

Formation of ASEAN Free Trade Area –
Impacts on intra-regional trade and
countries with different stages of
development, 1988-2003

BY

Lau Cheuk Hei, Elsie
02004933
Applied Economics Option

An Honours Degree Project Submitted to the School of Business in
Partial Fulfillment of the Graduation Requirement for the Degree of
Bachelor of Business Administration (Honours)

Hong Kong Baptist University
Hong Kong

April 2005

Content

Acknowledgements

Abstract

1. Introduction	P.1
2. Background of ASEAN Free Trade Area (AFTA)	P.3
3. Literature Review	P.5
4. Methodology	P.8
5. Empirical Results	P.16
6. Limitations of Model Estimations	P.27
7. Conclusion	P.28
8. References	P.30
9. Appendix	P.32

Acknowledgments

I would like to extend my greatest appreciation to my supervisor, Dr. Donny C. Tang, for his continuous guidance, support and contribution to this honor projects. Throughout the whole preparation, Dr. Tang has kindly devoted his precious time in giving me both comments and encouragement. Numbers of trial and errors has enhanced my knowledge in international Economics. Furthermore, I wish to thank all parties that give me supports in completing this paper.

Abstract

This paper examines whether the formation of ASEAN Free Trade Area (AFTA) has led to an increase in intra-ASEAN trade and how it brought trade benefits to economies with different stages of development from 1988 to 2003. By using a simplified gravity model, the results indicate that intra-ASEAN trade is enhanced only after the formation of AFTA in 1992 and continues to grow over years. It also indicates a higher bilateral trade in economies with similar levels of development than that of the dissimilar economies, except trade between two low-income developing economies. Moreover, ASEAN members start to trade more with industrialized countries during the early 2000's in order to achieve globalization and exploit comparative advantages in different countries.

1. Introduction

One of the major international developments in recent years has been the growth of regional trade arrangements (RTAs). It is a reduction of trade barriers within bloc of member countries. The European Union (EU) is the most advanced bloc in which the common currency, the euro, is already adopted in the 1990s. Similarly, the largest and the only RTA in Southeast Asia, ASEAN, are also experiencing more trade liberalization by setting up the ASEAN Free Trade Area (AFTA) in 1992. Its main objective is to increase the ASEAN comparative advantages as a single production unit. The intra-ASEAN export is up to US\$52668.3 millions in 2002 compared with only US\$43681 millions in 1993.

At the same time, ASEAN vision 2020¹ further affirmed ASEAN playing a critical role in the advancing ASEAN's common interests continuously and the realization of AFTA in no way lessens the importance of ASEAN's economic partners. The ASEAN leader resolved to promote economic linkage toward cooperating with nearby countries such as China, Japan and South Korea (ASEAN+3). Recently, ASEAN's Dialogue Partners are much more extending. It attempted to endorse a framework with Australia and New Zealand, forming AFTA-CER, a closer economic relations agreement. Such enlargement is a crucial step to achieve regional economic

¹ ASEAN vision 2020 is called for Partnership in Dynamic Development aimed at forging closer economic integration within the region.

integration and also a building bloc for economic cohesion in larger Asia Pacific region. It is clear that building cooperative ties with other regions is an on-going task.

Some remarkable results come out due to the continuous effort put on each dialogue. According to the ASEAN Statistical Yearbook 2003, the amount of export value between ASEAN and the above dialogue partners, in fact, greatly increases. For instance, the volume of ASEAN export to China, Japan and US experienced sixty-five percent, forty-four percent and forty percent growth from 1993 to 2002 respectively.

All these figures are indicated in table 8.1 in appendix.

To certain extent, formation of AFTA may be beneficial to countries with several stages of development – industrialized economies, advanced developing economies and even low-income developing economies. With these in mind, this paper is thus concerned with how the formation of AFTA influencing intra-ASEAN trade and examines whether the trade liberalization benefits countries with different levels of development, so as the trade pattern between ASEAN and industrialized countries which are mainly developed countries. Section 2 provides background of AFTA while Section 3 is the literature review, stating related findings. Section 4 provides the methodology, the econometric model this paper is going to use. Empirical results are presented in section 5. Finally, Sections 6 give limitations of the model and the overall conclusion.

2. Background of AFTA

The ASEAN Free Trade Area (AFTA)² was launched in 1992, originally with a 10-year time frame, aiming at integrating the ASEAN economies into a single production base, mentioned in its official website (<http://www.aseansec.org>). It currently has a membership of ten countries having 497.56 millions populations. It is the only free trade area in Southeast Asia. Common Effective Preferential Tariff (CEPT) Scheme is the single tariff agreement and thus leads to simplification of the policy with the trading bloc. All arrangements before AFTA establishment are removed, such as the Preferential Trading Arrangement and the ASEAN industrial joint venture program, as they offered to certain member countries on a partial or bilateral basis only.

