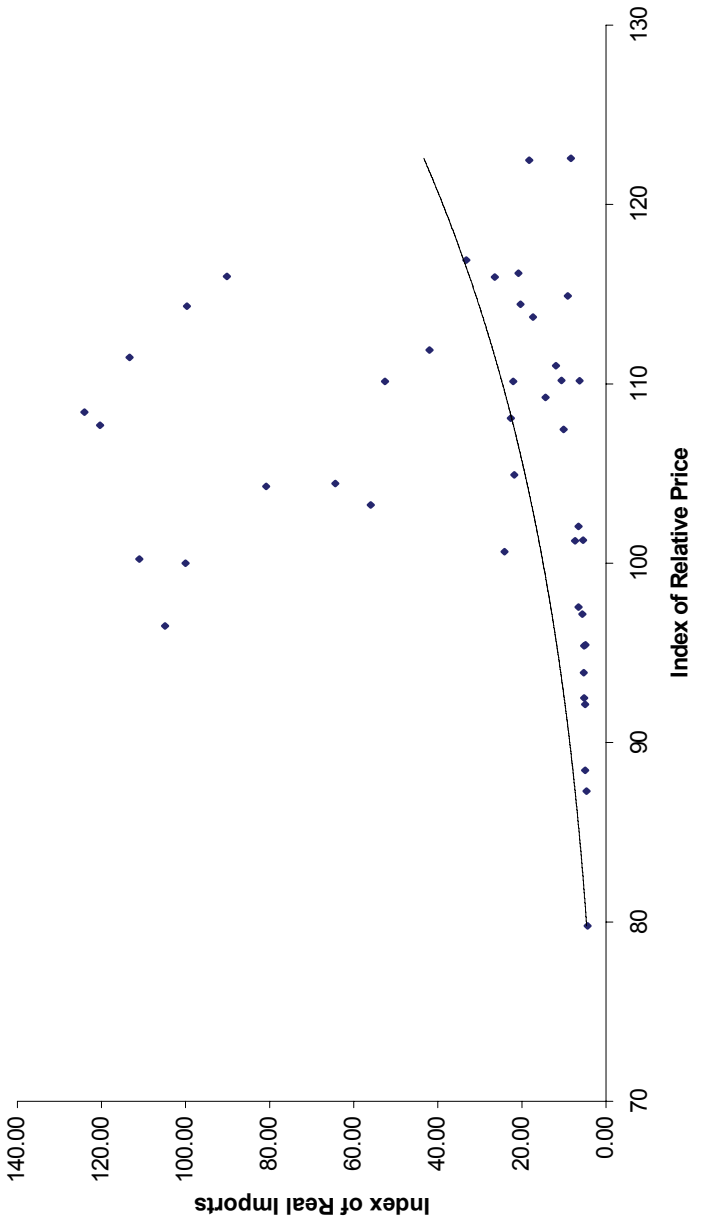


Figure 3.3: Plots of Correlation between Indices of Real Imports and Relative Price, 1960-2002

Different interpretation can be made about the relationships between import and relative prices as illustrated in Figure 3.3. Clearly, relative price fails to explain the Malaysian imports demand in a reasonable manner. This observation does support the statement that co-moving only exists between imports and real GDP as stated above.

Conclusion

This chapter has briefly described the theories behind the aggregate import demand formulation, and has identified several features of empirical works on Malaysian aggregate import demand behaviour. Isn't this the end of studying aggregate import demand behaviour for the case of Malaysia since the literature shows five studies on the Malaysian aggregate import demand? No! The co-integration analysis on Malaysian aggregate import demand could be extended in at least two directions.

Firstly, as econometrics concern, existing studies have used log-linear specification of import demand equation because of conventional practices. In fact, the estimates may be bias if the functional form of import demand is nonlinear. In this case, nonlinear co-integration approach may be appropriate than that of linear model such as import demand function for Malaysia. For example, using non-linear co-trending approach, Tang (2005) has examined the co-integration of Japan's aggregate import demand function and has found co-integration among the variables.

The second direction is to consider the effects of changes of economy structure on Malaysian aggregate import demand behaviour. Generally, the Malaysian economy

had undergone a structural change as a consequence of transformation from an agricultural-based economy to a manufacture-based economy via exports-led growth strategy in the late 1980s. Changes of economy structure may influence the demand structure, in particularly imported materials for manufacturing which the final products are for export. This issue can be crucially considered for the Malaysian import demand analysis by researchers in future.

Thirdly, standard import demand equation has conventionally taken real income and relative price of imports as its determinants. Those variables are typically from the partial equilibrium perspective. The variables from financial sector may have direct or indirect impact on the quantity of imports, in theory. For example, import of financial services as one component of imports of goods and services. In this regard, Tang (2004a) has incorporated separately several financial variables such as bank credit, lending rates, deposit rates, government bond yield and share prices to examine Japan's aggregate import demand function in co-integration. The tests support co-integration after including financial variables. This may be an interesting work in the case of Malaysia for further research.

CHAPTER 4

The Export Demand Function for Malaysia

Introduction

Malaysia is a small open developing economy. Malaysia transformed its economy from import-substitution industrialisation in the 1960s to export-oriented industrialisation in the 1970s and to heavy industrialisation in the 1980s and 1990s. As a result of structural change in the economy, the composition of exports also changes. In the 1960s and 1970s, Malaysia exported mainly commodities such as rubber and tin. In the 1980s, exports of manufactured goods became dominant. In the 1990s and 2000s, exports of manufactured goods accounted more than half of the exports of Malaysia. Furthermore, exports of manufactured goods have shifted from the low-value added manufactured goods to the high-value added manufactured goods.

Exports play an important role to Malaysian economy. The importance of exports to Malaysian economy can be

seen from the ratio of exports to gross domestic product (GDP). In 1970-1979, the average of the ratio of exports to GDP in Malaysia was 46.46. The average of the ratio of exports to GDP increased to 57.85 in 1980-1989 and 91.24 in 1990-1999. In 2000, the ratio was 124.63. In 2002, the ratio was 114.07 (Ministry of Finance Malaysia). The export sector also provides a large number of job opportunities to Malaysians. The importance of exports to the Malaysian economy is a result of the policy of industrialisation towards export-oriented industry products. Moreover, the importance of exports to the economy is partly because of the small domestic market. Generally, the economic growth of Malaysia is said to be export-oriented (Ghatak *et al.*, 1997).

This chapter aims to give an overview of exports of Malaysia. Moreover, it gives a literature review of estimating exports and then discusses the case of Malaysia. Furthermore, it remarks on the issues of estimating exports of Malaysia. And it finally provides some directions for future research in the area.

Exports of Malaysia

Exports of Malaysia experienced significant growth over the past decades. In 1970-1979, the average of the growth of exports was 20.65 percent per annum. In 1980-1989, the average of the growth of exports was relatively low, i.e. 11.73 percent per annum. Nonetheless, the average of the growth of exports in 1990-1999 was relatively higher, i.e. 17.27 percent per annum. In 2000, the growth of exports was 17.03 percent. Although the growth of exports was negative, -8.84 percent in 2001, the growth of exports

became positive, 5.69 percent in 2002 (Table 4.1). Generally, changes in the growth of exports in Malaysia are mainly as a result of changes in export prices and external demand. An increase in export prices will lead to a decrease in exports. An increase in external demand will lead to an increase in exports. In 1997-1998, the devaluation of exchange rate also affected the exports of Malaysia.

Table 4.1: Growth of Exports

Year	Growth of Exports (%)
1970-1979	20.69*
1980-1989	11.73*
1990-1999	17.27*
2000	17.03
2001	-8.84
2002	5.69

Notes: Exports refer to exports of goods and services.
* denotes the average of the growth of exports.
Source: *Economic Report.*

The composition of exports changed over the past decades. The contribution of commodity products to total exports declined while the contribution of manufactured goods to total exports, particularly electrical and electronic goods increased. In 1970-1979, the main exports of Malaysia were crude materials and manufactured goods. They accounted 41.55 percent and 17.04 percent of total exports, respectively. In 1980-1989, the main exports were crude materials, mineral fuels, and machinery and transport equipment. Nonetheless, the contribution of crude materials

and mineral fuels to total exports declined while the contribution of machinery and transport equipment to total exports increased. In 1990-1999, machinery and transport equipment became the main exports of Malaysia. They accounted 54.30 percent of total exports. The importance of machinery and transport equipment to total exports increased in 2000-2002, which accounted 61.06 percent of total exports (Table 4.2).

The direction of exports was about the same for the past two decades. In 1980-1989, the United States, Singapore and Japan were the main importers of exports of Malaysia. Those countries accounted 49 percent of total exports of Malaysia. In 1990-1999, the same countries accounted 47 percent of total exports of Malaysia. However, the importance of those countries to total exports declined in the 2000s. In 2002, these countries contributed to 42 percent of total exports (Table 4.3). The importance of those countries has declined as a result of Malaysia international trade policy to diversify its exports and to stabilise exports, thus to stabilise economic growth.

The importance of exports to Malaysian economy could be seen in terms of its contribution to GDP and employment in manufacturing sectors. The contribution of exports to GDP increased over the past decades. In 1970-1979, exports contributed to 46.46 percent of GDP; in 1980-1989, 57.85 percent of GDP; in 1990-1999, 91.24 percent of GDP; and in the 2000s, exports contributed to more than 100 percent of GDP (Ministry of Finance Malaysia).

Table 4.2: Composition of Exports (RM million/percentage)

	1970-1979		1980-1989		1990-1999		2000-2002	
SITC	Average (RM million)	Average (%)	Average (RM million)	Average (%)	Average (RM million)	Average (%)	Average (RM million)	Average (%)
0+1	633.6	5.70	1,853.9	4.67	5,066.4	2.87	8,117.0	2.29
2	4,635.6	41.55	9,155.5	23.08	10,822.2	6.14	8,757.0	2.47
3	1,405.5	12.60	9,148.5	23.06	15,338.5	8.70	32,945.3	9.32
4	1,306.2	11.70	4,403.3	11.10	11,353.4	6.44	14,402.0	4.07
5	75.0	0.67	554.4	1.40	5,182.1	2.94	15,088.7	4.26
6	1,901.4	17.04	3,477.9	8.77	15,038.4	8.53	24,916.0	7.04
7	746.9	6.70	8,929.3	22.50	95,806.1	54.30	216,050.0	61.06
8	356.9	3.20	1,952.7	4.92	16,098.7	9.12	29,849.3	8.43
9	93.9	0.84	200.5	0.50	1,693.1	0.96	3,754.3	1.06
Total	11,155.0	100.0	39,677.0	100.0	176,398.9	100.0	353,879.67	100.0

Notes: SITC is the standard international trade code. 0+1 = Food, Beverages and Tobacco; 2 = Crude Materials, Inedible; 3 = Mineral Fuels, Lubricants, etc.; 4 = Animal and Vegetable Oil and Fats; 5 = Chemicals; 6 = Manufactured Goods; 7 = Machinery and Transport Equipment; 8 = Miscellaneous Manufactured Articles; 9 = Miscellaneous Transactions and Commodities.

Source: *Economic Report: Treasury Malaysia (Various Issues).*

Table 4.3: Direction of Exports (percentage)

Year	United States	Singapore	Japan	The Netherlands	Hong Kong	Other	Total Exports
1980-1989*	13	18	18	4	2	44	100
1990 – 1999*	17	18	12	3	4	46	100
2000	18	16	11	4	4	47	100
2001	17	15	11	4	4	49	100
2002	17	15	10	3	5	50	100

Note: * denotes the average of percentage of exports.
Source: *Economic Report: Treasury Malaysia (Various Issues).*

Employment in manufacturing sectors increased over the past decades. In 1970-1979, 11.55 percent of total employment was in manufacturing sectors. In 1980-1989, 15.88 percent of total employment was in manufacturing sectors. The employment in manufacturing sectors increased in the 1990s and 2000s. In 1990-1999, 24.12 percent of total employment was in manufacturing sectors. In 2000, 27.59 percent of total employment was in manufacturing sectors. The employment in manufacturing sectors decreased a little in 2001 and 2002. In 2001, 27.39 percent of total employment was in manufacturing sectors. In 2002, 21.68 percent of total employment was in manufacturing sectors (Ministry of Finance Malaysia). The decline of employment in manufacturing was a result of weak external demand for exports of Malaysia, particularly related to the economic slow down of the United States.

Exports have played a substantial role in promoting economic growth (Ghatak *et al*., 1997) – by earning foreign exchange and achieving economies of scale. On the whole,

exports have played an important role to Malaysian economy. Exports of Malaysia have experienced significant growth. The export prices and external demand were two important factors that influence exports of Malaysia for the past decades. The composition of exports has changed. The contribution of commodity products to total exports has declined while the contribution of manufactured goods to total exports has increased. The direction of exports was about the same for the past two decades. The United States, Singapore and Japan were the main importers of exports of Malaysia. Exports have contributed to a big share of Malaysian GDP and have provided a large number of employment opportunities in manufacturing sectors.

