

EXTRINSIC DETERMINANTS OF ECONOMIC  
GROWTH IN ASEAN COUNTRIES

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## DECLARATION

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## DEDICATION

I am indebted to Allah سبحانه وتعالى, my parents, friends and everyone who has helped the research achievement. I really appreciate all the support, help and motivation provided from my parent and friends, my supervisors Dr. Nusrate Aziz and Dr. Ridzwan Bakar who have supported me a lot during the research development. I would like to dedicate this research to the person who has given me the chance and opportunity Mr. Yasser Bahareath and Mr. Saleh AL-Turki. I also want to dedicate this to the Islamic Nation, ASEAN organization, and especially to Malaysia for the remarkable development that I noticed during my studies since 2007-2015. Again, Many thanks to Allah سبحانه وتعالى and to the people behind my success; without their prayers I would not have achieved this level.

## **ABSTRACT**

In 1967, the Association of Southeast Asian Nations (ASEAN) was officially gathered with the total population of 9 % from the total world's population. This 9% of the ASEAN population is equals to approximately 617 million people and a total area of 4.44 million square which is only 3 % of the total world map. The world has faced remarkable changes during the association of the ASEAN countries. This development leads a lot of researchers to concern about the history on how ASEAN organization had the ability to unite all the countries in the Southeast Asia (SEA).

This research paper aimed to investigate the extrinsic determinant of economic growth. This paper is a comparative study among the five ASEAN countries to determinant the relationship between the extrinsic variables with the five ASEAN economic growths. The research attempts to determine the significant relationship between labour forces, capital, human capital, non-corruption, freedom, and conflict. A secondary data was collected through the time period of 2000-2012 which is 13 years to determine the impact the factors that influencing the ASEAN nations' economic growth. The results have supported five out of six the hypotheses where there all the hypotheses are having a positive relationship with the economic growth model which all the results are discussed in this research.

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# **CHAPTER 1**

## **INTRODUCTION**

### **1.1 Introduction**

This chapter discusses the background of the research, the issue explanation, exploration inquiries, research goals, magnitude of the study, and meaning of the terms. To better understand this study, the author plans to examine the growth model that will be discussed as a comparative study on the ASEAN economies which are (Singapore, Malaysia, Thailand, Philippines, and Indonesia), to find out the factors affecting the theory behind economic growth.

#### **1.1.1 An Overview of the Association of Southeast Asian Nations (ASEAN)**

After the second Global War ended, the international structure of the world has been dominated by superpower competition between the US and Soviet Union which has led to the increase in productivity and the level of nations' devolvment (*Hiley*,1999; W.T.R. Fox, 1944:21).

(Som & Keling, 2010) The development of this competition was motivated by the comparative advantage that had affected other developing countries, such as Southeast Asian countries (SEA). Back in the '90s, Asian Countries were facing political instability because of the unity problem and security issues that motivated (SEA) to consider an organization as a tool that aims to focus on unity and sustainability on the social, political, and the economic progress of the regions (Keling & Som, 2010; Sakurai, 1995:5). The ASEAN organization was officially created in 1967 and the number of the total population is 9% of the total world's population that equals to 617 million people and a total area of 4.44 million square which is only 3% of the total world map.

According to (Kabir & A. Salim, 2014), the four purposes of the ASEAN Declaration which has been provided by (ASEAN Secretariat, 2014) are:

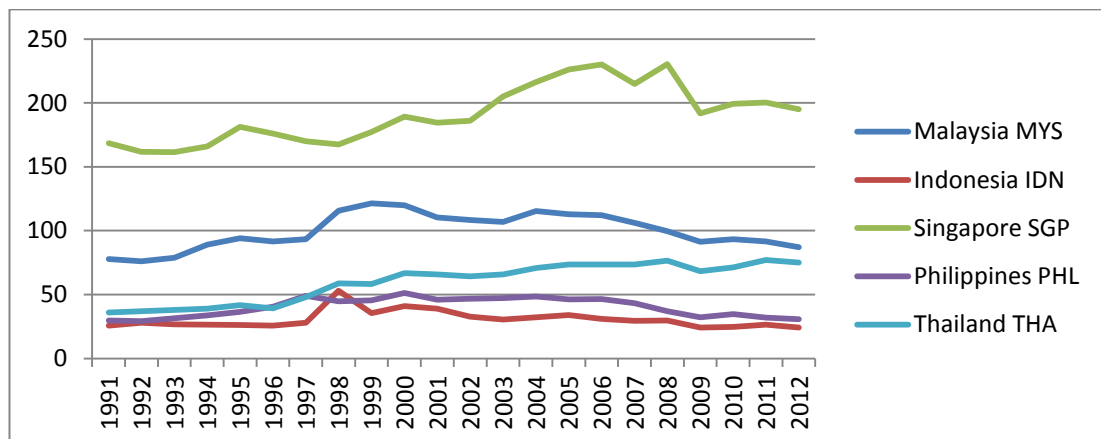
- To create an active collaboration and assistance culturally, socially, economically, and in the administrative fields;
- To promote assistance to fellow members professionally in the education and the technical administrative sectors;
- To promote and cooperate in Southeast Asian studies in the existing regional affairs with new closer cooperation; and
- To promote greater resources in agriculture and other industries such as the infrastructure for the communication and transportation improvement.

In 1997, vision 2020 was established for implementing the ASEAN regional economic development through adopting transparency in the flow of productivity to balance economic trading and investing liberalization to reduce the level of poverty and the social-economic differences among the ASEAN countries. There is an agreement called the ASEAN Free Trade Area (AFTA) that has made a significant improvement toward the ASEAN inter-regional relationship. The prospect of the open trade region in Asia Pacific seems to be a bright future fortune for ASEAN because it focuses on three main goals – developing the regional economic and political integration, increasing the level of innovative improvement, and strengthening the regional economic infrastructure (Macochun, 2014). The ASEAN transport action plan in 2005-2010 was a great step towards the ASEAN economic development. The infrastructure included major waterways, network, and highways that focus on improving the standard of living of the ASEAN citizens and the social development within the region (Kabir & A. Salim, 2014). Therefore, ASEAN has faced a significant improvement in developing the relationship within the intra-regional ASEAN members to increase the economic efficiency and productivity of its ASEAN members. The ASEAN Free Trade Area has removed the tariff barriers like the reduction of the average trade cost among the ASEAN members from 10.3% to 3.9 % which is more than 50% reduction of the actual trade cost back in 1990. A research submitted to the Wollongong University asserts that the ASEAN nation has also developed other trade agreements outside the region including ASEAN-China

open trade region, ASEAN-New Zealand Australia open trade region, ASEAN-Republic of Korea open Trade region, ASEAN- Japan open trade region and ASEAN-India open trade region. Besides the ASEAN AFTA, there has been a relationship development with EU, Russia, Canada, Pakistan, and the United States of America; Kazakhstan also joined in 2014 with ASEAN for trade relationship (Kabir & A. Salim, 2014).

In 2010, ASEAN nations' GDP was equivalent to 3% of the total world GDP which was about \$ 2.3 trillion US dollars and the total trade was approximately \$2.5 trillion US dollars which is more than 6% of the entire world trade in 2012 (The World Data Bank 2014). This shows clearly how the ASEAN nations have managed to sustain their momentum, consistent with their principles and different stages internally and externally to achieve the regional economic integration process. Many researchers (Bayoumi & Eichengreen, 1997) have suggested that ASEAN will be the next to adopt a common currency after the EU. According to the ASEAN Secretariat 2014c, most ASEAN countries had quickly recovered after the ASEAN Free Trade Agreement; as a result of a regional GDP growth of 5.7% in 2012, which is a good impact of ASEAN regional integration on trade.

Figure 1.1: ASEAN exports of goods and services (% of GDP)

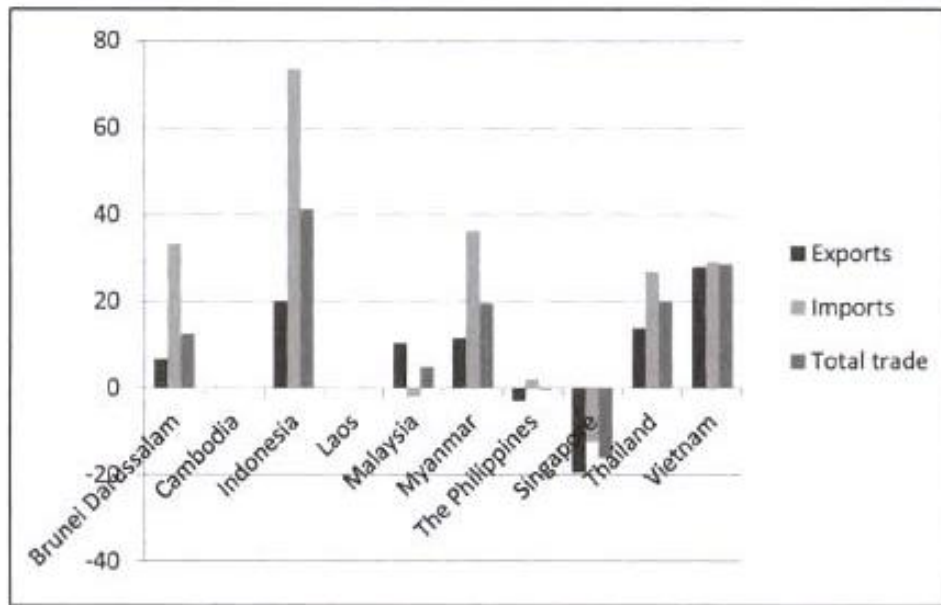


ADAPTED FROM: World Development Indicators (2014)

According to Samuelson (2010), Natural Resources is the second factor of production, which is the study of how countries or organizations like the ASEAN, manage their scarce resources to create profit through producing and distributing through different channels internationally, scarce resources such as Oil, Gas, Forestry products, mineral deposits, etc. Economic production exports raw material and uses them in a way that suits people's needs. For example, the electronic industry requires metals to convert them into computers and mobiles. This type of effort similarly requires work by using energy that needs to be dug down from the ground, then the metals are separated from the slag and then the metals are designed into useful products such as television and iPods. Looking at the graph above showing ASEAN trade exports of goods and services, Singapore has the highest trade among the five ASEAN countries since 1991 through 2012. Back in the 1960s, Singapore was known as one of the poor countries with a land of 710km-square and a population of 5 million but the country built itself in the midst of many struggling countries to avoid the trap of being in the middle-income category. As a result, Singapore has benefited from its good location and the perfect timing for welcoming manufacturing exports in early 1975 (the World Bank group, 2014). Utilizing foreign direct investment (FDI) to stay ahead even though the country was facing difficulties in terms of land and labor shortages which resulted in a high cost of the two mentioned resources (Prime, 2012). Singapore has been relying on FDI resulting in increasing the net inflows of FDI gross domestic product GDP averaged at 10% in the early 1980s to 15% in the early 2000s provided by the world development indicators. Thus, many have argued about the regulations and its influences on the long-term economic performance and Singapore has been a good example of creating a supportive environment to attract foreign direct investment. Looking at the figure below, it shows how Singapore's trade levels dipped in 2008 and 2009 due to the financial crisis while other ASEAN countries were greater in terms of imports, exports, and total trade like Indonesia, Brunei, Thailand, and Vietnam (Kabir & A. Salim, 2014).



Figure 1.2: Change of ASEAN Trade (percentage): 2007-2008



However, generally, the total trade had increased upward in 2008 for all ASEAN countries besides Singapore and Philippines that declined in 2009. Thailand and Indonesia were depending more on imports compared to Malaysia which is in the third place after Thailand and Indonesia as the largest importing nations during that period. Since 2010, the ASEAN countries faced a remarkable development in both importing and exporting that led to a successful recovery from the global financial crisis (GFC) that accrued in 2007-2008 (Kabir & A. Salim, 2014). This research aims to be a comparative study among the five ASEAN countries in the given period of 2000-2012 as shown in the next section.

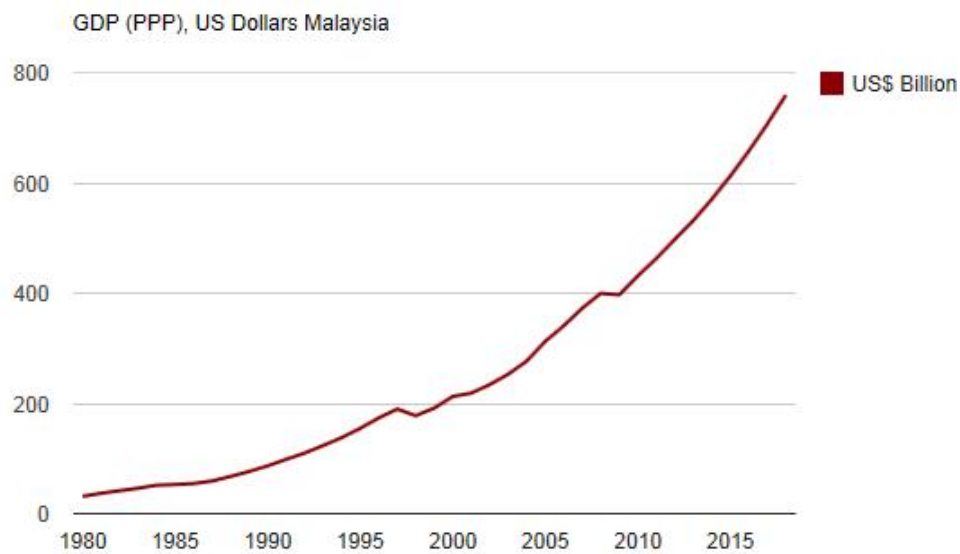
## 1.1.2 An Overview of the five countries of ASEAN Nations

### 1.1.2.1 Malaysia's Major Economic Statistics

According to the economic statistics (economicwatch.com, 2013), Malaysia is known as the middle income nation. The country has developed and improved since 1970 from a country known as a producer of raw materials to an improved and rising multi-segment economy. Malaysia's economic GDP (PPP) per US dollar is 327.911 Billion US dollars which equals to the annual growth rate of 5.1% highlighted in the statistics information from the data sets of EconomyWatch.com.

- Capital City: Kuala Lumpur
- Regional Currency: Malaysia Ringgit or Malaysian Dollar (MYR)
- Population: 28, 728, 607 (updated at 2011)
- Total area size: 329,847 sq km and 1,190 sq km of water surrounded and 328,657 sq km of the total land.
- Natural Resources: tin, petroleum, timber, copper, iron ore, natural gas, bauxite

Figure 1.3: Malaysia's economic GDP (PPP) per US dollar



ADAPTED FROM: IMF, World Bank, UN, OECD, CIA World Factbook, World Statistic, the Heritage Foundation and Transparency International (2014)

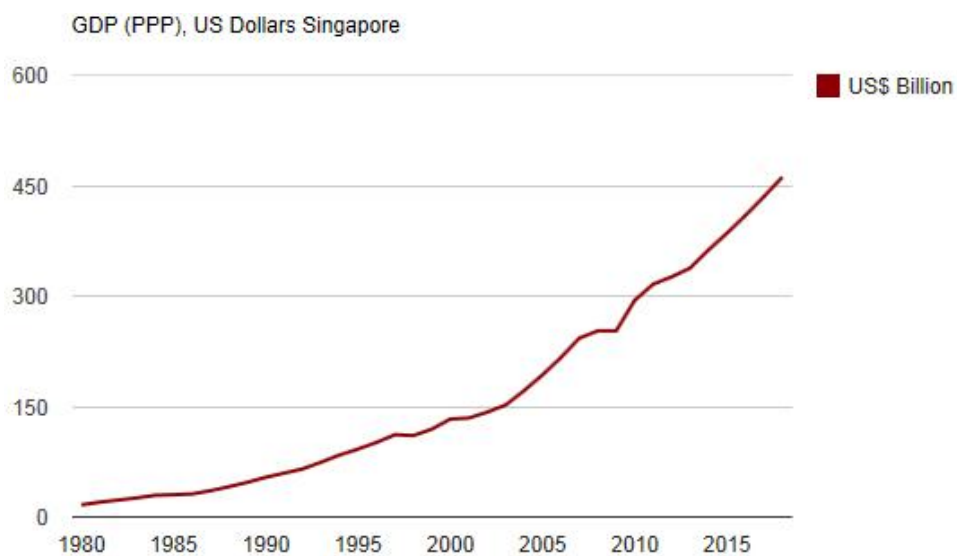
#### 1.1.2.2 Singapore's Major Economic Statistics

According to the economic statistics (economicwatch.com, 2013), Singapore is a high developed-income country, with a successful free market economy for direct foreign investment (DFI). Singapore has a strong economy even through the country is well known for lack of natural resources and low rate of labor forces. It has a remarkable free corruption environment and its GDP per capita is considered higher than many developed nations. Singapore economic GDP (PPP) per US dollar is 286.925 Billion US dollar which equals to the annual GDP growth rate of 2.012 %

highlighted in the statistics information that was introduced by the data sets of EconomyWatch.com.

- Capital City: Singapore
- Regional Currency: Singapore Dollar (SGD)
- Population: 4,740, 737 (updated at 2011)
- Total area size: 697 square km and 10 square km of water surrounded, plus 687 sq km of the total land.
- Natural Resources: Fish, deep water ports

Figure 1.4: Singapore economic GDP (PPP) per US dollar



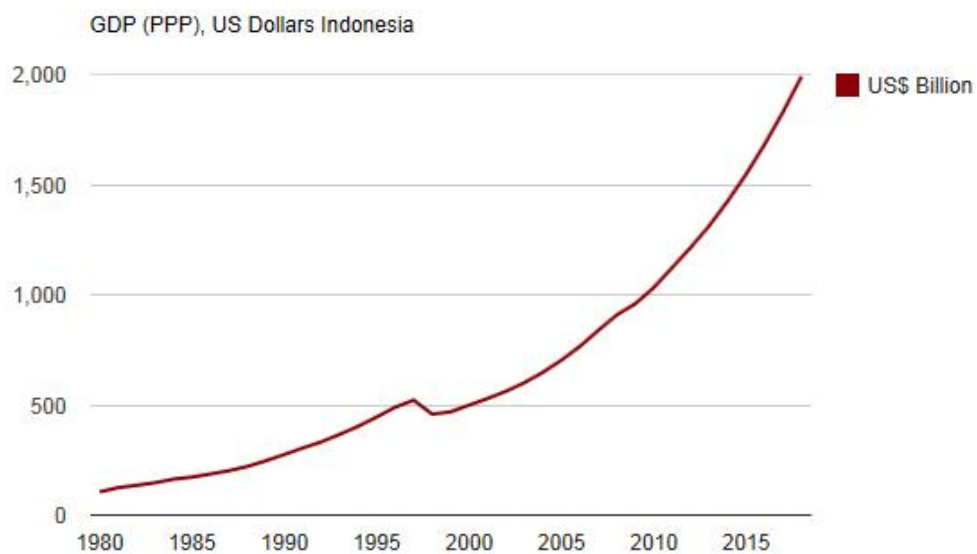
ADAPTED FROM: IMF, World Bank, UN, OECD, CIA World Factbook, World Statistic, the Heritage Foundation and Transparency International (2014)

### 1.1.2.3 Indonesia's Major Economic Statistics

According to the economic statistics (economicwatch.com, 2013), Indonesia is a lower-income country in the Pacific and in the East Asian region. The country has faced an increasing rate of unemployment, poverty, and struggles with the infrastructure. The percentage of corruption is considered high compared to other ASEAN nations. Indonesia's economic GDP (PPP) per US dollar is 946.391 Billion US dollars which equals to annual GDP growth rate of 6.3% as highlighted in the statistics information from the data sets of EconomyWatch.com.