CEPT required members to reduce their tariffs on intra-regional trade to no more than five percent for most products in the Inclusive list. Quantitative restrictions and other non-tariff barriers are to be eliminated.³ Although originally scheduled to be realized by 2003, targets of free trade area in ASEAN was continuously moved forward. By the beginning of 2002, there are around 1700 out of 44060 products have tariffs above 5 percent. The current average tariff on goods traded under AFTA is about

² Member Countries are Brunei, Indonesia, Malaysia, Philippines, Singapore and Thailand formed in 1992, and the new comers are Vietnam joined in 1995, Laos, Myanmar in 1999, and Cambodia in 1999.

³ Southeast Asia Free Trade Area, Jakarta: ASEAN Secretariat, 2002, announced that the reduction in trade barriers will be an ongoing process in order to sustain the trade benefits brought to its members.

3.8 percent.

The agreement covers all manufactured and agricultural products too. However, 1.09 percent of products are excluded from the agreement for the reason of national security, protection of human, animal and plant life and of artistic, historic value. Furthermore, ASEAN has devoted much attention to trade facilitation in the area of customs via the elimination of technical barriers, such as lowering the cost of doing business. Together with new framework mooted for ASEAN cooperation in manufacture of high-technology and high value-added products, it also decided to establish an ASEAN patent and trademark system to ensure intellectual property rights. All the above implementations flavor the trading condition among each other.

3. Literature Review

Regionalism in international trade has been very much in fashion over past decades as discussed in the very beginning. With the ASEAN intension to enlarge, many economists has studied the current impacts brought by AFTA and predicted the future trend in such trade liberalization.

3.1 Enhancement of Intra-ASEAN Trade

Thornton and Goglio (2002) applied a modified gravity model of trade by adding one more variable, i.e. ASEAN dummy variable to capture effect of intra-regional bias. The results confirmed the importance of economic size and geographical distance, common language in intra-regional bilateral trade. Most importantly, it showed that the membership of ASEAN have been crucial factor in promoting the intra-ASEAN trade.

The studies somehow focus on the over-time changes on regional economic integration in Southeast Asia. On one hand, they concern the change of trade pattern brought by formation of AFTA by comparing the trade in years before and after 1992. On the other hand, because of the new comers, such as Vietnam joined AFTA in 1995, Laos and Myanmar joined in 1999, trade pattern would change continuously. Thus, the economists are interested in such over-time effects. In 2000, Kreinin and Plummer

(2000) model the changes over time and consider the importance of anticipatory changes in the behavior of economic agents. They mentioned how the trade patterns in years before the AFTA implementation change depend on the official announcements credibility. Trade will only be evident in area with strong credibility among economic agents. Their gravity model estimation revealed no detectable impact stemming from the announcement of AFTA or other ASEAN cooperation schemes before the implementation owing to the incredibility.

3.2 Trade Benefits to Countries with Different Stages of Developments

Numerous studies revised that income similarity effect facilitates trade between countries. According to the Linder Theory (1961) which is demand-oriented, consumer's tastes are strongly affected by their income levels⁴. This in turn yields a particular demand for goods. Countries having similar income levels thus yield similar demand of goods. Also, trade will occur in goods having overlapping demand. Consequently, the international trade will be more intense between countries with similar per capita income levels than between countries with dissimilar per capita income levels.

Moreover, exploiting comparative advantages in different economies, the world

⁴Linder Theory considers only manufacturing goods when explaining how the income similarity affects the trade patterns.

largest industrialized economies like the USA, Japan and even advanced developing countries started locating production plants all over the world. Many economists studied how trade patterns varied in the past few decades. Roberts (2004) showed that the advanced developing economies CAFTA⁵ (Malaysia, Thailand, and China) have a crucial role to play if integration is to benefit the less developed economies (Cambodia, Laos, Myanmar and Vietnam). Much potential economic development opportunities exist for these lesser developed countries.

Similarly, Coe and Hoffmaiser (1999), focusing on African's bilateral trade between southern developing countries and northern industrialized countries. They suggested that, holding other things constant, trade tends to rise about proportionally with gross domestic product (GDP) in developing countries while trade between developing and industrial countries boosts more than proportion with GDP in Africa. More specifically, GDP in both developing and industrialized countries rise by one percent, bilateral trade between two groups would increase by two percent.

⁵ In November 2002, ASEAN Member Countries and China signed the Framework Agreement on Comprehensive Economic Co-operation, which provides for an ASEAN-China Free Trade Area (CAFTA) by the year 2010 and specifies the tariff reduction. China and ASEAN experienced an obvious increase in trade after the establishment of CAFTA.

4. Methodology

Many economists have addressed the impacts on the intra-ASEAN trade. The Gravity model, pioneered by Tinbergen (1962) is the template of this paper. It provided an empirical general equilibrium framework for determining the trade levels between partners. Only basic components, like gross domestic product (GDP) and population, are included in measuring the potential of bilateral trade in this paper for simplification. Several models with four-year period should be run, i.e. 1988-1991, 1992-1995, 1996-1999 and 2000-2003, in order to estimate the over-time changes on trade patterns. Period 1988-1991 acts as a reference to estimate the trade before the AFTA formation. Moreover, Freund and McLaren suggested that the effects of intra-regional trade may begin in four years before the formal agreements are implemented when studying the case of European Union (EU). Period 1988-1991 is then used to study the anticipatory effects of AFTA and study whether there is any trade enhancement in years before implementation of AFTA as what EU has.

