"ECONOMIC INTEGRATION AMONG ASEAN COUNTRIES: EVIDENCE FROM GRAVITY MODEL"

THESIS

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PREFACE

With the name of Allah the most gracious and merciful. Praise be to Allah the Lord of hosts. Thanks to the mercy and grace, the author can complete this thesis. All peace and praise be to Prophet Muhammad SAW.

The thesis is written to fulfill one the requirement to obtain the Bachelor degree. The writer interested to research about international trade and poverty reduction. So, the thesis entitled "Economic Integration Among ASEAN Countries: Evidence From Gravity Model". For this thesis I got data from COMTRADE and ASEAN Secretariat site, then some references from journal to adding my information.

The writer aware of the fact that complementing this thesis is not easy, the writer got some obstacles and difficulties in writing this thesis. The writer realizes that this thesis is far from perfect and good thesis. So that writer needs positive critics and suggestion from the readers in order to make the thesis better.

Finally, writer hopes that this paper could give information about international trade and poverty reduction in Indonesia and wish have benefit for readers.

Padang, January 2011

DIAN DWI GUSTIANA

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Let's achieve our dreams by our ways with the purpose to make our family proud of us. آمين...Keep spirit and cheer up for us... ☺☺☺

Padang, January 2011

DIAN DWI GUSTIANA

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LETTER OF THESIS APPROVAL

Herewith, thesis advisor of Economic Department, Faculty of Economics, Andalas University, states that :

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Challenge...
Do not just follow the existing trail...
Follow the steps your feet...
And the trail will be created by itself...

Passion...
The only failure is when we surrender...

Vision...
The first step to improving the future is...
To develop the ability to dream about it...

Strength...
Obstacles are daunting thing...
You see when you let go of...
Your destination...

Goals...
Victory is not everything...
But the desire to win is important...

Endurance...
Do not give up...
Point the mind and attention...
On our life's purpose...

*Anynomous

CONTENTS

CHAPTER I
INTRODUCTION

1.1 Background

Over the past few decades, efforts at regional integration have increasingly become the central focus of various groups of countries. Economic integration, in particular, can lead to trade creation and other benefits in the form of a more competitive trade environment from the removal of trade barriers and the possibility of realizing economies of scale and higher economic growth. In addition, forming economic groupings can also stimulate investment in the member countries from both internal and foreign sources. It has been argued that integration can stimulate investment by reducing risk and uncertainty due to the larger market that producers become open to. Furthermore, foreign investors may wish to invest in productive capacity in a member country to avoid being excluded by trade restrictions and a high common external tariff (Appleyard, 1995).

In line with this idea, the ASEAN regional grouping was formed on 8 August 1967 by five countries, namely, Indonesia, Malaysia, the Philippines, Singapore, and Thailand. Brunei Darussalam later joined in 1984, followed by Vietnam in 1995, Laos and Myanmar in 1997, and also Cambodia in 1999. Among the objectives of ASEAN are to enhance economic growth and other fields such as social, cultural, technical, and educational in the region through cooperation, and to promote regional peace and stability.

Although the initial concerns of ASEAN during its early period of establishment were issues related to political security in Southeast Asia, over time attempts at organized regional co-operation were established. It was not until 1976 that ASEAN members agreed to pursue coordinated investment projects to complement the economic structures among member countries. In 1977 the ASEAN preferential trading arrangements were established to promote greater intra-regional trade and to co-ordinate industrialization policies (Park, 1999). The ASEAN preferential trading arrangements sought to reduce tariff and non-tariff barriers to goods produced in member countries. However, the consensus from existing studies suggests that only negligible increases in trade in the region were achieved (Ariff, 1994; Garnaut & Drysdale, 1994; DeRosa, 1995). According to DeRosa (1995), this initiative was not fulfilled due to several reasons including the reliance on non-tariff barriers among member countries and opposition of national interests which is more concerned with the profitability of their local investments.

This scenario changed during the late 1980s and 1990s when the global market became more competitive with the formation of NAFTA and EU. It raised questions among the ASEAN heads of state on the accessibility of ASEAN exports to the North American and European markets. In addition, with the emergence of China as the main global economic player, ASEAN faced an intense competition to attract foreign direct investment into their countries. In response to the situation, in January 1992, the six member countries at that time (ASEAN-6) agreed to establish the ASEAN Free Trade Area (AFTA) which among others,

sought to reduce the level of its tariffs on imports of highly protected agricultural products and manufactures and to eliminate non-tariff barriers within ASEAN. The AFTA will be achieved mainly through the Common Effective Preferential Tariff (CEPT) which adopts a sectoral approach and less cumbersome than the product-by-product approach of PTAs (Pangestu, Soesatro and Ahmad, 1992). Based on the CEPT scheme, tariff rates levied on a wide range of products traded within the region which meet a 40% ASEAN content requirement should be reduced to 0-5%.

At the 30th Anniversary of ASEAN in 1997, the members adopted ASEAN Vision 2020, which sets out among others, to achieve an outward and forward looking ASEAN, living in peace, stability and prosperity in dynamic development that will forge closer economic integration within ASEAN. In line with this, the Hanoi Plan of Action (HPA) was adopted in December 1998, which promotes economic integration in ASEAN. The members would work together in economic development strategies, which emphasize on sustainable and equitable growth, and enhance national as well as regional resilience. They would build upon the existing cooperation efforts to narrow the gap in the level of development among member countries, and ensure that the multilateral trading system remains fair and open in the process of achieving global competitiveness.

Based on some explanation above, I am interested to study further about economics integration among ASEAN countries. Hence the title of my thesis is **"Economic Integration Among ASEAN Countries: Evidence From Gravity Model".**

1.2 Research Problem

Each member country is, therefore, committed to create a stable, prosperous and highly competitive ASEAN economic region in which there is a free flow of goods, services, capital and investments, equitable economic development and reduced poverty and socioeconomic disparities. The member countries would also undertake the following:

1. Preserve regional macroeconomic and financial stability by encouraging closer consultations in macroeconomic and financial policies.
2. Promote economic integration and cooperation by adopting the following general strategies: fully implement the ASEAN Free Trade Area and speed up liberalization of trade in services, realize the ASEAN Investment Area by 2010 and free flow of investments by 2020; strengthen and increase sub-regional cooperation in existing and new sub-regional growth areas; further unite and expand extra- ASEAN regional linkages for common benefit; assist to build up the multilateral trading system, and emphasize the role of the business sector as the engine of growth.

At the 9th ASEAN Summit in Bali on 7-8 October 2003 (also known as the Bali Concord II), it was agreed that the ASEAN Community be established by 2020 which consists of three pillars, namely, ASEAN Security Community, ASEAN Economic Community and ASEAN Socio-Cultural Community. The ASEAN Economic Community (AEC), in particular, is the end-goal of economic integration measures as outlined in the ASEAN Vision 2020. The objective of the AEC is to create a stable, prosperous and highly competitive ASEAN economic

region in which there is a free flow of goods, services, investment and capital, equitable economic development and reduced poverty and socioeconomic disparities in the year 2020. It will establish ASEAN as a single market and production base, turning the diversity that characterizes the region into opportunities for business complementation and making ASEAN a more dynamic and stronger segment of the global supply chain. In January 2007, the ASEAN Summit in Cebu, Philippines, has agreed to accelerate the establishment of the AEC and has brought forward the deadline by five years to 2015.

1.3 Research Question

There are several questions posed in this research:

1. What are factors that determined economic integration? and what is the relationship?
2. What is the correlation among variables and economic integration?

1.4 Research Objectives

The purposes of this study are:

1. To study and explore about economic integration among ASEAN Countries.
2. To test and to analyze factors determined economic integration.
3. To know and analyze correlation among variables and economic integration.

1.5 Research Advantages

1. To fulfil requirements of Bachelor of Economics in Economic Faculty, Andalas University.
2. For myself, to improve my ability in writing report and doing research, especially in international trade sector.
3. For the Government of Indonesia, this research is expected to be used as additional information in making policy in order to increase the economic integration with ASEAN's countries.
4. This research can enhance our knowledge about international trade sector especially in economic integration and I hope more researches do research to know about this topic in the future.

1.6 Hypothesis

It's predicted that:

GDP is main factor that influence economic integration. And from several variables, population country have positive correlation with economic integration among ASEAN countries. The scope of this research is four of ASEAN countries. They are Indonesia, Malaysia, Singapore, Thailand, The Phillipine, Vietnam, Lao, Cambodia and Myanmar.

1.7 Writing Systematic

This thesis is conducted as follow: in Chapter I, Introduction, consists of background, research problems, problem definition, research questions, research objectives, hypothesis, and research advantage. In Chapter II, Theoretical Framework and Literature Review, there will be some theoretical framework and some literature reviews related to economic integration. In chapter III, Research Methodology, this chapter provides data, methodology, and other supporting concept used to test economic integration among ASEAN Countries. In chapter IV, Economic Integration Among ASEAN Countries, there are description of economic integration among ASEAN countries can be found in this chapter. In chapter V, Analysis Econonomic Integration Among ASEAN Countries, it provides empirical result and analysis of this research. As closing, chapter VI, Conclusion and Recommendation, conclusion and recommendation of this research is summarized in this chapter.

CHAPTER II

THEORETICAL FRAMEWORK AND LITERATURE REVIEW

This chapter consists of several theory that related with this research. Also a few of literature reviews from economist about this topic. Theoretical framework in this research are International Trade Theory, Heckscher-Ohlin (H-O Theorem), Similarity of Country Theory, Intra-industry Trade, and Economic Integration Theory also Gravity Model.