Analytical Framework

Goldstein and Khan (1978) proposed an exports model, which is derived from the supply and demand for exports. The model is expressed as:

$$\ln X_t = \beta_{10} + \beta_{11} \ln RP_t + \beta_{12} \ln Y_t + u_{1,t} \quad (1)$$

where *ln* is the natural logarithm; X_t is the export volume; RP_t is the relative prices, expressed by the export price of the exporting country to the export price of the importing country in terms of the exporting country's currency; Y_t is the income of the importing country and $u_{1,t}$ is a disturbance term. The relative prices are expected to have a negative sign and the income of the importing country is expected to have a positive sign. They estimated for eight industrial

countries (Belgium, France, Germany, Italy, Japan, the Netherlands, the United Kingdom, the United States). The results show that the relative prices and the income of the importing country are respectively found to have a significant impact on exports. However, the long-run relationship of exports and its determinants is not examined.

The income of the importing country is generally found to be an important factor that affects exports. An increase or a decrease in the income of the importing country will lead to an increase or a decrease in exports. O'Neill and Ross (1991) estimated exports of Korea to OECD countries using quarterly data over the period 1972-1988. They reported that the relative prices and the income of the importing country are important for exports of Korea. Moreover, the United States tends to have a higher income elasticity of export demand for Korea while Europe has a higher relative prices elasticity of export demand for Korea. Hassan and Tufte (1998) estimated exports of Bangladesh using monthly data over the period 1977-1992. They found that exports of Bangladesh are affected by the volume of world trade as a measure of the income of the importing country.

The relative prices are important for exports. An increase in the relative prices will usually lead to a decrease in exports and vice versa. Kumar (1994) analysed the role of structural and policy factors in explaining attractiveness of a country as a base for export-oriented production by multinational enterprises of the United States. The results showed that countries with a lower labour cost enjoy an advantage over others in attracting export-oriented production by multinational enterprises. Perkins (1997) reported

that export performance of China is affected significantly by the ratio of domestic resource cost to the effective exchange rate. Hassan and Tufte (1998) showed that foreign and domestic export prices do explain Bangladeshi's exports.

A Literature Review of the Case of Malaysia

Arize (1990, p.891) investigated the demand and supply of exports in seven Asian developing countries, including Malaysia using quarterly data over the period 1973-1985. Over the past few decades, exports have played a critical role in the economic growth of Asian countries and policies to increase export have strongly emphasised the need for export expansion to achieve a sustainable current account balance compatible with adequate and steady rate of economic growth. The study reported that the relative price is found to be statistically significant. However, the world demand is found to be statistically insignificant. The insignificant of the world demand is explained by most of the products exported were primary or traditional, which the demand has not been growing fast enough in the world markets.

Arize *et al*. (2000) examined the long-run relationship of exports of thirteen developing countries over the period generally from 1973 to 1996.[1] They used Johansen (1988) co-integration method and found among others the important impact of the relative prices and the world demand on exports. Nonetheless, the main focus of the

[1] They examined the cases of Ecuador, Indonesia, Korea, Malaysia, Malawi, Mauritius, Mexico, Morocco, the Philippines, Sri Lanka, Taiwan, Thailand and Tunisia.

study is on the impact of exchange rate volatility on exports. The main objective of the study is to estimate exports in Malaysia. In particular, the study estimates the price and income elasticities of exports using time series data over the period 1970-2002 and a sub-period of 1970-1996. For the sub-period, the year 1996 is chosen as a cut-off point to avoid the contagion of the Asian financial crisis 1997-1998 on exports.

Wong *et al*. (2004) employed a standard econometric methodology to examine the determinants of exports in Malaysia. The export model to be estimated is derived from export demand and export supply (Goldstein and Khan, 1978). The study employs two measures of the world demand, namely the GDP volume of the world and the GDP volume of the industrial countries. The Dickey and Fuller (1979) and Phillips and Perron (1988) unit root test statistics are used to examine the degree of integration of the data. The Johansen (1988) co-integration method is used to test the number of co-integrating vectors. The variables used in the estimation are the real exports, the relative prices and the world demand.

The study investigates the relationship between the real exports and its determinants in Malaysia. For 1970-2002 and 1970-1996, the results of the Dickey and Fuller (1979) and Phillips and Perron (1988) unit root test statistics show that generally the real exports and its determinants are found to be integrated of order one. Moreover, the results of the Johansen (1988) co-integration method show that generally the real exports and its determinants are co-integrated. An increase in the relative prices will lead to a

decrease in exports and an increase in the world demand will lead to an increase in exports. The real exports of Malaysia are price and income elasticities in the long run. Moreover, the study reported that exports of Malaysia are more price and income elasticities than those of Indonesia, the Philippines and Thailand.

A Visual Inspection of Interrelationships among Exports, US GDP and Relative Price (US)

Taking the US as world market by considering her economy size relative to the world economy, we try to observe the interrelationships among the Malaysian exports of goods and services and the US GDP, and relative price (Malaysian export price to US exports price). The data from *World Tables* (World Bank), and are measured in indexes and in 1995 prices. As illustrated in Figure 4.1, a strong positive relationship between the Malaysian exports and the US GDP exits in a nonlinear manner. This is consistent with the theory; increasing world income may cause higher volume of exports from exporting country. Does the relative price variable (with the US market) explain the Malaysian exports? Interestingly, there is no significant correlation observed between relative price of exports and the Malaysian exports demand. However, a few of 'clusters' and outliers are detected, and this may illustrate the structure changes of the exports which do not affected by price factor, but by other factors.

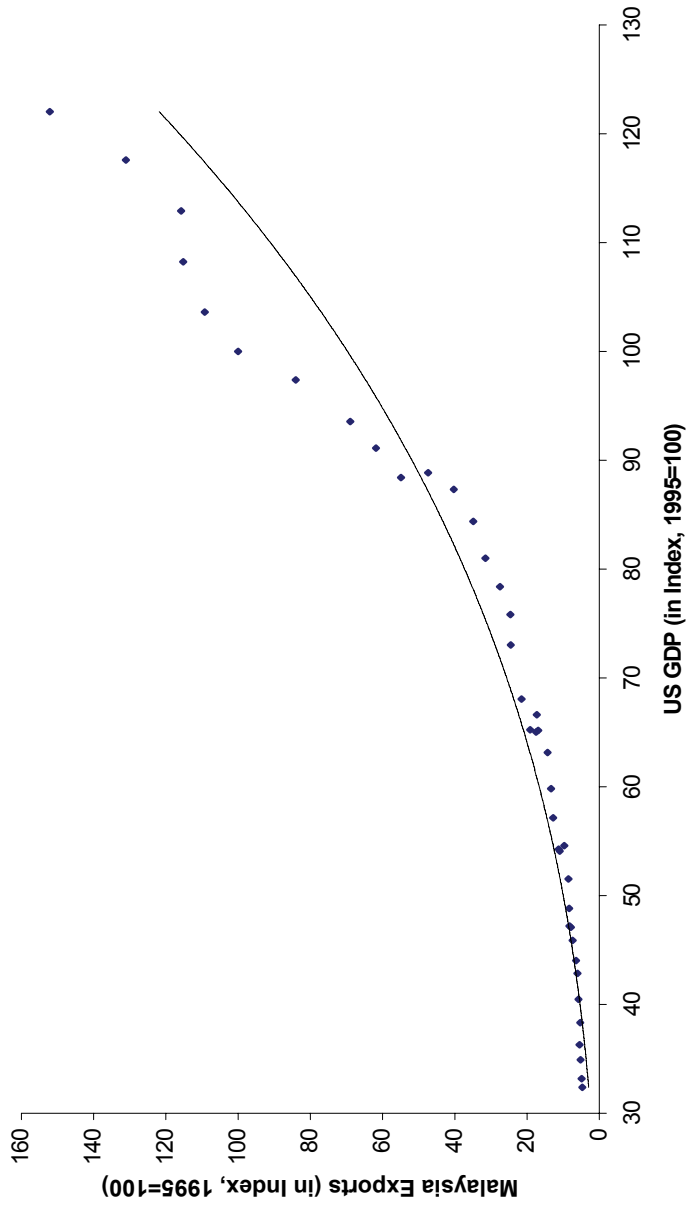
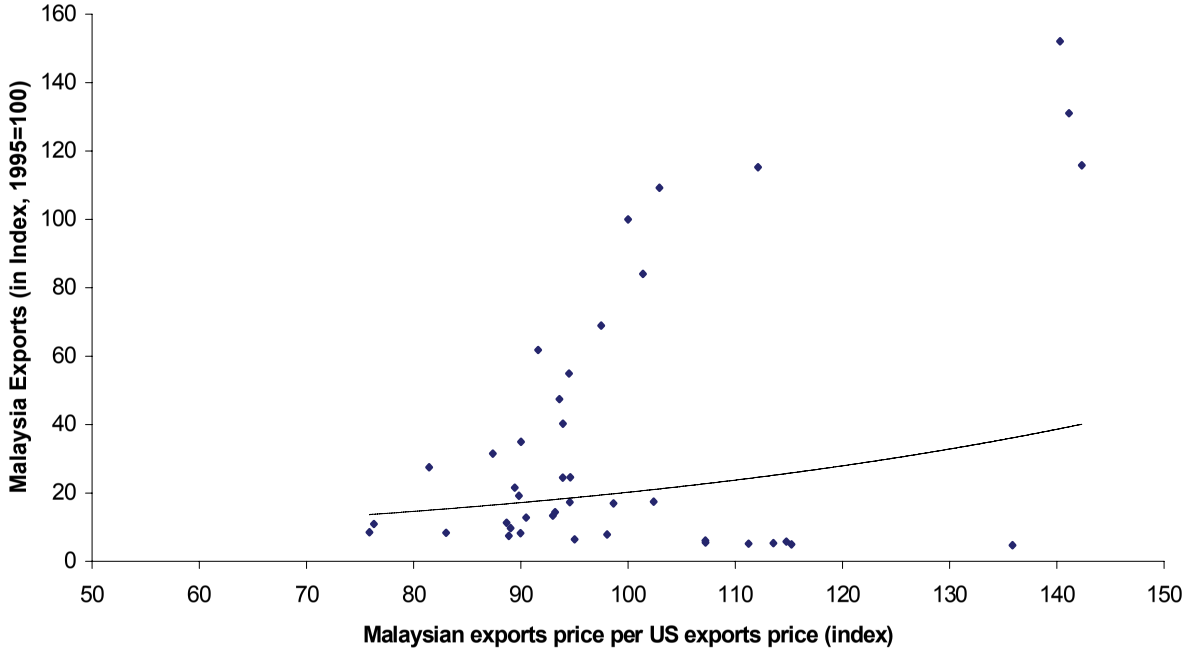


Figure 4.1: Plot of Malaysian Exports of Goods and Services and US GDP, 1960-2000

Figure 4.2: Plot of Malaysian Exports of Goods and Services and Relative Price (Malaysian Exports Price per US Exports Price), 1960-2000



Conclusion

The study on this area for the case of Malaysia is not as intensive as the area of imports demand function. Similar to Chapter 3 for import demand function, the topic of aggregated exports demand function is still subject to further examinations.

First, this is a potential to empirically examine the bi-lateral or disaggregate exports of Malaysia. However, a major constraint of this exercise is that the highly dis-aggregated hard data collected by the relevant agencies are not available from published reports.

Secondly, study could examine other factors that could influence the Malaysian exports such as exchange rate volatility. In fact, this is a critical task to select the candidate variable(s) to be included into standard exports demand function. In this regard, economic theory may be used as guides to choosing the candidate variable(s) either macro-economic variables and/or financial variables.

Thirdly, this is worth to investigate the impacts of world trade liberalisations on the Malaysian export demand. Other than that this work can be extended to examining the effects of regional trading block(s) such as AFTA on export demand in Malaysia.

Less importantly, as highlighted in previous chapter, nonlinear techniques can be considered in estimating exports demand function for Malaysia. For example, to estimate the nonlinear components of export demand function.

CHAPTER 5

Export-Led Growth

Introduction

Empirically speaking, export-led growth (hence after, ELG) is an important and interesting chapter in the literature in international economics. Under this hypothesis, we perceive that an increase in exports growth would lead to an increase in economic growth over a substantial time frame. In fact, its reversed relationship via growth-led export (hence after GLE) has been a complement topic from the eyes of researchers and policymakers. That is, an increase in economic growth would cause an increase in exports. Many studies have tried to examine the relationships between exports and economic growth by using up-to-date time series econometrics approaches such as causality, both using data from the developing countries and developed countries. Generally, accord with the above hypotheses, it is argued that there is a positive correlation relationship between

exports growth and economic growth. In some circumstances, the existence of exports promote economic growth, and at the same time, economic growth promotes exports, which is called the feedback or bi-directional causality between exports and economic growth. Although examining the relationships between exports and economics growth has received substantial attention from researchers but, generally the empirical studies are inconclusive and the results are mixed from country to country and different sample span. Therefore, the issue remained unsolvable and is to be further explored and examined.

This chapter aims to give a brief report on what has been done in examining the validity of ELG with particular attention on Malaysia. It also provides causal inspections of the relationships between exports growth and economic growth. Furthermore, it gives some explanations why contradiction occurs on the ELG hypothesis in Malaysia. This chapter finally provides some directions for future research in this interest.