Meanwhile, the AFTA council has kept on eliminating trade barriers even after 1992. For example, in 1995, the council decided to transfer 20 percents of items in the inclusion list in tariff reduction. In 2000s, ASEAN leader resolved to promote economic linkage toward further cooperation, like ASEAN+3 and AFTA close economic relations agreement with Australia and New Zealand, etc. Consequently,

period 1992-1995, 1996-1999 and 2000-2003 are used not only to study the intra-ASEAN trade just after the formation of AFTA, but also study the over-time changes due to the on-going improvements and modifications in the free trade agreement.

There are totally 5040 observations in pooled data. This paper aims at capturing the impacts on the ASEAN intra-regional trade and countries with different stages of development before and after the AFTA formation and how it varies over time. In addition, refers to the official website of United Nations (<http://www.un.org/>), the population in Indonesia and New Zealand are approximately 219,900 thousands and 3900 thousands in 2003 respectively. Gross domestic product (GDP) in Singapore is 85,000 millions in US dollars while that in Cambodia is only 3,400 millions in US dollars. From these two evidences, the variances of population and GDP in countries are probably large, i.e. heteroscedasticity problem may exist. It is because the countries studied in this paper are in different stages of development and have different demographic size. Weighted Least Squares (WLS) method is used to correct the heteroscedasticity problem and to minimize the variances in each variable, such that the t-statistic will be higher with minimized error.

4.1 Presumptions

Some presumptions have been made for simplification of the models. First, the United States is the world largest trading nation. Second, dependent variables and GDP variables are expressed in US million dollars. The dependent variable, trade volume, is expressed only by export volume as one's export is the other's import in bilateral trade. Considering either export or import is already enough to represent the amount of trade volume. Third, all export and GDP data are in real term. They are adjusted by inflation, i.e. divided by GDP deflator. Finally, only seven countries out of ten members are included and other twelve common trading partners with different degrees of development are taken into considerations ⁶. The reason for including these twelve non-member countries in the study is that all of them are major export markets to ASEAN in 1993 and even 2000, except New Zealand, as shown in table 8.1 in appendix. The export values from ASEAN to US and Japan are 71548.4 and 54668 millions US dollars respectively. They are the two largest trading partners to ASEAN. Although New Zealand is not the top ten major partners, ASEAN has formed a closer economic relation agreement with New Zealand. As a result, it is expected that the bilateral trade between ASEAN and New Zealand will further increase. Hence, New Zealand is taken into the consideration in the study.

⁶ Vietnam, Brunei and Laos are not taken into consideration in this paper, as many of their data are missing and unavailable in the Direction of Trade Statistics and International Financial Statistics.

The countries studied and their classifications are summarized in the table below.

<u>ASEAN Members</u>		<u>Non-members Asian Countries</u>		<u>Non-Asian countries</u>
<u>Industrialized Countries</u>		<u>Advanced Developing Countries</u>	<u>Industrialized Countries</u>	<u>Industrialized Countries</u>
Singapore		China	Hong Kong	Australia
<u>Developing Countries</u>		India	Japan	Canada
<u>Advanced</u>	<u>Low-income</u>		South Korea	France
Malaysia	Indonesia			Germany
Thailand	Philippines			United Kingdom
	Cambodia			New Zealand
	Myanmar			United States

4.2 The intra-ASEAN trade before and after the formation of AFTA

Under the AFTA, members have now opened up and reduced possible trade barriers between each other. It provides memberships with favorable condition to trade. It may enhance the trade within members, i.e. intra-ASEAN trade. The hypothesis of the first study is that the formation of AFTA does enhance intra-ASEAN trade which will also increase over time, but not before its formation in 1992. Because, if economic agents do not believe that policies about the implementing of AFTA are made seriously, it is unlikely that they will change their behavior. People expect an incredible official announcement in ASEAN. As a result, trade is not enhanced in years before the implementation of AFTA in 1992. This is related to the anticipatory effect and this will also be studied in this paper. Double-log model is needed to reduce

the variances of independent variables. Econometric model is constructed as followed:

$$\begin{aligned} \text{LnTrade}_{ij} = & \alpha + \beta_1 \text{LnGDP}_i + \beta_2 \text{LnGDP}_j + \beta_3 \text{LnPOP}_i + \beta_4 \text{LnPOP}_j \\ & + \beta_5 \text{ASIA} + \beta_6 \text{ASEAN} + \varepsilon \end{aligned} \quad (1)$$

where Trade_{ij} is the total value of export from country i to country j , GDP_i and GDP_j are gross domestic product of export country i and import country j respectively, POP_i and POP_j are populations of export country i and import country j respectively, ASIA is dummy variable estimating trade within Asian countries, and ASEAN is also a dummy variable used to measure ASEAN whether intra-regional trade is catalyzed and increase over time due to the formation of AFTA that eliminate most trade barriers within membership countries.