2.1 Theoretical Framework

2.1.1 International Trade Theory

Attempt to influence, through quotas or duties, what its citizens can buy from another country or what they can produce and sell to another country. The Benefits of Trade allow a country to specialize in the manufacture and export of products that can be produced most efficiently in that country.

2.1.2 Heckscher-Ohlin (H-O) Theorem

As quoted by Palgrave Jones (1977) "Eli Heckscher (1919) and Bertil Ohlin (1933) laid the groundwork for Substantial developments in the theory of international trade by focusing on the relationship between the composition of countries' factor endowments and commodity trade patterns as well as the consequences of free trade for the functional distribution of income within countries". From the outset general equilibrium forms of analysis were utilized in

these developments, which gradually came to be sorted out into four 'core propositions' (Ethier, 1974) in the pure theory of international trade.

The Heckscher-Ohlin model departs from the Ricardo model in two respects:

- There are two factors of production (capital and labour) and
- The production technologies are identical in both countries.

Adding a second factor leads to much richer and more realistic explanations of trade and its consequences. First, the PPF becomes concave, reflecting rising OC. Hence, countries will produce both goods rather than specializing completely. Second, even though countries enjoy aggregate gains from trade, free trade causes a redistribution of real income between capital and labor. In the Heckscher-Ohlin model, comparative advantages and trade are determined by international differences in factor endowments.

Basic assumptions:

- The production functions for good X and Y exhibit CRS. The production functions are the same across countries and differ in usage of capital and labor. Specifically, we will take good X to be labor-intensive and good Y to be capital-intensive.
- Total supply of the two factors is fixed. Input factors are homogenous and completely mobile across industries.
- However, capital and labor are perfectly immobile across countries.
- There are no market distortions such as imperfect competition, labor unions or taxes. Full employment prevails.

- Preferences are identical in both countries and homogenous.
- Countries differ in their relative factor endowments (this is the only difference between countries).

Factor endowment is defined by the ratio of capital to labor. If the capital-labor ratio in Country H is greater than in Country F, Country H is said to be relatively capital-abundant (and labor-scarce), while Country F is labor abundant (and capital-scarce). This can be stated as:

$$(K/L)_h > (K/L)_f$$

Important implication of different factor endowments for autarky factor prices: For two countries with identical demand patterns, relative factor prices should reflect relative factor scarcities. Country F would have relatively inexpensive labor and Country H would have relatively inexpensive capital.

Good Y is relatively capital-intensive and good X is relatively labor-intensive if the capital-labor ratio used in production is higher in the Y–sector

$$(K/L)_y > (K/L)_x$$

In equilibrium, both sectors choose capital-labor ratios that minimize costs taking the prevailing relative factor price $\omega = w/r$ into account (the choosen capital-labor ratio is endogenous). In principle, the factor intensities could be reversed when factor prices change. We assume here that this is not the case (no factor intenstity reversal).

2.1.3 Similarity of Country Theory

Country similarity theory was proposed by Staffan Linder (1961). According to similarity theory of country, a country will export manufacturing products which is supported by a large domestic market. In other words, before becoming a main of export, that product must be requested by a majority of domestic population. Large domestic market will push the products in the country to improve efficiency so can increase production to exceed the needs of the domestic market, next subsequently exported to other countries.

2.1.4 Intra-Industri Trade

The pioneer of this theory is Paul Krugman (Koo, 2005). Different from neoclassical trade theory which state that causes of trade are specialties from difference in availability of production factor and technology (comparative advantage), intra-industry trade theory state that trade occurs between countries that still have a comparative advantage was similar. Intra-industry trade based on product differentiation and also includes 2- way trade within same industry.

2.1.5 Economic Integration Theory

The basic theory of Economic Integration was produced by Balassa (1961) which shows that economic integration increases as trade barriers diminish. There are six degrees of economic integration. The weakest is a Preferential Trade Agreement (PTA), which allows for reduction in tariffs, but not their total elimination. A Free Trade Agreement (FTA) and Custom Union (CU) both aim to

eliminate tariffs barrier between the member countries, but the former maintain their external tariffs on imports from the rest of the world. A Common market (CM) or Single Market not only establishes free trade area in good and services and sets external tariff among non-members, but it also allows for free mobility of capital and labor between member countries.

The most advanced type of economic integration is Economic and Monetary Union, which sets up a CM, gives the responsibility for fiscal policy to a supra-national authority and adopts a common currency among member countries. These types of Economic Integration are also referred to as regionalism. Burfisher et al. (2003) describe that there is a major transition from a shallow to a deeper economic integration in the regionalism era in some RTA. The old version of regionalization is based on traditional trade theory that describes trade creation versus trade diversion adopted from the Viner-Meade (1950, 1955) theoretical framework. On the other hand, the new regionalism focuses more on broader issues such as the linkages between trade and productivity, rent-seeking behaviour, the role of FDI and productivity growth and the integration between developed and developing countries.

2.1.6 Gravity Model

Most of econometric analyses that try to evaluate trade flow of any Regional Trade Area (RTA) are mainly based on gravity model, where gravity model is one of the most empirically successful in economics. This model follows the

Newton's law. Carey who studied human behavior which is called Gravity Equation.

The gravity model of trade in international economics, similar to other gravity models in social science, predicts bilateral trade flows based on the economic sizes of (often using GDP measurements) and distance between two units. The model was first used by **Tinbergen in 1962**. The basic theoretical model for trade between two countries (i and j) takes the form of (equation 2.1):

$$F_{ij} = G\frac{M_i M_j}{D_{ij}}$$

Where F is the trade flow, M is the economic mass of each country, D is the distance and G is a constant. The model has also been used in international relations to evaluate the impact of treaties and alliances on trade, and it has been used to test the effectiveness of trade agreements and organizations such as the North American Free Trade Agreement (NAFTA) and the World Trade Organization (WTO).

The gravity model has been extensively used for empirical studies in economic integration. The model has also been successfully applied to flows of varying types such as migration and foreign direct investment. Early applications of the gravity model were viewed with skepticism. However, the work of scholars among others, Anderson (1979) and Oguledo and Macphee (1994), provided a sound theoretical foundation for a gravity model analysis of trade flows. Anderson (1979), for example, made the first formal attempt to derive the gravity equation from a model that assumed product differentiation. Oguledo and Macphee (1994) derived the gravity equation from a linear expenditure system in an attempt to

answer criticism that the theoretical foundation of the gravity model is weak. As a result of these works, there has been a wider acceptance and more frequent application of the gravity model to explain international trade flows among nations.

Gravity models utilize the gravitational force concept as an analogy to explain the volume of trade, capital flows, and migration among the countries of the world. For example, gravity models establish a baseline for trade-flow volumes as determined by gross domestic product (GDP), population, and distance. The effect of policies on trade flows can then be assessed by adding the policy variables to the equation and estimating deviations from the baseline flows. In many instances, gravity models have significant explanatory power, leading Deardorff (1998) to refer to them as a "fact of life."

Gravity models are estimated in terms of natural logarithms, denoted "." In this form, what is multiplied in Equation 2.1 becomes added, and what is divided becomes subtracted, translating Equation 2.1 into a linear equation (equation 2.2):

$$\ln GF_{ij} = lnM_i + lnM_j - lnD_{ij} \qquad i \neq j$$

Gravity models of international trade implement Equation 2.2 by using trade flows or exports from county i to country j (E_{ij}) in place of gravitational force, with arbitrarily small numbers sometimes being used in place of any zero values. Distance is often measured using "great circle" calculations. The handling of mass in Equation 2.2 takes place via four alternatives. In the *first alternative* with the most solid theoretical foundations, mass in Equation 2.2 is associated with the

gross domestic product (*GDP*) of the countries. In this case, Equation 2.2 becomes (equation 2.3):

$$lnE_{ij} = \alpha + \beta_1 lnGDP_i + \beta_2 lnGDP_j + \beta_3 lnD_{ij}$$

In general, the expected signs here are $\beta_1, \beta_2 > 0$. However, the economics of Equation 2.3 can lead to the interpretation of *GDP* as income, and when applied to agricultural goods, Engels' Law allows for *GDP* in the destination country to have a negative influence on demand for imports. Hence it is also possible that $\beta_2 > 0$.

In the *second alternative*, mass in Equation 2.2 is associated with *both GDP and* population (*POP*). In this case, Equation 2.2 becomes (equation 2.4):

$$lnE_{ij} = \varphi + \gamma_1 lnGDP_i + \gamma_2 lnPOP_i + \gamma_3 lnGDP_j + \gamma_4 POP_j$$

Where:

lnE$_{ij}$ = total export of country i to country j (in logarithmic form)

lnGDP$_i$ = total GDP of exporter country (in logarithmic form)

lnGDP$_j$ = total GDP of importer country (in logarithmic form)

lnPOP$_i$ = total population of exporter country (in logarithmic form)

lnPOP$_j$ = total population of importer county (in logarithmic form)

With regard to the expected signs on the population variables, these are typically interpreted in terms or market size and are therefore positive ($\gamma_2, \gamma_4 > 0$). That said, however, there is the possibility of import substitution effects as well as market size effects. If the import substitutions effects dominate, the expect sign is $\gamma_4 > 0$.

Based on gravity model above, this model show the export from country i to their partner (country j), there are two important factors that can influence total export of country i to country j. These two important factors are:

1. Exporter potential supply

   This factor shows the ability of exporter country to supply export products, there are two variables that can explain exporter potential supply in equation (2.3). These variables are GDP of exporter (GDP_i) and total population of exporter(POP_i).