- Capital City: Jakarta
- Regional Currency: Indonesian Rupiah (IDR)
- The total number of Population is approximately 245,613,043
- Total area size: 1,904,569 square km and 93,000 square km of water surrounded, plus 1,811,569 square km of the total land.
- Natural Resources: petroleum, tin, natural gas, nickel, timber, bauxite, copper, fertile soils, coal, gold, silver

Figure 1.5: Indonesia's economic GDP (PPP) per US dollar



ADAPTED FROM: IMF, World Bank, UN, OECD, CIA World Factbook, World Statistic, the Heritage Foundation and Transparency International (2014)

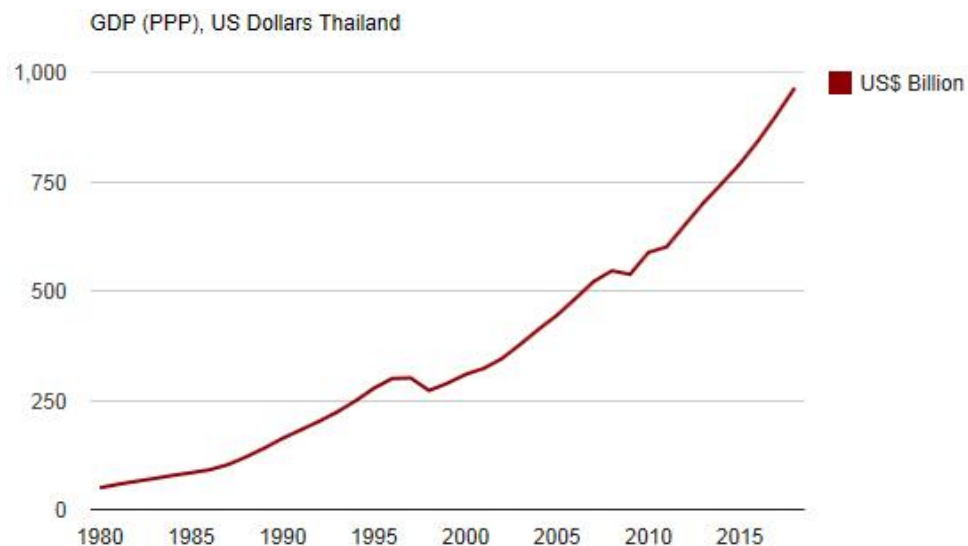
#### 1.1.2.4 Thailand's Major Economic Statistics

According to the economic statistics (economicwatch.com, 2013), Thailand is known as one of the better performing countries among the ASEAN nations. The country has improved the infrastructure and facilities well. Thailand has had highest growth rate as how it appears in the graph below from 1985 to 1995. After floating the currency, Thailand became an industrialized country including tourism and exporting activities that significantly contribute to the Thai region. The percentage of corruption is considered low compared to other ASEAN countries like Singapore or

Malaysia (transparency.org, 2014). Thai's economic GDP (PPP) per US dollar is 424.985 Billion US dollars which equals to the annual GDP growth rate of 5.883 % as highlighted in the statistics information from the data sets of EconomyWatch.com

- Capital City: Bangkok
- Regional Currency: Thailand Baht (THB)
- Population: 42,746,620 (updated at 2011)
- Total area size: 513,120 square km, and 510,890 square km of water surrounded, plus 2,230 square km of the total land.
- Natural Resources: Rubber, Tin, Lignite, Tungsten, lead, Arable, Fishing, Timber, Gypsum, Natural Gas, fluorite, and Tantalum

Figure 1.6: Thailand's economic GDP (PPP) per US dollar



ADAPTED FROM: IMF, World Bank, UN, OECD, CIA World Factbook, World Statistic, the Heritage Foundation and Transparency International (2014)

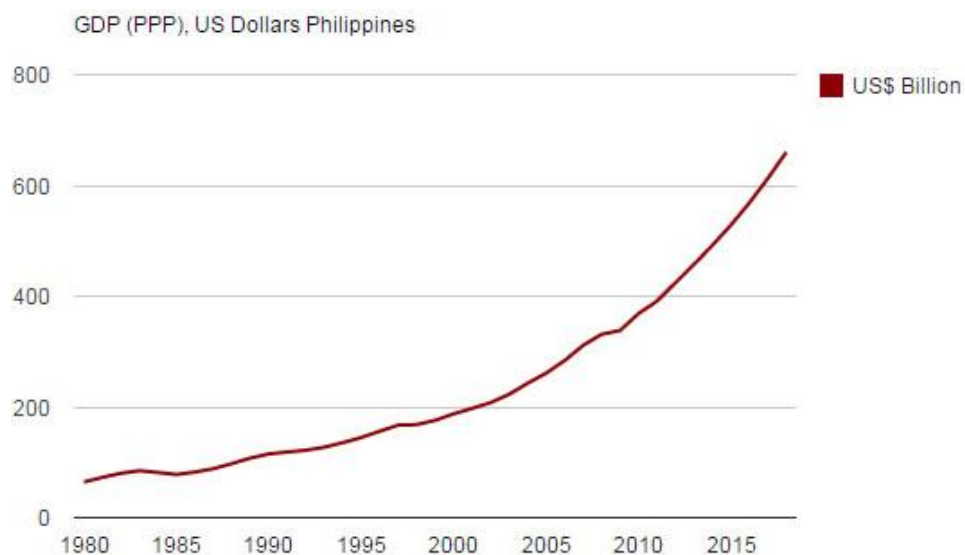
#### 1.1.2.5 Philippines' Major Economic Statistics

According to the economic statistics (economicwatch.com, 2013), Philippines is known as one of the low middle-income performing countries in the ASEAN region. The country has faced reduction in public debt and an improvement in the

infrastructure and social services. The increasing number of labor forces estimated at more than 5 million Filipinos working overseas has supported the country's economy during the financial crisis. The level of corruption for Philippines is also considered low in the range of 2.8 to 3.4 out of 10 which is low compared to the other ASEAN countries like Singapore or Malaysia (transparency.org, 2014). Philippines' economic GDP (PPP) per US dollar is 284.472 Billion US dollars which equals to the annual GDP growth rate of 6.023 % as highlighted in the statistics information from the data sets of EconomyWatch.com.

- Capital City: Manila
- Regional Currency: Philippines Peso (PHP)
- Population: 101,833,938 (updated at 2011)
- Total area size: 300,000 square km, and 1, 830 square km of water surrounded, plus 298, 170 square km of the total land.
- Natural Resources: Nickel, Silver, Gold, Petroleum, Timber, Cobalt, salt, and copper

Figure 1.7: Philippines' economic GDP (PPP) per US dollar



ADAPTED FROM: IMF, World Bank, UN, OECD, CIA World Factbook, World Statistic, the Heritage Foundation and Transparency International (2014)

## **1.2 Problem Statement**

The influence of understanding the economic perspective of businesses is an important role, where countries have to consider about what can be done to speed up their economic growth standards, develop citizen's living standards, and to be one of the developed countries. Since the Union of the ten Southeast Asian (SEA) countries, the world has witnessed remarkable changes in the economy through the ASEAN organization. This development leads a lot of researchers to consider the history of how the ASEAN organization had the ability to unite all the countries in Southeast Asia (SEA). However, the author could not find any research that has been done yet using a comparative study among AEAN economies since it covers 3% of the total world map and it could be the sixth largest economy in the world if it was counted as a single entity.

Therefore, the author sees a possible need for a research and problem solving to fill up the economic gaps by doing a comparative study on AEAN economies which has not been done yet.

## **1.3 Research Questions**

1. What are the major forces behind economic growth?
2. Is there any negative relationship between corruption and the economic growth model?
3. Is there any significant relationship between economic growth and arm-war conflict?
4. Is economic growth closely related to a nation's political freedom?

## **1.4 Research Objectives**

According to the research questions mentioned above, the research objectives of this study are as appears below:

- To find out the factors influencing economic growth;
- To examine the relationship between corruption and the economic growth model;
- To observe the relationship between economic growth and arm-war conflict; and
- To investigate if economic growth is closely related to a nation's political freedom.

## **1.5 Significance of Study**

### **1.5.1 Critical Point of View**

The power of understanding the economic perspective of businesses is very important where firms will not have to be apprehensive about what ASEAN nations can do to get a faster economic growth rate. The study will also be a comparative study among the ASEAN economies including Malaysia as it will provide the framework to enhance the economic status of the country. All these facts could guide companies to understand the factors that contribute to the economic growth model that would lead to a better standard of living for its region.

### **1.5.2 Academic Point of View**

Besides, the findings can be used to enhance the public's understanding of economic growth and improve academic literature on the related topic. The study will also be contributing to the Malaysian government as it will provide the framework to enhance the economic growth in the country.



## 1.6 Definition of the Terms

- **Economic:** According to Smith (2009), economic is defined as a study of how countries utilize their scarce resources to produce valuable needs to fill up the market gap and distribute either goods or services internationally through different channels. Here is a list of several specialized terms that the author thought of addressing such as:
- **(GDP):** is the percentage of the expansion of a country's productivity domestically thus it is called gross domestic products. There are two types of GDPs known as:
  - 1) **Gross Domestic product Nominal or GDP Nominal:** by valuing all outputs at current prices
  - 2) **Gross Domestic product Real or GDP Real:** valuing all outputs as a time series based on common prices. That is why, real GDP is considered as the best measurement compared to the nominal GDP since it changes the entire productivity (James, 2014).
- **Production-Possibility Frontier (PPF):** is the maximum amount of goods that can be perfectly produced through a country, which is known as a positive impact when the (PPF) shifts outwards (Senjur, 2006).
- **Social Over-head Capital:** is known as the investment that includes external economies because when private sector firms cannot capture, the government has to step in to ensure efficiency (Smith, 2009).

## **CHAPTER 2**

### **LITERATURE REVIEW**

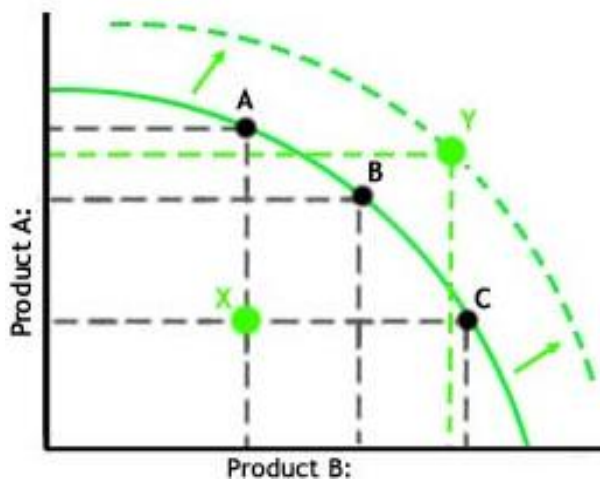
#### **2.1 Economic Growth**

Economic is like a market function that leads countries to improve people's living standards and without studying the rudiments of economic, a person cannot be fully informed about the cause of inflation, recessions, international trade or even the cause of high unemployment. Economic studies help to explore the behavior of the financial performance such as the behavior of the stock price and exchange rate. The definition of economic is the study (Samuelson & Nordhaus, 2010) of how countries use their scarce resources to create valuable products or services and explore it among a lot of different individuals. Hence, by looking at the definition, there are two key important ideas known as the twin themes of economic including scarcity and efficiency. Raw materials are scarce and nations must use their scarce resources more professionally. Picture a world without limited resources or if human beings were fully satisfied; the consequences would be that there would be no one willing to wake up early in the morning and produce which brings us to the critical notion of efficiency. Given unlimited desires, it is also important for the economy to make the best use of scarce resources to reach the expansion of a country's potential economic growth. Let's begin with the theory of economic growth; it is when a country's potential gross domestic product (GDP) or the gross national product (GNP) begins to expand and it often occurs when a country's production-possibility frontier (PPF) moves outward as how it appears in the graph (Samuelson & Nordhaus, 2010).

The nation's economic growth is closely related to the concept of the growth rate per person since it measures the rate of a nation's living standards that should be rising when (PPF) is shifting outward. Therefore, nations are concerned about the GDP growth per capita since it leads to the rising of average income output per person. As a result, economic growth is related to the potential output in the long period of time and the growth of output GDP per capita is an important role for government to measure since it is associated with the rising standards of living and the potential output as real income per individual (Samuelson & Nordhaus, 2010). According to

(Oungpasuk, 2014), ASEAN could be the seventh largest gross domestic product (GDP) in the world if the association were counted as one country.

Figure 2.1: Production-Possibility Frontier (PPF) shifts outward



The ASEAN launching plan of 2015, aims to reduce tariffs, increase the flow of goods and services and labor and capital among the ASEAN countries for greater economic integration. Economic growth is one of the most important factors influencing the wealth of nations. Economic growth is measured by real GDP growth or the ability of a country to increase the value of its productions of goods and services after removing the effect of inflation. Here are the reasons for economic growth to be that important for a country (Samuelson & Nordhaus, 2010):

1. Economic growth generally leads to a better standard of living for its citizens;
2. Economic growth allows companies to reinvest in education, technologies, and infrastructure that promote future investment and economic growth; and
3. Economic growth also leads to better health in longer life expectancy; since companies are able to invest in better healthcare services, offer safer working conditions, and spend more in a cleaner environment.

The main reason for launching the European higher education area was to increase and improve the integration among the countries that leads to facilitating greater labor movement since establishing a universal set of higher education standard. In addition, Professor Dr. Somkiat, the director of an Institute in Thailand called the

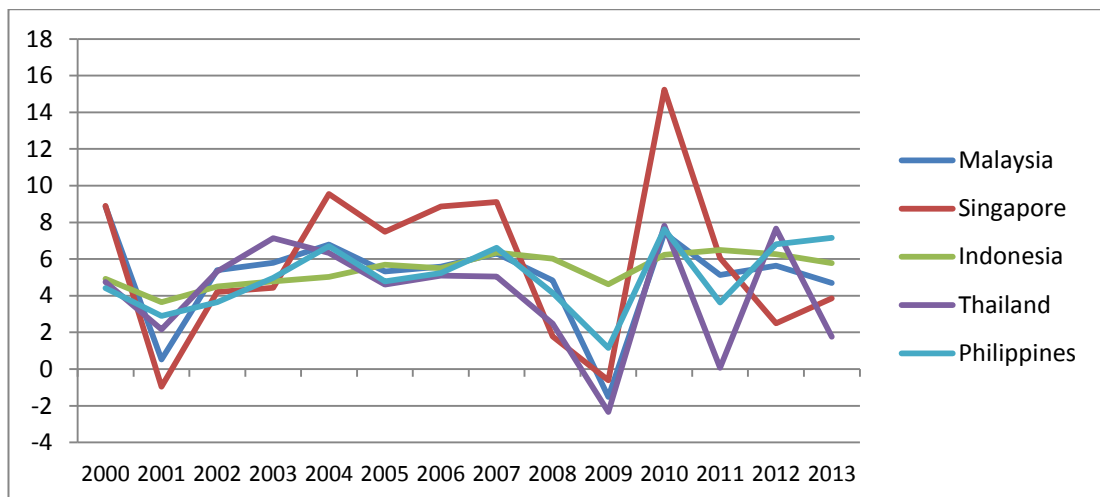
Health System Research Institute, has an idea of establishing health as a strategy for the future of the ASEAN nation's economy. To reduce the inequities among the ASEAN members, the professor suggested establishing a universal health coverage in each of the ASEAN states which will lead to strengthen the sociocultural integration, the security and the regional economic integration. According to (Oungpasuk, 2014), health has an important role in improving the general well-being of a nation before improving the education system because unhealthy kids are unable to get the full benefits of education. As a result, health is considered as a good output investment since targeting ASEAN human capital can lead to a positive contribution to the ASEAN regional economic integration. Thus investing in health increases life expectancy and it might also help to save on health insurance, education, and productivity. As mentioned earlier, countries are interested in the GDP growth per capita; it is because it is associated with the rising growth in output over a period of time. Economic growth is related to the potential of a country's output in the long period of time and the growth of output GDP per capita is an important part for a government to measure since it is related to raising the standards of living and the possible output as real income per individual (Samuelson & Nordhaus, 2010). This research is a comparative study on five ASEAN countries to understand the major forces behind ASEAN's annual GDP growth; this study will focus on three types of gross domestic products including growth of GDP (PPP) (current international \$), GDP per capita growth (annual %), and the annual GDP growth as the dependent variable to test their relationship with the independent variables.

### **2.1.1 Gross Domestic Product (GDP)**

The world has witnessed the remarkable improvement of ASEAN's fast growing economies and the noticeable amount of world foreign direct investment (FDI) that has been received in the ASEAN countries (Abeyasinghe & Rajaguru, 2014). Investment plays an important role in countries' economic process. Thus, in the economic world, countries that tend to invest large fractions of their income end up having fast growth in output, wages, and income. On the other hand, countries that consume their income such as many poor countries in Latin America and Africa result in a backward of techniques in terms of economic movement including low

educational standards, low rate of wages, high unemployment and experiencing a low rate of productivity. Therefore, a higher level of consumption causes a lower rate of investment which will slow the growth rate too (Samuelson & Nordhaus, 2010). This economic theory can also be applied to individuals. If a person saves the monthly salary allowance without investing on more assets, it will sooner or later, end up being spent on bills, rent or even paying taxes just as playing the monopoly board game. Each time a player throws the dices, it will be either for buying assets or paying for hotels and taxes. As what (Robert, 2011) mentioned in his book “Rich people acquire assets, while the poor and middle class acquire liabilities that they think are assets (Robert, 2011)”. The objective of economic activities is to produce goods and services that satisfy a nation’s desires. Countries’ total output can be measured through the gross domestic product (GDP) which is the measurement of the market worth of all the final goods and services that are purchased by their ultimate users. There are two typed of measures to the economy’s output including the Nominal GDP that focuses on valuing the market value of the current prices, while the Real GDP focuses on measuring the outputs of different years at common prices. Hence, the real GDP is considered the most comprehensive measurement rather than the nominal GDP in terms of total production.

Figure 2.2: ASEAN GDP Growth (annually %)



ADAPTED FROM: The world data bank indicators (2014)

Literature in the area of economic improvement has asserted that the average growth of the annual Gross Domestic Product (GDP) exaggerates the development nation's welfare. Other economists added different measures of economic growth including health, political rights, and many other conditions that lead to the improvement of the standards of living (Simon, 2013). Let's picture two countries with a real GDP of \$20,000, but in one country every person lives to the age of ninety while in the other country, everyone lives to the age of thirties. In this case, growth in GDP would not be their first priority compared to health and insurance. In the past three hundred years, there has been a remarkable improvement in the measurement of human welfare since the average individual well-being can be constructed easily nowadays through available data which indicates a growth of individual welfare by the annual real GDP per capita. This literature is examining the economic growth model of an annual real gross domestic product (GDP) per capita as the dependent variable with an estimation of six dependent variables as the factors influencing the economic growth as how it appears below on the estimation of the regression equation:

$$\ln \gamma_{it} = \beta_0 + \beta_1 \ln L_{it} + \beta_2 \ln K_{it} + \beta_3 \ln HK_{it} + \beta_4 \ln COR_{it} + \beta_5 \ln FREE_{it} + \beta_6 \ln CON_{it}$$

In the above estimation of multiple regression equation, we refer to Y in the left-hand side as the dependent variable which is the annual Real Gross Domestic Product (GDP). Variables on the right-hand side are the estimation of the extrinsic determinant of economic growth. The estimation of the regression equation is a mathematical statistics technique to test an economic theory which is also known as econometrics. Econometrics is the study of economic data to find out whether or not a model can actually reflect a world behavior (Wienclaw, 2009). It is often hard for economists to collect primary experimental data comparing to applying the secondary data whether they are time series data that has a separate observation per each time period or cross-sectional data that has a random sampling for each observation as a new individual (Render, Stair, & Hanna, 2010). Therefore, economists study econometrics using the secondary data to enhance the processes to test a theory or to estimate a relationship between the independent and dependent variables that leads to better understanding of the world's phenomena (Newbold,

Carlson, & Thorne, 2010). In the estimation of multiple regression equation, we refer to Y in the left-hand side as the dependent variable which is the Annual Real Gross Domestic Product (GDP). Variables on the right-hand side are the independent variables of the extrinsic determinant of economic Growth including Labor (L), Capital (K), Human Capital (HK), Corruption (COR), Arm war Conflict (CON), and Freedom (FREE).

### 2.1.2 Armed Conflict War

Armed conflict war often results in decreasing foreign investment, declining industrial capacity, and rising casualty counts in terms of human capital which tend to cause an important impact on a nation's economy (Bassat, Dahan, Geys, & Klor, 2012). The world has witnessed over 200 wars since 1899 to 2001; officially 14 armed conflict wars happened in 2007 alone (Polachek & Sevastianova, 2012). This literature will examine the relationship between the five ASEAN countries' economies and armed conflict wars to understand if armed conflict disrupts nations' economic growth. To do so, here are the conflict-year dataset for the five ASEAN countries in the time period of 2000-2012 that has been collected from the UCDP/PRIO Armed Conflict Data by UPPSALA University 2014.

Table 2.1: ASEAN conflict-year dataset (Dummy)

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
<b>Malaysia</b>	0	0	0	0	0	0	0	0	0	0	1	1	1
<b>Singapore</b>	0	0	0	0	0	0	0	0	0	0	1	1	1
<b>Indonesia</b>	1	1	1	1	1	1	0	0	0	0	0	0	0
<b>Thailand</b>	0	0	0	1	1	1	1	1	1	1	1	1	1
<b>Philippines</b>	1	1	1	1	1	1	1	1	1	1	1	1	1

ADAPTED FROM: UCDP/PRIO Armed Conflict Data by UPPSALA University (2014)

### 2.1.2.1 The Case of South China Sea Conflict

Figure 2.3: South China Sea Conflict

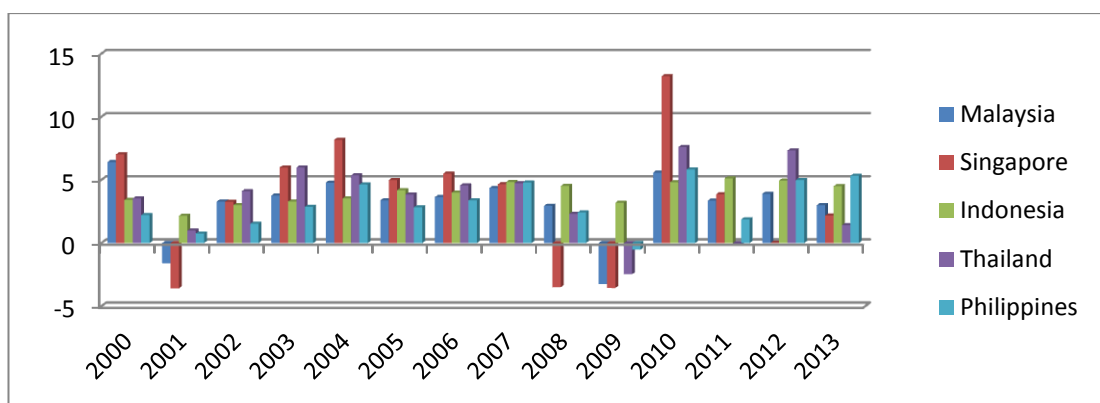


According to (Clouse, 2014), the Association of Southeast Asian Nations (ASEAN) are facing a maritime conflict with China over a territorial claim 200 miles away from the Vietnam's coast, that has led to ship clashes between the two countries. There are several countries claiming their territory around the South China Sea such as Philippines, Taiwan, Vietnam, and Malaysia. Therefore, the foreign ministers from the mentioned countries including the other three ASEAN members, Singapore, Myanmar, and Cambodia who are economically tied with China's trade and no territorial claims in the South China's sea joined the group to charge against China in court to respond by the end of December, but it has refused to participate (Clouse, 2014). Here is one of the latest news around June 2011; the ASEAN nation was involved in a maritime conflict that resulted in fire live exercises and there were five fire movement conducted by Vietnam in the South China Sea. Since Vietnam was claiming the fact of the distance of 200 nautical miles away from the Vietnamese territory, hence, the country decided to stalk and chase the Chinese fishing trawler and ended up showing-off their military reinforcement. This movement led Philippines to use the conflict for its advantage to reassert the claiming territory around the South China Sea (BERNA, 2014). Due to China's increasingly aggressive behavior to position itself on the South China Sea, will this maritime conflict weaken



the ASEAN region and affect their economic growth? As mentioned earlier, many studies have argued that armed conflict wars can cause decreasing foreign investment and declining industrial capacity but looking at the above table and comparing it to the GDP per capita growth for each of the five ASEAN countries, it shows that Singapore had its first conflict war at 2010 while its GDP reached its highest growth per capita as how it appears on the left graph of the annual percentage of ASEAN GDP per capita. Such results create a theoretical debate on the relationship between armed conflict war and economic growth.