A Discussion of Export-Led Growth Hypothesis

The ELG hypothesis implies that an increase in exports (levels or growth rates) would lead to an increase in economic growth. Econometrically, ELG is supported if exports Granger-cause economic growth (proxied by real GDP) at convenient level of significance via causality tests. From the eyes of economists, ELG illustrates the role played by exports in promoting country's economic growth via several channels of transmission, and considers exports as an engine of growth. There are many reasons to explain the

existence of ELG hypothesis. An increase in exports could imply that the demand of the country has risen thus, this could serve to increase the real output. Broadly speaking, exports could promote specialisation in the production of export products, which in turn may raise the productivity of the export sector. This may then lead to a reallocation of resources from the relatively inefficient non-trade sector to the higher productive export sector. In practice, the productivity change may imply economic growth. The outward oriented trade policy may also give access to advanced technologies, learning by doing and better management practices (Hart, 1983; Ben-David and Loewy, 1998). Thus, exports will raise output. More exports, more earnings from foreign exchange, which makes it financially sufficient to import inputs to meet domestic production and output expansion (Chenery and Strout, 1966). Outward orientation makes it possible to use external capital for development and may assist with debt servicing. The promotion of exports may also eliminate controls that result in an overvaluation of the domestic currency. The development of goods for exports, which based on comparative advantage of a country, would allow the exploitation of economies of scale. And, this could lead to increased economic growth. This argument suggests that domestic markets are too small for optimal scale to be achieved while increasing returns may occur with access to foreign markets. This is the case, in particularly for small open economies like Malaysia, and countries that lack natural resources for economy development such as Singapore. In fact, for certain extent, ELG hypothesis could be seen as part of the

product and industry life-cycle hypothesis. This hypothesis describes economic growth as a cycle that begins with exports of primary goods (Giles and Williams, 2000a; Leow, 2004, p.83).

However, there is no general consensus on the ELG hypothesis. The experiences of Asian Newly Industrialised Economies (NIEs) such as Korea, Taiwan, Hong Kong and Singapore and also the second tier of NIEs in Asian such as Malaysia and Thailand are unique in many ways and not necessarily replicable in other countries. It is questioned whether a reliance on exports to lead the economy will result in sustained long-term economic growth in less developing countries (LDCs) due to the volatility and unpredictability in the world market (Jaffee, 1985). Another question is whether the markets in developed countries are large enough for more exports from LDCs. There are several arguments to support the counter development strategy of protectionism or import substitution (Prebisch, 1950; Singer, 1950). This involves utilising a variety of policy instruments such as tariffs, quotas and subsidies to substitute domestic output for imports. The import substitution, however, can be implemented without impacts from other economies and, the benefits to increased employment and output in the domestic country. Such government policies can be accounted for to foster domestic firms rather than foreign ones. Based on the experience of Latin American countries, it is argued that trades between the North and the South have been detrimental to some Latin American countries resulting in high government expenditure on incentive schemes, ecological damage, trade imbalances

and setbacks to domestic industry and agriculture (Hamilton and Thompson, 1994). Grossman and Helpman (1991) have showed that the use of tariffs may benefit countries with a comparative disadvantage in key sectors and lead to greater growth. There are many countries that promote exports and at the same time protect other sectors. Realistically, export promotion and import substitution strategies may well be complementary. The latter may be a necessary step for export-based growth (Hamilton and Thompson, 1994).

Literature Review — The Case of Malaysia

The empirical evidence of the relationships between exports growth and economic growth in Malaysia, particularly the role of exports on growth, are indeed inconclusive. Using annual data over the period 1967-1986, Dodaro (1993) has examined the direction of causality between export growth and the real output growth for 87 countries including Malaysia. The causality tests offered a weak support for the contention that export growth promoted GDP growth for most countries including Malaysia. In line with Dodaro's (1993) work, Ahmad and Harnhirun (1996) have investigated the causations between exports growth and economic growth by using five member countries of the ASEAN, namely Indonesia, Malaysia, the Philippines, Singapore and Thailand. The findings from causality tests support the hypothesis that domestic economic growth that causes exports to grow in all member countries of the ASEAN, rather than growth being export-led.

In the same year, Doraisami (1996) has examined the role of exports in promoting Malaysia's economy growth (GDP) using annual data over the period 1963-1993. The study does suggest bi-directional causality between exports and GDP, as well as a positive long-run relationship between them. On the other hand, by considering the possible bias of using bivariate framework (export and GDP), Yousif (1999) examined the validity of the ELG hypothesis for the case of Malaysia by considering a multivariate analysis, including variables such as the exchange rate, labour and capital. Surprisingly, the study has suggested that the ELG hypothesis is basically a short-run phenomenon in Malaysia for the annual data over the period 1955-1996. In the long run, economic growth was internally generated. One year later, using data over the period 1955-1990, Ghatak, Milner and Utkulu (1997) examined the causal relationships between aggregate exports, disaggregated exports (manufacturing, fuel and non-fuel primary products), the real GDP and the non-export GDP of Malaysia. The study has documented that disaggregated manufactured exports contribute significantly to GDP comparing with traditional (non-fuel primary) exports. The study, however, has revealed a significant negative causal relationship between traditional exports (non-fuel primary exports) and both GDP and the non-export GDP.

Additionally, Siddique and Selvanathan (1999) have looked at the causality relations between export performance and economic development in Malaysia with annual data over the period 1966-1996. There is no evidence to support the ELG hypothesis for both the total exports and

manufactured exports. However, a one-way Granger causality running from economic growth to manufactured exports does exist. More precisely, Khalafalla and Webb (2001) have further examined the applicability of ELG hypothesis for Malaysia using quarterly data over the period 1965-1996. They used a vector autoregressive (VAR) analysis. Trade data are disaggregated into primary and manufactured exports and, Granger causality approach is applied to the entire period and also the two sub-periods: the 1965-1980 (policy emphasis was on import substitution); and 1981-1996 (policies favoured ELG). The results reveal supportive evident on the ELG hypothesis for the full period, as well as the 1965-1980 period. However, the results suggest that the direction of causality runs from economic growth to exports over the period of 1981-1996. Primary exports had a stronger impact on economic growth than manufacture exports. The weakening support for ELG hypothesis after Malaysia shifted to an export-oriented development strategy may be partly explained by the structural changes associated with industrialisation. Interaction among trade and economic growth becomes more complex with a broadening export base and more diverse sources of economic growth.

Recently, Leow (2004) has investigated the role of exports in promoting Malaysian economy growth via a multivariate framework which includes six variables, namely the real GDP of Malaysia, the real exports, the real imports, the real effective exchange rate, the real gross fixed capital formation and the real GDP of the United States. Using quarterly data 1970-2000, the study supports bi-

directional causality between exports and GDP, and a positive short-term relationship between them. In the long run, the positive impact of exports on GDP tends to diminish. However, Lai (2004) has forwarded the same argument of Leow on the mis-specification of using bivariate framework in examining ELG hypothesis for Malaysia. But, beside exports and economic growth variables, he only includes the third variable, domestic demand proxied by private consumption expenditure into three-variable framework. In line with Leow (2004), he has found that there exist short run bilateral causalities among the three variables, which implies that both export-led growth and domestic demand-generated growth hypotheses are at least valid in the short run. However, his study does not support ELG in the long run. The study highlights that the use of domestic demand as the catalyst for growth is appropriate.

From the above in-depth review, the ELG hypothesis in Malaysia has been aggressively examined using both data in aggregate levels or disaggregate levels over different sample periods. In fact, different methods are used to examine the hypothesis. The studies generally revealed a mixed results and the ELG is inclusive for the case of Malaysia. There are some studies reported the evidence of the ELG hypothesis in Malaysia. Nonetheless, some studies reported the GLE hypothesis. Other studies reported that there is no feedback between exports and GDP.

A Visual Inspection on The Exports-Led Growth

The existing studies fail to come to a general consensus regarding the ELG hypothesis in Malaysia. Thus, this section is aimed to clarify ELG in Malaysia via a basis tool – visual inspections of the plots of exports growth and economics growth (GDP growth) and using annual data (1962-2002). The plots are Figure 5.1 (line plot) and Figure 5.2 (scatter plot). The figures were calculated from data obtained from *World Tables*, World Bank. The real export is defined as exports divided by the export price index and economic growth is defined as nominal GDP divided by GDP deflator. Interestingly, as visually observed from Figure 5.1, there seem to be close positive relationships between exports growth and economic growth, except for the periods of 1980-1982 and 1988-1996 boxed areas. This may be tentatively interpreted as an explanation that different sample spans/periods yield different results on the causal relationships between exports growth and economic growth as found in the studies cited in the literature.

More interestingly, from a simple correlation plot in Figure 5.1 there is a positive correlation between export growth and economic growth in Malaysia over the period 1960-2002. The higher the growth rates of exports, the higher the economic growth and otherwise. Several unusual observations were detected. This observation, basically provides a causal evidence of the relationships between exports and economic growth in the case of a small open economy like Malaysia. This adds additional support on the relationships between exports growth and economic growth but nothing on the causations of the variables.

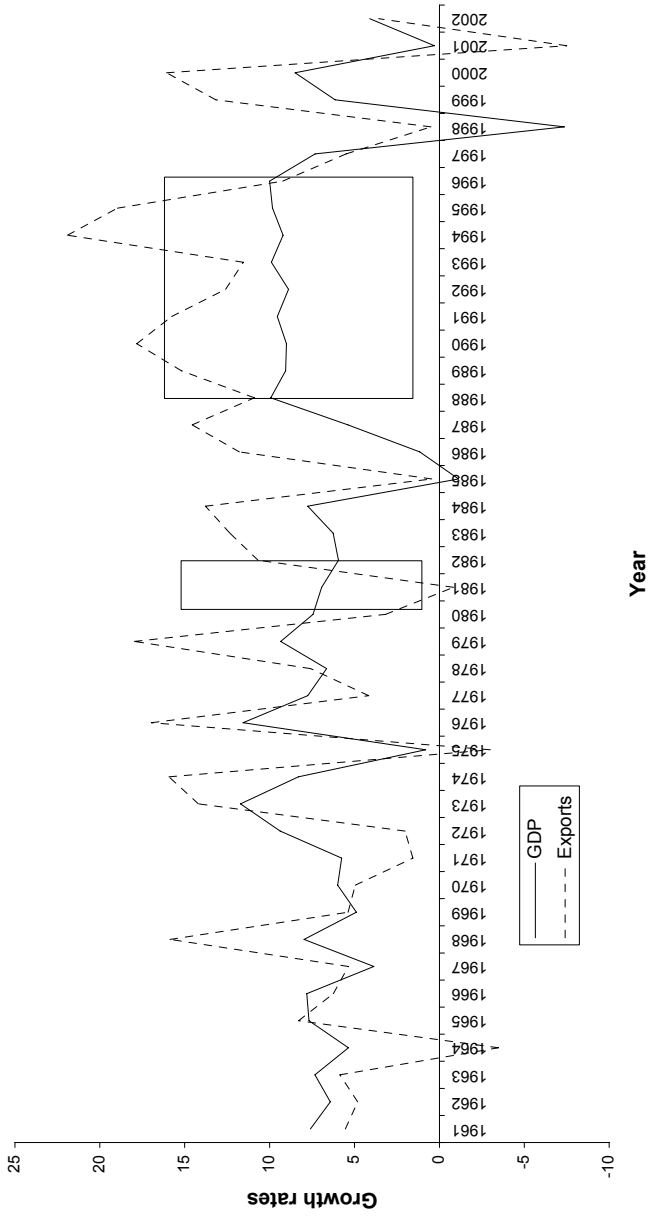
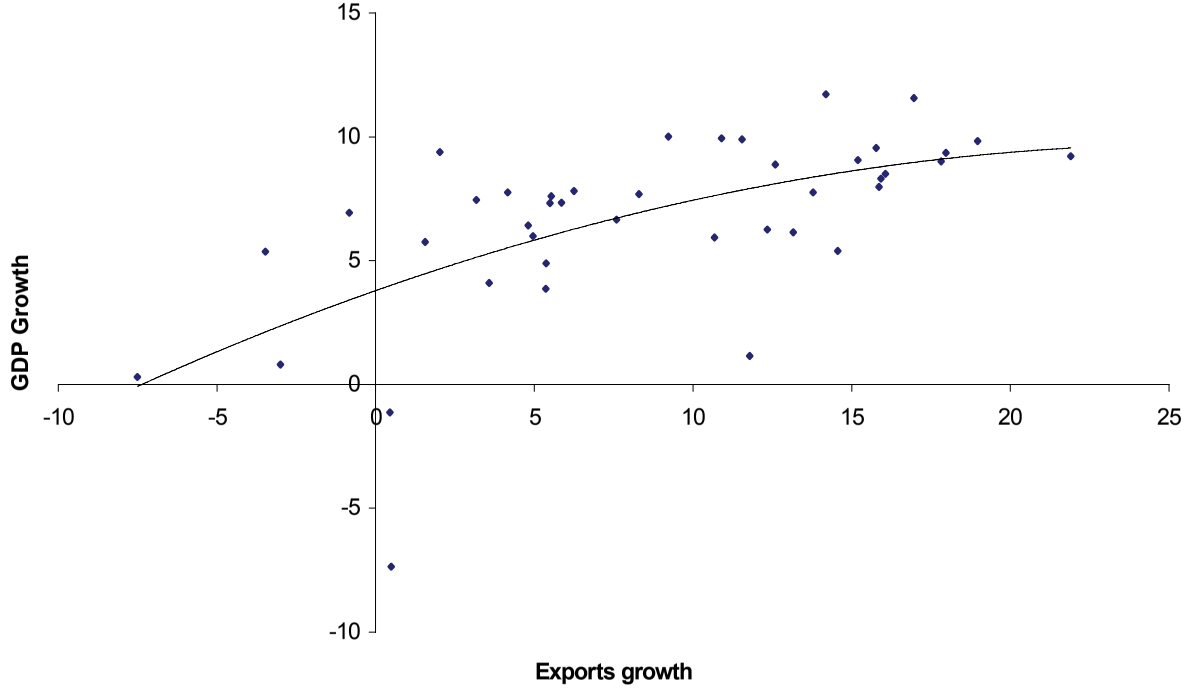


Figure 5.1: Plot of the Growths of Real Exports and Economic Growth in Malaysia, 1961-2002

Figure 5.2: Plot of the Correlation between Growths of Exports and Economic Growth in Malaysia, 1961-2002



Why View Contradicts Occur on The ELG Hypothesis in Malaysia?