ASIA – 1: both countries are located in ASIA; 0: otherwise

ASEAN– 1: both countries are members of ASEAN; 0: otherwise

Positive sign in GDP is expected. Trade boosts according to an increase in GDP.

POP, the populations are negatively related to the trade, since country with higher population is more self-sufficient. They tend to trade less with other countries.

Dummy ASIA has positive relationship with trade. The reason is that the shorter the distance, the lower the transportation cost and thus, the more the trade. ASEAN dummies and trade is expected to show positive relationship only after 1992, it means

that the trade volume boosts when both bilateral trading partners are in AFTA members and there is no detectable impact before the official announcement of AFTA due to its incredibility.

4.3 Trade between countries with similar income and stage development

According to Linder theory, the international trade in manufactured goods will be more intense between countries with similar per capita income levels than between countries with dissimilar per capita income levels. It can be reflected by the stages of developments. A more industrialized economy has a higher per capita income, and lesser developed countries have a lower per capita income. The second hypothesis is that trade is facilitated between countries with similar income, no matter both of them are industrialized or advanced developing countries or low-income countries. Similar model is run below:

$$\begin{aligned} \text{LnTrade}_{ij} = & \alpha + \lambda_1 \text{LnGDP}_i + \lambda_2 \text{LnGDP}_j + \lambda_3 \text{LnPOP}_i + \lambda_4 \text{LnPOP}_j + \lambda_5 \text{ASIA} \\ & + \lambda_6 \text{ASEAN} + \lambda_7 \text{IE} + \lambda_8 \text{DVP} + \lambda_9 \text{LDVP} + \lambda_{10} \text{ADVP} + \lambda_{11} \text{LDVPADVP} \\ & + \lambda_{12} \text{ASEANIE} \end{aligned} \quad (2)$$

where IE and DVP are dummy variables representing bilateral trade in industrialized economies and developing countries respectively, LDVP and ADVP are dummy variables representing the bilateral trade among low-income developing countries and

advanced developing countries respectively. Dummy LDVPADVP is the trade between low-income developing country and advanced developing country, and dummy ASEANIN is trade in ASEAN members and other industrialized countries.

IE- 1: both parties are industrialized country; 0: otherwise

DVP- 1: both are developing countries regardless of advanced developing or low-income developing; 0: otherwise

LDVP- 1: both parties are low income developing country; 0: otherwise

ADVP- 1: both parties are advanced developing country; 0: otherwise

LDVPADVP- 1: one is low income developing country and the other is advanced developing country; 0: otherwise

ASEANIE- 1: one is ASEAN members and the other is industrialized country; 0: otherwise

The difference between models (1) and (2) is that the above six new dummies are introduced. Focus will be on whether bilateral trade is enhanced in countries with similar stages of development, i.e., trade increase among industrialized countries or developing countries or in both. Furthermore, the developing countries are divided into two groups, the advanced developing countries and low-income developing countries.

The expected signs of GDP, POP, ASIA and ASEAN are mentioned in model 1.

The newly added dummies, IE, DVP, ADV, LDVP and LDVPADV are expected to have a positive value. It is because of the Linder Theory which states that trade will be more intense between countries with similar per capita income. ASEANIE specifying trade between ASEAN members and industrialized countries are expected to have positive sign too.

4.4 Trade between ASEAN members and industrialized countries

More developing markets in the ASEAN are now opening. Trade creation may appear in which the production bases are moved to developing countries where the resources costs are lower. To certain extent, trade volume may increase among the ASEAN members and industrialized countries. This is also the third hypothesis of my study. Model (2) is used to investigate this issue. My hypothesis is correct if the crucial variable in the study, dummyASEANIE, is significantly positive.

4.5 Data Source

The export data between countries are probably from the International Monetary Fund's Direction of Trade Statistics. The data on populations and the national income measured by gross domestic product in US dollars are obtained from International Monetary Fund's International Financial Statistics.

5. Empirical Results

Table 5.1: Gravity Model of bilateral trade flows estimates the intra-ASEAN bias in ASEAN Free Trade Area

Dependent Variable: Trade_{ij} (Total value of export from country i to country j)

Independent variables	1988-2003	1988-1991	1992-1995	1996-1999	2000-2003
Constant	-11.736**	-12.994**	-12.857**	-11.915**	-9.296**
	(-55.873)	(-30.365)	(-37.679)	(-30.758)	(-18.636)
LogGDPi	1.026**	1.192**	1.135**	1.021**	0.796**
	(52.476)	(29.675)	(33.318)	(29.594)	(17.064)
LogGDPj	0.974**	1.118**	1.036**	0.963**	0.804**
	(51.960)	(25.210)	(34.274)	(28.745)	(19.099)
LogPOPi	-0.396**	-0.595**	-0.447**	-0.353**	-0.215**
	(-21.612)	(-17.169)	(-15.808)	(-12.318)	(-5.732)
LogPOPj	-0.341**	-0.462**	-0.389**	-0.319**	-0.202**
	(-20.226)	(-11.866)	(-13.888)	(-10.978)	(-4.975)
ASIA	1.442**	1.682**	1.661**	1.451**	1.096**
	(22.546)	(12.896)	(15.338)	(12.234)	(7.651)
ASEAN	0.529**	0.396	0.641**	0.798**	0.157
	(4.684)	(1.538)	(3.755)	(3.897)	(0.578)
Adjusted R ²	0.555	0.636	0.637	0.534	0.425
SEE	1.581	1.462	1.414	1.601	1.763
Sample Size	5040	1086	1265	1340	1349

Notes: ** (*) indicate significance at 1(5) % respectively. T-statistics are given in parentheses. Weighted Least Square method is used to correct the heteroscedasticity problem in the model.