Figure 2.4: GDP per Capita Growth (annual %)



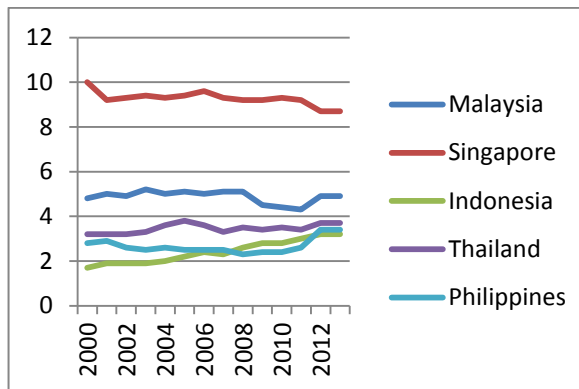
ADAPTED FROM: The world data bank indicators (2014)

### 2.1.3 Corruption

The word corruption has been defined as the act of an individual who has been assigned as a public official to provide services to the public but ends up abusing the public duty for a significant bribe which usually happens in a public official for a private gain (Shera, Dosti, & Grabova, 2014). Another classical definition of corruption is the misuse of public authority for private interest and mostly involves transactions among public officials and private parties for a business interest (WEDEMAN, 2012). Not only are public officials involved in corruption but corporate managers and private firms also exercise authority. Therefore, most societies see corruption as a considerable problem which causes a phenomenon for the social ethics and it exists in many developed and developing countries. This

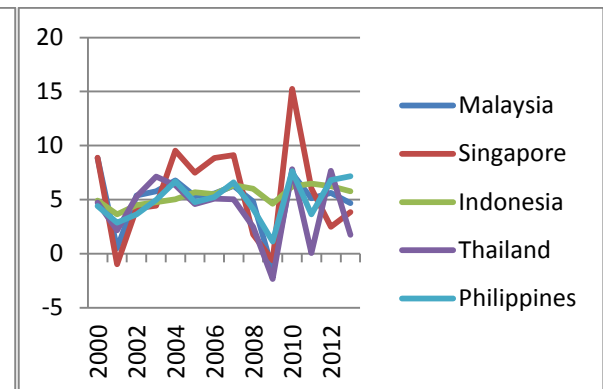
research is a comparative study on five ASEAN countries as how it appears on the two graphs below. The corruption data is provided by transparency.org data from 2000-2013 based on a range from (0-10) to measure the level of corruption in each of the five ASEAN countries.

Figure 2.5: Level of corruption of ASEAN countries



ADAPTED FROM: Transparency.org  
(2014)

Figure 2.6: ASEAN GDP Growth (annual %)



ADAPTED FROM: World Development  
Indicators (2014)

According to the data below, we can see that Singapore has the highest range among the other ASEAN countries since 2000-2013. None of the other four countries ever came near to Singapore's range. This might show how corrupted the country is but Singapore's GDP has been significantly good and it reached its highest range in 2010. Such results create a theoretical debate on the relationship between corruption and economic growth. Many researchers have estimated that corruption tends to damage nations' economies. This literature will provide a list of empirical studies on the impact of corruption on economic. Several researchers have estimated that corruption can lead to the reduction of foreign investment growth and it also increases the level of inequity and poverty, which results in a negative impact on a nation's economy. Here is an example provided by (Shera, Dosti, & Grabova, 2014, p. 3) who argued about a research been done by Mauro (1995), which stated that there is a significant negative relationship between the annual GDP per capita and corruption. Each decrease in the corruption index, results in 0.8% increase in the annual growth rate of the GDP per capita. Other indicators show that corruption is

desirable and it has a positive impact on the country's economy since it creates a leeway for foreign investment to avoid existing rules. Here are some theoretical researches that have examined the relationship between corruption and economic growth (Shera, Dosti, & Grabova, 2014).

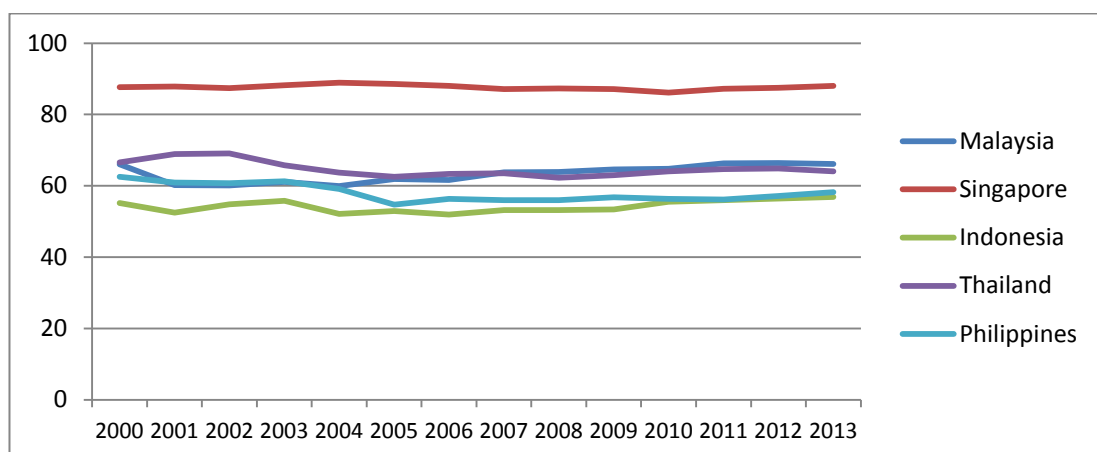
Table 2.2: Theoretical Reseraches

Author	Subject	Data	Methodology	Results
<b>Ali dhe Isse (2003)</b>	Corruption Economic growth	Index ICRG 1982-1990, CPI 1995-1990, Economic freedom Gwartney and Lawson (1997), ethnicity from Mauro 1997, Easterly & Levine 1997, Rule of law, Secondary school enrollment 1975, Government expenditure /GDP, GDP real World Bank.	Regression	High corruption causes decrease of economic growth.
<b>Mendez &amp; Sepulveda (2001)</b>	Corruption Economic growth	Index ICRG 1982-1992, average population growth, capital incomes, increase of GDP; investments GDP; spendings/GDP 1960-1992; education Barro dhe Lee (2000); economic freedom and political stability index.	Regression, test t	Corruption is increasing at low levels of economic growth and with the reduction of growth it is at high levels, including the existence of positive levels of corruption that maximize growth in the long run
<b>Poirson (1998)</b>	Economic security, Investments	ICRG to estimate institutional quality, political rights and civil rights from Freedom House, economic data 1980-	Regression	Reducing corruption will enhance growth in the long term.
<b>Mauro (2002)</b>	Corruption Economic growth		Equilibrium models	Countries that are stuck in a cycle of corruption and low economic growth as a result of lack of initiatives to fight corruption

#### 2.1.4 Economic Freedom

Economic freedom is considered as a sensitive issue for economists since there are many different approaches that can be taken to measure the percentage of freedom and how efficiently it has been used. According to (IONESCU, 2014), Niclas Berggren has pointed out an interesting definition of economic freedom by asserting that it is an intrinsic value that should be taken as a dependent variable because it reflects the degree of the news freedom, reporters, the political right, and civil liberties. Other reporters have tried to find if there are any significant relationship existing between economic growths and foreign direct investment (FDI) toward the nature of economic freedom. Many countries do rely on external sectors and FDI to solve and fill the market gaps but indeed, it conditionally depends on the influences that have an impact on the economic performance. There are not much studies on the nature of regulatory to determine the relationship of FDI inflows and the differential states of development but most economists assert that regulations not only affect the investors' decision making to engage but it also affects the degree of efficiency of resources allocated in the nation's economy (Dawson 2006; (Fofana, 2014). This research is a comparative study on five ASEAN countries as how it appears on the two graphs below. The annual ranking of ASEAN's overall economic freedom 2014 data is provided by the world press freedom index from 2000-2013 based on an interval scale range from (0-100%) to measure the overall economic freedom in each of the five ASEAN countries.

Figure 2.7: ASEAN overall Economic Freedom



ADAPTED FROM: The world Press Freedom index 2014

Figure 2.8: ASEAN overall economic freedom

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
<b>Malaysia</b>	66	60.2	60.1	61.1	59.9	61.9	61.6	63.8	63.9	64.6	64.8	66.3	66.4	66.1
<b>Singapore</b>	87.7	87.8	87.4	88.2	88.9	88.6	88	87.1	87.3	87.1	86.1	87.2	87.5	88
<b>Indonesia</b>	55.2	52.5	54.8	55.8	52.1	52.9	51.9	53.2	53.2	53.4	55.5	56	56.4	56.9
<b>Thailand</b>	66.6	68.9	69.1	65.8	63.7	62.5	63.3	63.5	62.3	63	64.1	64.7	64.9	64.1
<b>Philippines</b>	62.5	60.9	60.7	61.3	59.1	54.7	56.3	56	56	56.8	56.3	56.2	57.1	58.2

ADAPTED FROM: The World Press Freedom index 2014

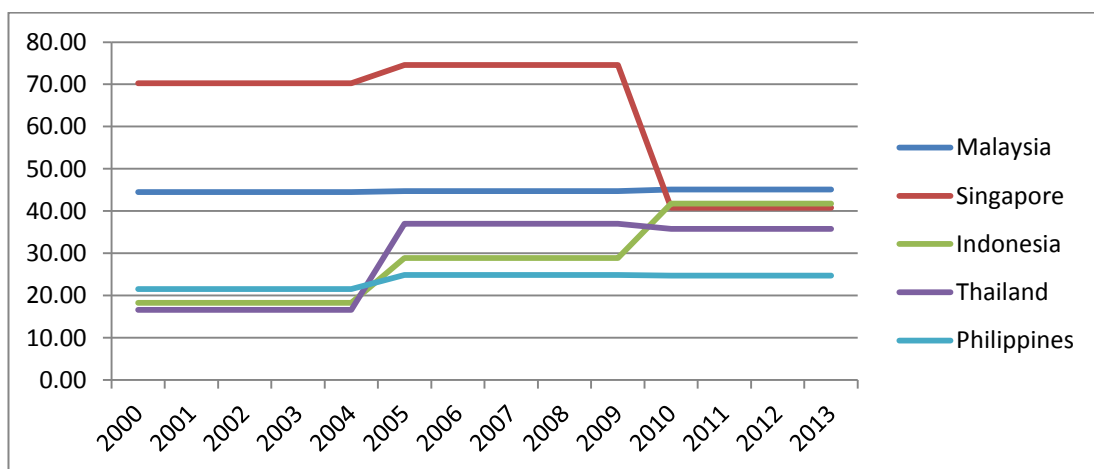
Back in the 1960s, Singapore was known as one of the poor countries with a land area of 710km-squares and a population of 5 million but the country built itself in the midst of many struggling countries to avoid the trap of being in the middle-income category. As a result, Singapore has benefited from its good location and the perfect timing for welcoming manufacturing exports in early 1975 (the World Bank group, 2014). It utilized foreign direct investment (FDI) to stay ahead even though the country faced difficulties in terms of land and labor shortages which resulted in a high cost of the two mentioned resources (Prime, 2012). The purpose of this literature is to understand if there is any relationship between economic freedom and the improvement of a nation's economic growth. Looking at the above table, Singapore scored the highest overall economic freedom during the time period of 2000-2013. Therefore, the purpose of this literature is to understand how a country with small scarce resources could continuously meet the needs of foreign companies. According to (Prime, 2012), he asserts that Singapore has been relying on FDI which has resulted in increasing net inflows of FDI gross domestic product GDP averaged at 10% in the early 1980s to 15% in the early 2000s provided by the world development indicators. Thus, many argue about regulations and its influences on the long-term economic performance and Singapore is a good example of creating a supportive environment to attract foreign direct investment but the empirical purpose of this paper is to examine the relationship between economic freedom and the economic growth rate of ASEAN countries on a comparative basis.

### **2.1.5 Human Capital**

The importance of human capital in the economic perspective has captured many economists' attention. According to (Khan, Humayun, & Sajjad, 2014), human capital refers to the processes that are related to education, training, and any other processes that help to increase intangible assets including knowledge, skills, abilities that lead to employees' satisfaction and better performance, eventually improving firm performance. The term human capital investment including education and health costs are created in the hope of improving people's productivity and gaining a future advantage. Economists noticed the important role of some intangible assets as influencing factors like investing in human capital. It is considered as a long-term investment, which appears to the investor at first as a cost element. According to (Simona, 2014), the cost-based approach of estimating the human capital stock is by adding the cost of education plus the opportunity cost and adding anything related to investment in the human capital. Many governments have started supporting students and their families with public loans and scholarships for their studies as well as transferring public support as actions of education; all these types of expenses are described as public expenses on education (Simona, 2014). The main purpose of this article is to study the correlational relationship between human capital and economic growth. There are several studies that straight forwardly restrict the regular demeanor indicating the powerless relationship between human capital and economic growth and its relationship with unemployment rate, conceivable discarded variable that falsely links human capital with the development of nation's economic growth. Other studies do not directly oppose such as (krueger & Lindahl, 2011) who assert that the effect of education on economic growth differs among different countries. Another research has been done by (Cadil, Petkovova, & Batna, 2014) who state that human capital is a negative factor in the economic growth in the EU region especially in the agricultural regions; this is happening because of the increasing number of highly educated people living and working in the agricultural regions especially near urbanized regions which has resulted in the negative effect on unemployment rate. The issue of over-educational theory by (Ramos & Surinach, 2009) stressed the impact of human capital characterized by the educational level which can lead to over-education that might result in a negative influence on unemployment rate. The

role of over-education can cause unsatisfactory educational model to appear as the most essential issue of human capital. According to (Cadil, Petkovova, & Batna, 2014), the EU region was facing an increasing rate of unemployment in the period of 2007-2011 as a result of the increasing number of human capital; on the contrary, as (Ramos & Surinach, 2009) concluded, the impact of over-education on human capital could be opposing to economic growth, if highly educated people do not meet the regional market needs. Another example that proves the effect of education on economic growth differs among different countries is the study of human capital impact on growth during and after the recent economic crisis in the EU region provided by (Cadil, Petkovova, & Batna, 2014) that found a significant positive relationship between human capital and economic improvement in the critical year of 2009 in the big cities of EU countries compared to the agricultural regions. This created a debate among economists for having unclear views about the effect of human capital on the development of economic growth.

Figure 2.9: ASEAN 5 Total Population of 20 years old who have completed secondary school 2000 – 2013

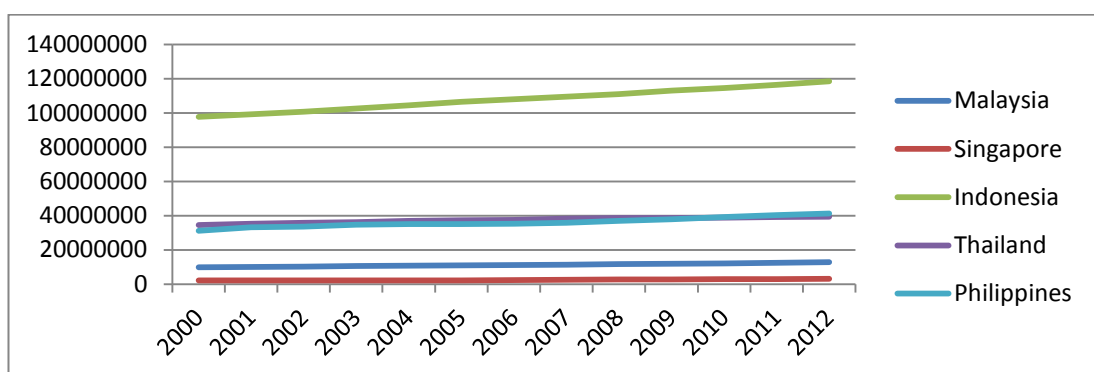


### 2.1.6 Labor Forces

This literature review is focused on the link between level of labor forces and the economic growth model among the 5ASEAN countries which are Malaysia, Singapore, Indonesia, Thailand and Philippines. According to (Vasilea, 2014) emphasizes that free transactions of laborers is one of the four rights of EU law and

labor forces movement through brief relocation is a type of productive appropriation of assets on the level of the EU labor forces. Despite the fact that it is assessed that the net impacts work versatility that leads to a win-win situation for both nations included, the higher interest for qualified labors and expanding the normal span of interim portability expands win-win irregularity to the impediment of the nation of birthplace. A research been done by (Marshall, 1890) asserts that entrepreneurship is accepted to be a key major measurement of the economic growth and success of a nation or country's achievement and an essential consider forming the spatial circulation for economic performance on the national region. Entrepreneurship is not just about building a new company but also the lead for creating new jobs to reduce the level of unemployment in the region; thus entrepreneurs are considers as the engines of the nation's economic for a better performance and sustainability. Another research has been done on self-employment and entrepreneurship in urban and rural labor markets by (Faggio & Silva, 2014) who found that the higher level of self-employment creates a positive and strong correlation with creating new innovations and opportunities in urban areas comparing to rural regions. At the graph below, noticed that Singapore is considered as the lowest country in terms of the level of the labor forces comparing to Indonesia. But Singapore economic growth is higher than Indonesian GDP. Therefore, this paper is studying the link between labor markets and the economic growth among the 5ASEAN countries.

Figure 2.10: ASEAN Labor Forces



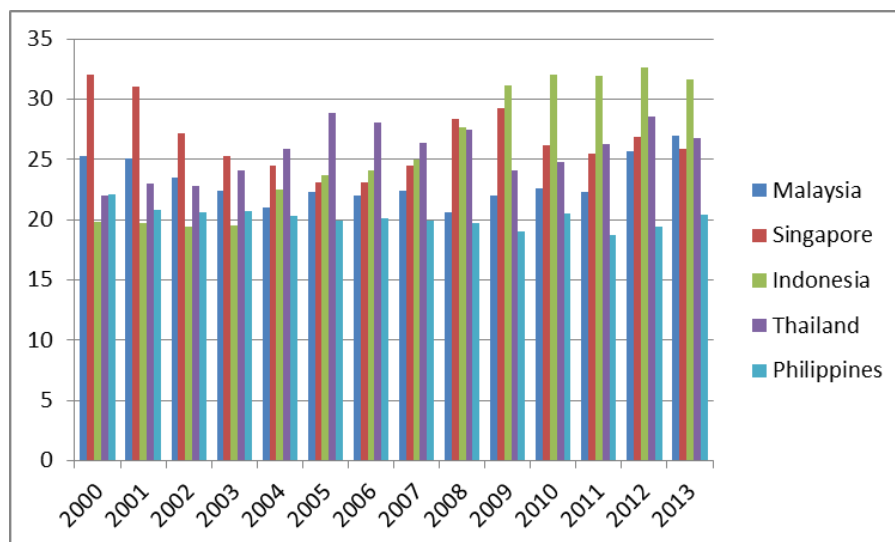
ADAPTED FROM: The world Press Freedom index 2014



### 2.1.7 Capital (K)

One of the major factors of economic growth is known as Capital Stock, which relates to tangible and intangible items. Tangible Assets include Roads, power plants, and Equipments like PC & Trucks. Intangible Assets include Computer software, trademarks, and patents. Every business will need a startup capital to move forward; thus, most developed countries encourage private investors to feel safe to invest since it leads to reducing the level of unemployment. The hypothesis of capital and the issue of capital estimation have engaged economists into a complexity for quite a long time. Capital estimation is crucial in numerous fields of financial matters, which incorporate development in countries economic growth, benefit, and effectiveness examination. In spite of the fact that the idea of capital shows up habitually in economic studies, many have been asking what is capital and by what methods should it be measured and have yet to find any immediate answers. The graph below shows the different levels of capital for the 5 ASEAN nations' economies that leads to a theory that might affect the nations' economic growth through gathering the data for the 5 ASEAN Gross Fixed Capital (2014), from the world data bank as how it appears below.