Apart from above explanation different sample periods may yield difference results on ELG hypothesis. In fact, economic theory is ambiguous on whether exports Granger cause economic growth or vice versa. Perhaps, this is from the viewpoint of econometrics literature about testing the precedence of one variable over the others. The Granger causality test is conventionally employed in empirical works in order to examine the causal relationships of the variables to give some explanations on economic theory. Generally, there are several reasons of difficulties that may lead to non-robustness of testing the ELG hypothesis. First, the different results could be due to the definition of relevant information. This relates to the issue of which variables to include. Clearly, from the above discussed studies, the use of bivariate framework of vector autoregressive (VAR) between exports and GDP; or multivariate framework of VAR includes other variables in addition to the bivariate variables provide mixed results. Second is related to the issue of the level of temporal aggregation of the data, i.e. aggregate versus disaggregate data, and the estimation time period. The finding of the ELG hypothesis in an annual system need not imply the ELG hypothesis with higher frequency data such as quarterly data (Giles and Williams, 2000b, p.451).

The third explanation is that the different results could also be due to the application of different econometrics techniques (Khalafalla and Webb, 2001, p.4). The testing of the ELG hypothesis in a single equation may not be the

same as in a system of equations. Moreover, the lag length of the VAR is not known in nature. Researchers usually either arbitrarily assign a lag length or they employed a data based method to estimate length of lag (*d*). The choice of the best lag length is necessary but not sufficient to avoid spurious causality. Giles and Williams (2000b, p.451) suggested that common approaches include presetting the lag order and choosing *d* using a model selection criterion. There are some indications that Schwarz (1978) information criterion (SBC) is preferred in lower dimensional system and Akaike (1969) final prediction error (FPE) in larger systems. It is logical to include different lag lengths in causality tests, in order to check its sensitivity to the lag length used. Generally, causality test at least for one-year period should cover four lags for quarterly data. Finally, the different trade flows such as aggregate and disaggregate trade flows used in the study could produce different conclusion on the ELG hypothesis. Moreover, as discussed earlier, the different 'channels' of causality could matter, i.e. via short run channel (jointly significance of coefficients of lagged first differenced variables, *F*-test) or long run channel (significance of error correction term of error correction model, *t*-test) (see Granger, 1988). The ELG hypothesis could happen in the short run, but not in the long run or vice versa.

Conclusion

In this chapter, we have briefly described the ELG hypothesis and the importance of this hypothesis in formulating trade policies as well as development policies. There is a

bundle of research in the literature. Nonetheless, there is still room for studying the ELG hypothesis for the case of Malaysia. The causality analysis on the ELG hypothesis in Malaysia could be extended in at least two directions. Firstly, to consider the effects of changes of economy structure on Malaysian exports behaviour. Generally, the Malaysian economy had undergone a structural change as a consequence of transformation from an agricultural-based economy to a manufacture-based economy via ELG strategy in the late 1980s. Changes of economy structure may influence the ELG hypothesis. Though the idea of disaggregation has been indirectly considered by Ghatak, Milner, and Utkulu (1997) on the exports side by using disaggregated exports components, less attention has been paid on the influences of the changes of Malaysian economic structures from an agricultural based economy to manufacturing based economy on ELG hypothesis. This issue can be crucially considered for the examination of the ELG in Malaysia. The second direction is related to the functional form of the model. The existing studies have conventionally used log-linear specification of VAR framework for testing the ELG hypothesis without a clear justification. In this relation, the estimates may be bias if the functional exports and economic growth used is not suitable such as using linear model (estimator) to estimate nonlinear time series. In this case, Smooth Transition Regression (STR) modelling is more appropriate than linear OLS VAR framework. This perhaps adds another room for further research.

Thirdly, there is always an unanswerable question whether the relevant variables should be included into multivariate VAR framework. Yousif (1999) and Leow (2004) have included other macroeconomic variables into VAR framework in testing the ELG without any justifications of including them. In this relation, economic theory may be used in deciding whether the relevant variable(s) should be theoretically included in testing the ELG. For instance, Tang (2005b) who uses trivariate framework by including imports variable as additional variable to explain economic growth in China, and no causality between export and economic growth. The inclusion of imports variable for validating export-led growth analysis is justified by Riezman *et al.* (1996). They suggest that imports variable is an important variable in the causal relationship between export and economic growth and that failure to include it in the test could lead to a biased conclusion. The role of imports is mainly intermediate inputs in exports. For an economy that depends on export promotion for its growth process, imports are important in restoring external imbalances to its sustainable steady state path. Another example is from Lai (2004). He has included private consumption expenditure variable to test the domestic-led growth hypothesis complements to the ELG hypothesis using the Malaysia case.

However, it is important to highlight that a long run relationship (co-integration) between exports and real GDP variables does not mean that the ELG hypothesis being supported. Ahmad and Harnhirun (1996) have concluded that an empirical support on the ELG hypothesis based on

the results of co-integration between exports and GDP. To be more precise, a co-integrating relation between exports and GDP does reveal that the basic model of Balance-of-Payments-constrained growth model (not ELG hypothesis) is validated or supported. In this relation, Tang (2005a) has used co-integration approach to investigate the presence of a long run relationship between exports and GDP in Malaysia, and the tests do not support co-integration between the two variables suggesting that Balance-of-Payments-Constrained growth model (basic version) does not hold in Malaysia over the sample period.

CHAPTER 6

Sustainability of Malaysia's External Imbalances

Introduction

Examining the sustainability of external imbalances in particularly the trade imbalances has attracted attention from empirical researchers as well as policymakers. Generally speaking, a stable trade condition is an essence of a country's economy, particularly to a small open economy like Malaysia to sustain her economic growth by earning more income from foreign exchange as well as international reserves via trade surpluses. Table 6.1 shows Malaysia experienced her trade surpluses for the most of the period 1970-2003, except in 1982, 1984, 1991, and between 1994 and 1998. The trade balance had risen to unusual high surpluses from 1998 to 2003, after implementing a bulk of recovery policies in response to the Asian financial crisis 1997-1998, mainly links to the exchange rate control in 1998 as well as policy to reduce and restrict imported goods.

Table 6.1: Trade Balances (in RM million) in Malaysia, 1970-2003

1970-74	1975-79	1980-84	1985-89	1990-94	1995-99	2000-03
875	701	4,721	7,579	527	-9,358	61,811
601	3,729	505	7,398	-6,334	-254	54,055
311	3,794	-915	13,291	2,216	-46	54,340
1,438	3,428	1,976	11,967	3,833	58,439	81,136
304	7,061	-4,279	6,967	-2,000	73,083	—

Notes: Trade balances are calculated with real exports minus real imports, and the data are from *Monthly Statistical Bulletin, Various Issues,* Bank Negara Malaysia.

Investigating the long-run relationships between imports and exports is essentially related to the effectiveness of exchange rate policy such as devaluation to ratify or to improve the external balance — trade balance. In reality, exchange rate policy in any country is always accompanied by other macroeconomic policies that are fiscal and monetary policies, thus it is difficult to assess the effects of one policy without controlling the others. In this relation, the combined effects of all policies on the trade balance are considered. That is the existence of long-run relationships between imports and exports of a country might indicate that the macroeconomic policies as well as exchange rate policy can be optimistically implemented to correct the trade imbalances (Bahmani-Oskooee and Rhee, 1997, p.109). In fact, the supportive of *J-curve* thesis alone is found to be empirically insufficient to test the effectiveness of devaluation on trade balances without considering the effects of other macroeconomics policies. Perhaps, finding a

co-integrating relationship between imports and exports might provide another view on the favourability of devaluation policy as illustrated in *J-curve* hypothesis via sustainability of trade balances, that is imports and exports are moving together in the long run.

The Intertemporal Budget Constraint

The intertemporal budget constraint is a key issue in the study of the sustainability of public finance. It states that if a government runs deficits for some years, it is expected that the government will run surpluses in the future. On the whole over time, the government runs no deficits or surpluses. The intertemporal budget constraint is derived from the accounting identity. More specifically, the one-period budget constraint of a government under the assumption that government bonds have one-year maturity could be written as follows:

$$GE_t + (1 + i_t)B_{t-1} = R_t + B_t \quad (1)$$

where GE_t is the government expenditure net of the interest payment; R_t is the government revenue; i_t is the interest rate; and B is the government debt. Using the budget constraint for each period and solving equation (1) forward leads to:

$$B_0 = \Sigma^{\infty}_{i=1} r_t (R_t - GE_t) + \lim_{n \to \infty} r_n B_n \quad (2)$$

where $r_t = \prod_{s=1} (1 + i_s)^{-1}$. A necessary condition for sustainability is that as n goes to infinity, the discounted value of the debt measure converges to zero, i.e. the second term of the right-hand-side of equation (2) is zero. This is also known as the transversality condition, implies that no Ponzi games are allowed, meaning no new debt is issued to meet interest payments. With the imposition of this limit, the stock of government debt, B_0 must equal the present value of primary budget surpluses $\Sigma^{\infty}_{i=1} r_t (R_t - GE_t)$. Assuming the interest rate is stationary, Hakkio and Rush (1991) transform equation (1) into an equation that has testable implications and in the logarithms form as:[2]

$$\ln E_t = \alpha + \beta \ln R_t + e_t \quad (3)$$

Literature Review — The Case of Malaysia

Using Malaysian data, numerous studies have empirically examined the co-integration between imports and exports or to test the sustainability of external accounts. Their findings, however, are mixed. Using quarterly data between 1973:2 and 1998:1, Arize (2002) has found evidence in favour of co-integration between imports and exports in 35 (*except Malaysia*) of the 50 countries (see Arize, 2002, pp.108-109, Table 1) based on the Johansen technique. Using Stock and Watson test (1988), however, co-integration is confirmed for all countries (except Mexico) including Malaysia. The imports and exports used in the study were

[2] A necessary and sufficient condition for the intertemporal budget constraint is that the expected real rate of interest is constant or positive (Trehan and Walsh, 1991, p.208).

scaled by the nominal GDP (in domestic currency). Lau and Ahmad (2003) have examined the sustainability of external imbalances over the 1961-2001 for Malaysia. Their work clearly showed that inflows and outflows share a common stochastic trend prior to the 1997 Asian crisis while in the post-crisis period the current account surpluses are on an unsustainable path. Furthermore, Ahmad, *et al.* (2003) has examined the sustainability of the current account imbalance for four ASEAN countries (Indonesia, Malaysia, the Philippines and Thailand) over the 1961-1999 period (annual data). For the case of Malaysia, they found no co-integration between imports and exports (measured in real terms as a percentage of real GDP) for the period 1961-1999, but a co-integration exists for the period 1961-1997 (according to the trace statistics only) — weak evidence. By considering the possible structural breaks, they have applied the Gregory and Hansen test (1996) and, the results have supported a co-integrating relationship between imports and exports with a possible shift in average (mean) and/or coefficient (slope) in all countries for the 1961-1999 period *except Malaysia*. For the pre-crisis period (1961-1997), however, a co-integrating relationship between exports and imports is only found for Malaysia. Using bounds test (Pesaran, Shin and Smith, 2001), Tang (2003) has confirmed that the Malaysian real imports and real exports are co-integrated for the annual sample period 1968-1998. His sample countries cover the five ASEAN founding nations namely, Singapore, Malaysia, Thailand, the Philippines and Indonesia. In the context of import demand analysis, Mohammad and Tang's (2000) work has

indirectly supported the co-integration between imports and exports in Malaysia for the period 1970-1998. Using Johansen test, they have found that *volume of imports*, final consumption expenditure, expenditure on investment goods, *exports* and relative price of imports are co-integrated. Of recent, using annual data 1959-2000, and Johansen's multivariate test, Choong, *et al.* (2004) have found that exports and imports of Malaysian data, are co-integrated, and conclude overall effectiveness of Malaysia's past macroeconomic polices in stabilising trade conditions, which does not exceed the intertemporal budget. Tang (2005), further comments Choong, *et al.*'s (2004) work of using *unjustified* lag length of five years for co-integration test, and finds no co-integrating relationships between imports and exports variables in Malaysia.

From the above, a major observation can be drawn on the inconclusive finding on the co-integration between imports and exports, that is the techniques of estimate used do matter the co-integration between imports and exports for the case of Malaysia.

