B43

MACROECONOMICS ATTRIBUTES ON LIFE INSURANCE CONSUMPTION: COMPARISON STUDY BETWEEN DEVELOPED AND DEVELOPING COUNTRIES

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DECLARATION

We hereby declare that:

(1) This undergraduate research project is the end result of our own work and that due acknowledgement has been given in the references to ALL sources of information be they printed, electronic, or personal.

(2) No portion of this research project has been submitted in support of any application for any other degree or qualification of this or any other university, or other institutes of learning.

(3) Equal contribution has been made by each group member in completing the research project.

(4) The word count of this research report is 24,035 words.

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LIST OF ABBREVIATIONS

CEE	Central and Eastern Europe
CIS	Commonwealth of Independent States
CPI	Corruption Perceptions Index
CSEE	Central and South-Eastern European
EDU	Education
EUT	Expected Utility Theory
FD	Financial Development
FDI	Foreign Direct Investment
FEM	Fixed Effect Model
GDP	Gross Domestic Product
INF	Inflation
LIP	Life Insurance Premium
LM	Lagrange Multiplier
LOG_ERF	Log Degree of Regulation
LOG_INC	Log Income
LOG_LE	Log Life Expectancy
LOG_PS	Log Political Stability
ODEP	Old Dependency
OECD	Organization for Economic Cooperation and Development
POLS	Pooled Ordinary Least Square
POP	Population
REM	Random Effect Model

RGDP	Real Gross Domestic Product
RIR	Real Interest Rate
TOL	Tolerance Factor
VIF	Variance Inflation Factor
YDEP	Young Dependency

ABSTRACT

Life insurance provides safety and security in human life as life is full of changes and uncertainties. This reason has motivated us to study the life insurance consumption around the world. This study aims to examine the relationship between the macroeconomics attributes and life insurance consumption over developed and developing countries. Several factors are used to determine the life insurance consumption which are degree of regulation, financial development and political stability. Besides, there are eight control variables added in to test the significance of independent variables towards dependent variable. The control variables are level of education, income level, population, inflation, life expectancy, dependency ratio and real interest rate. The sample size of the study is 11 developing countries and 11 developed countries which from year 2003 to 2013. The study is based on secondary data which mainly from Data Market, The Fraser Institute, Worldwide Governance Indicator, International Monetary Fund and World Bank. We are using scale measurement and inferential analysis to test the relationship between the macroeconomics attributes and life insurance consumption. The result shows that both degree of regulation and political stability are positive insignificant relationship toward the life insurance consumption in both developed and developing countries, which is inconsistent with the theory expectation. However, financial development is showing a positive insignificant result in developed countries while showing a positive significant result in developing countries. There are some limitations found throughout the study such as data collection, small sample size and the research conducted in those selected developing and developed countries may not be generated to least developed countries. There are also some suggestions to advice future researchers who are interested to conduct similar area of studies, future researchers can consider to have more efficient results by using the latest data in their study, increase the sample size of the study, extend the research by focusing on the least developed countries and the further discussion on global financial crisis.

CHAPTER 1: RESEARCH OVERVIEW

1.0 Introduction

This study aims to examine the relationship between the macroeconomics attributes and life insurance consumption over developed and developing countries. This chapter will discuss in detail on research background, problem statement, research objectives, research hypothesis, significance and contribution of the study. The following chapters will be outlined in the form of layout as well and conclusion is made for the closing of this chapter.

1.1 Research Background

In recent decades, life insurance sector plays a critical role towards the growth of nation economic and financial market. Thus, understanding the determinants of life insurance consumption is important for the purpose to influence the demand on life insurance. As found in the recent studies which were conducted by Feyen, Lester and Rocha (2011), Oke (2012), Rao and Srinivasulu (2013), they have examined the casual relationship of development of insurance sector and economic development. For the economic development, the insurance sector plays a critical role in risk management to safeguard the interest of people from uncertainty which required payment of premium in exchange for financial protection. It involves in the role to minimize the financial losses which resulted from the risk of death, disabilities and diseases, legal sued by malpractice or injury.