   - **GDP of exporter country (GDP_i)**

     This variable explains the capability of exporter country to supply the quantity of export based on exporter economic size (exporter GDP). If their economic size increases it means there will be possibility to develop their quality in export performance. High levels of income in export indicate high level of production, which increases the availability of goods for exports (Zarzoso and Lehmann, 2002). Harris and Matyas (1998) said local country GDP is simply a measure of the size of domestic economy in terms of available goods would expect "larger" economies to export more. So, there is positive relationship between GDP and total export.

- **Population of exporter country(POP_i)**

  Kien and Hashimoto (2005) estimate this variable likely to be positive or negative depending on which is dominant of an absorption effect or economies of scale. On one hand, a large population in exporter country may certainly indicate a big domestic market and large resource endowment, so that the bigger absorption effect of this domestic market causes less reliance on international trade transactions. In this case, a negative sign would be justified. On the other, a large domestic market allows the advantages of economies of scales to be fully exploited. It follows that opportunities for trade with foreign partners in a wide variety of goods will increase, and the expected sign of this coefficient would be positive.

2. Importer potential demand

   This factor shows the demand of importers country to import products. There are two variables that can influence potential demand in equation (2.3). These variables are importers GDP (GDP_j) and total population of import countries (POP_j).

- **Importer GDP (GDP_j)**

  This variable shows the increasing of importer income (GDP) to total demand for import product. If the income level of importer country increases, the purchasing power to import product will increase (Salim

and Kabir, 2009). So, the demand from outside will change if there is a change in importers GDP.

- **Population of importer country(POP_j)**

  This variable will show the effect of increasing number of population in importer country to demand of Indonesian export product. If the demand from exporter countries increases it means Indonesian total export to that country also increase. Branda and Mendez (1985) expect total population of importers have a positive coefficient for reason that a larger population in importing country enable to compete better with domestic goods and compensates exporters for the cost of sales abroad.

2.2 Literature Review

Since first pioneered by Viner (1950), there has been a vast growth of literature on economic integration of various regional groupings and its economic effects. This includes numerous studies on ASEAN and AFTA that range from analyzing the economic effects of ASEAN regional grouping per se and in comparison with other regional groupings (Kreinin and Plummer, 1992, Plummer, 1997, Clarete, Edmonds and Wallack, 2003), to analyzing the effects of ASEAN free trade arrangements (FTAs) with other countries and at the sectoral level (Naya and Plummer, 2006). In addition, the study by Naya and Plummer (2006) also examines whether the ASEAN regional grouping can be described as a 'natural economic bloc'. Other studies examine a number of issues such as evaluating the most efficient way for Asian countries (including ASEAN) to form

economic integration (Batra, 2006), and whether regional trade blocs are precursors to multilateral trade liberalization (Baharumshah, Onwuka and Habibullah, 2007).

In the study by Plummer (1997), it is argued that ASEAN will continue to benefit from AFTA and further "deepening" measures through the effects on strengthening macroeconomic stability, encouraging investment flows, enhancing technology transfer, minimizing intra-regional transactions costs to conducting business, and fostering policy reform in the region. The study also predicts that ASEAN regional integration will help ASEAN countries to prevail over periodic crises by, among others, incorporating regional economic reform and providing information sharing with regards to crisis management.

In evaluating the effect of the proposed NAFTA at that time and the second enlargement of the European Community (EC) and EC-1992 on ASEAN and South Korea, Kreinin and Plummer (1992) matched the commodities exported by ASEAN or South Korea to NAFTA members with those exported to the same NAFTA member country from "internal" sources (from among member country) to identify the industries that would be affected. The study found that the estimated total trade diversion would be about 4% of ASEAN exports and 5% of South Korean exports to North America, and 8 and 5% of their respective exports to the EC.

Similar to Kreinin and Plummer (1992) in comparing the effects of various PTAs on trade flows, Clarete, Edmonds and Wallack (2003) extended the analysis to within and across membership groupings as well as the effect of PTAs on

members' trade with Asian countries. Following Soloaga and Winters (2001), they used a combination of dummy variables in the gravity model that allows the separate identification of the effects of PTA on intra-bloc trade as well as trade between members and the rest of the world. Preferential trading agreements are categorized into three groups based on whether they tend to foster intra-bloc trade, foster greater trade with trading partners worldwide, or they reduced trade in general without changing their respective intra-bloc trade. Contrary to earlier studies (Frankel, 1997; and Soloaga and Winters, 2001), AFTA and NAFTA were found to be the PTAs that have not changed their intra-bloc trade but reduced their overall trade with the world. This contradiction may be due to the inclusion of newer members of AFTA (Cambodia, Laos, Vietnam and Myanmar) who are relatively less integrated in the world economy compared to the founding members of AFTA.

There are also studies that analyze the effects of ASEAN free trade agreements (FTAs) with other countries rather than PTAs. Naya and Plummer (2006), for instance, considered the economic effect of the ASEAN-US free trade agreements by employing a number of techniques which include (i) the gravity model, in order to describe the extent of trade bias in the ASEAN-US economic relationship, with the objective of evaluating if these agreements would be described as "natural" economic blocs; (ii) the Computational General Equilibrium (CGE) model based on the work of Gilbert (2003) to review economy-wide estimates of these agreements; and (iii) a disaggregated technique to identify the sectors that will be most significantly affected by the FTAs.

Results from the gravity model show that there exists a trade bias in favor of ASEAN for both the United Sates and the European Union. The economic effects of ASEAN-US FTAs using CGE model is found to be quite small, with the exception of the Philippines whose GDP would rise by 3.1% with a bilateral FTA. The effect on the US economy is found to be less than 1%, and actually negative in the case of Indonesia and Singapore.

Although the estimated effects of the CGE model on ASEAN and US aggregate welfare are low, the sectoral effects are fairly substantial. The aggregate values of trade expansion for Indonesia, Malaysia, the Philippines, Thailand, Brunei and Singapore exports to the US are about $300 million (3% of total exports), $179 million (1% of total exports), $212 million (3% of total exports), $340 million (3% of total exports), $8 million (10% of total exports), and $44 million (0.7% of total exports), respectively. Among the top 40 products, electronics sector is expected to be a prime beneficiary of the ASEAN-US FTAs.

Asia is not different from other regions in the world. The increase in regionalism in Asia should be viewed from the perspective of a widespread tendency towards regional collaboration initiatives on a world scale. The general deception with the slow pace of liberalisation within the WTO-framework and the idea that regional integration agreements are "building" rather than "stumbling blocks" to global free trade (Bhagwati, 199), has led to a proliferation in the number of regional FTA agreements. Many regional FTAs go even further than what is stipulated by the WTO and are therefore denoted as WTO-plus agreements (Sampson & Woolcock, 2002). It is noteworthy that this movement

towards regionalism has already made way in Europe and America, but for Asia it started very recently. (Naya, 2004)

Even before AFTA was officially implemented in 2003, ASEAN members started talks about further economic integration initiatives. Today, one cannot possibly neglect the manifest regionalism in the East Asian region, as the number of bilateral and plurilateral trading arrangements is increasing month after month.

The 1997-1998 Asian financial crisis is often regarded as the direct cause for the rise in regionalism in Asia. The crisis painfully showed that the East Asian economies were closely related and that de-facto integration in the region had already started much earlier: since the second half of the 1980s, production networks had emerged in the East Asian region, with multinational enterprises splitting up production over the different countries in the region. Multinationals from Japan, and later on also from the Newly Industrialised Countries (NICs), moved some of their production activities to Southeast Asia to take advantage of the cheap labour supply. (Chia, 2004; Pasadilla, 2004)

Apart from the realisation that their economies were highly interdependent, East Asian leaders also got the feeling that international institutions (especially the IMF) and the main trading partners (the US in particular) fell short in support for the region during the 1997-1998 financial crisis. As a result, East Asian leaders evolved a strong need for formal co-operation agreements and deeper economic integration within the region around the turn of the century. (Naya, 2004; Soesastro, 2003)

Although the financial crisis might have been the direct cause, one must also look at the broader developments in order to understand the emerging regionalism in East Asia. The end of the Cold War was extremely important in the rapprochement process with former communist states in the region, which have now all become ASEAN members. It is also clear that during recent years, China became much closer to ASEAN. Both China and ASEAN have good reasons for their growing partnership, as we will discuss later. All in all, by the end of the 1990s, the political playing field was sufficiently prepared for further economic integration initiatives in the East Asian region. (Chia, 2004)

All these forces together have brought about a momentum of both deepening and widening economic integration in East Asia. In December 1997, ASEAN leaders adopted the ASEAN Vision 2020, which can be regarded as a long-term road-map for ASEAN. The plan envisaged the establishment of an ASEAN Community by the year 2020, made up of three different pillars: an ASEAN Economic Community (AEC), an ASEAN Security Community (ASC) and an ASEAN. Socio-cultural Community (ASCC). In the Bali Concord II, adopted on 7 October 2003 during the 9th ASEAN summit, ASEAN leaders formally expressed their intention to realise the ASEAN Economic Community (AEC). The AEC is meant to be a single market and production base, with free movement of goods, services, investment, skilled labour and a freer flow of capital. The AEC should also foster equitable economic development in the region and reduce poverty and socio-economic disparities by the year 2020. (ASEAN Secretariat, 1997; 2003 and 2004)