Figure 2.11: 5 ASEAN Gross Fixed Capital (2014)



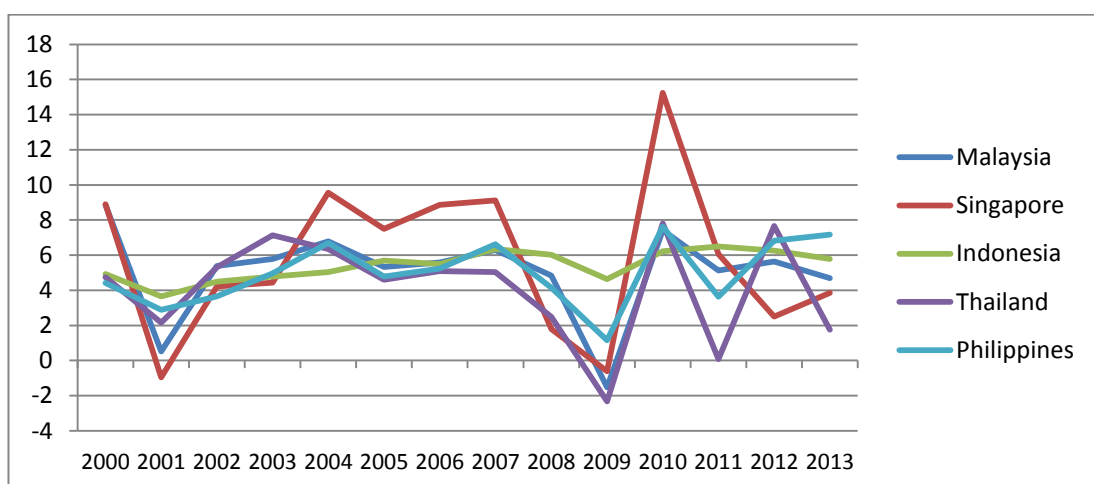
ADAPTED FROM: World Development Indicators

According to (Plotnikova, 2014), there are no less than two understandings of capital. The main methodology considers capital as a store that has resources in an

undertaking. The second approach that is generally utilized as a part of creation investigation considers capital as administration streams or a service flow exemplified in physical merchandise, for example, equipment and computers that generate a service or a product to the market which is known as fixed asset or fixed capital. In this paper, we allude to the capital variable as the gainful supplies of capital products that help creation by giving a stream of administration through social affair as a service flow. In the previous graph that illustrated the different levels of gross fixed capital for the 5 ASEAN nation economies, Indonesia had the highest growth of fix capital among the ASEAN nations from 2009 to 2012. For the year 2000, the development of the Indonesian economy demonstrated a superior improvement in execution compared to 1999. In light of the GDP in 1993's consistent costs, the development of the Indonesian economy in year 2000 was 4.77 per cent, and the development of non-oil and gas GDP was 5.24 per cent. The worth of GDP in 1993's consistent costs in 1999 was 379.6 trillion rupiahs, and the estimation of non-oil and gas GDP was 345.7 trillion rupiahs; both were evaluated as having increased in year 2000 to 397.7 trillion rupiahs and to 363.9 trillion rupiahs, respectively. From the 9 parts of economy, which make up the GDP, the entire sectors delivered a positive development in year 2000. The most elevated development was in telecommunication and transportation at 9.38 per cent, followed by energy power- gas and water provider at 8.78 per cent, development of the construction at the level of 6.75 per cent, industries such as manufacturing enterprises at the level of 6.20 per cent, and the exchange lodging and restaurant at the level 5.69 per cent. The rest are, managing an account responsibility for and business administrations, mining and quarrying, agriculture and farming development at the levels of 4.69 per cent, 2.33 per cent, 2.22 per cent and 1.67 per cent, respectively. Transformation is considered as a part of the Indonesian populace from the farming segment to the assembling division mirrored by both the parts in the GDP. Since 1991, the Manufacturing Industry department has been a significant giver to GDP. In the year 2000, the effort of the Manufacturing Industry segment to GDP was 26.04 per cent, although the Agricultural sector was at approximately 16.92 per cent. The following significant engagement to the entire GDP was exchanges in international trade, stock market, hotels and restaurant at around 15.19

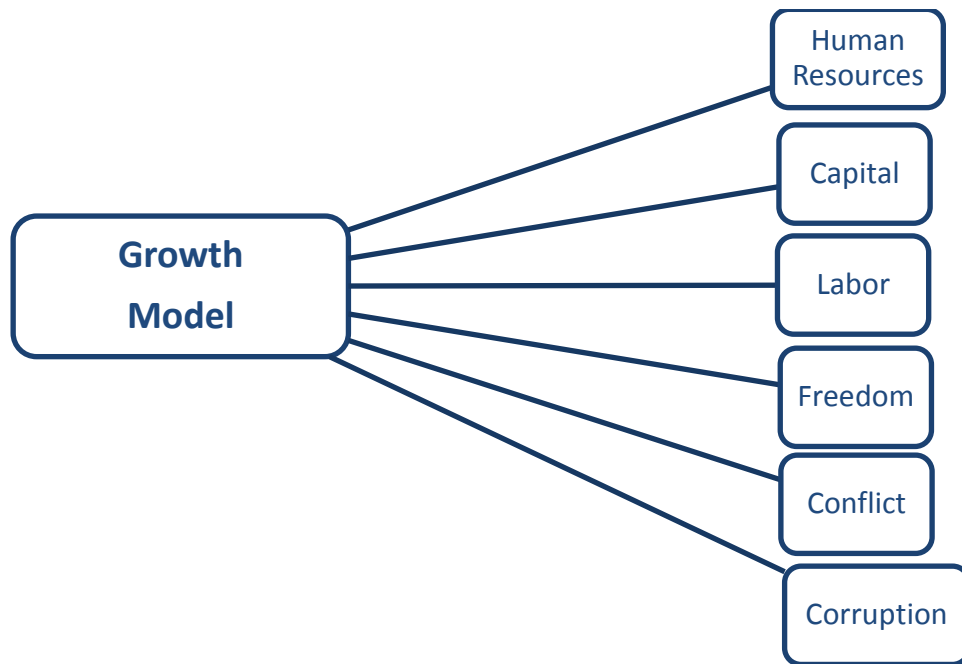
per cent while the mining and quarrying department scored around 12.91 per cent, even though the other 5 departments assisted the balance 10 per cent which the least contribution indicated by electricity, gas and water supplier at the level of 1.17 per cent. The development of all the segments of GDP by expenditure, based on the (1993) constant costs in year 1999, additionally expanded. Import demonstrated the most growth development in Indonesian history, which expanded by approximately 18.18 per cent in year 2000 contrasted with the prior year. The following parts that have a high development were the terribly settled capital arrangement that expanded by about only 17.19 per cent and the increasing percentage of export that expanded by about 16.06 per cent. Meanwhile, the development of government expenditure use and percentage of household consumption had expanded by to 6.49 per cent and 3.63 percent, respectively in 2000 (Statistical Pocketbook of Indonesia, 2000). This improvement explains the reason for the development of the Indonesian GDP growth rate in 2000 but there is another perspective that had been noticed a few years later during the world financial crisis. If we compare the previous graph on 5 ASEAN's fixed capital to the 5 ASEAN GDP growth rate in the year of the financial crisis in 2009, the Indonesian fixed capital started rising while its GDP growth rate was not affected that much compared to the other ASEAN GDP growth in 2009, the year of the financial crisis and it leads to the understanding of a theory that might develop nations' economic growth model.

Figure 2.12: World Development Indicators 5 ASEAN GDP growth rate % (2014)



## 2.2 Theoretical Framework

Figure 2.13: Framework of the Economic Growth Model



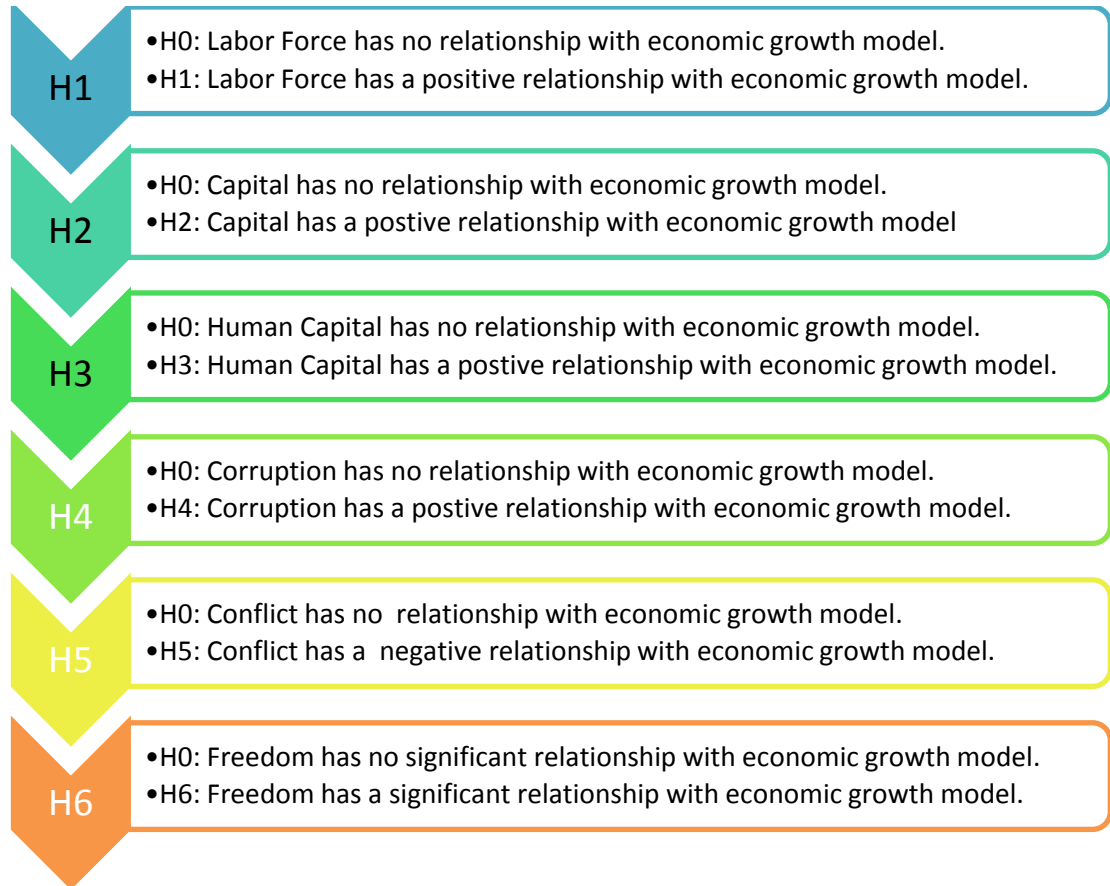
Examining the economic growth model as how it appears above on the theoretical framework, here is an equation of the growth model that implies how it is shown below:

$$\begin{aligned}\ln \gamma_{it} = & \beta_0 + \beta_1 \ln L_{it} \\ & + \beta_2 \ln K_{it} \\ & + \beta_3 \ln HK_{it} + \beta_4 \ln COR_{it} + \beta_5 \ln FREE_{it} + \beta_6 \ln CON_{it}\end{aligned}$$

## 2.3 Research Hypothesis

Below are the six hypotheses constructs based on the theoretical framework:

Figure 2.14: The hypothesis testing of the economic growth model



## CHAPTER 3

### RESEARCH METHODOLOGY

#### 3.1 Research Design

The purpose of this study is hypothesis testing with correlational type investigation, as the author wants to examine the impact of the framework towards economic growth. The extent of researcher interference is very minimal because the author is using secondary data, therefore it will not manipulate or simulate the flow of work. Study setting will be done in a non-contrived manner since it can be done in a natural environment. This study will use secondary data such as journals and articles that have been published through the online network library; thus, the unit of analysis is individuals in the time horizon. This study uses both the cross-sectional approach where data is gathered over a period of years in order to answer the research questions; and also the longitudinal approach, because the author wants to use the impact of the framework toward economic growth before and after inflation occurred, which usually happens when a nation's production-possibility frontier (PPF) shifts outward (Samuelson and Nordhaus, 2010; (Sriwongsa & SOE, 2010).

#### 3.2 Population and Sampling

The author is using secondary data which discusses previous researches (**collected from journal articles, government publications, book**, etc). Therefore, this study will only focus on the population of the **first five ASEAN countries** that joined the organization in August 1967. These original ASEAN nations include: Singapore, Malaysia, Indonesia, Thailand, and Philippine (Rana & Dowling, 1990). The reason is because of the different activities of each of the ASEAN region, which makes it easy to test and measure the hypothesis related to the major forces that affect the economic growth model.

### 3.3 List of Countries

Table 3.1: List of Countries

No.	Country Name	GDP Growth (rate % ) 2013	GDP per capita growth 2013	GDP, PPP (international \$) 2013
1	Malaysia	4.68761228	3.007092	6.92335E+11
2	Singapore	3.851064073	2.181507	4.25155E+11
3	Indonesia	5.781224178	4.510557	2.38841E+12
4	Thailand	1.766353603	1.423894	9.64282E+11
5	Philippines	7.162873561	5.325727	6.42764E+11

### 3.4 Research Instrument

The research instrument of this study is using Data which has already been gathered online through (World Development Indicators, Barro-lee Educational dataset, the world Press Freedom index 2014, and transparency international sites). Using these data, guides researchers to analyze and visualize collections of time series data on a variety of topics. You can create your own tables, charts, maps, and easily use and understand.

Figure 3.1: A screen-shot of the data collection tools



### 3.5 Data Sources

Table 3.2: Data Sources

No.	Variables	Descriptive	Sources
1	Labor	5 ASEAN countries Labor Forces (2000-2012)	World data bank
2	Capital	5 ASEAN countries Gross Fixed Capital % GDP (2000-2012)	World data bank
3	Human Capital	ASEAN 5 Total Population age 20 completed secondary school (2000-2012)	Barro-lee Educational dataset
4	Freedom	ASEAN overall economic freedom (2000-2012)	The world Press Freedom index 2014
5	Conflict	Dummy variable for war armed conflict (2000-2012)	UCDP/ Department of Peace and Conflict Research
6	Corruption	The level of corruption in the 5 ASEAN countries (2000-2012)	transparency international site



## **CHAPTER 4**

### **DATA ANALYSIS**

#### **4.1 Overview**

This chapter includes the descriptive statistics to observe the mean, minimum, and maximum value for all the above variables to compare which independent variable has the highest range. In addition, a regression analysis has been used to develop the economic growth model and predict the values of the numerical dependent variables on the values of the other independent variables. The dependent variable is called the variables that need to be predicted. The independent variables are used to make the forecasting. Using the regression analysis can also guide the researcher to recognize the existing level of the mathematical relationship between the dependent and independent variables. According to (Levine, Stephan, Krehbiel, & Berenson, 2011), running a simple or multiple linear regressions can help to find the dependent and explanatory variables, in addition to finding the intercept and the slope of the regression line to see the effect that changes in the independent variables have on the dependent variable. The simple regression is meant to be a solo numerical independent variable of X to forecast the dependent variable Y which is in this case the GDP economic growth of the five ASEAN countries. There are three different types of GDP growth models such as the GDP annual growth rate, and the GDP (PPP). The multiple line regression is used when there are multiple independent variables which in this case, there are six independent variables such as armed conflict war, corruption, economic freedom, labor forces, human capital, and capital (Levine, Stephan, Krehbiel, & Berenson, 2011).

## 4.2 Summary of the Descriptive Statistics

Table 4.1: Summary of the Descriptive Statistics

Variable	Mean	Median	Minimum	Maximum	Standard Deviation
Labor	16.851	17.374	14.543	18.586	1.3056
Capital	3.1712	3.1563	2.9297	3.4866	0.14997
Human Capital	3.0733	3.0708	2.2742	3.7072	0.46628
Non-Corruption	1.3685	1.2238	0.53063	2.3026	0.51617
Conflict	0.53846	1.0000	0.0000	1.0000	0.50240
Freedom	4.1675	4.1352	3.9493	4.4875	0.16987

### 4.2.1 Estimated Result

The research included the descriptive statistics to see the mean, minimum, and maximum value for all the above variables to compare which independent variable has the highest range. By looking at the summary of statistics above, the estimated result shows that the labor factor has the highest range of the total mean, median, minimum, maximum and the standard deviation, which shows how much variation exists.

These measures are named as the three measures of central tendency which is what people often refer to as an “average value, middle value or most frequent value” which is informally known as “mean, median, and mode”. According to (Levine, Stephan, Krehbiel, & Berenson, 2011), the three measures are defined as:

- 1) The Arithmetic Mean is known as the most commonly used among the other two measures since all the values are an equal value. The way to calculate the mean is through adding all the total values that have been used in the data and then divided by the total number of the values. Therefore, it is used to characterize the mean of the variables and the mean equation appears as below:

$$\text{The mean} = \frac{\text{sum of the values}}{\text{number of the values}}$$

- 2) The Median is known as the middle value of the variables which can be ranked starting from the smallest to the largest. The median is not affected by extreme values compared to the mean value. Extreme values refer to the values that are greater than the others thus it is recommended to avoid using the mean as a measurement when there are values that are greatly different compared to the others. The median is considered good for extreme values that appear in the set of data. According to (Levine, Stephan, Krehbiel, & Berenson, 2011), the values are ranked from the smallest to the largest value and then, the equation below is used:

Ranked values: 98, 100, 103, 105, 107, 109, 112, 114, 116, 118, 121, 124,

Ranks: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12,

$$\text{The Median} = \frac{n+1}{2} \text{ Ranked Value}$$

Since the result of dividing  $n + 1$  by 2 is  $\frac{(12+1)}{2}$  equals to 6.5 therefore, computing the median follows Rule 2 as how it appears below:

**Rule 1:** the median is the measurement associated with the middle ranked value when the data set holds an odd number of values

**Rule 2:** The median is the measurement associated with the mean of the two middle-ranked values when the median equation results in an even number of values such as in the case above; the equation results are an even number that equals to 6.5 which is associated with the mean of the two middle-ranked values which are (6 and 7) which is more closer to number 7 that represents 112.

- 3) The Mode is the value of the data set of the variables that seems to appear more frequently thus it is known as the most frequent value. It is considered more like the median compared to the mean since it is not affected by the extreme values unlike the mean. Most commonly there could be no mode in a set of data or there is more than one mode in the data that have been used to analyze. As an example, to determine the mode for the following data:

14, 5, 3, 10, 8, 5, 6, 7, 2, 5, 1, 11, 9

To determine the mode, here are the well-ordered arrangements for the data set as how it appears below and the most frequent value:

1, 2, 3, 5, 5, 5, 6, 7, 8, 9, 10, 11, 14

#### 4.2.2 Standard Deviation and Variance

According to (Levine, Stephan, Krehbiel, & Berenson, 2011), there are two types of statistics measurement that are taken into account to measure how the data set are distributed which are the standard deviation and the variance. These types of measurements are meant to measure the average scatter among the mean variable; in other words, they measure how one side of the larger values are fluctuated above the mean and how the other side of the smaller values are fluctuated under it. The mean is usually the balanced point in a set of data that takes the difference between each value. The simple variance is the total of the squared differences around the mean value divided by the number of observations minus one as how it appears below:

$$\text{The simple Variance } (S^2) = \frac{\sum_{i=1}^n (x_i - \bar{X})^2}{n-1}$$

In statistics, the method of squaring the difference among the value and the mean and then summing these squared variances is called the Sum of Squares (SS). The sum is divided by the total number of observations minus one and that is the equation of the simple variance ( $S^2$ ). Then, the sample's standard deviation is retrieved, which is equals to the square root of the simple variance ( $S$ ). A higher standard deviation means the values are very far from the mean and the smaller result means the closer the values are from the mean which is the balanced point of the data set (Levine, Stephan, Krehbiel, & Berenson, 2011).

$$\text{The simple standard deviation } (S) = \sqrt{\frac{\sum_{i=1}^n (x_i - \bar{X})^2}{n-1}} = \sqrt{S^2}$$

### 4.3 Regression on Ordinary least squares (OLS):

This chapter is for running the multiple regressions using the Ordinary least squares (OLS) estimate. The OLS is meant to study the assumption of the extrinsic determinant of economic Growth on ASEAN nations. There are different criteria to choose the best model. Hence, to drive the OLS estimates in the Gretl software, we need to realize that we have three types of economic growth as the dependent variables which are the ASEAN GDP Growth (annually %), the ASEAN GDP, PPP (current international \$), and the ASEAN GDP per capita growth.

#### 4.3.1 (OLS) Regression on Model 1: GDP annual growth of 5ASEAN nations

Table 4.2: Model 1: Pooled OLS, Using 65 observations

Time-series length of 13

Dependent Variable: GDP annual growth of 5ASEAN nations

Variables	Coefficient	Std. Error	t-ratio	p-value
const	-64.4575	56.6347	-1.138	0.2597
Non-Corruption	8.4313	4.22806	1.995	0.0508*
labor	3.57005	1.81719	1.965	0.0543*
Capital	-7.61136	4.51885	-1.684	0.0975
Human Capital	1.53496	1.76150	0.8714	0.387
Freedom	4.03886	8.65015	0.4669	0/6423
Conflict	0.826305	0.891267	0.9271	0.3577

Mean dependent variable	5.099926		S.D. Dependent Var	2.846114
Sum Squared resid	469.2916		S.E. of regression	2.844509
R-square	0.094771		Adjusted R-squared	0.001127
F(6,58)	1.012035		p-Value (F)	0.426537
Log-likelihood	-156.4782		Akaike criterion	326.9564
Schwarz criterion	342.1771		Hannan-Quinn	332.9620
rho	-0.197241		Durbin-Watson	2.239685

### 4.3.2 Estimated Results and Interpretations

The regression OLS was done using 65 observations within 5 cross sectional unities which are the number of the 5 ASEAN countries and 13 time series starting from 2000 till 2012. This model number one is first pooled under the dependent variable of GDP's annual growth. As how it appears on the above table, it shows the level of coefficient, standard error, t-ratio, and the p-value of the independent variables. Here are the estimated results and interpretations as how it appears below:

- i. Every change in the aggregate number of the non-corruption level will affect the GDP annual growth of the 5 ASEAN countries by 8.43
- ii. Each adjustment in the total number of the labor force will influence the GDP's annual growth of the 5 ASEAN countries by 3.57
- iii. Every change in the aggregate number of the capital will affect the percentage of the GDP's annual growth of the 5 ASEAN countries by - 7.61136
- iv. Any difference in the percentage of the human capital level will change the GDP's annual growth of the 5 ASEAN countries by 1.53496
- v. Every change in the aggregate number of the freedom level will affect the GDP's annual growth of the 5 ASEAN countries by 4.03886
- vi. Every change in the aggregate number of the conflict level will affect the GDP's annual growth of the 5 ASEAN countries by 0.826305

Through looking at the p-values in the above table to determine the significant level, there are two independent variables that have a significant relationship with the annual GDP growth which are corruption and labor forces at the significant level of 5%; while this model number one under the dependent variable of the 5 ASEAN countries' GDP growth is considered ideally not fit because the R-square level is low at the level of 1% and the adjusted R-square is 0% fit.