Table 5.2: Gravity Model of bilateral trade flows estimates the regional benefits to countries with different stages of developments and the trade pattern between ASEAN members and industrialized countries

Dependent Variable: Trade_{ij} (Total value of export from country i to country j)

Independent variables	1988-2003	1988-1991	1992-1995	1996-1999	2000-2003
Constant	-9.602**	-11.673**	-11.594**	-9.421**	-6.544**
	(-31.135)	(-18.732)	(-26.408)	(-18.526)	(-10.928)
LogGDPi	0.672**	1.060**	0.979**	0.618**	0.133
	(18.290)	(13.237)	(16.311)	(9.988)	(1.762)
LogGDPj	0.626**	0.971**	0.867**	0.565**	0.171*
	(18.295)	(11.688)	(16.194)	(10.072)	(2.514)
LogPOPi	0.019	-0.472**	-0.283**	0.114	0.606**
	(0.505)	(-5.314)	(-4.431)	(1.821)	(7.746)
LogPOPj	0.060	-0.279**	-0.199**	0.132**	0.624**
	(1.665)	(-3.666)	(-3.559)	(2.257)	(7.706)
ASIA	1.519**	1.629**	1.635**	1.526**	1.334**
	(23.632)	(12.584)	(14.566)	(12.176)	(9.588)
ASEAN	1.894**	1.219**	1.279**	2.348**	2.834**
	(16.427)	(4.752)	(6.738)	(12.176)	(10.787)
IE	1.392**	0.099	0.446	1.631**	3.008**
	(10.582)	(0.347)	(1.890)	(7.709)	(10.860)
DVP	-3.942**	-3.444**	-2.682**	-1.268**	-3.840**
	(-12.588)	(-6.113)	(-4.327)	(-6.574)	(-4.864)
LDVP	-0.250	0.578*	-2.758**	-3.550**	-2.784**
	(-0.986)	(2.002)	(-6.630)	(-9.554)	(-3.476)

ADVP	3.229**	2.969**	-0.101	-0.522**	2.223*
	(11.066)	(5.680)	(-0.533)	(2.391)	(2.903)
LDVPADVP	2.033**	2.023**	-0.982**	-0.738**	0.783
	(7.251)	(4.322)	(-4.388)	(-3.865)	(1.036)
ASEANIE	0.010	-0.380*	-0.167	0.073	0.455**
	(0.159)	(-2.504)	(-1.265)	(0.679)	(3.494)
Adjusted R ²	0.605	0.665	0.653	0.601	0.581
SEE	1.489	1.404	1.382	1.490	1.504
Sample Size	5040	1086	1265	1340	1349

Notes: ** (*) indicates significance at 1(5) % respectively. T-statistics are given in parentheses. Weighted Least Square method is used to correct the heteroscedasticity problem in the model.

Table 5.1 shows the econometric estimation on ASEAN intra-regional bias. It measures trade between the ASEAN countries. Table 5.2 shows the trade effects to countries with different stages of development and the trade patterns between the ASEAN members and industrialized countries. The former estimation result is correspondent to my first hypothesis while the later one is for my second and third hypotheses. Other than the regression for whole period 1988-2003, four individual regressions in four-year basis are run to capture the changes of trade over time. One of the crucial observations is the changes of trade pattern before and after 1992, the formation of AFTA. Justification and comparison are made based on the signs and significances of the coefficients of all independent variables and dummy variables.

5.1 Impacts of AFTA on intra-ASEAN trade

As shown in table 5.1, the first gravity model estimation, the signs of logarithm GDP are positive, showing that wealthier countries trade more. Trade is negatively related with population. It indicated country with higher population is more self-sufficient and tends to trade less. Filippini and Molini (2003) further noted the existence of an import substitution effect: increasing size of market has an incentive for domestic production. The more the potential domestic market size increases, the more the domestic entrepreneurs focus on the internal demand rather than the foreign markets. Trade will be definitely reduced.

The observed values of the ASEAN coefficients, used to measure the trade between two ASEAN members, in the pooled 1988-2003 regression are significantly positive. The bilateral trade between any two ASEAN members during 1988-2003 is 69.7% ($\exp(0.529) = 1.697$) higher than those non-members. This reveals an intra-ASEAN trade bias. Such result differs from Sharma and Chua (2000), but is consistent with Elliot and Ikemoto (2004) and Tang (2003). Both observed that the implementation of AFTA could be positively related to the substantial trade increase by using modified gravity model.