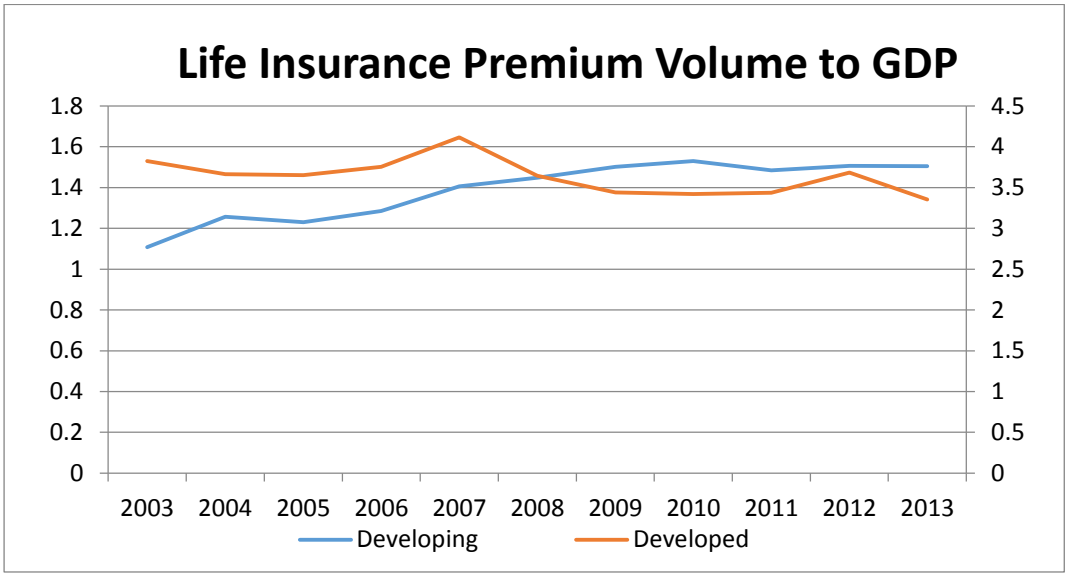
The insurance tends to have different contributions according to the development of the countries (Brainard & Schwartx, 2008). Whereby, life insurances are found

to contribute more growth in developed countries because of the minor gap between potential social value of insurance and the transaction cost of provision among the wealthy segment of society. Therefore, this research introduces the comparison study between developed and developing countries on life insurance consumption. The developed countries are Australia, Switzerland, Chile, United Kingdom, Iceland, Japan, South Korea, Poland, Romania, Russia and United States. While for the developing countries are Argentina, Bangladesh, Brazil, China, Indonesia, India, Mexico, Malaysia, Philippines, Thailand and Ukraine. As the life insurance contribution tends to diverse in developed and developing countries, this study examines the macroeconomics attributes in relation to the life insurance consumption between developed and developing country.

In this section, the trend of life insurance premium volume of GDP between developing and developed countries will be illustrated and discussed.

1.1.1 Trend of Insurance Penetration over developed and developing countries

Figure 1.1: Trend of Insurance Penetration over developed and developing countries



Source: Data Market - Worldbank from year 2003 to 2013

Figure 1.1 shows the comparison on the average rate of life insurance premium volume to Gross Domestic Products (GDP) between developed and developing countries from year 2003 to 2013. Life insurance premium volume to GDP is known as insurance penetration which indicates the sales volume of products relative to the sales volume of competing products. There are total of 22 countries (11 developed and 11 developing countries) included to make the analysis.

Firstly, in year 2003, the average rate of life insurance premium volume to GDP for developing country was 1.1082%. In year 2004, the average rate of insurance penetration has increased to 1.2564% but decreased slightly to 1.23% in year 2005. Between year 2006 and 2010, there was an increasing trend, which the average rate of life insurance premium volume to GDP has increased from 1.2845% to 1.53%. The life insurance premiums grew up 4.2% in 2009 especially in the South and East Asia countries like India and China grow higher (Sigma, 2010). Besides, the consumption of insurance increased was caused by the degree of openness which measured by the foreign direct investment (FDI) was increased in China. According to World Bank data, foreign direct investment (FDI) in China was increased from 23.2007% (year 2006) to 36.1748% (year 2010). When there is an increment in foreign investment, the insurance demand will grow (Thomas, 2002).