### 4.3.3 (OLS) Regression on Model 1: GDP (PPP) constant 2011 for 5 ASEAN nations

Table 4.3: Model 2: Pooled OLS, Using 65 observations

Time-series length of 13

Dependent Variable: GDP (PPP) constant 2011 for 5 ASEAN nations

Variables	Coefficient	Std. Error	t-ratio	p-value
const	-1.98222e+013	4.04519e+012	-4.900	8.05e-06**
Non-Corruption	9.22628e+011	3.01994e+011	3.055	0.0034***
labor	8.27582e+011	1.29794e+011	6.376	3.24e-08
Capital	3.36201e+011	3.22763e+011	1.042	0.3019
Human Capital	2.38166e+011	1.25817e+011	1.893	0.0634*
Freedom	8.63952e+011	6.17846e+011	1.398	0.1673
Conflict	-1.42534e+011	6.3597e+011	-2.239	0.0290**

Mean dependent variable	7.08e+11		S.D. Dependent Var	4.96e+11
Sum Squared resid	2.39e+24		S.E. of regression	2.03e+11
R-square	0.848149		Adjusted R-squared	0.832441
F(6,58)	53.99243		p-Value (F)	6.18e-22
Log-likelihood	-1780.954		Akaike criterion	3575.907
Schwarz criterion	3591.128		Hannan-Quinn	3581.913
rho	0.893899		Durbin-Watson	0.159412

### 4.3.4 Estimated Results and Interpretations

The Pooled OLS is done using 65 observations within 5 cross sectional unities which are the number of the 5 ASEAN countries with 13 time series starting from 2000 till 2012. There are three dependent variables which are the log values of the annual growth GDP, GDP (PPP) constant 2011, and the GDP per capita growth of the ASEAN nations. As how it appears on the above table, it shows the level of coefficient, standard error, t-ratio, and the p-value of the independent variables.

Here are the Estimated Results and Interpretations as how it appears below:

- i. Every change in the aggregate number of the non-corruption level will affect the GDP's annual growth of the 5 ASEAN countries by 9.22
- ii. Each adjustment in the total number of the labor force will influence the GDP's annual growth of the 5 ASEAN countries by 8.28
- iii. Every change in the aggregate number of the capital will affect the percentage of GDP's annual growth of the 5 ASEAN countries by 3.36
- iv. Any differ in the percentage of the human capital level will change the GDP's annual growth of the 5 ASEAN countries by 2.38
- v. Every change in the aggregate number of the freedom level will affect the GDP's annual growth of the 5 ASEAN countries by 8.63
- vi. Every change in the aggregate number of the conflict level will affect the GDP's annual growth of the 5 ASEAN countries by -1.43

Through looking at the p-values in the above table to determine the significant level, there are three independent variables that have a significant relationship with the annual GDP (PPP) constant 2011 which are non-corruption at the level of 10% significance, human capital at the level of 1% significance, and armed conflict war at the significance level of 5% with the p-value of 0.0290; this model number two under the dependent variable of the 5ASEAN GDP (PPP) constant 2011 is considered ideally fit because the R-square level is high at the level of 84% and the adjusted R-square is 83% fit. After running the multiple regressions on the OLS, we found that corruption has a significant relationship with the 5 ASEAN GDP (PPP) and the significant level is at 1%. The coefficient of correlation,  $\rho = 9.23$ ; in this case, the GDP is increasing in a perfectly positive relationship with the level of corruption in the majority of the 5 ASEAN countries. The coefficient of correlation determines the strength of relationship between the two dependent and independent variables.



#### 4.3.5 (OLS) Regression on Model 3: GDP per capita of 5 ASEAN nations

Table 4.4: Model 3: Pooled OLS, Using 65 observations

Time-series length of 13

Dependent Variable: GDP annual growth per capita of 5 ASEAN nations

Variables	Coefficient	Std. Error	t-ratio	p-value
const	1.87264	4.71103	0.3975	0.6925
Non-Corruption	2.06067	0.351702	5.859	2.32e-07***
labor	0.184689	0.151158	1.222	0.2267
Capital	-0.151831	0.375890	-0.4039	0.6878
Human Capital	-0.117552	0.146526	-0.8023	0.4257
Freedom	0.02711	0.719543	0.8376	0.4057
Conflict	0.0496548	0.0741380	0.6698	0.5057

Mean dependent variable	9.500699		S.D. Dependent Var	0.900089
Sum Squared resid	3.247197		S.E. of regression	0.236614
R-square	0.937374		Adjusted R-squared	0.93-895
F(6,58)	144.6877		p-Value (F)	5.24e-33
Log-likelihood	5.158332		Akaike criterion	3.683337
Schwarz criterion	18.90405		Hannan-Quinn	9.688883
rho	0.812655		Durbin-Watson	0.273597

#### 4.3.6 Estimated Results and Interpretations

The Pooled OLS is done using 65 observations within 5 cross sectional unities which are the number of the 5 ASEAN countries with 13 time series starting from 2000 till 2012. There are three dependent variables which are the log values of the annual growth GDP, GDP (PPP) constant 2011, and the GDP per capita growth of the ASEAN nations. As how it appears on the model above, data is pooled on the OLS multiple regressions on the model of GDP per capita as the dependent variable. The table above shows the level of coefficient, standard error, t-ratio, and the p-value of the independent variables.

Here are the Estimated Results and Interpretations as how it appears below:

- i. Each adjustment in the total number of the level of corruption will influence the GDP per capita of the 5 ASEAN countries by 2.43 per cent.
- ii. There is no significant relationship between the 5 ASEAN countries' labor capital with the GDP per capita of the 5 ASEAN countries.
- iii. There is no significant relationship between the 5 ASEAN countries' capital with the GDP per capita of the 5 ASEAN countries.
- iv. There is no significant relationship between the 5 ASEAN countries' human capital and the GDP per capita of the 5 ASEAN countries.
- v. There is no significant relationship between the 5 ASEAN countries' levels of freedom with the GDP per capita of the 5 ASEAN countries.
- vi. There is no significant relationship between the conflict level and the GDP per capita of the 5 ASEAN countries.

Through looking at the p-values in the previous table that determines the significant relationship between the variables with the GDP per capita of the 5 ASEAN countries, there is only one independent variable that has a significant relationship with the GDP per capita of the 5 ASEAN countries which is corruption at the level of 1% significance with a two tails of a p-value at the level of 2.32; this model number three under the dependent variable of the 5 ASEAN GDP per capita is considered ideally fit because the R-square level is high at the level of 94% and the adjusted R-square is 93% fit.

#### **4.4 The Coefficient of Correlation**

This shows the relationships between the variables; in this case, the strong relationships are represented with one star which shows 10 percent level of significance and one star represents 5 percent level of error. This table supports the evidence of the relationships suggested in the hypotheses. When a variable is correlated with itself, you get 1 which shows perfectly positive as shown below. Some of the significance levels are less and others are greater and since the set

standard is 0.05, so we can say that there is enough evidence that the correlation is significant.

Variables	annual growth GDP Coefficient (P-value)	GDP, (PPP) constant 2011 Coefficient (P-value)	GDP per capita growth Coefficient (P-value)
Labor	3.57005 (0.0543)*	8.27582e+011 (3.24e-08)***	0.184689 (0.2267)
Capital	-7.61136 (0.0975)*	3.36201e+011 (0.3019)	-0.151831 (0.6878)
Human Capital	1.53496 (0.3871)	2.38166e+011 (0.0634)*	-0.117552 (0.4257)
Non-Corruption	8.43313 (0.508)*	9.22628e+011 (0.0034)***	2.06067 (2.32e-07) ***
Conflict	0.826305 (0.3577)	-1.42534e+011 (0.0290)**	0.0496548 (0.5057)
Freedom	4.03886 (0.6423)	8.63952e+011 (0.1673)	0.602711 (0.4057)

**Note:** \*\*\* significant at 1% level

\*\* Significant at 5% level

\* Significant at 10% level

The Pooled OLS is done within 5 cross sectional unities which are the number of the ASEAN countries with 13 time series starting from 2000 till 2012. There are three dependent variables which are the log values of the annual growth GDP, GDP (PPP) constant 2011, and the GDP per capita growth of the ASEAN nations. As how it appears in the above table, the p-values of the independent variables are presented with the degree of the correlational relationship between the dependent and the independent variables. Here are the Estimated Results and Interpretations as how it appears below:

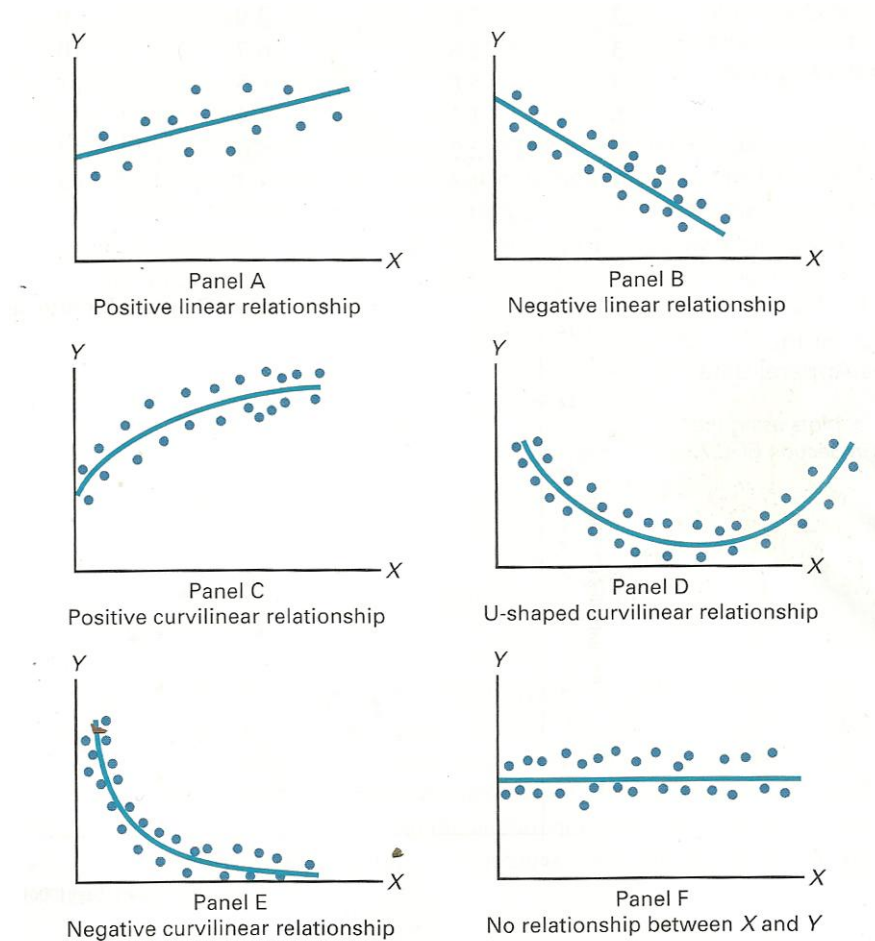
- i. The correlational level of the labor force has a significant relationship with the GDP's annual growth of ASEAN countries by 10 % compared to the GDP (PPP) constant 2011 that has only 1% significant level with two-tailed p-value of 3.24e-08.

- ii. The correlational level of the capital factor has a significant relationship with the GDP's annual growth of ASEAN countries by 10% with the two-tailed p-value of 0.543.
- iii. The correlational level of human capital is significant at the level of 10% relationship with the GDP's annual growth of ASEAN countries with two-tailed p-value of 0.975 and GDP (PPP) of ASEAN nations that has 5% significant level with two-tailed p-value of 0.0634
- iv. The correlational level of non-corruption is significant at the level of 1% relationship with the GDP (PPP) constant 2011 with two-tailed p-value of 0.0034 and a 1% significant level with two-tailed p-value of  $2.32e-07$  with the GDP per capita of ASEAN nations.
- v. There is also a significant relationship between conflict and GDP (PPP) constant 2011 at the level of 1% with two-tailed p-value of 0.0290.

#### **4.5 Scatter Plot Analysis for Simple Regression**

Regression analysis enables the researcher to develop a model to forecast the rate and the type of relationship between the variables based on other variables. This analysis will discuss the simple linear regression with scatter diagrams using the three economic growth models based on a descriptive study among the five ASEAN countries. These three models have different dependent variables as three measurement types of the gross domestic product (GDP) which are; Model regression number one: Dependent Variable is GDP annual growth of 5 ASEAN nations, Model regression number two: Dependent variable is GDP (PPP) constant 2011 for 5 ASEAN nations, and Model regression number three: Dependent variable is GDP annual growth per capita of 5 ASEAN nations. According to (Levine, Stephan, Krehbiel, & Berenson, 2011), there are six types of relationships found in the scatter plots as how it appears below:

Figure 4.1: Six types of relationship found in the scatter plots



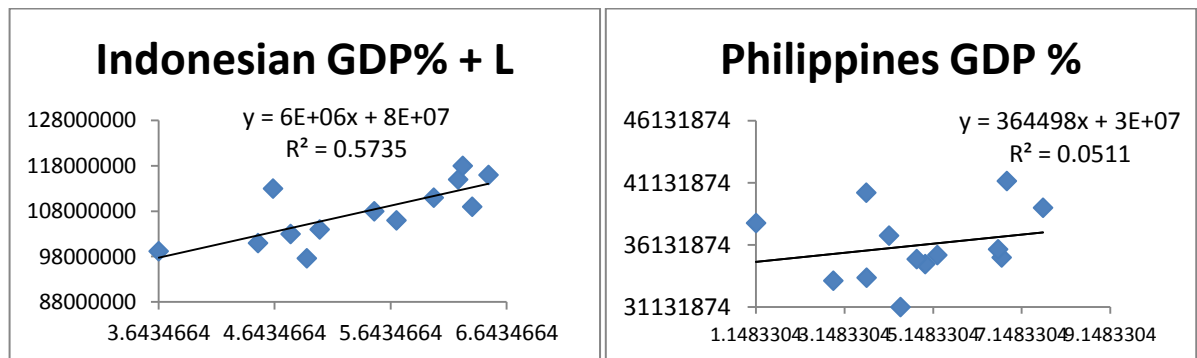
#### 4.5.1 Model regression one: GDP annual growth rate of 5 ASEAN nations

##### 4.5.1.1 Linear relationship between labor and GDP rate

By looking at the correlation statistics in the regression table, there are three significant relationships between the dependent variable for the GDP growth rate and the independent variables are Labor forces, Capital, and Corruption. All the three regressions were significant at the level of 10%. However, so far we do not know which of the five countries are the most effective in the GDP annual growth rate. Therefore, we decided to do a simple linear regression among the five ASEAN countries individually to be more specific with the direction of the relation and the degree of that relation to find out the correlation matrix as a comparative study among the five countries.

After running the simple linear regression among the five countries, we found out that there are three significant relationships between labor and three countries which are Indonesia and Philippines' GDP annual growth rate as a positive linear relationship, and Thailand's GDP growth rate as a negative relationship with Labor forces as the independent variable.

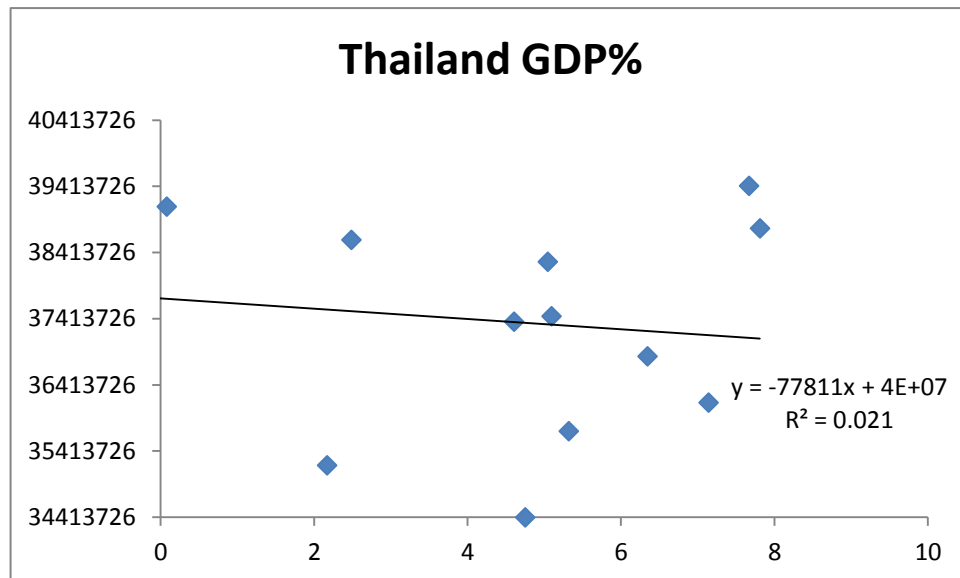
Figure 4.2: The positive linear relationship between labor and GDP rate



**Scatter plot No.1:** represents the positive linear relationship between labor and GDP rate. The scatter diagram is used to determine the relationship between the Indonesian GDP annual growth rate in the vertical axis and the independent variable of the Indonesian labor forces in the horizontal axis. Often the relationship between two variables can appear in different forms as simple or complicated functions. Looking at the Indonesian scatter diagram, the above simple regression equation of  $Y = B_0 + B_1 X_i + \varepsilon_i$  is expressed in the equation  $y = 1E-07x - 5.412$  for Indonesian GDP growth rate and  $y = 364498x + 3E+07$  for Philippines annual GDP growth rate. The slope of the line  $B_1$  represents every change (either positive or negative) of the vertical axis which in our case, the Indonesian labor forces will cause a change in the horizontal axis which is the Indonesian GDP.  $B_0$  represents the mean value of labor forces and the GDP rate that equals to zero. The last part of the model is the  $\varepsilon_i$  random error or the vertical distance of the actual GDP growth rate. The selection of the mathematical equation depends on the distribution of the labor forces and GDP growth rate on the scatter diagram. The value of the Indonesian and Philippines annual GDP growth rates are generally increasing linearly as Labor forces are increasing. Every increasing number in the Indonesian labor forces will cause a positive effect on the Indonesia's annual GDP growth rate. This illustrates

the straight-line in the linear regression model as the positive relationship between the annual GDP growth rate and the labor forces more specifically for the two countries.

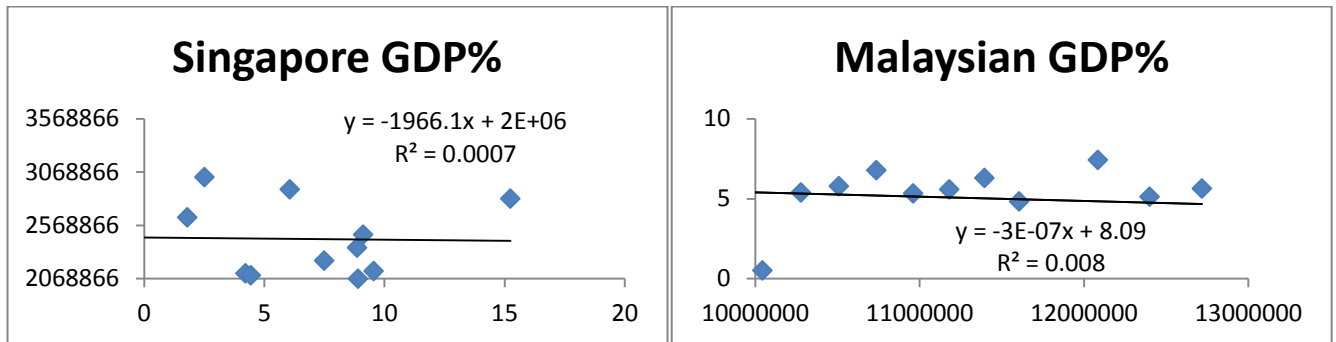
Figure 4.3: Weak negative linear relationship between labor and the GDP rate



**Scatter plot No.2:** represents a weak negative linear relationship between labor and the GDP rate. The prediction line equation in the scatter plot above is expressed in  $Y = 4E+07 - 77811X$ . Here is another example of a negative linear relationship for Thailand's simple regression model. Every increasing number of Thailand's labor forces will generally cause a decreasing percentage in Thailand's annual GDP growth rate by -77811. This type of relationship is known as a reverse or a negative relationship if every increasing in X axis causes a decreasing percentage in the Y axis. The equation is expressed as  $Y = 4E+07 - 77811X$ . The slope of  $B_1$  is -77811. This means for every increasing number of labors, the predicted value of Thailand GDP annual growth will decrease by -77811. In other words, according to the above mathematical equation for Thailand's GDP annual growth prediction, for every increasing number of 1.0 labor forces in Thailand will cause an estimated decrease of -77811 for Thailand's GDP growth rate. Thus, the scatter represents a negative relationship between labor forces and the annual growth for Thailand. The Y intercept,  $B_0$  is +4E+07. The Y intercept is the value forecasted for the GDP growth rate when Thailand labor forces are equal to zero. However, this model is considered

0.021 % fit according to the  $R^2$  which is a bit low compared to the two ASEAN countries (Indonesia and Philippines) that have a strong significant relationship between labor forces and the growth rate of the annual GDP growth.