An Evidential View of Sustainability of Malaysian Trade Balances

To consider the above issue, this chapter re-investigate whether the Malaysian imports and exports are co-moving based on the visual inspection on the trends of the series. This basic method at least provides fundamentals for further research on this thesis.

In Figure 6.1, log of real imports, and log of real exports are only co-moved for several periods and not the whole

sample period 1960-2001, these are 1960-1964, 1970-1980, and 1997-2001. Clearly, for the periods 1965-1970 and 1980-1997 exports and imports for those periods are not moving together. This finding, however, probably justifies the inclusive of previous studies using different sample period, data frequency, and methods of analysis.

Conclusion

The objective of this chapter is to shed some light the issue of sustainability of the Malaysian external imbalances via the finding of co-integration between imports and exports. A review of previous studies reveals that the co-integration between imports and exports for the case of Malaysia is indeed inconclusive. However, from the virtual inspection on the trends of imports and exports reveals that they were moving together for certain sub-periods, instead of the whole sample period 1960-2001.

For further investigating this thesis, firstly, more powerful techniques for co-integration such as — a new test of the null hypothesis of no co-integration between a pair of time series proposed in Leybourne, Newbold, and Vougas (2002), can be used. In facts, they have found evidence that this general version of their test is more powerful than the Johansen test. Other than that, several co-integration techniques such as single-equation and multivariate approaches can be carried out together as a crosscheck for its consistency of a co-integrating relation between the Malaysian imports and exports. Secondly, the researchers can examine the co-integration between imports and exports by further disaggregating its components, imports of manufacture and

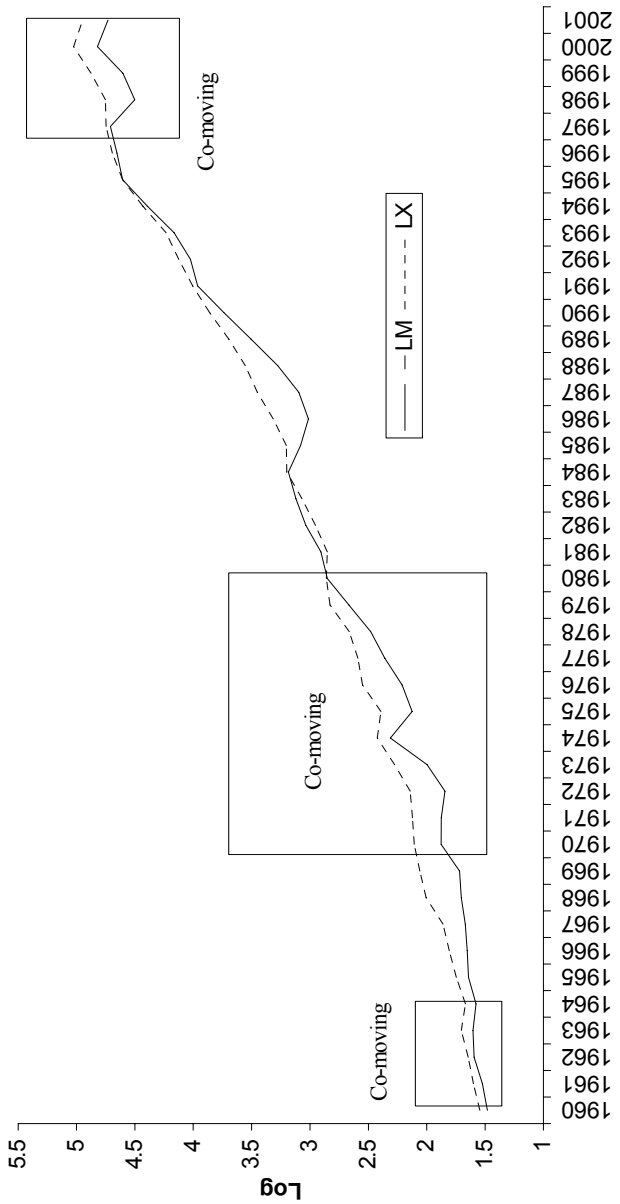


Figure 6.1: Log of Real Imports and Exports (LM =LnM and LX =LnX), 1960-2001

exports of manufacture, for instance. Finally, other macro-economic variables should be included as control variables which accord to economy theory to further re-examine the sustainability of the Malaysian trade balances over long span sample period.

CHAPTER 7

Does *J-Curve* Phenomenon Work Well?

Introduction

A policy option for a country facing deficits in external accounts is to devaluate its currency. However the argument that devaluation will improve trade balance or balance of payment is debatable. In fact, the elasticities approach argues that the necessary and sufficient conditions for a country to devaluate its currency to improve its trade balance or balance of payment is the Marshall-Lerner condition, i.e. the sum of the elasticity of import demand and the elasticity of export supply of the country must exceed unity. However, it is interesting to note that there is empirical evidence that the *J-curve* phenomenon will not happen even though the Marshall-Lerner condition is met (Bahmani-Oskooee, 1985, p.500). The *J-curve* phenomenon is the notion that after *devaluation* the *trade balance* worsens in the short run before improving in the long run (Brooks and Fausten, 1998, p.73).

In this regard, this chapter is aimed to review the studies on *J-curve* hypothesis those used Malaysia case, and to provide a visual inspection of the behaviours of real exchange rate and trade balances in order to investigate the presence of the *J-curve* phenomenon over the sample period 1970-2003. The following issue is to answer the contrast finding on devaluation policy of using import demand price elasticities approach, and from the visual inspection of both series. Further research in this area has been directed in the last section.

Brooks and Fausten (1998, p.73-74) have briefly explained why this short run deterioration may occur. Assuming prices are fixed in suppliers' currencies, and that quantities do not respond quickly to price changes. Therefore, exports, imports, import price in terms of foreign prices and export price in terms of domestic prices are fixed. Accordingly, the short run effect of devaluation is to reduce the foreign currency value of the trade balance. The impact effect of the devaluation is concentrated entirely in the fall of the foreign currency price of domestic exports (export price in terms of foreign prices = export price in terms of domestic prices over exchange rate). They added that *this effect cannot occur for a small open economy*, because it faces fixed foreign prices by virtue of the perfect elasticity of world demand for its exports and world supply of its imports. What can happen to a small open economy is a valuation effect that changes the domestic currency value of its existing trade flows. In this relation, this is a crucial gap to be filled in, for a small open economy like Malaysia.

Note, the *J-curve* has been explained by several factors. Krueger (1983) has argued that the phenomenon emanates from the fact that at the time an exchange rate change occurs, goods already in transit and under contract have been purchased and the completion of those transactions dominates the short-term change in the trade balance. Therefore, the trade balance deteriorates and then after passage of time (during which the elasticities have a chance to increase) it begins to improve. Also, Magee (1973) has pointed out that the rapid increase in domestic activity relative to activity abroad may swamp any favourable effects that the devaluation might generate. The phenomenon is characterised as consisting of a period during which contracts already in force in specified currencies dominate the determinants of current account. Over the time, new contracts made after the devaluation begin to dominate and the "pass-through" of the devaluation or depreciation is affected (Bahmani-Oskooee, 1985). Details reviews on the *J-curve* have been completely carried out by Bahmani-Oskooee and Ratha (2004).

What do the Existing Studies Find on Malaysian *J-Curve* Phenomenon?

The studies on the *J-curve* phenomenon can be classified into two empirical groups. That is using bilateral data and using aggregate data. However, the results are still inclusive from both groups of studies. Using bilateral trade of Malaysia and Thailand with the U.S and Japan quarterly data from 1980:1 to 1996:4, and time series econometric methods, Baharumshah (2001) in his study concluded that

the real effective exchange rate is an important variable in the trade balance equation and devaluation improves the trade balances of Malaysia in the long-run. Other macro-economic variables are domestic income (GDP), and foreign income. The study, however, documented that the *J-curve* pattern does not fit the data at all well. Similarly, Wilson (2001) examined the relationship between the real trade balance and the real exchange rate for bilateral trade between Singapore, Korea, and Malaysia and the USA and Japan on a quarterly basis over the period 1970 to 1996. Other independent variables are real domestic output and real foreign output. For the case of Malaysia, the study found no persuasive evidence for *J-curve*, and real exchange rate does not have a significant impact on the real trade balance. Also, there is no co-integration among real trade balance, real exchange rate and real domestic output.

Of recent, Zulkornain and Choong (2004) examined the relationship between trade balance and the real effective exchange rate uncertainty, gross national products in the home country and foreign country, and balance of trade based on bilateral trade between Malaysia and selected ASEAN and developed European countries over the period of 1977-2001. They found that the exchange rate does significantly influence Malaysia's trade balance with Singapore, the US, Japan, and Switzerland. And the study has found that Marshall-Lerner condition does not hold except for the bilateral trade between Malaysia-Japan, and the *J-curve* does not fit the data. On the hand, using impulse response method, Tan (1004, p.263, Appendix 2) found that the *J-curve* hypothesis is not supported by the

Malaysian data (1960-2001). As a result of a shock on Malaysia's nominal exchange rate, the trade balance increases immediately for the first two years, then a little smooth in the third year before achieving its equilibrium. This clearly illustrates that these responses do not follow a *J-curve*. Opposing to those studies, Onafowora (2003) however, found a long-run relationship among real trade balance, real exchange rate, real domestic and foreign income in Malaysia (other ASEAN countries are Thailand and Indonesia) in her bilateral trade to the U.S. and Japan based on quarterly data from 1970 to 1996. Furthermore, the initial negative effect of a real depreciation on Malaysia's trade balance with Japan and with the US is supportive of the *J-curve* hypothesis.

Is the *J-Curve* Effect Observable for Malaysia?

Visual Inspections using Aggregate Data

From the previous section, the existing studies except Onafowora (2003) fail to support the *J-curve* thesis for Malaysia either by using bilateral or aggregate data. Using annual data 1970-2003, and visual inspections on real exchange rate and trade balance series, this section adds another empirical view to reject the *J-curve* hypothesis. Here, the trade balance is defined as ratio of the exports value to imports value — not sensitive to the unit of measurement and can be interpreted as nominal or real trade balance. The real exchange rate is calculated as EP^*/P, where E = nominal exchange rate; P^* = foreign domestic price levels, US CPI; and P = domestic price levels, Malaysia CPI. As illustrated by Figure 7.1, devaluation (increase in real exchange rate, RM per USD), immediately (a

year period) led to trade balance increase, for the periods 1974-1978 and 1979. However, it might be explained by the installation of import substitution strategy in the mid-1960s and the early 1970s, as well as the implementation of an export-led industrialisation strategy based on assembly type operations in 1970s. Devaluation in 1978, led an immediate increase in trade balance, and continued devaluation for the period 1979-1983, and 1983-1987 led decrease-increase pattern of trade balances, and including *W-curve* phenomenon. We do not consider it as *two combined J-curve* since the nominal and real exchange rates (RM/USD) from 1982 to 1984 showed a continued devaluation via 2.3185 (2.13), 2.3387 (2.13) and 2.4263 (2.22) for nominal exchange rate (real exchange rate). However devaluation followed a decrease of trade balance immediately for the period 1987-1991. This can be linked to the effects of the recession of 1985 when real GDP declined by 1.1%. For the period 1992-1996, trade balances were mostly following the exchange rate trend associated with the capital controls measures in 1994. Finally, a pegged exchange rate of RM3.8 per USD as well exchange controls in 1998 might cause an immediate increase in trade balances. However this is practically due to the Malaysian government's measures to reduce imports of goods and services rather than the exchange rate effect, particularly lumpy imports in mid-1997 as a policy to handle the Asian financial crisis 1997-1998 including postponement of projects with high import content, reduction of Government spending, promoting the use of domestic goods as well the imposition of high duties on construction materials and equipment, consumer durables and motor vehicles.