Besides, the ASEAN coefficients in all four-period regressions are significant and increasing over time, except the last period, 2000-2003, which shows an

insignificant positive value. The reasons is that ASEAN leaders keep on putting great effort to flavor the trade conditions gradually year by year. In the very beginning, CEPT would make tariffs lower for product sectors only rather than for individual items. Later on in the fifth AFTA Council meeting held in 1995, it decided to transfer 20 percent of items on tariff-reduction exclusive list in the inclusion list. The formation of AFTA unit within the ASEAN Secretariat in the same year also aimed at resolving trade disputes among member countries. Recently, ASEAN patent and trademark system are brought into the council, ensuring intellectual property rights. However, Frankel (1998) stated that although East-Asia shows high level of intra-regional trade, there is no increase over time. The increase can only be explained by the rapid growth in region. The members loom larger in each other and hence, they loom larger in each other's trade.

The coefficient of ASEAN in the first sub-period regression, 1988-1991, is statistical insignificance before the formation of AFTA. This contrast Freund and McLaren (1999), in which the announcement of a regional trade agreement in EU had the effect of changing trade patterns four years before the implementation of the agreement. The hypothesis that intra-ASEAN trade was not enhanced before AFTA formation owing to the incredibility of official announcement among economic agents in ASEAN confirmed Kreinin and Plummer (2000). While ASEAN did announce the

creation of a free trade is in 1992, it has had a long history of ineffective policy announcements. The results here studied period 1988-1992 reveal no detectable effort stemming from the announcement of AFTA.

Apart from the above results, ASIA dummy also shows a positive coefficient. When ASIA countries trade with each other, the transportation cost and the cultural differences are smaller. These are the desirable conditions enhancing their bilateral trade.

5.2 Trade between countries with similar income and stages of developments

As shown in table 5.2, the signs and the significances of GDP, ASIA dummy and ASEAN dummy, are more or less the same as in the first model, except the population. The model reflected an insignificant positive signs in population variables for the periods 1996-1999 and 2000-2003. The insignificant result can be interpreted by the declining population growth rates in the late 1990s, mentioned by Filippini and Molini (2003). Because the countries studied here may have become more developed than before and some even become capital intensive instead of labor intensive. The trade volumes may be influenced by the changes of the capital allocation rather than by the labor forces alone in the late 1990s as a result of the economic developments. Therefore, workforce is no longer related to the trade volume.

The IE dummy is positively significant, i.e. the bilateral trade boosts if the two trading partners are industrialized countries in the whole period, and even increasing time to time except the period 1988-1991 and 1992-1995 which shows a statistically insignificant value. This is attributed by their better infrastructures equipped that facilitate the trade process.

In addition, the advanced developing economies tend to experience the same in the beginning of 2000s. Many of them have equipped with better infrastructures and started trading technologies globally. In my econometric model, the dummy variable, ADVP, is insignificantly negative in the early 90s and then becomes small and significant positive value in the 1996-1999. In 2000-2003, the coefficient is significantly positive at the one percent level. Bilateral trade increased by 2.2 millions if both trading parties are advanced developing countries, like Malaysia and Thailand.

However, for the value of LDVP dummy, investigating the trade patterns of two low-income developing countries, are negative in years after the formation of AFTA. It reflects the bilateral trade discouragements. Mentioned in Linder Theory (1961), similar income level countries yield similar pattern of tastes, which in turn yield demands for same particular baskets of good. Trade is possibly happened. The findings in this paper are only partially consistent with Linder Theory specifying that trade flows are more intense between countries with similar per capita income or

similar stages of developments. My findings further found that Linder theory can only be applied in countries with higher income levels. This confirmed Tang (2003) who examined APEC member countries, revealing that the similarity of per capita GDP has boosted trade between high-income countries but not between the low-income countries. One reason behind is that the low-income developing countries (Myanmar and Cambodia) are mainly producing raw materials which are not tradable. Also, these countries do not have well-equipped infrastructure for exportation or importation. Possible bilateral trades are strongly reduced.

As shown in table 5.2, the coefficient of LDVPADVP which measures the total trade among advanced developing and low-income developing countries is only significant in year 1988-1992. Trade increased by around two millions among low-income developing country, like Indonesia, Myanmar and advanced developing country like China and India, similar to the study of Roberts (2004). Once we further study the period after the formation of AFTA, it found that the trade enhancement is no longer valid, the rest of the periods show statistically significant negative results. It represented that the trade between low-income developing countries and advanced developing countries are reduced. In addition, dummy LDVPADVP in period 2000-2003 even shows an insignificant negative sign. There is no direct relationship between trade and LDVPADVP, i.e. the trade between low-income developing

countries and advanced developing countries. It may be due to the presence of trade diversion after the AFTA establishment in 1992. Low-income countries in ASEAN may prefer to shift the product origins to more developed member countries with lower trade barriers, such as Singapore, instead of trading with developing non-member countries, whose resource costs are lower. This represents movement away from better resources allocation and could reduce social welfare.