Figure 4.4: No significance or low relationship between labor and the GDP rate



**Scatter plot No.3:** represents no significance or low relationship between labor and the GDP rate. According to (Levine, Stephan, Krehbiel, & Berenson, 2011), there are six types of relationships found in the scatter diagrams which are positive or negative linear relationship, positive curvilinear relationship, U-shaped curvilinear relationship, Negative curvilinear relationship, and no relationship between the two variables. Scatter plot No.3 represents a set of data that has very little or no relationship between the annual growth rate and the level of labor forces. This explains why Singapore is facing a lack of labor forces and has a low number of population around 4,740, 737 (updated on EconomyWatch.com's Econ Stats database, 2011) and the level of labor for Singapore at that time was approximately 2,906,975, compared to the Indonesian population of 245,613,043 and the level of Indonesian labor forces is 116,379,606 (updated on Data from database: World Development Indicators, 2013).

#### 4.5.1.2 Linear relationship between Human Capital and GDP (PPP)

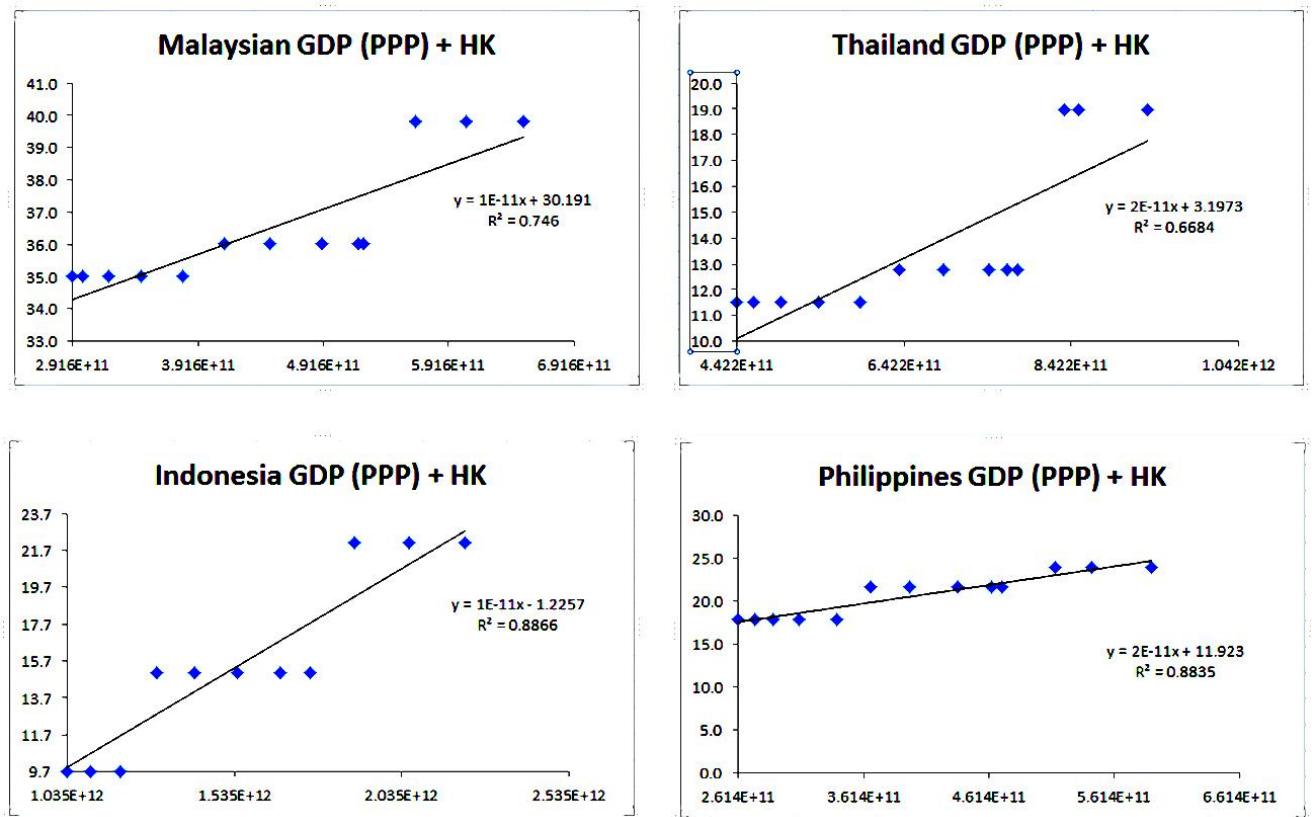
The essential human capital from the financial point of view has caught numerous economists' consideration. As (Khan, Humayun, & Sajjad, 2014) expresses, human capital alludes to the courses of action identified with instruction, preparing and other procedures that assist in expanding the intangible skills including information,



aptitudes, capabilities that prompt workers fulfillment and better execution, resulting in enhancing the firm's execution. There are several studies that directly restrict the regular demeanor indicating at the powerless relationship between human capital and economic growth and its relationship with the unemployment rate, conceivable discarded variable that falsely links human capital with the development of nation's economic growth. Other studies do not directly oppose such as (krueger & Lindahl, 2011) who assert that the effect of education on economic growth differs among different countries. Another research done by (Cadil, Petkovova, & Batna, 2014) states that human capital is a negative factor in the economic growth in the EU region especially in the agricultural regions; this is happening because of the growing number of highly educated people living and working in the agricultural regions especially near urbanized regions which has resulted in a negative effect on the unemployment rate. All these studies assert the different relationships between nations' economic growth and human capital depending on the different regions.

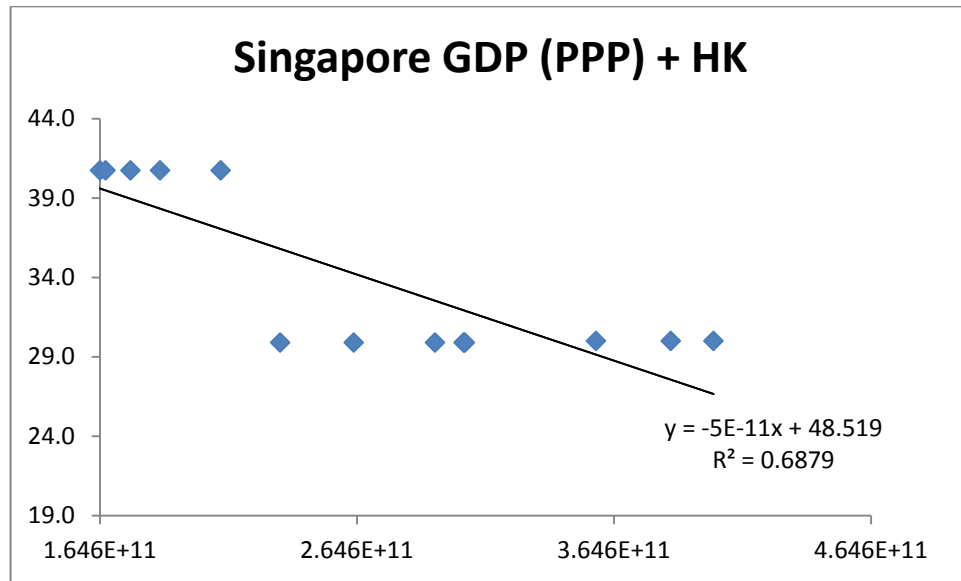
In the OLS multiple regression model for the 5 ASEAN countries' annual GDP (PPP), we found that a significant relationship exists between Human capital as the independent variable and the annual GDP (PPP) of the 5 ASEAN countries on the level of 10% significance. The coefficient level of the independent variable (Human Capital) is 2.38, which means in every change in the aggregate number of the graduate students from the high school level will affect the GDP (PPP) of the 5 ASEAN countries by 2.83. However, we wanted to find out more specifically which of the 5 ASEAN countries has the most significant value with ASEAN GDP (PPP). Therefore, we decided to run the simple regression between the two variables (GDP (PPP) and Human Capital) of the five ASEAN nations individually. As a result, there are four out of the five ASEAN selected countries that have a positive significant value with GDP (PPP) which are: Malaysia, Indonesia, Thailand, and Philippines as how it appears in the scatter diagrams below.

Figure 4.5: Positive linear significant relationship between Human capital (HK) and GDP (PPP)



**Scatter plot No.4:** represents the positive linear significant relationship between Human capital (HK) and GDP (PPP). The scatter diagram is used to determine the relationship between the Indonesian GDP (PPP) in the vertical axis and the independent variable of 5 ASEAN Human Capital in the horizontal axis. Often the relationship between two variables can appear in different forms as simple or complicated function. Looking at the 4 ASEAN scatter diagrams, the above simple regression equation of  $Y = B_0 + B_1 X_i + \varepsilon_i$  is expressed in equation  $Y = B_0 + B_1 \text{Country HK}_i + \varepsilon_i$  for model number two: GDP (PPP). After running the simple linear regression among the five countries, we found out that there are four significant relationships between Human capital and four countries which are Malaysia, Indonesia, Thailand and Philippines' GDP (PPP) with a positive linear relationship, and only one country's (Singapore) Human capital has a negative linear relationship with its GDP (PPP) as the dependent variable and Human Capital as the independent variable.

Figure 4.6: The negative linear significant relationship between Human capital (HK) and GDP (PPP)



**Scatter plot No.5:** represents the negative linear significant relationship between Human capital (HK) and GDP (PPP). The above scatter diagram shows the Y intercept  $B_0$  is 48.519. The Y intercept is the forecasted value of Y when it is zero for the value of X. In other words, if  $B_0$  represents the predicted value of Singapore's GDP (PPP) if there is a slope,  $B_1$  is -0.000000000005. This leads to an understanding of each increasing number of one from graduate students of secondary school in Singapore, the predicted value of the country's GDP (PPP) decreases by -0.000000000005. This is just because even when there are a decreasing number of graduate students from high schools, the Singaporean economy is still booming. This is happening because Singapore is depending more on foreign direct investments (FDI) and other external factors that keep the GDP (PPP) growing. Scatter plot No.4 displays the actual prediction line to picture the forecasted situation in which there is a direct interpretation for Singapore's GDP (PPP) and the level of Human capital.

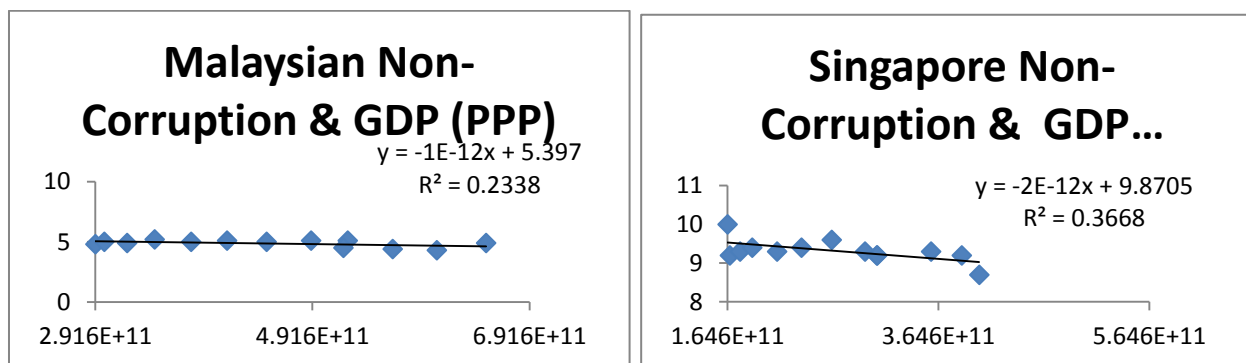
#### 4.5.1.3 Linear relationship between Non-Corruption and GDP (PPP)

Many researchers believe that corruption is considered as a desirable habit and it has a positive impact on the country's economy since it creates an easy way for foreign investment to skip the existing rules. Other indicators estimated that corruption

makes a huge damage to nations' economies. Some other researchers estimated that corruption can lead to reduction of foreign investment growth and it also increases the level of inequity and poverty; which results in a negative impact on a nation's economy. Here is an example provided by (Shera, Dosti, & Grabova, 2014, p. 3) who argued about a research done by Mauro (1995) that stated that there is a significant negative relationship between the annual GDP per capita and corruption.

After running the multiple regressions on the OLS, we found that corruption has a significant relationship with the 5 ASEAN nations' GDP (PPP) at the significant level of 1%. The coefficient correlation,  $\rho = 9.23$ , in this case, the GDP is increasing in a perfect positive relationship with the level of corruption in majority of the 5 ASEAN countries. The coefficient of correlation determines the strength of relationship between the two dependent and independent variables. The coefficient correlation,  $r = 0.84$ , shows a strong positive correlation since the adjusted R-square is equals to 0.83. Therefore, we had to do a simple regression on the 5 ASEAN nations' level of corruption and GDP (PPP) to see which of these ASEAN countries has the most significant value with corruption. Here are the results:

Figure 4.7: Low negative linear significant relationship between Corruption (COR) and GDP (PPP)

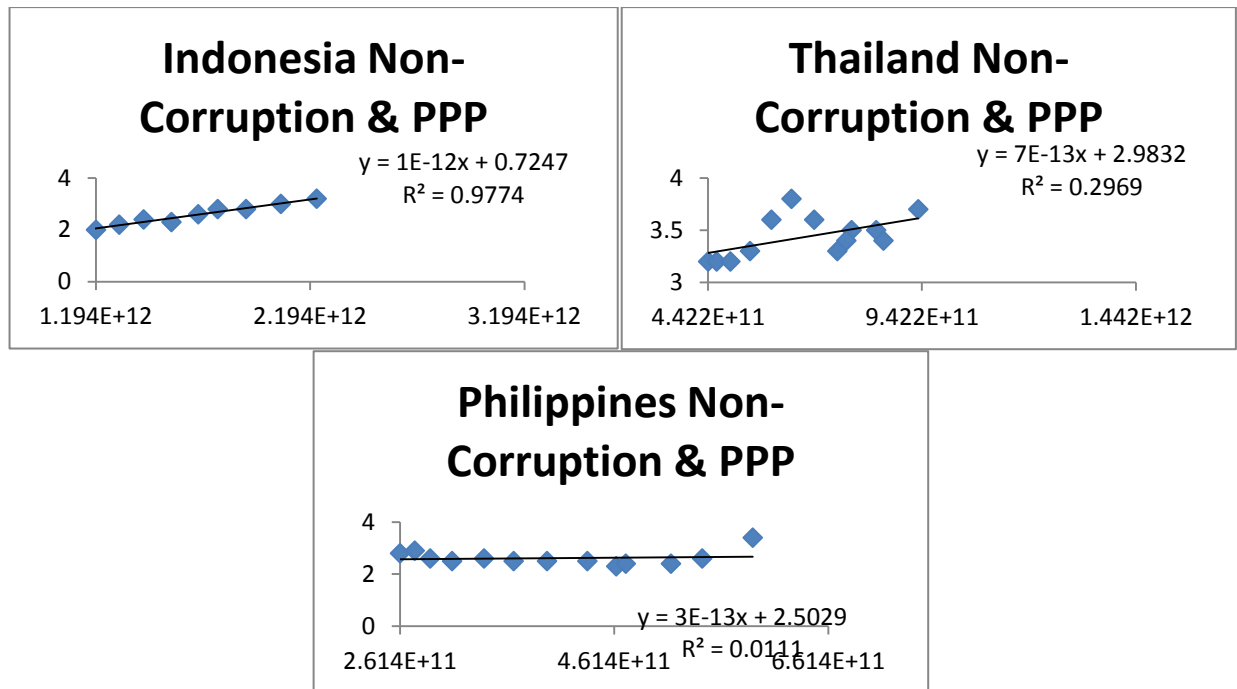


**Scatter plot No.6:** represents a low negative linear significant relationship between Corruption (COR) and GDP (PPP).

By looking at the scatter plot no.5, Malaysia is having a low negative linear significant relationship with its GDP (PPP) compared to the Singaporean model since the country's corruption level is considered very high. The coefficient correlation for

Singapore is,  $r = 0.4$ , while the coefficient of correlation for Malaysia is,  $r = 0.2$ . Both coefficients of correlation are considered a weak negative relationship between the two simple regressions. The other countries show a positive relationship between GDP (PPP) and corruption. These countries are Indonesia, Thailand, and Philippines as how it appears below.

Figure 4.8: Positive linear significant relationship between  
Non- Corruption & GDP (PPP)

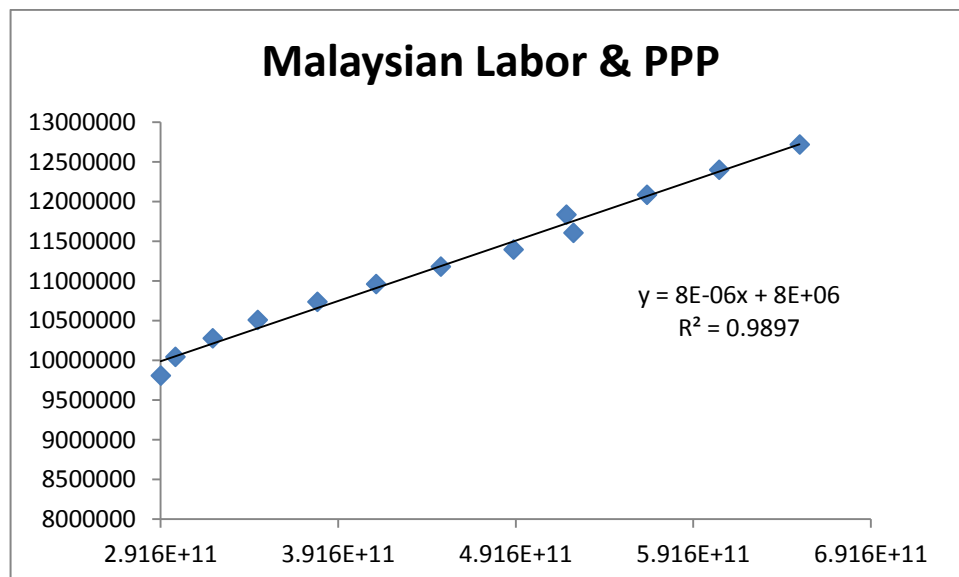


**Scatter plot No.7:** positive linear significant relationship between Non- Corruption & GDP (PPP). Looking at the scatter plot No.6, it seems that these countries (Indonesia, Thailand, and Philippines) have a positive correlation between the two numeric variables. Indonesia seems to have the highest significant level for a perfect positive correlation since the coefficient  $r = 0.9$ . The word perfect means that when the points plotted on the scatter are connected all together in an upward straight line. Thus, the Indonesian model is considered 97% fit while the other two models for Thailand and Philippines have a low positive linear relationship between GDP (PPP) and the level of non-corruption.

#### 4.5.1.4 Linear relationship between labor and GDP (PPP)

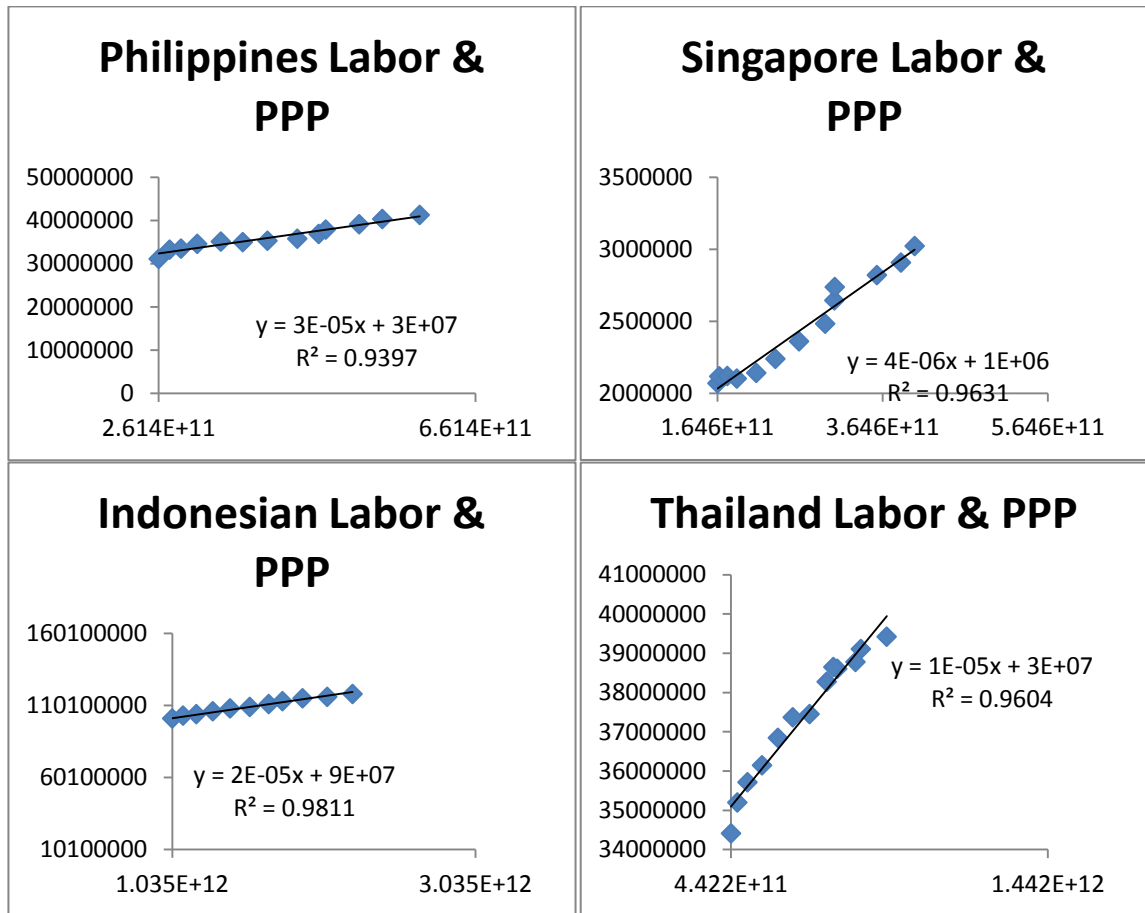
By looking at the correlation statistics in the regression table, there are four significant relationships between the dependent variable for GDP (PPP) and the independent variables namely Labor forces, Human Capital, Conflict, and Corruption. The labor forces regression is significant at the level of 1%. However, so far we do not know which of the five countries' labor forces is most significant to the GDP (PPP). The coefficient correlation is,  $\rho = 8.28$ . In this case, the GDP is increasing in a perfect positive relationship with the level of labor forces in the majority of the 5 ASEAN countries. The coefficient correlation determines the strength of the relationship between the two dependent and independent variables. The coefficient correlation,  $r = 0.84$ , shows a strong positive correlation since the adjusted R-square is equals to 0.83. Therefore, we had to do the simple regression on the 5 ASEAN nations' level of labor forces and GDP (PPP) to see which of these ASEAN countries has the most significant value with the level of the labor forces. Here are the results:

Figure 4.9: the perfect positive linear significant relationship between Labor Forces (L) and GDP (PPP)



**Scatter plot No.8:** represents the perfect positive linear significant relationship between Labor Forces (L) and GDP (PPP).