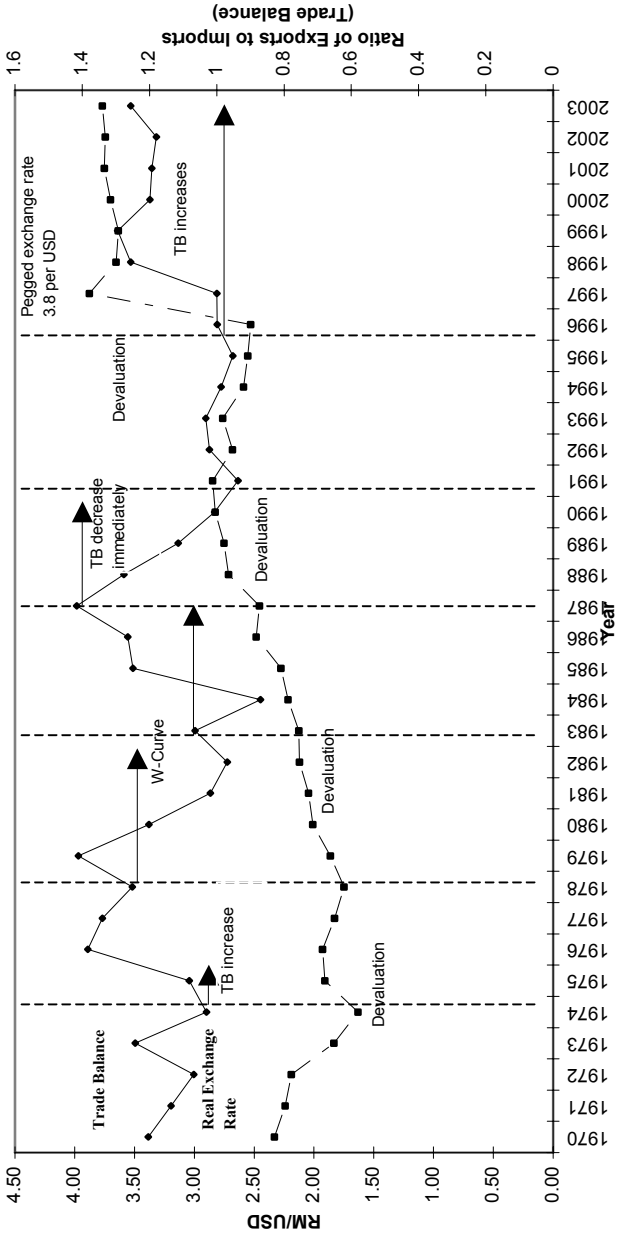


Figure 7.1: Plot of Exchange Rate (RM/USD) and Trade Balance (in Million) for Malaysia, 1970-2003

(Data source: *Quarterly Bulletin, Bank Negara Malaysia*)

The finding of no *J-curve* phenomenon in a small open economy like Malaysia is found to be consistent either from the visual inspection or from the econometric analysis carried out in previous studies. Wilson (2001, p.393) has documented that *'… the J-curve effect cannot occur for a small open economy initially in the trade equilibrium'.* Perhaps, a *W-curve* for the period 1979-1987, and this can be conceptually explained by Bahmani-Oskooee and Ratha (2004, p.1379) that *'However, buying patterns do not change overnight because prices have changed, and the trade balance may get worse during the early periods of quantity adjustments because the price effects dominate the volume effect. This trend reverses in the longer-run when the trade balance improves: possibly giving rise to a W-curve!'*

The Elasticity Approach and the *J-Curve* Thesis

A pass-through effect occurs when a change in the exchange rate results in a change in the domestic prices of imported goods. A pass-through effect results in higher domestic prices of import of goods, when the domestic currency depreciates. On the other hand, a pass-through effect results in lower domestic prices of imported goods, when the domestic currency appreciates. The pass-through effect varies across nations, across time and across industries. The degree of pass-through is very important because it has implications for the effect of the change in the value of the domestic currency on trade balance or balance of payment of a country.

As illustrated from Chapter 3, most of the estimated import price elasticities are elastic in the long run, for

example -1.3 (Tang, 2002) including import demand estimates alone sufficiently satisfy the Marshall-Lerner condition that devaluation can be theoretically implemented to improve the trade balances. If this was the case, *J-curve* should be empirically or visually proved for the case of Malaysia. But, there is no *J-curve* phenomenon found for the case of Malaysia! Why? According to Wilson (2001, p.391), *'low pass-through would make it possible for trade flows to stay relatively insensitive to currency changes, even if export and import demand is highly elastic over the short and long run'.* If the currency depreciation is not passed through to domestic prices for imported goods, the currency depreciation may not improve the current deficit and vice versa. Elasticity measures generally differ over time horizon. In a longer period, households and firms are able to adjust, supply and demand tend to be relatively more price elastic over longer periods and relatively less elastic over shorter time period.

Conclusion

This chapter has briefly reviewed several selected studies on *J-curve* thesis of Malaysian data. Overall, those studies have rejected the *J-curve* thesis for Malaysia, but our visual observation finds a W-shaped trade balance responses to real devaluation for the period 1979-1987. Pegging the RM per USD in 1998 signals us that trade balance is insensitive to exchange rate changes — devaluation, rather the policies imposed on import of goods and services as economy recovery measures are more sensitive to the trade balance.

Does this chapter provide an ending point for further examining the *J-curve* thesis for the case of Malaysia case? The answer is NO! There are several directions in further research on this area. The first is to stimulate the impact of *J-curve* phenomenon if the exchange rate control is removed, and further devaluation imposed. Secondly, most of the previous studies used a full sample period, and if the effect of average trade balance dominates the *J-curve* phenomenon, the estimates are subjected to biases. Therefore, several sub-periods from the full sample period have to carry out in order to avoid this issue. Finally, bilateral or aggregated trade data from previous studies as well as the visual inspection from this chapter fails to support *J-curve*, but it is still an unclear answer if the *J-curve* thesis is applied on the data in disaggregated levels via product components or economic clarifications of trade balances, for example, trade balance on consumption goods, investment goods, and intermediate goods.

CHAPTER 8

Balancing Item in Malaysia's Balance of Payments Accounts

Introduction

This chapter aims to explore several testable issues on the balancing item (or net errors and omissions) in Malaysia's balance of payments accounts. Generally speaking, research on the balancing item in Malaysia's balance of payments accounts for both theoretical and empirical is relatively not available in published materials. Perhaps, the size of balancing item, to certain extend tells us the reliability of trade data (items of balance of payments accounts) which is used for modelling, and then policymakers will propose appropriate policies to stimulate external balances; the larger the size of balancing item in balance of payments accounts, the less reliable the trade data. In this relation, researchers and policymakers must pay special attention to this issue when using trade data of balance of payments accounts if its net errors and omissions are defined as 'big'.

What Is Balancing Item?

From the accounting point of view, the recorded balance of payments would always balance. It, however, can prove very difficult in material world due to the difficulties in measuring and recording balance of payments data. More practically, the balance of payments accounts are constrained by the problem of '*adding up*', that is, the total debit may not equal to the total credit of balance of payments accounts. A balancing item, therefore, is added to the data to validate the double entry bookkeeping principle. The value of balancing item is obtained simply by calculating the difference between total recorded credit transactions and total recorded debit transactions per time period (Brooks and Fausten, 1998, p.31).

Similarly, the net balance of errors (transactions are recorded incorrectly) and omissions (transactions are not recorded at all) constitutes the balancing item (Fausten and Brooks, 1996, p.1303). Balancing item in balance of payments accounts shows the discrepancies between the sum of the debit and credit entries. For variety of reasons, however, countries generally do not correctly record all transactions, or they classify corresponding transactions differently. Under these circumstances, errors and omissions in the national data and asymmetries (discrepancies) arise. The net errors and omissions shown in the balance of payment represent the difference between the discrepancy for the current account and that for the combined capital and financial accounts. A positive sign of balancing item suggests a systematic over-reporting of debit transactions, or underreporting of credit transitions, and *vice versa.* In

other words, within the current account, a negative discrepancy indicates a net excess of recorded debits, which may reflect an under recording of credits, an overstatement of debits, or both. A positive discrepancy in the financial account suggests a net understatement of capital outflows (increase in assets or decrease in liabilities), and/or a net overstatement of recorded inflows (decrease in assets or increase in liabilities).

Balancing items are not only devices introduced to ensure that the accounts balance. They encapsulate a great deal of information and include some of the most important entries in the accounts, as can be seen from the following examples of balancing items: value added, operating surplus, disposable income, saving, net lending/ net borrowing, net worth. It could be seen as an arbitrary 'correction' representing lags and other aberrations in the flow of funds.

Literature Review — Balancing Item of Balance of Payments Accounts

From an intensive search, study on balancing item in Malaysia's balance of payments accounts is not available from published sources. However, existing studies for other countries are available, and these have been reviewed here in order to provide a brief insight on this area of research on international trade. Earliest study is from Duffy and Renton (1971). As noted by Duffy and Renton (1971, p.448), "*Re-interpreting these regressions in terms of the balance of payments items enables the major errors to be identified*". The study examined the sources of error in the balance of payments

accounts for U.K. by linearly regressing the balancing item upon principal components extracted from the probable major sources of error in the balance of payments accounts, and from the likely determinants of unidentified monetary flows via least squares estimator. The independent variables are exports and re-exports of goods, imports of goods, net total invisibles, net private investment abroad and in the U.K., the net change in external sterling liabilities, miscellaneous capital, the overall monetary balance, spot exchange rate, interest differential and one-quarter lagged values of the balancing items (all variables are measured in first differences). They have concluded a significant part of the balancing item arises from timing errors in the recording of transactions. Duffy and Renton (1971, p.461) noted "*… in a way that is meaningful from an economic point of view – for the 'significant' and negative coefficient on the lagged first differences of the balancing item suggests that this item accounts for timing errors in the recording of transactions".* And the errors in the other items, however, have on occasion been very large absolutely, particularly in exports, in imports and in the monetary balance. In addition, U.K. net private investment abroad, changes in net external sterling liabilities and miscellaneous capital seem to be measured reasonably accurately.

After a gap of twenty-six years, Fausten and Brooks (1996) examined the balancing item in Australia's balance of payment accounts. They 'explored' alternative data-driven and structural approaches to the diagnosis of the errors and omissions in the statistical record. Using quarterly data over the period 1959:4 to 1992:3, the study

has regressed the balancing item on the gross transactions flows of the main components of the balance of payments via least squares estimator. The major components involved are merchandise trade, services, income payments, unrequitted transfers, general government, Reserve Bank, direct investment and portfolio investment. The study, however, failed to provide empirical support on the hypothesis that recording mistake constitutes a major source of the balancing item. The supplement experiments showed that the exchange rate and economic openness separately failed to explain the pattern of Australian balancing item.

Later, Tombazos (2003) criticised Fausten and Brooks's (1996) work by that of the data of balancing item used, and documented that Fausten and Brooks' results derive from data that incorporates excessively a dynamically asymmetric concentration of revisions and is therefore unsuitable for statistical analysis. They develop and examine a model of the process of revisions of balance of payments data. This model illustrates that dynamically inconsistent time series of the balancing item, such as that employed by Fausten and Brooks (1996) are bound to generate an artificial impression that it follows an explosive time trend. When alternative, dynamically consistent editions of the balancing item data for the same period as that examined by them are employed, their results are reversed. The findings contradict diametrically the conclusions of them by suggesting that the decline in the frequency of balancing item violations observed in the latter portion of the relevant time period is unparalleled in the history of the balance of payments accounts.

Using revisions data set and a more direct approach using the component accounts as explanatory variables of errors and omissions, Fausten and Pickett (2004) have revisited the analysis on Australian balancing item. Fausten and Pickett (2004, p.112) documented that "*A more direct approach uses the component of accounts as explanatory variables of E&O (errors and omissions)".* These are mainly based on the hypothesis that the errors and omissions in the published balance of payments accounts are linearly related to the recorded items (Duffy and Renton (1971, p.448). The explanatory variables are exports and imports of goods and services, net income receipts from abroad, current and capital transfers, net acquisitions/disposals of non-produced non-financial assets, net flows of direct investment, portfolio investment and other investment, and changes in reserve asset holdings. Four sub-periods have been used to account for the structural instability, and the results are mixed, and the study also examined the possible structural breaks of balancing item, and the endogenously determined break dates are 1973:1, 1973:2, 1987:1 and 1996:3. Of recent, using subset Vector Autoregression models, Granger causality tests, impulse responses and variance decomposition analysis, Tang (2006) examined the responses of Japan's balancing item to her economic openness over the period 1977 quarter 2 to 2002 quarter 4. The results of his study do support the view that economic openness explains the fluctuations of balancing item for the case of Japan.

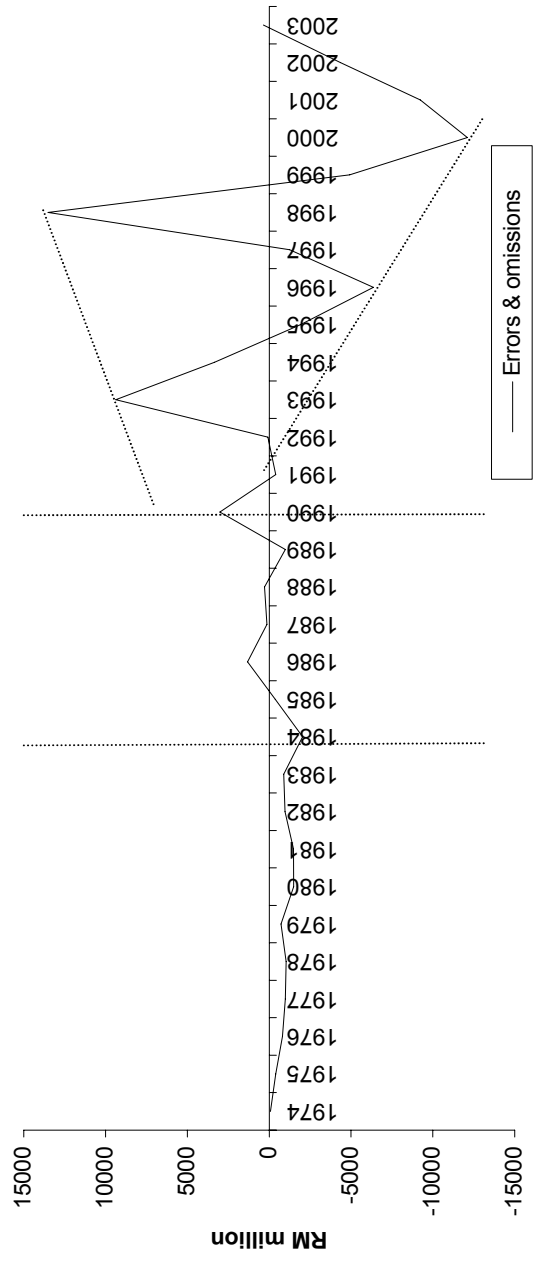
From the above literature, three scopes of research have been identified. Firstly, to examine the sources or determinants of the patterns of balancing item using the items of

balance of payments accounts and/or macroeconomic variables by using time series econometric techniques. Secondly, to examine the validity and reliability of the reported balancing item data from revisions published sources. Finally, to empirically define the break point(s) of balancing item series.