However, in year 2011, the average rate of insurance penetration was decreased slightly to 1.4836%. The average rate of life insurance premium volume to GDP has reached its peak in year 2012. In year 2012, the average rate of insurance penetration in developing countries is 1.5064%. As the governance, rules and regulations in the markets of life insurance market become better, this can lead to the consumption level of insurance improve (Sepehrdoust & Ebrahimnasab, 2015). Finally, in year 2013, the average rate of insurance penetration has decreased from 1.5045%.

On the other hand, the average rate of life insurance premium volume to GDP for developed countries in year 2003 was 3.8245%. Started from year 2004 to 2006, there was a fluctuated trend for the average rate of insurance penetration. The average rates of insurance penetration were 3.6655%, 3.6518% and 3.7527% respectively. In year 2007, the average rate of life insurance premium volume to GDP was increased dramatically and reached its peak, which recorded as 4.1164%.

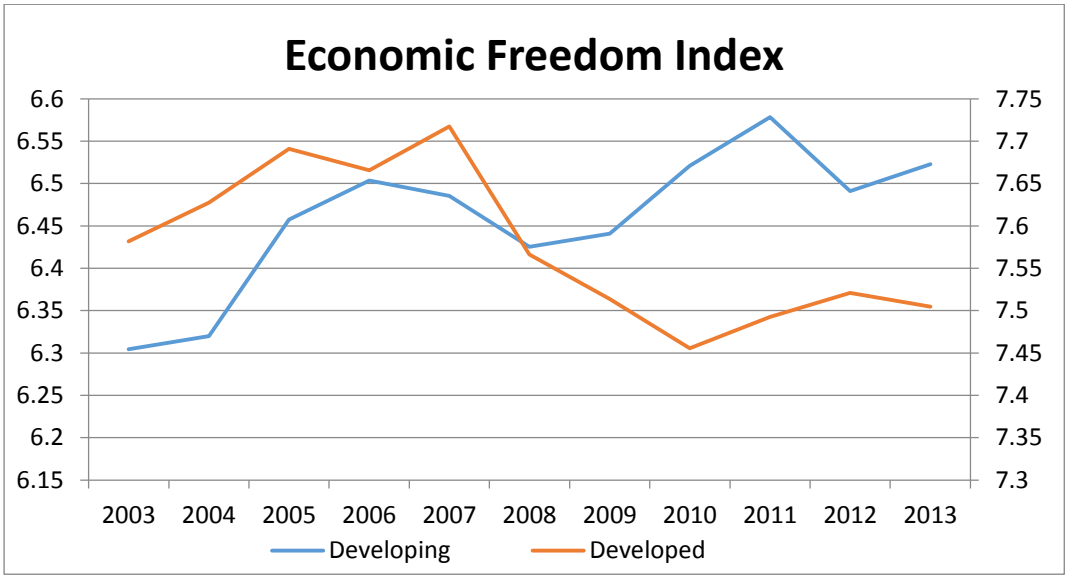
Nevertheless, the average rate of insurance penetration was decreasing in the next few years. The average rate of insurance penetration between year 2008 and 2011 were 3.6455%, 3.4391%, 3.4191% and 3.4355% respectively. In year 2012, the average rate of life insurance premium volume to GDP has increased, which was 3.6855%. In year 2012, the growth of insurance premium has getting better. This can be proved by the life insurance premium in globe has grew up by 2.3% (Sigma, 2013). Finally, in year 2013, the average rate of life insurance premium volume to GDP for developed countries was decreased to 3.3545%.

As comparing the average rate of life insurance premium volume to GDP for developing countries and developed countries, the highest average rate for developing countries was in year 2010, which was 1.5064%. At the same time, the average rate of insurance penetration for developed countries was under an increasing trend (3.6855%), which higher than developing countries. However, the lowest rate of life insurance penetration for developing countries was in the year 2003, which was 1.1082%. This is because the life insurance is not so famous for developing countries and they had just passed through the financial crisis in year 1997, thus required few year to recover their economy (Schich, 2010). Developed countries had recorded an average rate of 3.8245% in year 2003. During year 2006 to 2010, the average rate of life penetration premium volume to GDP was increased dramatically. This is because most of the developing countries faced urbanization process, thus increased the demand of life insurance (Sen, 2008, as cited in Laura Dragos, 2014).