By creating the AEC, ASEAN endeavours to respond to other regional trading blocs, such as the EU and NAFTA. The recent enlargement of the EU for example, created fears of FDI diversion, i.e. an increasing share of European foreign direct investment flowing into the new member states rather than into ASEAN. Even more challenging is the competition from other low cost producers in Asia, such as China and India. These new economic giants do not only dispose of an abundant supply of cheap labour, but also witness the emergence of an enormous domestic consumer market. By establishing an economic community, ASEAN leaders hope to integrate the national markets of the member states. This integration process should fully take advantage of the diversities in the region to further specialise, to become more efficient and to realise the much needed economies of scale. It is hoped that every ASEAN member will then be able to fully exploit its comparative advantages, leading to a more competitive region as a whole. (Reyes, 2004; Hew, 2003)

The original Hanoi Plan of Action, drawn up in 1998 to serve as a guideline for arriving at the final goal of the AEC, has recently been succeeded by the Vientiane Plan of Action, another six-year plan which focuses on narrowing the development gap within ASEAN and on further deepening regional economic integration. One of the elements of the plan is the establishment of an ASEAN Development Fund, which should foster the development of ASEAN-CLMV countries (ASEAN Secretariat, 2004b). Deeper economic integration will be pursued by the accelerated integration of the following 11 priority sectors: (i) agro-based products, (ii) air travel, (iii) automotives, (iv) e-ASEAN, (v)

electronics, (vi) fisheries, (vii) healthcare, (viii) rubber-based products, (ix) textiles and apparel, (x) tourism, and (xi) wood-based products (ASEAN Secretariat, 2004c).

For each of the 11 priority sectors, specific "roadmaps" (ASEAN Sectoral Integration Protocols) have been developed in conjunction with the private sector. These roadmaps indicate the pace of the liberalisation process and the specific timetables that have to be followed up to 2010, in order to facilitate the accelerated integration of these 11 sectors in ASEAN. Import tariffs on products under the priority sectors have to be completely eliminated by 2007 for ASEAN-6 and by 2012 for ASEAN-CLMV. It is noteworthy that these target dates are 3 years earlier than originally foreseen under the AFTA agreement. Similar to the trade liberalisation process under AFTA, a fast track scheme has been developed for accelerated integration towards the AEC, including about 40% of total tariff lines in ASEAN. The decision to accelerate economic integration in these particular sectors is courageous, as the 11 priority sectors together accounted for more than 50% of intra-ASEAN trade in 2003 (ASEAN Secretariat, 2004).

CHAPTER III

RESEARCH METHODOLOGY

This research used quantitative data and secondary data as based on estimation. Secondary data was choosen because those data are internationally and available in several online sources.

3.1 Data Sources

Data consists of two types. There are primary data and secondary data.

1. Primary Data

   Primary data is the raw data that we use first to test the working hypothesis aand then as evidence to support our claim. In history, for example, primary sources include document from the period or person we are studying, objects, maps, even clothing ; in literature or philosophy, our main primary source is usually the text we are studying, and our data are the words on the page. In such fields we can rarely write a research paper without using primary sources (Wayne C. Booth et al, *The Craft of Research* . University of Chicago Press, 2008).

2. Secondary Data

   Research reports that use primary data to solve research problems, written for scholarly and professional audiences. Researchers read them to keep up with their field and use what they read to frame problems of their own by disputing other researchers' conclusions or questioning their methods. We can use their data to support our argument, but only if we cannot find those data in a primary source (Wayne C. Booth, Gregory G. Colomb, and

Joseph M. William, *The Craft of Research.* University of Chicago Press, 2008).

This research works with comprehensive data set or what we called secondary data that includes the information about all variables that i use for the methodology. It shows about export, GDP (Gross Domestic Product), and population. Those data are got from United Nations COMTRADE Data, International Financial Statistic, United Nations TRAINS Data and ASEAN Secretariat. Annually data is used to examine economic integration among ASEAN Countries from year 1997 to year 2007.

3.2 Variables

The variables that will used for this research are:

Dependent Variable : **lnExp_{ij}** is scaled export of exporter country to importer country in logarithmic form (in real US million dollar).

Independent Variable : **lnGDP_i** is Gross Domestic Product of exporter country in logarithmic form (in real US million dollar).

lnGDP_j is Gross Domestic Product of importer country in logarithmic form (in real US million dollar).

lnPop_i is the sum of population of exporter country (in million) in logarithmic form.

lnPop_j is the sum of population of importer country (in million) in logarithmic form.

3.3 Methodology

The approach that used to this research is a regression analysis using gravity model. Testing model was using Generalized Least Squares (GLS). GLS method was chosen because it is relative efficient in analysis models of panel data. In the process of testing model the equations in this research used program E-views 6.

3.4 Panel Data

In statistics and econometrics, the term panel data refers to multi-dimensional data. Panel data contains observations on multiple phenomena observed over multiple time periods for the same firms or individual. Time series and cross-sectional data are special cases of panel data that are in one-dimension only.

Hsiao and Klevmarken (Baltagi, 2005) list several benefits from using panel data. These include the following.

1. Controlling for **individual heterogeneity**. Panel data suggests that individuals, firms, states or countries are heterogeneous. Time-series and cross-section studies not controlling this heterogeneity run the risk of obtaining biased results.
2. Panel data give **more informative data, more variability, less collinearity among the variables, more degrees of freedom and more efficiency**. Time-series studies are plagued with multicollinearity.
3. Panel data are better able to study the **dynamics of adjustment**.
4. Panel data are better able to **identify and measure effects that are simply not detectable in pure cross-section or pure time-series data**.

5. Panel data models allow us to **construct and test more complicated behavioral models than purely cross-section or time-series data**.

A panel has the form:

$$X_{it}, i = 1, \dots, N \quad t = 1, \dots, t$$

Where i is the individual dimension and t is the time dimension. A general panel data regression model is written as:

$$y_{it} = \alpha + \beta' X_{it} + u_{it}$$

Different assumptions can be made on the precise structure of this general model. Two important models are the fixed effects model and random effects model.

The fixed effects model is denoted as:

$$y_{it} = \alpha + \beta' X_{it} + u_{it}$$

$$u_{it} = \mu_i + v_{it}$$

μ_i are individual-specific, time invariant effects and because we assume they are fixed over time, this is called the fixed-effects model.

The random effects model assumes in addition that:

$$\mu_i \sim i.i.d.N\ (0, \sigma^2 \mu)$$

and

$$v_i \sim i.i.d.N\ (0, \sigma^2 v)$$

that is, the two error components are independent from each other.

There are three methods to analyze panel data. Based on Verbeek (2000:313-19):

1. Method is pool least square (PLS) where this method pooled all of time series and cross section data and then uses OLS to estimate.

$$Y_{it} = \beta_1 + \beta_2 + \beta_3 X_{3it} + \ldots + \beta_n X_{nit} + u_{it} \quad (3.4)$$

2. Fixed-effects models allow for unobserved or misspecified factors that simultaneously explain trade volume between two countries. Gravity models with fixed effects have also been used by Glick and Rose (2001). The purpose of this as the solution to unobserved heterogeneity, because several papers have argued that standard cross sectional methods yield biased result because they do not control for heterogeneous trading relationship. This method also adds dummy variables to allow the changes of this intercept. Usually, this method use general least square as the estimate method.

$$Y_{it} = \alpha_1 + \alpha_2 D_2 + \ldots + \alpha_n D_n + \beta_2 X_{2it} + \ldots + \beta_n X_{nit} + u_{it} \quad (3.5)$$

3. Random effect method to fix the efficiency of least square which is calculates the error of cross section and time series. This model use general least square (GLS).

The model of panel data based on the method (Gujarati, 2003):

$$Y_{it} = \beta_1 + \beta_2 X_{2it} + \ldots + \beta_n X_{nit} + \varepsilon_{it} + u_{it} \quad (3.6)$$

Based on Winarno (2009), he tries to use simple steps to estimate panel data, the steps are:

1. Estimate with fixed effect

2. Test with chow-test to choose the method whether pool least square or fixed effect. The assumption : Ho = pool method and Ha = fixed effect

   If Ho accepted it means the method is common (finish).

   If Ho rejected it means the method is fixed effect (continue to step 3).

3. Estimate with random effect
4. Test with Hausman-test to choose the method whether pool random effect or fixed effect. The assumption : Ho = random effect and Ha = fixed effect

   If Ho accepted it means the method is random effect (finish).

   If Ho rejected it means the method is fixed effect.

3.5 Model Analysis

3.5.1 Formulation Model

In this study used regression by using the gravity model, where the dependent variable is the scaled export of exporter country to importer in logarithmic form (**$\ln Exp_{ij}$**). While four independent variables are population exporter country in logarithmic form (**$\ln Pop_i$**), Population importer country in logarithmic form (**$\ln Pop_j$**), GDP of the exporter country in logarithmic form (**$\ln GDP_i$**) and GDP of the importer country in logarithmic form (**$\ln GDP_i$**). Based on gravity model by **Tinbergen (1962)** that was explained in previous chapter, the model used in this research is as follows:

$$lnE_{ij} = \varphi + \gamma_1 lnGDP_i + \gamma_2 lnPOP_i + \gamma_3 lnGDP_j + \gamma_4 POP_j$$

Where:

lnE$_{ij}$ = Scaled export of exporter country to importer country in logarithmic form (in real US million dollars).

lnGDP$_i$ = Gross Domestic Product of exporter country in logarithmic form (in real US million dollars).

lnGDP$_j$ = Gross Domestic Product of importer country in logarithmic form (in real US million dollars).

lnPOP$_i$ = The sum of population of exporter country in logarithmic form (in million).

lnPOP$_j$ = The sum of population of importer country in logarithmic form (in million).