A Descriptive View of The Malaysia Case

Using available annual data of balancing item from 1974 to 2003, this section briefly reveals the patterns and statistical characteristics of Malaysia's balancing item of balance of payments accounts. A visual inspection from Figure 9.1 shows several interesting features. From the earliest 10 years from 1974 to 1985, the recorded balancing items are in negative sign, and in 'stable' movements. A negative sign of balancing item suggests a systematic under-reporting of debit transactions, or over-reporting of credit transitions. For the period 1985-1992, positive sign of balancing item appeared, but less volatility. Year 1992 onward, the movements of balancing item became more fluctuating and high volatile. A more general explanation on this phenomenon is linked to the capital controls measures in 1994, and exchange control in 1998. From Figure 8.1 (dashed line), the size of the balancing item is expected to become larger in future.

Figure 8.1: Net Errors and Omissions (in RM million) for 1974-2003[3]



[3] From the first quarter of 2001, the balance of payments is compiled in conformity with the methodology set forth in Fifth Edition of the *Balance of Payment Manual of the International Monetary Fund (IMF)*. Data for 1999 and 2000 have also been reclassified based on the new methodology. (*Monthly Statistical Bulletin*, November 2004)

Table 8.1 presents the summaries of the balancing item series. The average is -RM712 million as indicated by mean, -RM851 million by median. Theoretically, the total of the net errors and omissions of balance of payments accounts is nearly zero. That is the positive and negative balancing item values have to 'smooth' out between themselves. However, this is not the case as the sum of balancing item from the sample period is -RM21,371 million. And the Jarque-Bera statistic shows the data is not normally distributed. These may be linked to the presence of unusual observations (outliers) appeared in 1993, 1996, 1998, and 2000, respectively.

Table 8.1: Descriptive Analysis of Malaysia's Balancing Item (in RM, millions)

Mean	-712.3667
Median	-851.0000
Maximum	13,513.00
Minimum	-12,107.00
Std. Dev.	4,598.526
Skewness	0.586399
Kurtosis	6.016433
Jarque-Bera (Probability)	13.09290 (0.001435)
Sum	-21,371.00
Sum Sq. Dev.	6.13E+08
Observations	30

The sample period is from 1974 to 2003 (annual data) from the *Quarterly Bulletin, Bank Negara Malaysia.*

Does the Balancing Item of Malaysia's Balance of Payments Account Too Big?

A key question of interest from researchers and policy-makers might be whether the net errors and omissions of balance of payments accounts for Malaysia is too big. As contained in the *International Monetary Fund Balance of Payments Manual*, a balancing item is considered "too big" if it exceeds 5% of the sum of the gross merchandise imports and exports. Borrowing this *rule of thumb*, Figure 8.2 indicates that the Malaysian balancing item of payment of payments accounts is not *technically* considered "too big" since the ratios of balancing item to imports and exports are all within the 5% bounds (dashed lines). However, this finding does not free the researchers from taking any caution of using the items of balance of payments accounts since the balancing item appeared to be highly volatile in the latter sample period (see Figure 8.1).

Sustainability of the Malaysia's Balancing Item

This is an interesting point to examine the sustainability of the balancing item in Malaysia's balance of payments accounts. Accounting view notes that a balancing item is added to the data to validate the double entry bookkeeping principle — it obtained simply by calculating the difference between total recorded credit transactions and total recorded debit transactions per time period (Brooks and Fausten, 1998, p.31). Thus, BI (balancing item) = total credit transactions (C) – total debit transactions (D). Simple application from the Engle and Granger's (1987) co-integration approach is that BI is the error term of equation $C = aD$ (a is

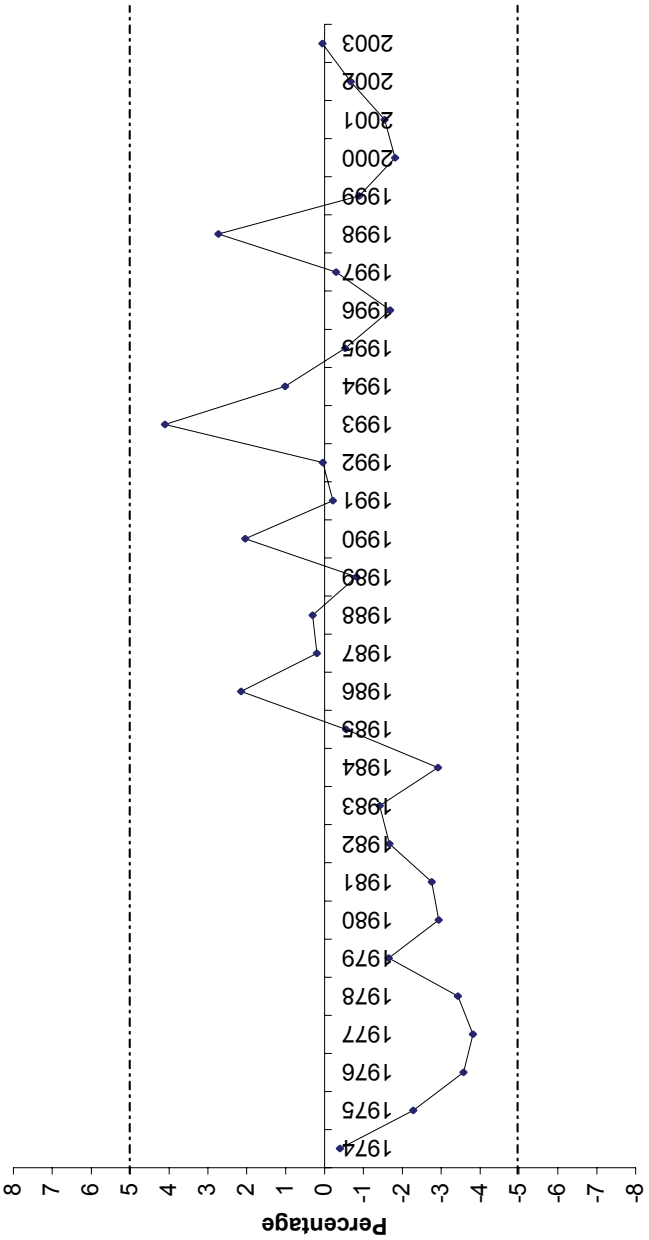


Figure 8.2: Ratio of Net Errors and Omissions on Trade (Imports and Exports) in Malaysia for 1974-2003

Table 8.2: The Results of Unit Root Tests on Malaysia's Balancing Item

Type of tests	Test statistic	p-value or critical value	Null hypothesis, Ho	Decision (Conclusion)
1. Augmented Dickey- Fuller (1979)	-4.69627 [no constant & trend, and 1 lag- AIC]	p-value: 0.000	Balancing item has a unit root	Reject Ho (Stationary)
2. Elliott-Rothenberg-Stock DF-GLS (1996)	-4.82722 [constant only]	0.1 critical value: -1.6098	Balancing item has a unit root	Reject Ho (Stationary)
3. Phillips-Perron (1988)	-3.85711 [no constant & trend]	p-value: 0.0004	Balancing item has a unit root	Reject Ho (Stationary)
4. Kwiatkwski-Phillips-Schmidt-Shin (1992)	0.15283 [constant]	0.1 critical value: 0.347	Stationary	Cannot Reject Ho (Stationary)
	0.139386 [constant & trend]	0.1 critical value: 0.119 0.05 critical value: 0.146	Trend stationary	Cannot Reject Ho (Stationary)

The annual data covers 30 observations from 1974 to 2003.
The source is the *Quarterly Bulletin, Bank Negara Malaysia.*

coefficient of D which assumes to be equal to one), and stationary of BI implicitly indicates co-integration between total credit transactions (C), and total debit transactions (D) – BI is sustainable.

Using the same data as discussed previously, and unit root tests (see Table 8.2), there is an empirical support that the balancing item of Malaysia's balance of payments accounts is stationary, or I(0). Using these results, this section may document that the net errors and omissions of balance of payments account in Malaysia is sustainable – total credit transactions and total debit transactions of balance of payments accounts is moving together in the long run (co-integrated).

Conclusion

This chapter briefly provides a fundamental for analysing balancing item of Malaysia's balance of payments accounts. Besides defining the term of balancing item (or net errors and omissions), a review of existing studies have also been detailed in order to tell what has been done previously. Descriptive and visual investigations from diagrams using the Malaysia data on balancing item gives a general picture of its features for analytical framework design. Moreover, as additional question this chapter documents empirically that Malaysia's balancing item is sustainable.

However, study on balancing item in Malaysia is not a culture yet; perhaps it opens a door for further research on the followings:

1) to examine the major determinants of balancing item both from balance of payments accounts' items and/or macroeconomic variables;
2) to examine whether the Malaysia's balancing item is subjected to timing errors or not; and
3) to answer the question of why the movements of balancing item became more fluctuate and highly volatile after the year of 1992 onward.

CHAPTER 9

The Intra-Industry Trade of Malaysia

Introduction

Intra-industry trade (hence after IIT) is typically defined as trade of similar products and in contrast with inter-industry trade, which is trade of different products (Grubel and Lloyd, 1975; Loertscher and Wolter, 1980). In practice, IIT is an important phenomenon of international trade, particularly among developed countries. Nonetheless, this phenomenon is not exceptional for many developing countries including Malaysia. The formation of ASEAN free trade area (AFTA) has been expected to lead to an increase in IIT. To the best of our knowledge, the empirical analysis of IIT for developing countries is not given extensive attention as those of developed countries (Khalifah, 1996, p.351).

Thus, in line with this motivation, this chapter is aimed to give an overall discussion on empirical analysis of IIT for the case of Malaysia. This chapter also explains IIT indices

and discusses a literature review of IIT. Finally, this chapter provides some directions for future research in the area.

Intra-Industry Trade

Generally, IIT is defined as the two-way exchange of goods within standard industrial classification. The extent of IIT is commonly measured by Grubel-Lloyd index based on commodity group transactions. For any particular product class *i*, an index of the extent of IIT in the product class *i* between countries A and B is given by the following ration:

$$IIT_{i,AB} = [(X_i + M_i) - |X_i + M_i|] / (X_i + M_i) \times 100$$

where *X* is exports and *M* is imports. The index takes the minimum value of zero when there are no products in the same class that are both imported and exported and the maximum value of 100 when all trade is intra-industry (in the case X_i is equal to M_i). One limitation of IIT is that the value of IIT depending on the definition of industry or product group. The broader the industry group, the more likely a country will have a higher level of IIT. The coefficient of the Glubel-Lloyd IIT index could increase due to a rise in exports or imports or both. It is also non-linear in practice, as a small alteration in the coefficient could disguise a big change in trade volume and *vice versa*.

Technically speaking, the Glubel-Lloyd IIT index is a static measure, in the sense that it captures IIT for one particular year. For example, when comparing two years, the coefficient of the Glubel-Lloyd index does not necessary gives us whether the change in IIT is mainly of an

inter-industry or IIT variety (Murshed, 2001, p.103). In this relation, Brulhart (1994) proposed a dynamic measure of IIT (MIIT):

$$MIIT = 1 - (|\Delta X_i - \Delta M_i| / (|\Delta X_i| + |\Delta M_i|)$$

where Δ is the first difference operator. The index is likely to be similar to Glubel-Lloyd IIT index in terms of its computed values. The values vary between 0 and 1. The 0 indicates marginal trade in the particular industry to be completely of the inter-industry type and, 1 represents marginal trade to be entirely of the intra-industry trade (Brulhart and Thorpe, 2000).

A Literature Review of IIT

The examinations of the phenomenon of IIT can be dated back at least to the works of Hilgerdt (1935) and Frankel (1943). Nevertheless, study on IIT's issues has only been given increasing attention after the works of Balassa (1966), and Grubel and Lloyd (1975), amongst others (Loertscher and Wolter, 1980, p.280). Realistically, the phenomenon of IIT is not well explained by the conventional international trade theories that international trade occurs on the basis of differencing factor endowments between countries. Surprisingly, according to Krugman and Obstfeld (2003, p.138), the pattern of IIT itself is unpredictable because there is nothing in the model to tell the pattern of IIT.

Note, IIT could happen for homogenous or non-homogenous (differentiated) products. Generally, the explanation of IIT in homogenous product is the transportation costs.

For example, suppose that country A consists of regions 1 and 2 whilst country B consists of regions 3 and 4. And, suppose that regions 1 and 4 have a comparative advantage in the production of goods X whilst regions 2 and 3 have a comparative advantage in the production of goods Y. Finally, suppose that the transportation costs between regions 1 and 3 and between regions 3 and 4 are much higher than the transportation costs between regions 1 and 3 and between regions 2 and 4. In such circumstances, country A is both an exporter of goods X and an importer of goods X, i.e. it exports goods X from region 1 to region 3 (in country Y) and it imports goods X from region 4 from region 2 (in country X).