On the order hand, the highest average of life insurance premium volume to GDP for developed countries was in year 2007, recorded as 4.1164%. The reason that the high consumption of life insurance is because as the people get more chance in education, thus become more knowledgeably, which also means they are more awareness to security (Outreville, 1996). At the same time, the average rate of insurance penetration for developed countries was 1.4055%. Moreover, the lowest rate of life insurance penetration for developed countries was in the year 2013, which was 3.3545%. At the same year, the average rate of life insurance penetration of developing countries was under a decreasing trend, which recorded as 1.5045%.

1.1.2 Trend of Degree of Regulation over developed and developing countries

Figure 1.2: Trend of Degree of Regulation over developed and developing countries



Source: The Fraser Institute from year 2003 to 2013

Figure 1.2 shows the comparison of average score of economic freedom index between developed and developing countries from year 2003 to 2013. The economic freedom index has included few areas which are size of government, legal system and property rights, sound money, freedom to trade internationally as well as regulation. There are total of 22 countries (11 developed and 11 developing countries) included to make the analysis.

First of all, in year 2003, the average score of economic freedom index for developing countries was 6.3045%. In the following three years, there was an increasing trend for the average score of economic freedom index which were 6.32%, 6.4573% and 6.5035%. The increasing trend may be resulted from the developing countries which have a strong legal environment. However, the average score of economic freedom index started to decrease from year 2007 to 2008, which dropped to 6.4255%. In 2009 and 2010, the average score of economic freedom index increased to 6.4409% and 6.5209% respectively. In 2011, the average score of economic freedom index reached its peak which was

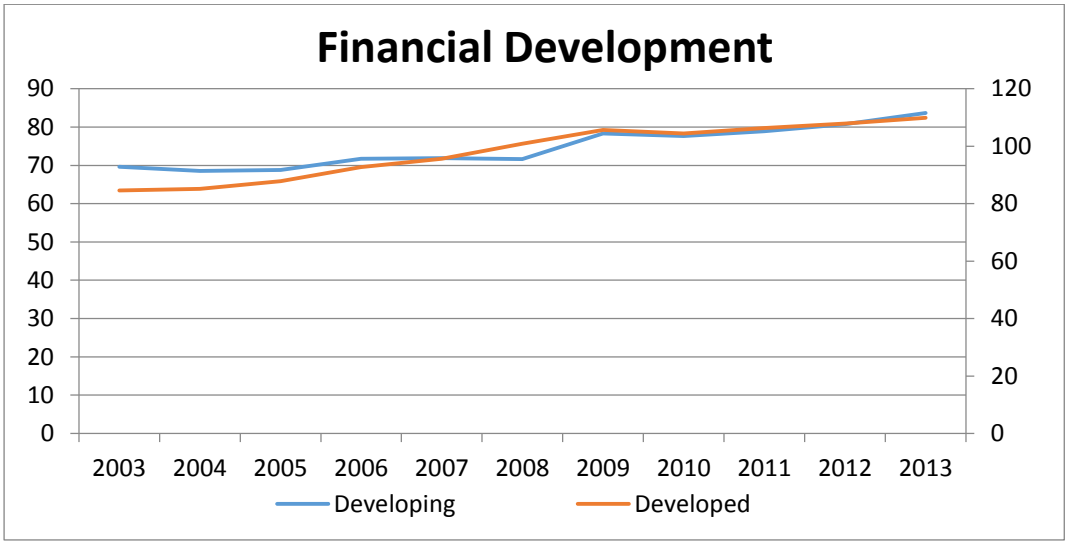
6.5782%. In the next two years, the average score of economic freedom index decreased to 6.4909% in 2012 and increased to 6.5227% in 2013.