This thesis does not use distances (D) as variable, because this thesis used GLS model with Fixed Effect. In GLS model with Fixed Effect, distance can not use because of the value of distance is constant.

3.5.2 T-test

T-test is a test, that have purpose to know each of the regression coefficient significant or not. Before do the test, first we have to set our hypothesis:

$$Ho: \beta = 0$$

$$Ha: \beta \neq 0$$

So, based on data, value of β will be tested, if $\beta = 0$ it means that coefficient of dependent does not have significant effect with independent variable. If $\beta \neq 0$ it

means that coefficient of dependent have significant effect with independent variable. T-test:

$$\{\text{T-test}\} = \frac{\widehat{\beta}_j}{SE(\widehat{\beta}_j)}$$

$$\{\text{T-table}\} = \{\alpha; df = (n-k)\}$$

If t-test > t-table it means Ho rejected, it means $\beta \neq 0$ or β is statistically significant. So, this hypothesis test is to test the significance of independence variables to dependence variables.

3.5.3 F-test

F-test is commonly used as a test of the overall significance of the included independent variables in a regression model. First step we have to do is create hypothesis:

Ho = independent variable have no significant effect to the dependent variable

Ha = independent variable significantly affect to the dependent variable

$$F - test = \frac{R^2/(k-1)}{(1-R^2)/(n-k)}$$

R^2 = determination coefficient

k = independent variable

n = total sample

F-table = $\{\alpha; df_1 = (n-1); df_2 = (n-k-1)\}$

If Ftest > Ftable, Ho is rejected and we accept Ha, it means that all of independent variables together significantly affect dependent variable.

3.5.4 R-Squared (R^2)

R-Squared is a statistical term saying how good one term is at predicting another. If R-Squared is 1.0 then given the value of one term, we can perfectly predict the value of another term. If R-Squared is 0.0 then knowing one term doesn't help us know the other term at all. More generally, a higher value of R-Squared means that we can better predict one term from another.

Or we can say R-Squared is the square of the correlation coefficient between the dependent variable and the estimate of it produced by the regressors, or equivalently defined as the ratio of regression variance to total variance.

3.5.5 Autocorrelation

Autocorrelation is a correlation at errors from different periods. Term used in the statistical measurement of relationships within a series. It is one of the assumptions required in a regression in order to make it reliable, also called serial correlation. It means that the error terms are independent of each other. That is, the deviation of one point about the line (i.e, the error=y-y') is unrelated to the deviation of any other point. When autocorrelation exists, the standard errors of the regression coefficients are seriously underestimated. The problem of autocorrelation is usually detected by the Durbin-Watson statistic.

CHAPTER IV

ECONOMIC INTEGRATION AMONG ASEAN COUNTRIES

4.1 Review On ASEAN Economic Integration

It has been said that the AEC has a high probability of being fully realized by 2020 since the building blocks towards achieving an integrated ASEAN market are already in place, such as the AFTA. Although the deadline for the stipulated tariff reductions was originally set to be 2008, the free trade area target in ASEAN was subsequently moved forward to 2003. However, during the financial crisis of 1997-98, in its reaffirmation to its commitment to AFTA, ASEAN members agreed that the original six AFTA signatories would accelerate many planned tariff cuts by one year, to 2002 from 2003 (ASEAN Secretariat, 2007).

The timetable for accelerating AFTA was adopted (see Table 1) with tariff reductions implemented in both the "fast" and "normal" tracks. Tariffs on goods in the fast track were largely reduced to 0-5% by 2000. Tariffs on goods in the normal track were to be reduced to this level by 2002, or 2003 for a small number of products.

In principle, the free trade area covers all manufactured and agricultural products. The "Inclusion List" (as stated in Table 1) refers to products that have to undergo immediate liberalization through reduction in intra-regional (CEPT) tariff rates, as well as removal of quantitative restrictions and other non-tariff barriers. Tariffs on these products were to be reduced to a maximum of 20% by 1998 and to 0-5% by 2002. The four new members of ASEAN have up to 2006 (Vietnam),

2008 (Laos and Myanmar) and 2010 (Cambodia) to meet the targets. The target was by the year 2000, there should be 53,294 tariff lines in the Inclusion List representing 82.78% of all tariff lines in ASEAN.

Table 4.1
Timetable for Accelerating AFTA for the Original Six ASEAN Countries

Year	Commitment
2000	A minimum of 90% of the six countries' total tariff lines must have
	tariffs of 0-5%. Individually, each country would commit to achieve
	a minimum of 85% of the Inclusion List with tariffs of 0-5%.
2001	Each country would achieve a minimum of 90% of the Inclusion
	list in the 0-5% tariff range.
2002	100% of items in the Inclusion List would have tariffs of 0-5%, but
	with some flexibility.

Source: ASEAN Secretariat (http://www.aseansec.org/11456.htm)

There are three cases in which ASEAN members have the option to exclude products from the CEPT: (1) Temporary exclusions; (2) Sensitive agricultural products; and (3) General exceptions. Temporary exclusions refer to products for which tariffs will ultimately be lowered to 0-5%, but which are being protected temporarily by a delay in tariff reductions. However, all these products would have to be transferred into the Inclusion List and begin the stipulated process of tariff reduction. Beginning 1 January 1996, annual installments of products from the Temporary Exclusions List (TEL) have been transferred into the Inclusion List. The target was by the year 2000, there should remain 9,674 tariff lines in the TEL representing about 15.04% of all tariff lines in ASEAN. Temporary exclusions are permissible under the AFTA agreement, and are spelled out under a Protocol Regarding the Implementation of the CEPT Scheme Temporary

Exclusion List. Malaysia invoked this protocol in 2000, delaying tariff reductions on completely-built-up (CBU) automobiles, and automobile completely-knock-down (CKD) kits, in order to protect its local auto industry.

The Sensitive List contains a small number of unprocessed agricultural products, which are given a longer time frame before inclusion for tariff reductions. The commitment to reduce tariffs to 0-5%, remove quantitative restrictions and other non-tariff barriers is extended up to the year 2010. The new members of ASEAN, however, are given a longer deadline: Vietnam has up to 2013, Laos and Myanmar to 2015, and Cambodia has up to 2017 to meet the targets. The target was by the year 2000, there should be 370 tariff lines in the Sensitive List making up 0.58% of all tariff lines in ASEAN. The process of tariff reduction on these products was scheduled to begin from 2000 to 2005, depending on the country and the product (ASEAN Secretariat, 2007).

General Exceptions (GE) refer to products which are permanently excluded from the free trade area for reasons of protection of national security, public morals, human, animal or plant life and health and articles of artistic, historic and archaeological value. In 1999, there were 1,036 tariff lines in the GE List representing about 1.61% of all tariff lines in ASEAN (ASEAN Secretariat, 2007).

The CEPT scheme was to cover nearly 98 percent of all tariff lines in ASEAN by the year 2003, when the only products not included in the CEPT Scheme were those in the General Exceptions category and sensitive agricultural products. The CEPT list for 2001 and the average AFTA/CEPT tariff rates from

1998 to 2003 are given in Tables 2 and 3, respectively. Table 2 shows that by 2001, 98.26% of ASEAN-6's tariff lines were already in the Inclusion List while 56.94% of the four new members' tariff lines were in the List. By 2003 as shown in Table 3, the average AFTA/CEPT tariff rates of all members have been reduced to 0-5% as planned.

Table 4.2
AFTA: Common Effective Preferential Tariff (CEPT) List for 2001

Country	Inclusion List	Temporary Exclusion List	General Exception List	Sensitive List	Total
Brunei	6,284	0	202	6	6,492
Indonesia	7,19	21	68	4	7,283
Malaysia	9,654	218	53	83	10,008
Philippines	5,622	6	16	50	5,694
Singapore	5,821	0	38	0	5,859
Thailand	9,104	0	0	7	9,111
ASEAN-6 Total	43,675	245	377	150	44,447
Percentage	98.26	0.55	0.85	0.34	100
Cambodia	3,115	3,523	134	50	6,882
Laos	1,673	1,716	74	88	3,551
Myanmar	2,984	2,419	48	21	5,472
Vietnam	4,233	757	196	51	5,237
New Members Total	12,005	8,415	452	210	21,082
Percentage	56,94	39.92	2.14	1.0	100
ASEAN Total	55,68	8,66	829	360	65,529
Percentage	84.74	13.40	1.28	0.55	100

Source: ASEAN Secretariat (http://www.aseansec.org/11456.htm)

Following the signing of the Protocol to Amend the CEPT-AFTA Agreement for the Elimination of Import Duties on 30 January 2003, ASEAN-6 has committed to eliminate tariffs completely on 60 percent of their products in the Inclusion List by the end of the same year. Tariffs on 64.12 percent of the

products in the Inclusion List of ASEAN-6 have so far been eliminated. The average tariff for ASEAN-6 under the CEPT Scheme is now down to 1.51 percent from 12.76 percent when the tariff cutting exercise started in 1993.

Products that remain out of the CEPT-AFTA Scheme are those in the Highly Sensitive List (i.e., rice) and the General Exceptions List. The Coordinating Committee on the Implementation of the CEPT Scheme for AFTA (CCCA) is currently undertaking a review of all the General Exception Lists.