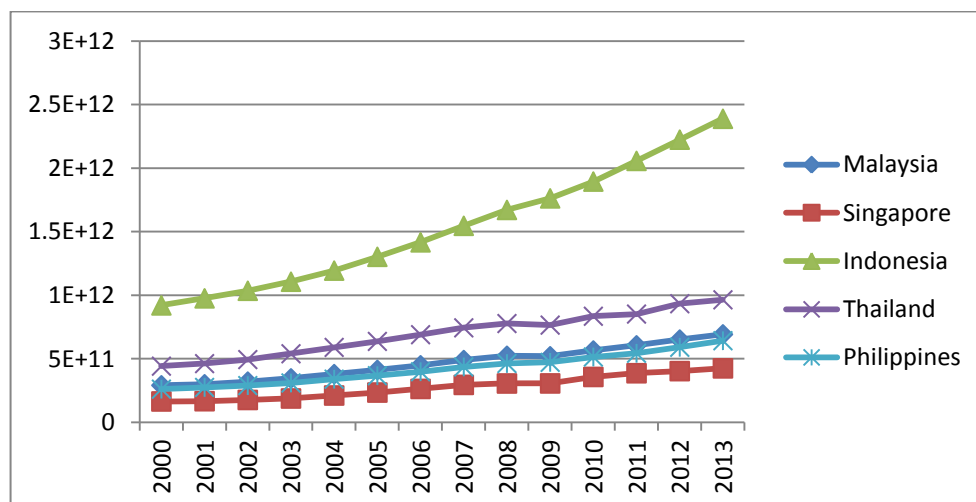
Figure 4.10: Positive linear significant relationship between  
Labor Forces (L) and GDP (PPP)



**Scatter plot No.9:** positive linear significant relationship between Labor Forces (L) and GDP (PPP). Looking at all the above scatter plots, all the blue points are connected together in the coefficient correlation line which illustrates a perfect positive relation where  $\rho$  is a positive value and every increase in the labor forces, a predictable manner of ASEAN GDP (PPP) will increase. The coefficient correlation R-square for most of the above scatter diagrams are above 0.90 and that leads to a conclusion of the simple regression model between the two variables is above 90% fit. According to (Levine, Stephan, Krehbiel, & Berenson, 2011) the correlation cannot verify itself if there is a causation effect that has caused the change in other variables because if there is a strong correlation by chance, an impact of a third variable that has not been considered or by a reason that affects the relationship. For Indonesia, the labor forces can cause an effect on the economy since

its population measures at around 245,613,043 (updated from Malaysian Watch economy, 2011) and almost half of the population is counted under the labor forces of Indonesia which is approximately 116,379, 606 of the total labor for Indonesia (Data from database: World Development Indicators, 2014). Thus, it is reasonable for the country's labor forces to cause a positive impact on its economy. In the meanwhile, in the same scatter plot No. 9, where it shows curvy blue points around the coefficient of correlation line, which is considered as a perfect positive relationship even though it is a bit weak compared to the Indonesian scatter diagram. Singapore, a small country with a small population of around only 4,740, 737 (updated from Malaysian Watch economy, 2011) and the Singaporean labor force in 2011 is almost half its population measured as 2,906,975 (Data from database: World Development Indicators, 2014), and their economy is still increasing to 3.87E+11 and the scatter diagram shows a positive relationship between Singaporean GDP (PPP) and its labor forces. The graph below illustrates that the Indonesian GDP (PPP) is higher than the Singaporean GDP (PPP) and both are having a perfect positive relationship with the two variables. This leads to an understanding that there might be another extrinsic third variable that might not have been considered in the calculation such as the foreign direct investment (FDI) or ASEAN exports of goods and services as factors influencing economic growth.

Figure 4.11: 5ASEAN GDP, PPP (current international \$)



ADAPTED FROM: World Development Indicators (2014)



## **4.5.2 Model regression Three: GDP per Capita of 5 ASEAN nations**

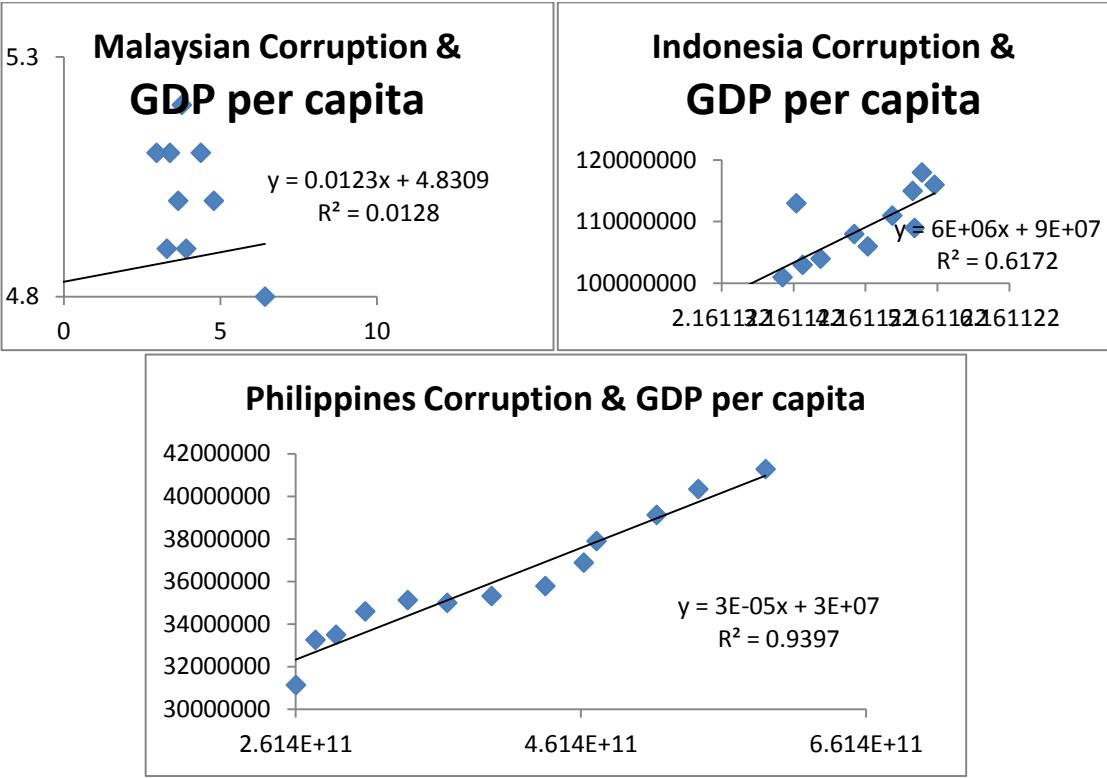
### **4.5.2.1 Linear relationship between Corruption and GDP per Capita**

Let's begin with the theory of economic growth; is when a country's potential gross domestic product (GDP) or the gross national product (GNP) begins to grow and it often occurs when a country's production-possibility frontier (PPF) moves outward. The nation's economic growth is closely related to the concept of the growth rate per person since it measures the rate of a nation's living standards that should be rising when (PPF) is shifting outward. Therefore, nations are concerned about the GDP growth per capita since it leads to the rising of the average income output per person. As a result, economic growth is related to the potential output in the long period of time and the growth of output GDP per capita is an important role for governments to measure since it is associated with raising the standards of living and the potential output as real income per individual (Samuelson & Nordhaus, 2010). According to (Oungpasuk, 2014), ASEAN could be the seventh largest gross domestic product (GDP) in the world if the association were counted as one country. The ASEAN launching plan of 2015, aims to reduce tariffs, increasing the flow of goods and services as well as labor and capital among the ASEAN countries for greater economic integration. Economic growth is one of the most important factors influencing the wealth of nations.

Many researches estimated that corruption tends to damage nations' economy. Back in chapter two in the literature review, we provided a list of empirical studies on the impact of corruption on economic. Several researchers estimated that corruption can lead to reduction of foreign investment growth and it also increases the level of inequity and poverty, which results in a negative impact on a nation's economy. After running the correlation statistics on the regression OLS, there was one significant relationship between the dependent variable for the GDP (per capita) and the independent variables for Corruption. The corruption regressions are significant at the level of 1%. However, so far we do not know which of the five countries' has the most significant relationship to the GDP per capita. The coefficient correlation for the Model regression Three: GDP per Capita of 5 ASEAN nations with the level of corruption as the independent variable is  $\rho = 2.06067$ . In this case, the GDP is

increasing in a perfect positive relationship with the level of corruption in the majority of the 5 ASEAN countries. The coefficient correlation determines the strength of relationship between the two dependent and independent variables. The coefficient correlation,  $r = 0.94$ , shows a strong positive correlation since the adjusted R-square is equals to 93% fit. Therefore, we had to do the simple regression on the 5 ASEAN nations' level of corruption and GDP (per capita) to see which of these 5 ASEAN countries' GDP per capita has the most significant value with the level of corruption. Here are the results:

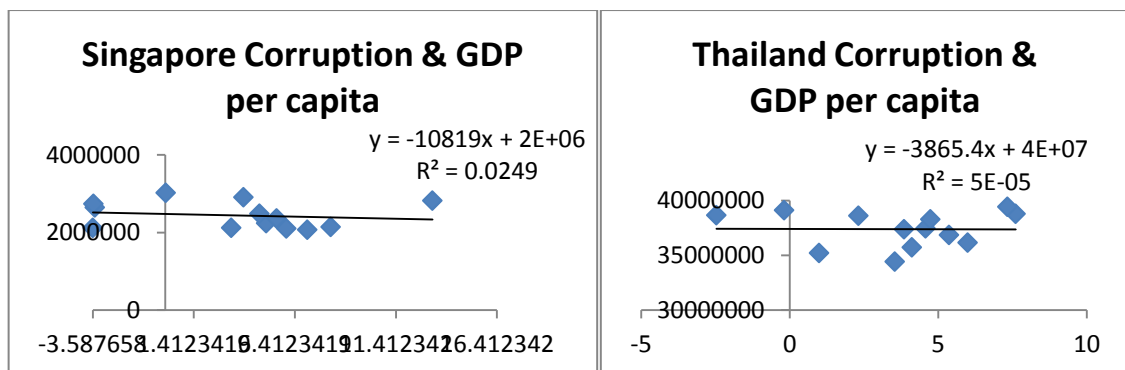
Figure 4.12: positive linear significant relationship between  
Corruption & GDP per capita



**Scatter plot No.10:** positive linear significant relationship between Corruption & GDP per capita. Looking at the scatter plot No.6, it seems that the majority of the three countries (Indonesia, Thailand, and Philippines) are having a positive correlation between the two numeric variables GDP (PPP) and the level of corruption. Indonesia has the highest significant level for a perfect positive correlation since the coefficient  $r = 0.9$ . The word perfect means that when the

points plotted on the scatter plots are connected all together in an upward straight line. Thus, the Indonesian model was considered 97% fit while the other two models for Thailand and Philippines have a low positive linear relationship between GDP (PPP) and corruption. Now looking at the scatter plot No.10, it seems that the majority of the 5 ASEAN countries; three countries (Indonesia, Malaysia, and Philippines), have a positive correlation between the two numeric variables GDP per capita and the level of corruption. In addition, Indonesia and Philippines are having the highest significant level for a perfect positive correlation since the coefficient  $r = 0.9$  for Philippines and 0.6 for Indonesia. looking at Malaysia's scatter diagram at No.10, it does not apply to the word perfect since most of the points plotted on the scatter are not connected all together as a straight line compared to Indonesian and Philippines regressions. Therefore, the Philippines' model is considered 93% fit while the other two models for Malaysia and Indonesia have a low positive linear relationship between GDP (per capita) and corruption.

Figure 4.13: Low negative linear relationship between Corruption & GDP per capita

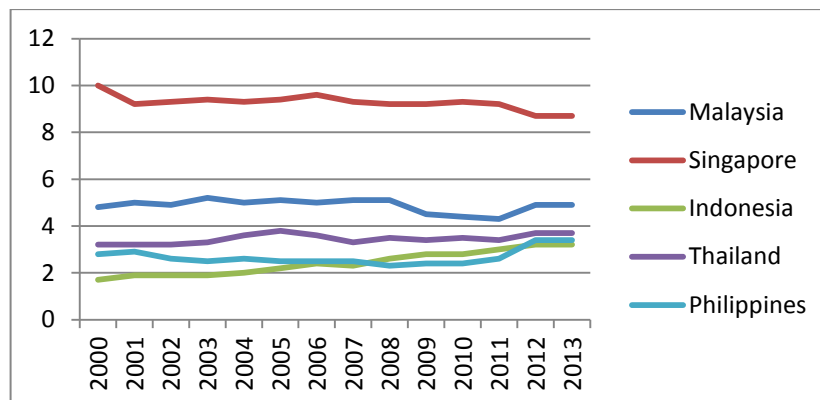


**Scatter plot No.11:** represents a low negative linear relationship between Corruption & GDP per capita. The above diagram shows a negative relationship between Singaporean and Thailand's' GDP per capita and the level of corruption, in the scatter diagrams, illustrating a straight line for Y value equals to the  $B_0 = 2,000,000$  which is the intercept of Y and the slope for Singapore linear model  $B_1 = -10819X_i$  when we substitute the value of  $X_i$  with the level of corruption and apply it to the above equation on the Singaporean scatter plot No.11 to predict the value of Y which is in our case is the country's GDP per capita. The higher the level of corruption the lower the GDP per capita will be the result.

In 1998, a research was done by Poirson for the Economic Security Investments who estimated that the regression relationship between corruption and economic growth is a negative relationship. The research resulted in a conclusion that the negative relationship in every reducing level of corruption will enhance economic growth in the long term (Poirson, 1998). Another research about corruption and economic growth by (Mendez & Sepulveda, 2011) after running the OLS regression and the t-test statistic, asserts that every increase in the level of corruption with a low percentage of economic growth can result in a positive impact in maximizing economic growth in the long run. This assumption leads to an understanding of an existing positive linear relationship between corruption and economic growth in the long run.

In 2003, another research was done by (Isse, 2003) who asserted that a higher level of corruption causes a decrease in the level of a country's economic growth. In addition, in 2002, Mauro did a research on corruption and economic growth using the equilibrium models, which showed that corruption, had a negative relationship with economic growth and countries that have a cycle of corruption and low economic growth because of the lack of initiatives to work against corruption. The scatter plot No.10 shows a negative relationship between Singaporean and Thailand's GDP per capita and the level of corruption, where for the Singapore model in the linear equation, the value of  $B_0 = 2,000000$  *which is the intercept of Y* and the slope for Singapore's linear model is  $B_1 = -10819X_i$  and when we substitute the value of  $X_i$  with the level of corruption and apply it to the above equation on Singaporean scatter plot No.11 to predict the value of Y which is in our case is the country's GDP per capita. The higher the corruption level is, the lower the GDP per capita is going to be and Singapore is having the highest level of corruption among the 5 ASEAN countries.

Figure 4.14: 5 ASEAN countries' level of corruption



ADAPTED FROM: Transparency.org (2014)

## **CHAPTER 5**

### **CONCLUSION**

#### **5.1 Overview**

This chapter includes the findings and discussion on the hypotheses testing to compare which of the independent variables have either a positive or negative relationship with the economic growth by running the regression analysis that has been used to develop the economic growth model and to predict the values of the numerical dependent variables on the values of other independent variables. Dependent variable refers to the variables that need to be predicted. The independent variables are used to make the forecasting independent variables which in our case, are six independent variables such as armed conflict war, corruption, economic freedom, labor forces, human capital, and capital (Levine, Stephan, Krehbiel, & Berenson, 2011).

In addition, this chapter will discuss the limitations faced during the research to enhance and improve the economic growth model. The limitation of the research will cover the particular evidence with the lack of literature on the relationship between variables and economic growth model and to find out the extrinsic determinant of economic growth as a comparative study among the five ASEAN countries which are: Malaysia, Singapore, Indonesia, Thailand, and Philippines.

Therefore, this chapter will include the findings of the hypothesis testing, the problem statement, suggestion for future research, limitation of the research, recommendation, and the conclusion of the study.

#### **5.2 Discussions Based on Hypothesis Testing**

Often in the research world, the findings of a study depend more on how reliable is the information used. Therefore, all the data used in the research has been collected through a secondary data that has already existed online through different professional sites such as: The world data bank for the following variables ( Labor,

capital, GDP annual growth rate, GDP (PPP) and GDP per capita), Transparency.org for the variable (the level of corruption), Barro-lee Educational dataset for the variable: Human Capital, and UCDP/PRIO Armed Conflict Data for the variable: (Conflict). All these data is a set of information that has been used to run the multiple regression among the five ASEAN countries as a comparative study to test the assumptions based on the hypothesis testing. To determine the external factors that might have an effect on the economic growth model; there were three types of GDP that have been measured as the independent variable which are the GDP annual growth rate, GDP per Capita and GDP (PPP) to understand the flow of the 5 ASEAN economic growth. The Pooled OLS has been done within 5 cross sectional unities which are the number of the 5 ASEAN countries within 13 time series that show that the data has been collected starting from 2000-2012. According to the OLS regression, to assess the regression of the independent variable (IV) and the dependent variable (DV), two tests were carried out: Multiple linear regressions and the simple linear regression to do the comparative study among the 5 ASEAN countries (the five cross sectional unities and the 13 time series). Overall, there were some negative and positive relationships between the dependent variable which is the economic growth model and the five out of six of the independent variables which are (Labor Forces, Capital, Human Capital, Conflict, and Non-corruption that will be discussed in the following section. Only one of the independent variables has an insignificant relationship with the economic growth model which is Freedom. The next section will highlight the findings based on the hypothesis testing.

### **5.2.1 Hypothesis Number one: Labor forces and economic growth**

- H0: Labor Force has no relationship with the economic growth model.
- H1: Labor Force has a positive relationship with the economic growth model.

According to the findings, ASEAN labor forces have a positive relationship with the economic growth model. This conclusion was obtained after conducting the OLS regression Test, which looked into the relationship between the variables even though it has a weak relationship. Furthermore, multiple liner regression was used to test the hypotheses of the Independent Variable and the dependent Variable which

shows that there is a positive a relationship with a significant value of 0.0543 for annual growth GDP, and a value of 3.24 for GDP (PPP). However, for GDP per capita growth, there was no relationship with labor. Hence, we accept H1 and reject H0.

The selection of the mathematical equation depends on the distribution of the labor forces and the GDP growth rate. The value of Indonesian and Philippines annual GDP growth rate are generally increasing linearly as Labor force is increasing. Every increasing number in Indonesian labor forces will cause a positive effect on the Indonesian's annual GDP growth rate. This illustrates the straight-line in the linear regression model as the positive relationship between the annual GDP growth rate and the labor forces more specifically for the two countries. Through looking at the correlation statistics in the regression table, there were four significant relationships between the dependent variable for GDP (PPP) and the independent variables, Labor forces, Human Capital, Conflict, and Corruption. The labor forces regression is significant at the level of 1%. However, so far we do not know which of the five countries' labor forces is most significant to the GDP (PPP). Furthermore, the multiple liner regression used to test the hypotheses of the Independent Variable and the dependent Variable shows that there is a positive a relationship with a significant value of 0.0543 for annual growth GDP, and value of 3.24 for GDP (PPP). However, for GDP per capita growth, there was no relationship with the labor. Therefore, we accept H1 and reject H0.

### **5.2.2 Hypothesis Number 2: Capital and economic growth model**

- H0: Capital has no relationship with economic growth model.
- H2: Capital has a positive relationship with economic growth model

According to the findings, Capital has a positive relationship with economic growth. This conclusion was obtained after conducting the OLS regression Test, which looked into the relationship between the variables, which shows ASEAN Capital has no relationship with the variable. Furthermore, multiple liner regression was used to test the hypotheses of the Independent Variable and the dependent Variable which



shows that there is a positive a relationship with a significant value of 0.0975 for annual growth GDP. However, for GDP per capita growth and GDP (PPP), there was not a relationship with the capital. Hence, we accept H2 and reject H0. As per (Khan, Humayun, & Sajjad, 2014) expresses, human capital alludes to the courses of action that are identified with instruction, preparing and whatever other procedures that assist in expanding the intangible skills including information, aptitudes, capabilities that prompt workers fulfillment and better execution, which enhances firm execution. There are several studies that restrict the regular demeanor indicating the powerless relationship between human capital and economic growth and its relationship with unemployment rate, conceivable discarded variable that falsely links human capital with the development of nation's economic growth. Other studies did not directly oppose such as (krueger & Lindahl, 2011) who asserted that the effect of education on economic growth differs among different countries. Another research by (Cadil, Petkovova, & Batna, 2014) stated that human capital is a negative factor in the economic growth in the EU region especially in the agricultural regions. Since the relationship between GDP per capita growth and GDP (PPP) is a significant relationship with the ASEAN capital, hence, we accept H2 and reject H0.