Lastly, the dummy of DVP shows negative coefficients over time which is a broader classification of countries. It represents only the combined effects of dummy LDVP, ADVP and LDVPADVP that are more sophisticated indicators. Refers to the pooled period 1988-2003, the bilateral trade between two advanced developing countries is enhanced that can be explained by Linder Theory. The trade between two low-income developing countries shows a negative sign, specifying a trade reduction of 0.25 millions. Meanwhile, starting from 1996-1999, the trade between low-income developing and advanced developing countries decreases by 0.738 millions. The above effects are combined and revealed by dummy DVP. It shows negative value, i.e. trade is reduced between two developing countries, no matter low-income or advanced developing countries. It is because the decrease in trade between two low-income developing countries outweighs the increase in bilateral trade in both advanced developing countries. Therefore, the overall effect makes the dummy DVP

still looks negative.

5.3 Trade between ASEAN members and industrialized countries

The introduction of dummy variable ASEANIE in table 5.2 aims to estimate the trade pattern between the ASEAN member and industrialized countries. Trade is facilitated when the ASEAN members trade with industrialized countries in pooled period, 1988-2003, by 0.01 millions. If we estimate how the bilateral trade pattern varies under the condition where one of trading partners is ASEAN member and the other is industrialized country over time, we found that the trade between two is reduced at the beginning of the 1990s. Afterwards, the coefficients of ASEANIE are insignificant in periods 1992-1995 and 1996-1999. Until the early 2000s, the coefficient of ASEANIN becomes positive and significant. The results confirmed that of Coe and Hoffmaier (1999), focusing on African's bilateral trade between southern developing countries and northern industrialized countries. This evidence can be explained by the trade creation between the ASEAN members and industrialized countries. According to DeRosa (1995), a given commodity was produced in several countries with different levels of development in order to fully exploit the comparative advantages. He further mentioned that, given high population in ASEAN compared with major industrialized countries, the ASEAN countries have a

comparative advantage in the production and international trade of many labor-intensive manufacturing good. In the other word, ASEAN members possess abundant labor resources with lower cost. These countries produce mainly labor-intensive goods. In addition, with the reference to Australian Government Press Publication, ASEAN will be the primary site for new investment in the 1990s and there is a strong awareness of a shift of production cost advantages in favor of ASEAN from the industrialized countries. On the other hand, industrialized countries possess technology know-how with lower cost and hence, produce capital-intensive goods. Both countries own comparative advantages on different goods. Trade between these countries is possible and international division of labor is thus achieved. The hypothesis that trade volume among the ASEAN members and industrialized countries increased is confirmed. It is also predicted that the trade volume between them will further increase in the near future.

6. Limitations of the Model Estimations

In my paper, the data of bilateral trade value in year 1988-2003 are from Direction of Trade Statistics. However, some data are not available in the yearbook especially for those developing countries in the early period, i.e. the late 1980s. This causes observation imbalance problem when we further divided the whole model into four-year period regressions. Another limitation comes from the data obtained from International Financial Statistics. All GDP are in national currency. For the ease of comparisons, we have to convert the data into US dollars by using the exchange rate between two countries which are always volatile and frequently fluctuated. The last limitation is about the correction of heteroscedasticity. The weight is arbitrarily assigned and hence, it may not be the best weight to minimize the error term when using the weighed least square (WLS) method.

6. Conclusion

ASEAN Free Trade Area is the only free trade area in Southeast Asia. It brought great impacts all over the world, including both industrialized and developing economies, both Asian countries and non-Asian countries. Using gravity model as a template, this paper examines the effects of AFTA formation on intra-ASEAN trade and countries with different stages of developments. Several conclusions can be drawn in this paper.

First, there is high intra-ASEAN trade with nearly 70% trade higher than inter-ASEAN trade during 1988-2003. Trade even continues to rise in every four-year period. Second, there are many debates on whether the intra-regional trade is affected before 1992, the year of AFTA announcement, or later, the AFTA implementation. The results of this paper are not surprising. It found that the intra-ASEAN trade is not affected before 1992 due to the ineffective policy announcement.

Apart from the ASEAN intra-regional trade, in the fast growing Southeast Asia, there is a wide diversity of development stages – industrialized economy, such as Singapore, advanced developing economies, such as Malaysia and low-income developing economies, such as Myanmar and Indonesia. Consequently, my paper further categorized them by introducing dummy variables IE, LDVP and ADVP for more sophisticated study on the impacts on different stages of development. The third

conclusion is that the volume of bilateral trade is higher if it occurs among two industrialized countries or two advanced developing countries. This confirmed Linder theory in which countries with similar per capita trade more with each other. Besides, a remarkable point appeared here in this paper – trade is reduced under the situation that both trading partners are low-income developing countries although they are in similar income level and stages of development. Fourth, the bilateral trade is positively related with the trade among advanced developing and low-income developing countries only in years before the establishment of AFTA. However, in 1992-1999, they show negative relationships. It means that trade will be reduced if the trade is between advanced developing and low-income developing countries. It shows no relationship even in the 2000s. Finally, trade creation took place in trade between the ASEAN members and industrialized countries since 2000s.