Moreover, the average score of economic freedom index for developed countries was 7.5818% in 2003. There was a fluctuated trend from 2004 to 2007, which the score of economic freedom index was 7.6273%, 7.6909%, 7.6654% and 7.7173% respectively. In year 2007, the score of economic freedom index for developed countries has reached the peak. From 2008 to 2010, the average score of economic freedom index for developed countries decreased dramatically which reduced to 7.4555%. In 2011 and 2012, the average score of economic freedom index increased to 7.4927 % and 7.5209% respectively. Unfortunately, in 2013, it had dropped to 7.5045%.

Overall, the initial trend of the average score of economic freedom index in developed countries is better than developing countries. However, after some years, the average score of economic freedom index in developing countries is better than developed countries. According to Levine (1998), the researcher stated that a strong legal environment will give a better protection to investor thus it will lead to the economics of the countries grew better. Besides, the size of government fiscal in some developing countries is low which will lead to a lower economic freedom rate (Pitlik, Redín & Rode, 2015). Therefore, the developed countries scored higher score of economic freedom index. The increase of economic freedom in 2007 may cause by the low inflation level which only 4%, the countries imposed of 50% tax rate has reduced to 9 as well as the tariff reduced to 9% (Gwartney & Lawson, 2009). According to Index of economic freedom 2017, the reduced of economic freedom index might cause by the economic corruption in a country which measured by the Corruption Perceptions Index (CPI).

1.1.3 Trend of Financial Development over developed and developing countries

Figure 1.3: Trend of Financial Development over developed and developing countries



Source: Data Market- Worldbank from year 2003 to 2013

Figure 1.3 shows the comparison of average rate of broad money supply to GDP between developed and developing countries from year 2003 to 2013. There are total of 22 countries (11 developed and 11 developing countries) included to make the analysis. The overall trend for developed countries was increasing while for the developing countries was considered as stable.

Initially, in year 2003, the average rate of broad money supply to GDP for developing countries was 69.6362%. In 2004, it was reduced to 68.5285%. The following years, 2005 to 2007, there was a slightly increase for the rate, which became 71.9196% in 2007. The average rate of broad money supply to GDP has reduced to 71.6194% in 2008. There was a small fluctuation trend between 2009 and 2012. The average rates of broad money supply to GDP were 78.3367%, 77.6293%, 78.8930% and 80.7245% respectively. In 2013, the average rate of broad money supply to GDP was increased to 83.6766%.

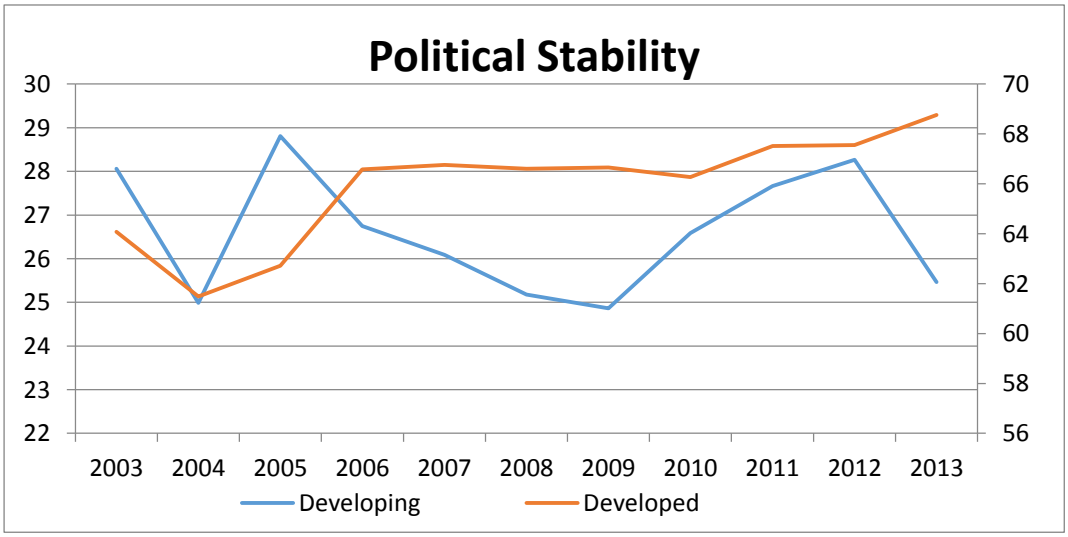
Furthermore, the average rate of broad money to GDP for developed countries is higher. It was recorded 84.5786% in 2003. It kept increasing from 85.1157% to

105.6088% from year 2004 to 2009. In 2010, the average rate of broad money to GDP has reduced to 104.4382%. In the following 3 years, 2011 to 2013, the average rate of broad money supply to GDP was increasing which was106.2605%, 107.8881% and 109.9264% respectively.