In the real situation, most IIT is trade in differentiated product. One of the explanations of IIT in differentiated product is the presence of demand similarity between countries and consumers have different tastes (Krugman, 1980; Lancaster, 1980). For example, suppose that countries A and B have the same factor endowments, and country A has a comparative advantage in the production of goods X whilst country B has a comparative advantage in the production of a differentiated goods of X, namely goods Y that is in the same category product as goods X; and that the taste of the consumer in country A is different from the taste of the consumer in country B. Thus, country A is both an exporter of goods X and an importer of goods Y, both goods X and goods Y are in the same category product.

The empirical literature of IIT has failed to throw up a conclusive set of determinants. A number of explanations have been forwarded for the failure of drawing up a set of

determinants. Greenaway, Hine and Milner (1994, 1995) argued that the empirical literature of IIT failed to distinguish between horizontal and vertical product differentiations. Horizontal product differentiations are product differentiated by characteristics and not quality. On the other hand, vertical product differentiations are products differentiated by quality. Therefore, horizontal IIT is trade of similar products that are differentiated by characteristics and not quality whilst vertical IIT is trade of similar products of different quality. They disentangled IIT according to horizontal and vertical product differentiations using the unit value of exports relative to the unit value of imports. The unit value is considered a good proxy for price. The price is assumed properly to reflect quality (Greenaway and Milner, 1984; Abd-el-Rahman, 1991). The products having the same price are said to having the same quality.

Thus, horizontal IIT comprises products that have the unit value of exports relative to the unit value of imports is within the range of plus or minus 15 percent, in which transport and other freight costs are about 15 percent of the price (Greenaway, Hine and Milner, 1994). On the other hand, vertical IIT comprises product that is outside the range of plus or minus 15 percent. The intuition is that any product has the unit value of exports relative to the unit value of imports more or less than one is considered different product and has different quality. The importance of distinguishing between horizontal and vertical product differentiations is that it allows a more focused testing of specific models since the determinants or the expected

signs of horizontal IIT and of vertical IIT are different (Menon *et al.*, 1999, p.199).

A Literature Review of The Case of Malaysia

Initially, trade plays an important role to Malaysian economy development in particularly via export-oriented strategy. The trade flows (imports and exports) of Malaysia to its Gross Domestic Product (GDP) rose from 73.4 percent in 1970 to 160.7 percent in 1994. Malaysian trade expansion has gone hand-in-hand with a steady increase in the share of IIT. The IIT index rose from 0.19 to 0.54 between 1970 and 1994. The rise in IIT also occurred to manufactured goods (SITC 5-8) (Brulhart and Thorpe, 2000, p.730).

Table 9.1: IIT of Malaysia, 1970-1994

	1970	1980	1985	1990	1994
X/GDP	40.1	53.7	48.9	68.7	81.2
M/GDP	33.3	44.5	39.2	64.9	79.5
IIT (Total Trade)	0.19	0.30	0.37	0.46	0.54
IIT (Manufactures Trade)	0.13	0.38	0.52	0.57	0.59
		1970-80	1980-85	1985-90	1990-94
MIIT (Total Trade)		0.31	0.33	0.48	0.51
MIIT (Manufactures Trade)		0.47	0.47	0.54	0.57

Notes: IIT denotes the Glubel-Lloyd IIT index. MIIT denotes the Brulhart marginal IIT index.

Source: *Brulhart and Thorpe (2000).*

A study by Khalifah (1996) examines the IIT of number of states of ASEAN over the period 1986-1990. The study has suggested that more than 50 percent of ASEAN's manufacturing trade is of the IIT type. Moreover, about 50 percent of ASEAN's IIT occurs in divisions 75, 76 and 77, which are the category of electronics. IIT in the ASEAN manufacturing sector shows that Singapore's contribution is the highest followed by Malaysia, Thailand and Indonesia. IIT of ASEAN is conditioned by foreign direct investment (FDI). IIT is expected to increase with the formation of AFTA and the continued presence of multinational corporations (MNCs) in the region. Trade adjustment within AFTA will be easier compared to a situation where inter-industry trade predominates. The product groups that contributed most to IIT will very much depend on the activities of MNCs which in turn are conditioned by the industrial and export promotion policies of the ASEAN countries. The majority of products in ASEAN IIT refers to intermediate goods as opposed to consumer goods. This is contrary to the origin idea that IIT is the results of scale economies and demand for product differentiation as income level increases. The results for ASEAN's IIT are inconsistent with the idea that IIT are mainly due to consumers' demand for product differentiation as income level increases.

Recently, Murshad (2001) has examined the pattern of IIT of seven Asian economies, including Malaysia. The study focuses on the pattern of manufactured goods IIT using the Gruble-Lloyd index for 1980, 1985 and 1992. Moreover, a dynamic IIT index is employed to examine the change in the pattern of IIT between 1985 and 1992. In

addition to SITC categories, other more important classifications of manufacturing trade, along high or low technology intensity, are used. The Grubel–Lloyd indices of Malaysia, on an SITC basis, are subject to some fluctuations. For overall manufacturing it is rising for Asia and Europe, but not North America after 1985. It is greatest in all years for section 7 (machinery and transport), which is in the main high-technology section (except Europe and EEC, 1985, and Asia, 1980). The changes in the pattern of trade are driven by inter-industry trade, with a decline in competitiveness against North America, a rise with Asia and very little change with Europe.

In addition, the coefficients of the Glubel-Lloyd IIT index for high-technology goods rise between 1980 and 1992, except for the case of North America and the USA. With the exception of Asia, the coefficients of dynamic adjustment are of the inter-industry type, and more strongly so in the case of low-technology goods. By 1992, the majority of Malaysia's manufactured total exports (not just those in the IIT category) were in the high-technology area, with the greatest increase going towards Europe. Thus, Malaysia is an example of a country with a successful industrial policy, which has managed to begin exporting higher quality manufactures without at first going through a phase of concentrating on unskilled labour intensive products.

Prior to the Asian currency crisis 1997-1998, the ASEAN-5 economies witnessed an impressive economic expansion for more than two decades, accompanied by greater openness to trade, particularly among the ASEAN partners. Hurley (2003) has examined the role of IIT in

ASEAN. More specifically, the study divides IIT according to trade in vertically and horizontally differentiated goods and identifies country-specific factors behind both types of IIT. In 1985, IIT made up only 35 percent of the total intra-ASEAN-5, accounted for over two-thirds of the total by 1996. IIT in manufactured trade among the ASEAN-5 was even higher, averaging 43 percent and 62 percent in 1987 and 1996, respectively. A breakdown of IIT for manufactured goods between horizontally and vertically differentiated goods reveals the dominance of intra-industry trade in the latter type, regardless of the size of dispersion measure (15 or 25 percent) adopted. Vertical IIT made up over 70 percent of the IIT in manufactured goods among the ASEAN-5. In looking at country-specific determinants of vertical IIT and horizontal IIT, the model generally performed better at explaining vertical IIT than horizontal IIT, which is not surprising given the dominant role of the former IIT in intra-ASEAN trade. Capital-labour-intensity, proxied by capital and education expenditures, is a significant driver behind trade in vertically differentiated goods. There is also support for the role played by market size and foreign direct investment, which are also found to have impact on horizontal IIT (Hurley, 2003, pp.12-13).

Brulhart and Thorpe (2000, p.732) have investigated between IIT and MIIT for the case of Malaysia using 1970-1994 data. They have reported that Malaysian data does not support the smooth-adjustment hypothesis that high or growing (M)IIT relates negatively to gross employment changes. A substantive literature has made the implicit inference that rising IIT levels will yield even lower adjust-

ment pressures both in the East Asian economies and in industrialised western countries, the puzzle which appears in the Malaysian data seems somewhat disconcerting.

Conclusion

There are some studies on empirical analysis of IIT for the case of Malaysia. However, there are additional attentions to be paid to the empirical studies of IIT for the case of Malaysia. In fact, study on IIT is a potential area of international economics since no theory is well developed on this area and to explain its nature. In this relation, empirical work takes an important role in this manner. Firstly, study can be considered particularly in the more specific category of SITC. A major constraint faced in this type of work is that the hard data collected by relevant agencies is not fully accessible from the published sources. However, this is a valuable study on this highly disaggregated category of SITC since the high aggregated SITC data do not imply the real situations of IIT. Secondly, there is an ongoing question on the determinants of IIT. Moreover, the empirical analysis of the determination of IIT is relatively limited and this could be an area for further research. In this regard, empirical work plays an important role in determining the statistically significant variables that explain the IIT. Such factors can be treated as data in micro-levels (firm or product levels) and macro-levels (macro-economic variables) as well as 'variables in nature' such as geographical distances, taste, race, politics, and so on. Thirdly, this is interesting as a study of IIT within a regional economic block or with other economic blocks.

CHAPTER 10

Conclusion

This chapter discusses the topics covered in this book and, also adds other potential issues that are not included. This book has basically reviewed and discussed numerous issues of international trade examined in Malaysia. Among the important issues discussed for the case of application to the Malaysian data are; economic integration: ASEAN/AFTA; co-integration analysis on aggregate imports demand; the aggregate export demand function; exports led growth; sustainability of external imbalances; *J-curve* phenomenon; balancing item of balance of payments accounts; and lastly, intra-industry trade.

Economic integration with AFTA is an interesting area to explore in view of growing globalisation, and since China's accession to the WTO on 11 December 2001. There are numerous unanswered questions on this topic. Does AFTA really make its member countries better off in terms

of formulation of AFTA? We also have to consider the effects of waking up the Asian dragon, China, on the implications of AFTA. Broadly speaking, as a small open economy, Malaysia is vulnerable to externalities, and therefore China can be treated as good trading partner to Malaysia in bilateral trade matters.

More precisely, this book reviews the empirical works on the Malaysian trade flow, that is, aggregate imports demand and aggregate export demand. Study on exports and imports have received different interests and because of its relevant interpretations of its estimated income and price elasticities, it is more appropriate to examine it separately. In fact, the recorded surpluses of trade in goods and services are largely contributed by the implantations of import control policy associated with exchange rate control and, sustainable export promotions during the Asian financial crisis 1997-1998. Fixing the exchange rate to USD1= RM3.88, has explicitly affected the implications of price estimates of imports and exports, for example, the Marshall-Lerner condition in order to see the effectiveness of devaluation. Does the standard model of imports demand and exports demand capture the Malaysian data well? This question may be answered through econometric model checking. In addition, structural issue may be of concern in examining Malaysia's exports demand since the exports have be shifting from an agricultural-oriented exports to manufacture-based exports. Perhaps, study on exports demand function, and import demand function both are treated as lifetime work since the 18th century.

From an import substitution strategy to export led growth strategy, Malaysia has achieved a substantial growth before the Asian financial crisis 1997-1998. This adds a miracle about the success of export-led growth strategy implemented in Malaysia, even some empirical works reject this hypothesis. Does significant of domestic led growth tell us about the death of exports led growth as found by Lai (Chapter 5)? This is not the case in practice since the existing studies as well as Lai are subjected to further investigations in particularly from the dimensions of econometrics modelling strategy, and appropriateness of the candidate variables.

The sustainability of surpluses or deficits of trade accounts for the case of Malaysia is still an unclear question. The question can conventionally be answered by the empirical testing on the co-integration between levels of imports and exports. If the result favours co-integration, the external accounts balances are sustainable, implying exchange rate as well as fiscal policies may yield a favourable outcomes in improving trade balance. Nevertheless, the empirical results are mixed.

More precisely, examinations on the responses of trade balance or current account balance to devaluation or exchange rate may give a clearer picture to this question of *J-curve* phenomenon. Casual inspections on the exchange rate and trade balance time series tell us that the *J-curve* does not hold for the case of Malaysia, but a *W-curve* for the period 1979-1987. This is also essential to note that the *J-curve* does not provide sufficient interest in empirical research for the case of Malaysia since Malaysia imposed

exchange rate control in 1998 to USD. In fact, the payments of trade transactions are mostly in USD. What's next? A deeper research is possible by using simulation techniques to analyse the reaction of trade balance or current account balance if the 1998 exchange rate control is removed. Lastly, intra-industry trade is unavoidable in the field of international trade with the growing globalisation resulting in a huge amount of foreign direct investment (FDI). Many unanswered hypotheses are available for further investigations.

What are other issues missed out in this book? There are unlimited issues covered in the field of international trade in practice, particularly for a small open developing economy, Malaysia.

Firstly, study on the terms of trade (index of the price of a country's exports in terms of its imports) may be a potential area of international trade to explore. A term of trade is an index of the price of a country's exports in terms of its imports, and it can be used to proxy a country's competitiveness in international market. This variable can be conventionally used as explanatory variable to trade flows (imports and exports, separately) or to describe a country's competitive level.

Secondly, trade integration may be an interest for researchers on the basis of increasing openness in the Malaysia economy as measured by the ratio of exports and imports to GDP. Does Malaysia's trade integrated within ASEAN-AFTA or with other trading blocks or developing and developed countries? Does Malaysia trade-driven by China or other economies since Malaysia is internationally

defined as a small open economy? It is interesting to know the answers.

Too many trade theory and international finance can be applied by using Malaysia data set. This is an unavoidable fact that Malaysia herself has provided an encouraging platform in investigating the issues of international trade because of her unique structures of trade, substantial growth (as well as after the deterioration of the Asian financial crisis 1997-1998), high degree of openness and stable political environment.

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