In August 2006, 99.77% of the products in the CEPT Inclusion List of ASEAN-6 have been brought down to the 0-5% tariff range. Products in the Inclusion List which continue to have tariffs above 5% are only those which have been transferred from the Temporary Exclusion List (TEL), Sensitive Lists (SL), and General Exception Lists (GE) in 2004. The CLMV countries are not far behind with 90.96% of the products they trade in the region have been moved into the Inclusion List and tariffs on 76.86% of these items have already been brought down to the 0-5% tariff band.

Vietnam has transferred her remaining items under TEL and SL into the Inclusion List on 1 January 2006 as committed under the Protocol on the Accession of Vietnam to the CEPT Agreement. As such, Vietnam has no more products under TEL and SL. Laos also has no more products in her TEL and only 1.9% of her products remain in her SL, which would be phased into the Inclusion List by 2008. As for Myanmar, only her unprocessed Agriculture Products (UAP), which accounts to 0.72% of her total numbers of tariff lines, remain in the TEL while Cambodia has 22.89% of her total tariff lines in the TEL. The TEL products

of Myanmar and Cambodia would be phased into the Inclusion List by 2007. The ASEAN-6 has no more TEL products since 2005. Products in the GE list have been significantly reduced to only 0.68% of total tariff lines.

In general, ASEAN members have so far managed to meet the targets of tariff reductions. In fact, in some cases members have successfully adopted tariff cuts earlier than the stipulated deadlines. The Work Programme on Elimination of Non-Tariff Barriers (NTBs) has also been endorsed, which aims at aligning the elimination of identified NTBs with the elimination of tariffs that would ensure the realization of free flow of goods, as mandated in the Bali Concord II.

Following the signing of the Protocol to Amend the CEPT-AFTA Agreement for the Elimination of Import Duties on 30 January 2003, ASEAN-6 has committed to eliminate tariffs completely on 60 percent of their products in the Inclusion List by the end of the same year. Tariffs on 64.12 percent of the products in the Inclusion List of ASEAN-6 have so far been eliminated. The average tariff for ASEAN-6 under the CEPT Scheme is now down to 1.51 percent from 12.76 percent when the tariff cutting exercise started in 1993.

Products that remain out of the CEPT-AFTA Scheme are those in the Highly Sensitive List (i.e., rice) and the General Exceptions List. The Coordinating Committee on the Implementation of the CEPT Scheme for AFTA (CCCA) is currently undertaking a review of all the General Exception Lists to ensure that only those consistent with Article 9(b)1 of the CEPT Agreement are included in the lists.

Table 4.3
Average AFTA / CEPT Tariff Rates

Country	1998	1999	2000	2001	2002	2003
Brumei	1.35	1.29	1.00	0.97	0.94	0.87
Indonesia	7.04	5.85	4.97	4.63	4.20	3.71
Laos	5.00	5.00	5.00	5.00	5.00	5.00
Malaysia	3.58	3.17	2,73	2.54	2.38	2.6
Myanmar	4.47	4.45	4,38	3.32	3.31	3.19
Philippines	7.96	7.00	5.59	5.07	4.80	3.75
Singapore	0.00	0.00	0.00	0.00	0.00	0.00
Thailand	10.56	9.75	7.40	7.36	6.02	4.64
Vietnam	6.06	3.78	3.30	2.90	2.89	2.02
ASEAN	5.37	4.77	3.87	3.65	3.25	2.68

Source: ASEAN Secretariat (http://www.aseansec.org/11456.htm)

4.2 Application of Gravity Model in Economic Integration

Gravity models have also been applied in studies on ASEAN economic integration, such as the study by Tayyebi (2005). Tayyebi argued that any attempt at estimating a gravity equation assuming the intercept is homogeneous for trading-partner pairs yield biased results. Allowing the country pair intercept terms to vary, Tayyebi estimated a panel data on ASEAN member countries and their major trade partners for the period 1994-2000 using the Fixed Effects model. The results indicate that trade integration has increased trade flows among the ASEAN member countries. The study also found that integration in ASEAN has led to increase in the exports and imports of ASEAN members to nonmembers.

In estimating the economic effect of ASEAN-U.S FTAs using the gravity model, Naya and Plummer (2006) included currency union, common language, common land border, whether one of the countries is landlocked, whether one of the countries is an island, and whether the two countries were recently colonies of

the same country. They also added two dummy variables for two specifications of ASEAN partnership, (i) where both trading partners for a given bilateral trade flow are in ASEAN; and (ii) where one of the trading partners is an ASEAN member. The purpose of including these dummy variables is not only to capture ASEAN membership, but also to understand how well ASEAN countries have performed in general. The study found that being part of ASEAN as a regional grouping does indeed matter. Controlling for all other variables, Naya and Plummer found that ASEAN countries trade more with each other. Another highlight of the finding is that the estimated coefficient for the second ASEAN dummy variable is statistically significant in all regressions, but is especially large in the case of U.S and EU bilateral trade.

In a very recent study, DeRosa (2007) employed a variation of the gravity model formulated by Rose (2004) to examine the trade effects of preferential trading arrangements (PTAs). This study was actually conducted to examine "new" evidence found in a study undertaken by the Australian Productivity Commission (APC) that indicates that the majority of PTAs today lead to trade diversion. DeRosa (2007) estimated the augmented Rose (2004) gravity model incorporating both bilateral total trade data and bilateral data on trade in manufacturing to investigate whether free trade arrangements (FTAs) and PTAs lead to trade creation or trade diversion. Within Rose's (2004) augmented gravity model, DeRosa (2007) explored the effects of PTAs using the ordinary random effects (RE) regression model and Tobit RE regression model. DeRosa (2007) obtained mixed results on the coefficient estimates for the PTA indicator

variables. Some PTAs are found to be trade diverting, whereas some are trade creating. DeRosa (2007), however, reported that the frequency of net trade creating versus net trade diverting PTAs is considerably higher than 50% across the different interval and estimation techniques used in the study.

CHAPTER V

ANALYSIS ECONOMIC INTEGRATION AMONG ASEAN COUNTRIES

5.1 Method

This research will use steps of panel data that was explained in chapter 3 to analyze what method that will used, pool least square, fixed effect, or random effect?

First, this research will use chow-test whether to choose pool least square or fixed effect.

The assumption: Ho = pool method (common)

Ha = fixed effect

And the result is:

Table 5.1 Chow-test

Redundant Fixed Effect Tests			
Pool : Untitled .			
Test Cross-Section Fixed Effects			
Effects Test	Statistics	d.f	Prob.
Cross-Section F	110.573553	(7.76)	0.0000

***Data is proceed by E-views 6**

From the result we can see that both of F-test and Chi-square are significant (where p-value less than 5%) it means Ho is rejected and Ha is accepted, so the conclusion is this research will use fixed effect method.

5.2 Empirical Finding

After proceed by E-views got regression of output from panel data by using fixed effect model:

$$\ln Exp_{ij} = -27.94257 + 0.932082\ln POP_i + 2.860875\ln POP_j + 0.096035\ln GDPi + 0.588035\ln GDPj$$

(-2.881218) (2.311449) (7.559499) (2.392815) (5.297525)

***see table 5.3**

5.2.1 Determination Coefficient (R^2)

Based on calculation that was proceed by E-views 6, got the value of determinant coefficient (R^2) equal to **0.995748** it means **99.5%** total export of Indonesia to ASEAN Countries is influenced by GDP of exporter and GDP importer countries, population of exporter and population importer countries and dummy variables. And **0.5%** of export is influenced by the other factors.

5.2.2 F-test

This test compares F-test with F-table to find is dependent variable significantly affected by independent variable.

F-table:

$\{\alpha; df_1 = (k-1); df_2 = (n-k-1\}$

$\{0.05; df_1 = (4-1); df_2 = (88-4-1\}$

(0.05,3,83) = 2.714565

From the result we can see the F-test > F-table (**1617.978 > 2.714565**) it means that independent variable together significantly affect dependent variable. So this research can use all of these variables together to explain the export of Indonesia. It's significant value is **0, 0000**, it means that independent variables (GDP and POP) are affecting the dependent variables (export).

5.2.3 T-test

T-test is useful in order to test the influence of independent variable or to test the significance of independence variables to dependence variables. This test has to test T-test for each of independent variable to see the significances of that variable in influencing the dependent variables.

T-table = $\{\alpha; df = (n - k)\}$

= **{0.05; 83-4}**

= **{0.05, 79}**

= **1.99045**

This test use two tail with level of significance α = **0.05**. We have to make hypothesis where after we test that variable we can know what hypothesis we will use. Hypothesis:

Ho = independent variable does not influence dependent significantly

Ha = independent variable influence dependent variable significantly

Ho is accepted if: –t-table ≤ t-test ≤ t-table and Ho is rejected if: -t-test < -t-table or t-test > t-table.

1. **T-test for GDP_i (Indonesian GDP/ exporter country)**

   With 5% of level significances and 40 level degree of freedom got the value of T-table = **1.99045**. in the other side, base on estimation we get t-test or t-statistic for GDP_i = **2.392815** with hypothesis:

   Ho = GDP Indonesia does not influence change of total Indonesian export significantly

   Ha = GDP Indonesia influences change of total Indonesian export significantly

   Found t-test > t-table where **2.392815 > 1.99045**, Ho is rejected, it means Indonesian GDP significant to explain and influence change of dependent variable Indonesian export.