### **5.2.3 Hypothesis Number 3: Human Capital economic growth model**

- H0: Human Capital has no relationship with economic growth model.
- H3: Human Capital has a positive relationship with economic growth model.

According to the findings, Human capital has a positive relationship with economic growth. This conclusion was obtained after conducting the OLS regression Test, which looked into the relationship between the variables, which shows ASEAN Human Capital has no relationship between the variable. Furthermore, multiple liner regression was used to test the hypotheses of the Independent Variable and the dependent Variable which shows that there is a positive a relationship with a significant value of 0.0634 for GDP (PPP). However, for GDP per capita growth and annual growth, there was no relationship with the human capital. Hence, we accept H3 and reject H0. In the OLS multiple regression model for the 5 ASEAN annual GDP (PPP), we found a significant relationship between Human capital as the

independent variable and the annual GDP (PPP) of the 5 ASEAN countries on the level of 10% significance. The coefficient level of the independent variable (Human Capital) is 2.38, which means in every change in the aggregate number of the graduate students from high school level will affect the GDP (PPP) of the 5 ASEAN countries by 2.83. However, we wanted to find out more specifically which of the 5 ASEAN countries has the most significant value with ASEAN GDP (PPP). Therefore, we decided to run the simple regression between the two variables (GDP (PPP) and Human Capital) of the five ASEAN nations individually. As a result, four of the five ASEAN selected countries have a positive significant value with GDP (PPP) namely Malaysia, Indonesia, Thailand, and Philippines. In addition, multiple linear regression was used to test the hypotheses of the Independent Variable and the dependent Variable which shows that there is a positive relationship with a significant value of 0.0634 for GDP (PPP). However, for GDP per capita growth and annual growth, there was no relationship with the human capital. Therefore, we accept H3 and reject H0.

#### **5.2.4 Hypothesis 4: Non-Corruption and economic growth model**

- H0: Corruption has no relationship with economic growth model.
- H4: Corruption has a positive relationship with economic growth model.

According to the findings, Non-Corruption has a positive relationship with economic growth. This conclusion was obtained after conducting the OLS regression Test, which looked into the relationship between the variables, which shows Non-corruption has a significant relationship between the dependent variable. After running the multiple linear regression to test the hypotheses of the Independent Variable and the dependent Variable, it shows that there is a positive a relationship with a significant value of 0.508 for annual growth GDP, value of 0.0034 for GDP (PPP), and 2.32 for GDP per capita growth. Hence, we accept H4 and reject H0 since the coefficient of the P-value is equals to the level of 0.51. After running the simple regression to determine which of the 5 ASEAN countries has the most significant relationship with the economic growth model, the results showed that Malaysia had a significant low negative linear relationship with its GDP (PPP) compared to the

Singaporean model since the country's corruption level is considered very high. The coefficient correlation for Singapore is,  $r = 0.4$ , while the coefficient correlation for Malaysia is,  $r = 0.2$ . Both coefficient correlations show a weak negative relationship between the two simple regressions. The other countries show a positive relationship between GDP (PPP) and corruption. Therefore, the multiple regressions on the OLS showed that non-corruption has a significant relationship with the 5 ASEAN GDP (PPP) and the significant level is at 1%. The coefficient correlation,  $\rho = 9.23$ , in this case, the GDP is increasing in a perfect positive relationship with the level of non-corruption in the majority of the 5 ASEAN countries.

#### **5.2.5 Hypothesis 5: Conflict and economic growth model**

- H0: Conflict has no relationship with economic growth model.
- H5: Conflict has a positive relationship with economic growth model.

According to the findings, Non-Corruption has a positive relationship with economic growth. This conclusion was obtained after conducting the regression Test, which looked into the relationship between the variables, which shows the level of 5 ASEAN conflict has a significant relationship with the dependent variable. The multiple linear regressions used to test the hypotheses of the Independent Variable and the dependent Variable shows that there is a positive a relationship between the two variables with a significant value of 0.029 for GDP (PPP). However, for GDP per capita growth and annual growth, there was not any relationship with non-corruption. Hence, we accept H5 and reject H0. Since the multiple regressions on the OLS showed the level of coefficient, standard error, t-ratio and the p-value of the independent variable, it appears that there is a positive relationship with GDP (PPP) at the level of 1% significant; even after running the simple regression to illustrate which one the five ASEAN countries has the most significant relationship between the level of conflict and the GDP (PPP) because of the dummy variable data that had been gathered from the UCDP/PRIO Armed Conflict Data by UPPSALA University (2014) that highlighted an existing conflict between ASEAN countries and China regarding the South China Sea conflict.

### **5.2.6 Hypothesis 6: Freedom and economic growth model**

- H0: Freedom has no significant relationship with economic growth model.
- H6: Freedom has a positive relationship with economic growth model.

According to the findings, Freedom has no relationship with economic growth. This conclusion was obtained after conducting the OLS multiple regressions, which looked into the relationship between the variables; it shows ASEAN countries' freedom has an insignificant relationship with the dependent variable which is the 5 ASEAN's economic growth. A country can have its freedom but if there is no productivity to fill the market needs, there will of course be no development in the nation's economy. The multiple linear regressions used to test the hypotheses of the Independent Variable and the dependent Variable shows that there is no relationship with freedom. Hence, we accept H0, and reject H6.

Back in the 1960s, Singapore was known as one of the poor countries with a land of 710km-sqaure and a population of 5 million but the country built itself in the midst of many struggling countries to avoid the trap of being in the middle-income category. As a result, Singapore has benefited from its good location and the perfect timing for welcoming manufacturing exports in early 1975 (the World Bank group, 2014). Utilizing foreign direct investment (FDI) to stay ahead even though the country was facing difficulties in terms of land and labor shortages which resulted in a high cost of the two mentioned resources (Prime, 2012). The purpose of this research is to understand if there is any relationship between economic freedom and the improvement of the 5 ASEAN nations' economic growth. Singapore scored the highest overall economic freedom since the time period of 2000-2013 but the country was still affected by the global financial crisis back in 2009 which reduced the country's GDP to the negative level. Therefore, a country can have its freedom but if there is no productivity to fill the market needs, it will of course cause sustainability problems to the nation's economy.

### **5.3 Suggestion for Future Research**

For future studies, the researcher proposes the following:

It is recommended that future studies examine a wider scope of study, with more specific regions. It is recommended that future studies can narrow down the selection of data, in order to increase the significance of the result. Reproducing this study using more countries would be an interesting effort to determine if there are any differences in findings.

#### **In summary, the following can be undertaken:**

Widen sample area and size: A similar study carried out should focus on a wider area such as the Asian countries in a comparison that can be made between the east of Asia and other regions west of Asia. Furthermore, the researcher recommends the study to be done in different segments as there are developed countries and there are countries under development and countries not yet being developed to see if there is a difference in findings. Increased variables: Future studies should focus on identifying moderating variables for the established relationships. Variables that can be included would be the moderating effects of inflation rate factors, interest rate of the country and the policies of similar GDP Growth rate.

Future studies may expand the sample size and sample area to generalize the findings. This study could not cover most of the Asian countries where a significant amount of GDP Growth also exists. As a whole, by examining the holistic process by which technical quality, functional quality, and the experience economy attributes influence the growth of the economic, this research specifically helps governments to know what should be done in order to retain the growth of their economy and enhance a better future.

## **5.4 Limitations of the Research**

Over the course of doing the study, several limitations were encountered that if addressed in future studies would improve the overall quality of the results and study outcomes. The limitations are grouped into 3 categories as explained below:

Limitation of resources: This was particularly evident with the lack of literature on the relationship between freedom and economic growth model. This limited the researcher from having different viewpoints that would otherwise have improved the discussion on the role of freedom on economic growth model countries. A secondary impact of this limitation was in the data collected as it was not up to date which could be more effective in the finding of the result. Caution must be exercised in relying on secondary data that may have been collected well in the past. Out-of-date information may offer little value especially for countries in Asia as the economies keep changing due to competing in a fast changing growth rate.

Limitation of data: in many cases, secondary data is not presented in a form that exactly meets the researcher's needs. Therefore, the researcher needs to rely on secondary data that is presented and classified in a way that is similar to their needs. Moreover, Government and other official institutions are often a guarantee of quality data, but do not always meet the objectives or the questions addressed in this research.

## **5.5 Conclusion of the Study**

The world has faced remarkable changes during the association of the ASEAN countries. In 2010, ASEAN nations' GDP was 3% of the total world GDP which was about \$2.3 trillion US dollars and the total trade was approximately \$2.5 trillion US dollars which is more than 6% of the entire world trade in 2012 (The World Data Bank 2014). This shows clearly how the ASEAN nations have managed to sustain their momentum, consistent with their principles at different stages internally and externally to achieve the regional economic integration process. In 1967, the Association of Southeast Asian Nations (ASEAN) was officially established with the

total population of 9% from the total world's population. This 9% of the ASEAN population equals to approximately 617 million people and a total area of 4.44 million square km which is only 3 % of the total world map. Since the Union of the ten Southeast Asian (SEA) countries, the world has witnessed remarkable changes in the economy through the ASEAN organization. This development has led to a lot of researchers being concerned about the history of the ASEAN organization and its ability to unite all the countries in Southeast Asia (SEA). This research paper aimed to investigate the extrinsic determinants of economic growth. This paper is a comparative study among five ASEAN countries to determine the relationship between the extrinsic variables with the five ASEAN countries' economic growths. The research attempted to determine the significant relationships between labour forces, capital, human capital, non-corruption, freedom, and conflict. Secondary data was collected through the time period of 2000-2012 which is 13 years to determine the impact of the factors that influence the ASEAN nations' economic growth. The results have supported five out of the six hypotheses where all the hypotheses show a positive relationship with the economic growth model as discussed in this research. A lot of the limitations faced during this research can be addressed in future studies to improve the overall quality of the results and study outcomes for the economic growth model.

**APPENDIX I:**  
**The 5ASEAN Economic GDP**

<b>Country</b>	<b>Code</b>	<b>Year</b>	<b>GDP growth (annual %)</b>	<b>GDP per capita, PPP</b>	<b>GDP, PPP</b>
Malaysia	1	2000	8.858868	15687.9971	3.67425E+11
Malaysia	1	2001	0.517675	15436.37562	3.69327E+11
Malaysia	1	2002	5.390988	15943.32638	3.89237E+11
Malaysia	1	2003	5.788499	16543.08034	4.11768E+11
Malaysia	1	2004	6.783438	17334.85424	4.397E+11
Malaysia	1	2005	5.332139	17921.1853	4.63146E+11
Malaysia	1	2006	5.585031	18574.48798	4.89012E+11
Malaysia	1	2007	6.298426	19385.99084	5.19812E+11
Malaysia	1	2008	4.832106	19959.10155	5.4493E+11
Malaysia	1	2009	-1.51368	19311.82306	5.36682E+11
Malaysia	1	2010	7.425006	20389.51204	5.7653E+11
Malaysia	1	2011	5.127731	21074.93609	6.06093E+11
Malaysia	1	2012	5.639832	21897.32081	6.40276E+11
Singapore	2	2000	8.897544	51491.18656	2.07401E+11
Singapore	2	2001	-0.95229	49643.85884	2.05426E+11
Singapore	2	2002	4.211687	51263.9366	2.14078E+11
Singapore	2	2003	4.435328	54333.93357	2.23573E+11
Singapore	2	2004	9.549175	58780.97144	2.44923E+11
Singapore	2	2005	7.489157	61715.34493	2.63265E+11
Singapore	2	2006	8.860196	65113.63246	2.86591E+11
Singapore	2	2007	9.111527	68148.01282	3.12704E+11
Singapore	2	2008	1.78762	65771.36237	3.18294E+11
Singapore	2	2009	-0.60339	63431.98788	3.16373E+11
Singapore	2	2010	15.24038	71816.31357	3.6459E+11
Singapore	2	2011	6.056872	74593.94299	3.86673E+11
Singapore	2	2012	2.503729	74609.18893	3.96354E+11
Indonesia	3	2000	4.920064597	5551.955493	1.16002E+12



<b>Country</b>	<b>Code</b>	<b>Year</b>	<b>GDP growth (annual %)</b>	<b>GDP per capita, PPP</b>	<b>GDP, PPP</b>
Indonesia	3	2001	3.643466447	5671.940026	1.20228E+12
Indonesia	3	2002	4.499475391	5842.585983	1.25638E+12
Indonesia	3	2003	4.780369122	6034.681208	1.31644E+12
Indonesia	3	2004	5.030873945	6248.108504	1.38267E+12
Indonesia	3	2005	5.692571304	6510.028205	1.46138E+12
Indonesia	3	2006	5.500951785	6770.751627	1.54177E+12
Indonesia	3	2007	6.345022245	7098.636812	1.63959E+12
Indonesia	3	2008	6.013702503	7420.450723	1.73819E+12
Indonesia	3	2009	4.628872248	7657.900342	1.81865E+12
Indonesia	3	2010	6.223854181	8026.713332	1.93184E+12
Indonesia	3	2011	6.48563284	8437.733575	2.05713E+12
Indonesia	3	2012	6.26367051	8855.011804	2.18599E+12
Thailand	4	2000	4.75007039	8938.879075	5.5728E+11
Thailand	4	2001	2.167264271	9027.525771	5.69358E+11
Thailand	4	2002	5.317573751	9398.964895	5.99634E+11
Thailand	4	2003	7.139975323	9962.225478	6.42447E+11
Thailand	4	2004	6.344073496	10496.72743	6.83205E+11
Thailand	4	2005	4.604698946	10901.00379	7.14664E+11
Thailand	4	2006	5.092898713	11399.75997	7.51061E+11
Thailand	4	2007	5.044316148	11939.82961	7.88947E+11
Thailand	4	2008	2.484300401	12216.40728	8.08547E+11
Thailand	4	2009	-2.329848588	11915.2218	7.89709E+11
Thailand	4	2010	7.810512395	12821.68347	8.51389E+11
Thailand	4	2011	0.077086894	12798.02839	8.52046E+11
Thailand	4	2012	7.667173799	13736.22228	9.17374E+11
Philippines	5	2000	4.411212508	4242.553813	3.29442E+11
Philippines	5	2001	2.89399241	4274.725938	3.38976E+11
Philippines	5	2002	3.64589814	4339.951216	3.51335E+11
Philippines	5	2003	4.970363732	4464.60804	3.68798E+11
Philippines	5	2004	6.697636426	4671.637559	3.93498E+11

<b>Country</b>	<b>Code</b>	<b>Year</b>	<b>GDP growth (annual %)</b>	<b>GDP per capita, PPP</b>	<b>GDP, PPP</b>
Philippines	5	2005	4.777663461	4804.153223	4.12298E+11
Philippines	5	2006	5.24295304	4966.600511	4.33915E+11
Philippines	5	2007	6.616668504	5205.318952	4.62626E+11
Philippines	5	2008	4.152757146	5331.752008	4.81837E+11
Philippines	5	2009	1.148330409	5304.05343	4.8737E+11
Philippines	5	2010	7.632263915	5613.693343	5.24568E+11
Philippines	5	2011	3.638680736	5719.468247	5.43655E+11
Philippines	5	2012	6.814540708	6004.778671	5.80703E+11

**APPENDIX II:**  
**The 5ASEAN Economic Factors**

<b>Country</b>	<b>Code</b>	<b>Year</b>	<b>Labor (L)</b>	<b>Capital (K)</b>	<b>Human Capital (HK)</b>	<b>Corruption (COR)</b>	<b>Conflict (CON)</b>	<b>Freedom (FREE)</b>
Malaysia	1	2000	9808007	25.29208754	35.0	4.8	0	66
Malaysia	1	2001	10044113	25.12344751	35.0	5	0	60.2
Malaysia	1	2002	10278039	23.48432856	35.0	4.9	0	60.1
Malaysia	1	2003	10509126	22.41426658	35.0	5.2	0	61.1
Malaysia	1	2004	10736943	20.95479581	35.0	5	0	59.9
Malaysia	1	2005	10961174	22.30351486	36.0	5.1	0	61.9
Malaysia	1	2006	11180638	21.95484463	36.0	5	0	61.6
Malaysia	1	2007	11394970	22.40418433	36.0	5.1	0	63.8
Malaysia	1	2008	11605640	20.57048008	36.0	5.1	0	63.9
Malaysia	1	2009	11834730	21.97649739	36.0	4.5	0	64.6
Malaysia	1	2010	12084841	22.54946841	39.8	4.4	1	64.8
Malaysia	1	2011	12399724	22.2940681	39.8	4.3	1	66.3
Malaysia	1	2012	12717901	25.68247955	39.8	4.9	1	66.4
Singapore	2	2000	2068866	32.04378223	40.7	10	0	87.7
Singapore	2	2001	2116735	31.05658979	40.7	9.2	0	87.8
Singapore	2	2002	2119100	27.16833333	40.7	9.3	0	87.4
Singapore	2	2003	2101249	25.25370453	40.7	9.4	0	88.2
Singapore	2	2004	2140754	24.52276278	40.7	9.3	0	88.9
Singapore	2	2005	2238348	23.07510586	29.9	9.4	0	88.6
Singapore	2	2006	2360073	23.06061703	29.9	9.6	0	88
Singapore	2	2007	2482294	24.48138211	29.9	9.3	0	87.1
Singapore	2	2008	2644490	28.33759344	29.9	9.2	0	87.3
Singapore	2	2009	2737054	29.27098743	29.9	9.2	0	87.1
Singapore	2	2010	2819903	26.12747009	30.0	9.3	1	86.1
Singapore	2	2011	2906975	25.47880494	30.0	9.2	1	87.2
Singapore	2	2012	3021715	26.86693297	30.0	8.7	1	87.5

<b>Country</b>	<b>Code</b>	<b>Year</b>	<b>Labor (L)</b>	<b>Capital (K)</b>	<b>Human Capital (HK)</b>	<b>Corruption (COR)</b>	<b>Conflict (CON)</b>	<b>Freedom (FREE)</b>
Indonesia	3	2000	97648031	19.85085445	9.7	1.7	1	55.2
Indonesia	3	2001	99203166	19.6726582	9.7	1.9	1	52.5
Indonesia	3	2002	101000000	19.42916405	9.7	1.9	1	54.8
Indonesia	3	2003	103000000	19.50605961	9.7	1.9	1	55.8
Indonesia	3	2004	104000000	22.44861625	9.7	2	1	52.1
Indonesia	3	2005	106000000	23.64051126	15.0	2.2	1	52.9
Indonesia	3	2006	108000000	24.13099153	15.0	2.4	0	51.9
Indonesia	3	2007	109000000	24.94694364	15.0	2.3	0	53.2
Indonesia	3	2008	111000000	27.69859122	15.0	2.6	0	53.2
Indonesia	3	2009	113000000	31.11476656	15.0	2.8	0	53.4
Indonesia	3	2010	115000000	32.03104635	22.1	2.8	0	55.5
Indonesia	3	2011	116000000	31.94787954	22.1	3	0	56
Indonesia	3	2012	118000000	32.67395745	22.1	3.2	0	56.4
Thailand	4	2000	34413726	21.96788734	11.5	3.2	0	66.6
Thailand	4	2001	35200645	23.01185429	11.5	3.2	0	68.9
Thailand	4	2002	35716480	22.80809805	11.5	3.2	0	69.1
Thailand	4	2003	36147843	24.06802753	11.5	3.3	1	65.8
Thailand	4	2004	36847367	25.91617567	11.5	3.6	1	63.7
Thailand	4	2005	37370933	28.89967465	12.8	3.8	1	62.5
Thailand	4	2006	37452868	28.0941254	12.8	3.6	1	63.3
Thailand	4	2007	38276044	26.38825824	12.8	3.3	1	63.5
Thailand	4	2008	38607132	27.44718168	12.8	3.5	1	62.3
Thailand	4	2009	38651150	24.13104787	12.8	3.4	1	63
Thailand	4	2010	38781149	24.73384734	19.0	3.5	1	64.1
Thailand	4	2011	39109600	26.27118403	19.0	3.4	1	64.7
Thailand	4	2012	39423475	28.53474649	19.0	3.7	1	64.9
Philippines	5	2000	31131874	22.10002139	17.9	2.8	1	62.5
Philippines	5	2001	33254697	20.84490953	17.9	2.9	1	60.9
Philippines	5	2002	33497187	20.56719146	17.9	2.6	1	60.7

<b>Country</b>	<b>Code</b>	<b>Year</b>	<b>Labor (L)</b>	<b>Capital (K)</b>	<b>Human Capital (HK)</b>	<b>Corruption (COR)</b>	<b>Conflict (CON)</b>	<b>Freedom (FREE)</b>
Philippines	5	2003	34592776	20.69012359	17.9	2.5	1	61.3
Philippines	5	2004	35124577	20.3421799	17.9	2.6	1	59.1
Philippines	5	2005	34994459	19.9011584	21.6	2.5	1	54.7
Philippines	5	2006	35315304	20.12282425	21.6	2.5	1	56.3
Philippines	5	2007	35784409	19.89950758	21.6	2.5	1	56
Philippines	5	2008	36883231	19.66308267	21.6	2.3	1	56
Philippines	5	2009	37896522	19.01409361	21.6	2.4	1	56.8
Philippines	5	2010	39126595	20.52259505	23.8	2.4	1	56.3
Philippines	5	2011	40340543	18.72178762	23.8	2.6	1	56.2
Philippines	5	2012	41278567	19.38456369	23.8	3.4	1	57.1

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