Worldwide division of labor and globalization are very popular in 2000s. Entrepreneurs start to locate the production base in several countries with different levels of development so as to possess benefits from different kinds of comparative advantages. Consequently, the trade patterns among the ASEAN members and industrialized countries and among advanced developing and low-income developing countries respectively, will undergo more changes. Trade between countries with different development levels is expected to increase further in near future.

7. *References*

1. ASEAN Official website, <http://www.aseansec.org>.
2. ASEAN Statistics Yearbook 2003, Chapter 5, Merchandise Trade, www.aseansec.org/SYB2003.htm
3. ASEAN Statistics Yearbook 2004, Chapter 5, Merchandise Trade, www.aseansec.org/SYB2004.htm
4. Australian Government Press Publication, “ASEAN Free Trade Area, Trading Bloc or Building Block?”
5. Coe, David T. and Hoffmaier, Alexander W. (1999), “North-South Trade: Is Africa unusual?”, International Monetary Fund, Washington D.C., Journal of African Economics, vol. 8, no. 2, 228-256
6. DeRosa, Dean A. (1995), “Regional Trading Agreement Among Development Countries: The ASEAN example”, International Food Policy Research Institute, Research Report 103
7. Elliott, Robert J. R. and Lkemoto, Kengo (2004), “AFTA and the Asian Crisis: Help or Hindrance to ASEAN Intra-regional Trade?”, Asian Economic Journal, vol. 18, no. 1
8. Filippini, Carlo and Molini, Vasco (2003), “The determinants of East Asian trade flows: a gravity equation approach”, Journal of Asian Economics, vol. 14, 695-711
9. Frankel, Jeffery A. (1998), “Regional Trading Arrangement: Barriers or Stepping Stones for Global Free Trade”, Patterns of Trade, Trade Agreements and Regional Trading Arrangements Conference: A agenda for the twenty-first Century, World Bank, July 9
10. Freund, Caroline L. and McLaren, John (1999), “On the Dynamics of Trade Diversion: Evidence from Four Trade Blocs”, International Finance Discussion Papers Number 637, June
11. International Monetary Fund, *Direction of Trade Statistics Yearbook* (1988-2003)

12. International Monetary Fund, *International of Financial Statistics* on CD-ROM
13. Kreinin, Mordechai E. and Plummer, Michael G. (2000), " *Anticipatory Effects of Regional Integration*", *Global Economic Quarterly*, 1(1), 97-111
14. Linder, Staffan Burenstan (1961), " *An Essay on Trade and Transformation*", New York: John Wiley and Sons
15. Low, Linda (1991), " *The East Asian Economic Grouping*", *Pacific Review*, Oxford University Press, 4(4), 375-382
16. Roberts, Benjamin A. (2004), *A Gravity Study of the Proposed China-ASEAN Free Trade Area*, *The International Trade Journal*, vol.18, no.4, Winter 2004
17. Sharma, S. C. and Chus, S. Y (2000), " *ASEAN: Economic Integration and Intra-regional Trade*", *Applied Economics Letters*, 7, 165-169
18. *Southeast Asia Free Trade Area*, Jarkarta: ASEAN Secretariat 2002, www.aseansec.org/12025htm
19. Tang, Donny (2003), " *Economic Integration among the Asia-Pacific Economic Cooperation Countries: Linder Effect on Developing and Developed Countries (1985-1999)*", *The International Trade Journal*, vol. 17, no.1, spring
20. Tang, Donny (2003), " *The effect of European Integration on Trade with the APEC Countries: 1981-2000*", *Journal of Economics and Finance*, Vol.27, no. 2, 262-278
21. Thornton, John and Goglio, Alessandro (2002), *Regional Bias and Intra-regional Trade in Southeast Asia*, *Applied Economics Letters*, no. 9, 205-208
22. Tinbergen, Jan (1962), *Shaping the World Economy – Suggestions for an International Economic Policy*, New York: Twentieth Century Fund
23. *United Nations Official Website*, <http://www.un.org/>

8. Appendix

Table 8.1: ASEAN6 Ten Major Export Markets in 1993 and 2000

Year 1993		Year 2000	
Country	Export (in US millions)	Country	Export (in US millions)
1. ASEAN	43,681	1. USA	71548.4
2. USA	42008.2	2. Japan	54668.3
3. EU	31391.5	3. ASEAN	52656.9
4. Japan	30952.2	4. EU	38908.2
5. Taiwan	6143.6	5. Hong Kong	21559.9
6. Korea	6125.9	6. Korea	14509.5
7. China	4528.7	7. China	13102.3
8. Australia	3696.5	8. Taiwan	12337.6
9. Canada	1958.7	9. Australia	8402.7
10. India	1484	10. India	6307.6
Others	34666.6	Others	114131.2
Total value	206637.2	Total Value	408132.4

Sources: ASEAN Statistic Yearbook 2003.