2. **T-test for GDP_j (Importer GDP)**

   With 5% of level significances and 40 level degree of freedom got the value of T-table = **1.99045**. In the other side, base on estimation we get t-test or t-statistic for GDP_j = **5.297525** with hypothesis:

   Ho = GDP importer country cannot explain or influence change of dependent variable (total Indonesian export) significantly

   Ha = GDP importer country can explain and influence change of dependent variable (total Indonesian export) significantly

   Found t-test > t-table where **5.297525 > 1.99045** where Ho is rejected, it means importer GDP significant to explain and influence change of total Indonesian export to their country.

3. **T-test for POP_i (Indonesian population/ population of exporter country)**

With 5% of level significances and 40 (total data) level degree of freedom got the value of T-table = **1.99045**. In the other side, base on estimation we get t-test or t-statistic for POP_i = **2.311449**, so with hypothesis:

Ho = population of Indonesia cannot explain or influence change of dependent variable (total Indonesian export) significantly

Ha = population of Indonesia can explain and influence change of dependent variable (total Indonesian export) significantly

Found T-test > t-table where **2.311449 > 1.99045** where Ho is rejected, it means independent variable (population of Indonesia) significant to explain change of and influence dependent variable (Indonesian export).

4. **T-test for POP_j (population of importer country)**

With 5% of level significances and 40 (total data) level degree of freedom got the value of T-table = **1.99045**. In the other side, base on estimation we get t-test or t-statistic for POP_j = **7.559499**, so with hypothesis:

Ho = population of importer country cannot explain or influence change of dependent variable (total Indonesian export) significantly

Ha = population of importer country can explain and influence change of dependent variable (total Indonesian export) significantly

Found T-test > t-table where **7.559499> 1.99045** where Ho is rejected, it means independent variable (population of importer country) significant to explain change of and influence dependent variable (Indonesian export).

5.3 Classical assumption

First output that got from OLS by fixed effect method is:

Table 5.3 OLS by fixed effect model

Variable	Coefficient	T-statistic	Prob.	F-test
LN_POP_I?	-1.660859	-0.477142	0.6346	
LN_POP_J?	2.923776	1.193073	0.2366	
LN_GDP_I?	0.138688	0.718456	0.4747	450.2083
LN_GDP_J?	0.625640	2.108624	0.0383	
R^2				0.984886
Durbin Watson				0.989380

***Data is proceed by E-views 6**

Type of fixed effects model could have constant slopes but intercepts that differ according to time. In this case, the model would have no significant country differences but might have autocorrelation owing to time-lagged temporal effects. The residuals of this kind of model may have autocorrelation in the process. In this case, the variables are homogenous across the countries. They could be

similar in region or area of focus. So, in classical assumption this research has to test autocorrelation and heteroskedasticity problems.

5.3.1 Autocorrelation

Autocorrelation means that there is correlation between one intercept and the others. In this case I test autocorrelation by using Durbin Watson test. From the first output got DW = **0.989380,** it means there is autocorrelation. This research uses estimation procedure was developed by Arnold Zellner, called seemingly unrelated regression (SUR) requires that the number of explanatory variables in each cross-section is the same. In the SUR approach, variables are transformed with a form of Cochrane-Orchutt correction to model the autocorrelation. Feasible generalized least squares is used to estimate a covariance matrix. The parameter estimates are also modeled. The process is iterated until the errors are minimized (Yaffee,2003).

Table 5.3.1 EGLS result by fixed effect

Variable	Coefficient	T-statistic	Prob.	F-test
LN_POP_I?	0.932082	2.311449	0.0194	1617.987
LN_POP_J?	2.860875	7.559499	0.0000	
LN_GDP_I?	0.096035	2.392815	0.0168	
LN_GDP_J?	0.588035	5.297525	0.0000	
R^2				0.995748
Durbin Watson				1.871846

Where from the result Durbin Watson become **1.871846**. So, there is no more autocorrelation problem in this equation.

5.3.2 Heteroscedasticity Test

For OLS to be properly applied, the errors have to be independent and homoskedastic. Those conditions are so rare that is often unrealistic to expect that OLS will suffice for such models (Davidson and MacKinnon, 1993). Heteroskedastic models are usually fitted with estimated or feasible generalized least squares (EGLS or FGLS). Heteroskedasticity can be assessed with a White or a Breusch-Pagan test. For the most part, fixed effects models with group wise heteroskedasticity cannot be efficiently estimated with OLS. If the sample size is large enough and autocorrelation plagues the errors, EGLS can be used. Random sampling and maximum likelihood iterated by generalized least squares have also been used (Greene, 2002). This research already use EGLS as method so, this research can ignore this problem.

5.4 Estimation Result

5.4.1 Indonesian population/ population of exporter country(POP_i).

From the output of regression got value **0.932082** positive and significant. It means if there is an increasing 1% of total population in Indonesia, Indonesian export will increase about **0.932082 %.**

A large population in exporter country may certainly indicate a big domestic market and large resource endowment, so that the bigger absorption effect of this domestic market causes less reliance on international trade transactions. This research got some result with Porto and Azzoni (2007) who studied about export in Brazilian after Brazilian joined on Mercosur, it means increasing number of population in this developing countries have positive impact to total export.

5.4.2 Importer population(POP_j).

From the output of regression got value **2.860875** positive and significant for importer population. It means if there is an increasing 1% of total population in importer countries, Indonesian export will increase about **2.860875 %.**

This is because the large of importer population will increase the potential market for Indonesian. Demand of importer countries will increase if the populations of importer countries increase also.

5.4.3 Indonesian GDP(GDP_i).

From the output of regression got value **0.096035** positive and significant for Indonesian GDP. It means if there is an increasing 1% of total Indonesian GDP, Indonesian export will increase about **0.096035 %.**

High levels of income in export indicate high level of production, which increases the availability of goods for exports (Zarzoso and Lehmann, 2002). They also found that exporter income has positive influence in bilateral trade in Mercosur.

5.4.4 Importer countries GDP(GDP_j).

From the output of regression got value **0.588035** positive and significant for importer countries GDP. It means if there are an increasing 1% of total importer countries GDP, Indonesian export will increase about **0.588035 %.**

The purchasing power to import product will increase if the income level of importer country increases (Salim and Kabir, 2009). They found there is positive influence in increasing GDP importers to total demand from EU (Europian Union). So, the demand from outside will change if there is a change in importers GDP.

5.5 Policy Implication

Based on the results of calculations found that all variables have a positive relationship with exports. According Kalbasi (2001), the GDP of country exporters to measure the country's production capacity, while the GDP of the importing country to measure the capacity of abortion. Both variables are expected to have positive relations with the trade and economic integration. Total population of country exporters and importers as well as income per capita. The population used to measure the size of the country. A country which has a larger size indicates that the country has a more diverse production and tend to meet their own needs (inwardly oriented). On the other hand the level of population could also indicate a large potential market, so the population can have positive influence.

As the results of research using the gravity model in the can that the GDP of exporting country (GDP_i) has a positive relationship with economic integration. GDP of exporting countries measures production capacity of these countries, in other words the greater the GDP of the exporting country indicates the greater the production capacity owned, so the export increase. While GDP of improting countries measures the capacity of the importing country abortion. The increase in GDP of the importing country causes abortion capacity increases, so that imports will increase. These findings imply that to enhance bilateral trade and economic integration efforts are needed to increase the capacity of each country, in other words, the GDP of each country strived to continue to rise.

Population of importing country have a positive coefficient, the magnitude of the state population of importing country show great market potential, therefore the population can have positive influence on bilateral trade. The population of the importing country showed a positive relationship, meaning the trade will increase if the population of importing country is large. These findings have implications for more to direct export to countries with large populations. While large populations in the exporting country indicates a net exporter of effort to product differentiation, economies of scale industries, and increasing market competition. This is due to the labor abundance cause the cost of labor is cheaper so that more number of workers absorbed in the production process and led production output and product differentiation for exports also increased.

A large population in exporter can effect to a big domestic market. China as one country that has the largest population trying to optimize a large population is

to boost the economy. These tight registration requirements and other institutional factors have supported the persistence of significant differences between agricultural and non-agricultural wages. They also have contributed to the existence of more than 130 million temporary migrant workers.

This distortion is equivalent to 28 percent of wage difference between agricultural sector and non-agricultural sectors. Policy simulation shows that reducing the wage difference stimulates movement of labour from agricultural to non-agricultural sectors. The resulting increased inter-sectoral labour movement boosts the growth of total output and real consumption. The simulation shows that the average annual growth rate of real GDP from 2008 to 2020 is 8.01 percent (The annual growth rate of real GDP is 7.56 percent in the baseline scenario). This means that the labour market reform could mitigate the negative effect of declining labour supply by 0.45 percentage points annually. Productivity improvement by the expansion of the export derived by labour shift between sectors.

As China expands its exports to the world markets, Chinese firm will import more capital- and technology- intensive goods as both investment and intermediate inputs from industrial countries. These goods are usually embodied with advanced technology from abroad, thus stimulating productivity growth (Zhai and Wang, 2002). Furthermore the relatively lower cost of labour will attract more foreign direct investment and further improve China's productivity and boost economic growth.

Tanzania case is seems like Indonesia, agriculture and manufacturing accounted for more than 60% of Tanzanian GDP and more than 80% of exports. As agriculture and manufacturing together take a larger share of GDP in Tanzania .(Sombe and Nicolaus Herman, 2008)

It is well known that export enables the economy to specialize in the production of goods in which it has cooperative advantage, resulting in optimal allocation of resources and enhanced overall productivity. Tanzania has large potential in improving its agriculture sector as well as export sector. As the country consider agriculture as the back born of its economy, major policies are required for the agriculture sector to contribute more in the economic growth.

The government supports farmers through training, provision of extension services and subsidization of farm inputs such as fertilizer and high quality seeds to make affordable to a majority of farmers in order to boost agriculture which in turn will boost export as well as manufacturing. The provision of rural infrastructure such as road, drainage system, irrigation system, legal system such as property right on land, development of rural financial sector as well as ensuring that market functions well to enable farmers to trade profitably in agricultural products.

However Tanzania has modifying its policies so that it can attract more FDI to the agriculture sector especially larger plantations of commercial crops by providing enough incentives to investors, attract more FDI to chemical industries i.e fertilizer. There is need to expand value addition to Tanzania's export products.

By exporting raw products, the economy is in effect exporting both jobs and the value of its products to other countries, leaving its own people unemployed and poor. However, the major policy emphasis is to promote manufacturing sector especially labor intensive industries to supplement the agriculture sector.

CHAPTER VI

CONCLUSION AND RECOMMENDATION

6.1 Conclusion

From the discussion and estimation that was explained in the previous chapter concludes as follows:

1. ASEAN will continue to benefit from AFTA and further "deepening" measures through the effects on strengthening macroeconomic stability, encouraging investment flows, enhancing technology transfer, minimizing intra-regional transactions costs to conducting business, and fostering policy reform in the region. ASEAN regional integration will help ASEAN countries to prevail over periodic crises by, among others, incorporating regional economic reform and providing information sharing with regards to crisis management.
2. POP_j or population of importer country is the most influential variable for economic integration. Demand of importer countries will increase if the populations of importer countries increase also.
3. For POP_i or population of exporter country, increasing number of population in this developing countries have positive impact to total export.
4. Test composed result that high levels of income in export indicate high level of production, which increases the availability of goods for exports.
5. For GDP_j or GDP of importer country has positive relationship with export. The purchasing power to import product will increase if the income

level of importer country increases, so that the bigger absorption effect of this domestic market causes less reliance on international trade transactions.

6. POP_i or population of exporter country is the second influential variable for economic integration. A large population in exporter country may certainly indicate a big domestic market and large resource endowment.

6.2 Recommendation

Based on research results and discussion described in the previous chapter, there is close relationship between population of importer country and export, they have simultaneously relationship

There are some recommendations as follows:

1. Population has big influence to export simultaneously moreover in economic integration. Government should notice population growth in stable level to avoid more import for Indonesia. Findings that export and population have relationship during 1997-2007, government should control of population carefully.
2. GDP is the second influential variable for economic integration. Government should notice GDP growth increase to increase export. One way is by improving human resouces become more potential by proviving counseling and training in a production process.

For future research, it needs further study about the economic integration in different real variables because it is really important for economic integration specially for Indonesia.

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APPENDIX

APPENDIX 1: Total Export of Indonesia to Members of AFTA

Year	World	Total Export to AFTA's Members
1997	$53,443,579,904	$9,078,339,414
1998	$48,847,519,744	$9,311,015,080
1999	$48,665,419,481	$8,250,559,162
2000	$62,123,972,788	$10,858,061,830
2001	$56,316,829,696	$9,485,333,207
2002	$57,158,751,145	$9,901,363,619
2003	$61,058,187,386	$10,694,937,749
2004	$71,582,468,122	$12,963,601,986
2005	$85,659,947,504	$15,785,587,299
2006	$100,798,615,667	$18,445,529,206
2007	$114,100,872,803	$22,248,740,791

Source: COMTRADE

*AFTA's Members : Malaysia, Singapore,Thailand, Philipine,Cambodia, Myanmar, Vietnam, Laos.

APPENDIX 2: Indonesia Export to ASEAN Countries

Ind. Exp.	Malaysia	Philipine	Thailand	Singapore	Cambodia	Myanmar	Vietnam	Laos	Total AFTA
1997	1357208576	794046336	848435968	5467830272	69883960	149743872	390323424	867006	9078339414
1998	1358452608	707371712	942497792	5718260736	64685396	167337136	350603872	1805828	9311015080
1999	1335907858	694680952	812690563	4930476534	69187931	74325325	331600175	1689824	8250559162
2000	1971807909	819512001	1026445727	6562350695	51678418	64746884	360640088	880108	10858061830
2001	1778589312	814769664	1063602816	5363798528	72126360	68970176	322038016	1438335	9485333207
2002	2029947368	778197192	1227351675	5349083695	68816879	54360709	392896599	709502	9901363619
2003	2363850125	944666113	1392632651	5399657659	79876800	45658610	468122835	472956	10694937749
2004	3016047968	1237593811	1976236263	5999058039	71824713	60281605	600989510	1570077	12963601986
2005	3431299664	1419120413	2246458723	7836584739	93936045	77990049	678444864	1752802	15785587299
2006	4110757004	1405668812	2701548661	8929849215	103648218	137708101	1052004254	4344941	18445529206
2007	5096063502	1853683066	3054275983	10501610715	121853194	262387295	1355156058	3710978	22248740791

APPENDIX 2: Indonesia Export to ASEAN Countries

Ind. Exp.	Malaysia	Philipine	Thailand	Singapore	Cambodia	Myanmar	Vietnam	Laos	Total AFTA
1997	1357208576	794046336	848435968	5467830272	69883960	149743872	390323424	867006	9078339414
1998	1358452608	707371712	942497792	5718260736	64685396	167337136	350603872	1805828	9311015080
1999	1335907858	694680952	812690563	4930476534	69187931	74325325	331600175	1689824	8250559162
2000	1971807909	819512001	1026445727	6562350695	51678418	64746884	360640088	880108	10858061830
2001	1778589312	814769664	1063602816	5363798528	72126360	68970176	322038016	1438335	9485333207
2002	2029947368	778197192	1227351675	5349083695	68816879	54360709	392896599	709502	9901363619
2003	2363850125	944666113	1392632651	5399657659	79876800	45658610	468122835	472956	10694937749
2004	3016047968	1237593811	1976236263	5999058039	71824713	60281605	600989510	1570077	12963601986
2005	3431299664	1419120413	2246458723	7836584739	93936045	77990049	678444864	1752802	15785587299
2006	4110757004	1405668812	2701548661	8929849215	103648218	137708101	1052004254	4344941	18445529206
2007	5096063502	1853683066	3054275983	10501610715	121853194	262387295	1355156058	3710978	22248740791

APPENDIX 3: OLS by Fixed Effect Model

Dependent Variable: LNEXP?
Method: Pooled Least Squares
Date: 01/13/11 Time: 20:35
Sample: 1997 2007
Included observations: 11
Cross-sections included: 8
Total pool (balanced) observations: 88

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-17.06444	33.51610	-0.509142	0.6121
LNPOPI?	-1.660859	3.480847	-0.477142	0.6346
LNPOPJ?	2.923776	2.450626	1.193073	0.2366
LNGDPI?	0.138688	0.193036	0.718456	0.4747
LNGDPJ?	0.625640	0.296705	2.108624	0.0383
Fixed Effects (Cross)				
_MALAY--C	1.222185			
_SING--C	7.445432			
_THAI--C	-2.292596			
_PHILP--C	-2.993925			
_VIET--C	-3.135940			
_LAO--C	0.591971			
_CAM--C	-2.412266			
_MYN--C	1.575139			

Effects Specification

Cross-section fixed (dummy variables)

R-squared	0.984886	Mean dependent var	19.57496
Adjusted R-squared	0.982698	S.D. dependent var	2.537583
S.E. of regression	0.333787	Akaike info criterion	0.769497
Sum squared resid	8.467454	Schwarz criterion	1.107316
Log likelihood	-21.85789	Hannan-Quinn criter.	0.905596
F-statistic	450.2083	Durbin-Watson stat	0.989380
Prob(F-statistic)	0.000000		

APPENDIX 4: EGLS Result by Fixed Effect

Dependent Variable: LNEXP?
Method: Pooled EGLS (Cross-section SUR)
Date: 01/13/11 Time: 20:39
Sample: 1997 2007
Included observations: 11
Cross-sections included: 8
Total pool (balanced) observations: 88
Linear estimation after one-step weighting matrix

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-27.94257	9.698181	-2.881218	0.0051
LNPOPI?	0.932082	0.710727	2.311449	0.0194
LNPOPJ?	2.860875	0.378448	7.559499	0.0000
LNGDPI?	0.096035	0.068951	1.392815	0.0168
LNGDPJ?	0.588035	0.111002	5.297525	0.0000
Fixed Effects (Cross)				
_MALAY--C	1.270487			
_SING--C	7.380207			
_THAI--C	-2.171763			
_PHILP--C	-2.878798			
_VIET--C	-3.051524			
_LAO--C	0.399887			
_CAM--C	-2.415090			
_MYN--C	1.466594			

Effects Specification

Cross-section fixed (dummy variables)

Weighted Statistics

R-squared	0.995748	Mean dependent var	92.86474
Adjusted R-squared	0.995133	S.D. dependent var	172.3152
S.E. of regression	1.065863	Sum squared resid	86.34085
F-statistic	1617.987	Durbin-Watson stat	1.871846
Prob(F-statistic)	0.000000		

Unweighted Statistics

R-squared	0.984856	Mean dependent var	19.57496
Sum squared resid	8.483789	Durbin-Watson stat	0.976268

APPENDIX 5: Chow-Test

Redundant Fixed Effects Tests
Pool: Untitled
Test cross-section fixed effects

Effects Test	Statistic	d.f.	Prob.
Cross-section F	110.573553	(7,76)	0.0000