Overall, the average rate of broad money supply to GDP in developed countries was better than developing countries. The financial development has a significant effect on life insurance demand. A good financial development of a country could contribute to the substantial economic growth, thus the demand of life insurance increased (Li, Moshirian, Nguyen & Wee, 2007; Levine, 1997). Besides, Kjosevski (2012) stated that the sales of life insurance can be increased when the financial development level is high. The researcher also found that the financial development has positive relationship towards the demand of life insurance. The growth of the insurance consumption is depending on the level of borrowings by the consumer from the bank.

1.1.4 Trend of Political Stability over developed and developing countries

Figure 1.4: Trend of Political Stability over developed and developing countries



Source: Worldwide Governance Indicators from year 2003 to 2013

Figure 1.4 shows the comparison of average of political stability level between developed and developing countries from year 2003 to 2013. Political stability defined as where the policies of a country fit on a spectrum between two extremes. The unit of measurement of the analysis is the percentile rank of political stability among the countries, ranges from 0 (lowest) to 100 (highest). There are total of 22 countries (11 developed and 11 developing countries) included to make the analysis.

Firstly, in year 2003, the average percentile of political stability for developing countries was 28.0632. In year 2004, the average percentile of political stability has reduced to 24.9890. Between the year 2005 and 2009, there was a decreasing trend on the political stability level. The average percentiles of political stability in developing countries were 28.8098, 26.7457, 26.0870, 25.1748, and 24.8600 respectively. Furthermore, during year 2010, 2011 and 2012, the political stability level was stable and kept increasing, which recorded as 26.5834, 27.6605 and 28.2637 respectively. However, in year 2013, the average percentile of political stability of developing countries was -25.4632.

On the other hand, the average percentiles of political stability for developed countries were better. It was recorded as 64.0755 in year 2003. In year 2004, the average level of political stability in developed countries was decreased to 61.4844. Started from year 2005 to 2007, there was an increasing trend for the average percentile of political stability. The average percentiles of political stability were 62.7141, 66.5788, and 66.7545 respectively. In 2008 and 2009, the average percentiles of political stability were increased slightly, which recorded as 66.6084 and 66.6523 respectively. From 2010 to 2013, there was an increasing trend for the average level of political stability in developing countries. It was recorded as 66.2645, 67.5140, 67.5571, and 68.7635 respectively.

Overall, the average percentiles of political stability in developed countries are better than average percentiles of political stability in developing countries. According to Abeyasinghe (2004), the political stability of a country can affect their economic growth. Therefore, if the political stability of a country is unstable, the demand of life insurance may greatly affect. Besides, a better political stability is a major determinant to promote economic growth (Sabillo, 2014). For example,

Philippines is the country that recorded as the lowest political stability country in the analysis. One of the reasons for political instability in Philippines is because of the terrorism problem. Started in the 20th century, terrorism problems such as kidnapping became serious in Philippines. According to Chandran (2017), terrorism problem is one of the factors that affect the economic growth in Philippines. As the kidnapping events increase, the tourism activities will decreases, affect the purchasing power of citizens, thus reduce economic growth.

1.2 Problem Statement

Life insurance sectors mainly offering the protection coverage for the businesses and individuals against the uncertainty and exposure. The activities in relation of life insurance consumption able to stimulate the global economic growth which resulted from largest proportion of premium income generated from the insurance industries (Sigma, 2001). It have been increasingly grown to be the economic importance that attributed by the rising in insurance consumption (Hussels, Ward & Zurbruegg, 2005). However, there were several adverse issues on life insurance consumption that have been found in developing countries. The newly independent countries might be possessed to the poor in the world as there have been much developed countries that are wealthier. Thus, the developing countries may not able to reach at sustainable growth and good living standard due to the constraints in mobilizing the domestic resources.

Most of the researchers studied the determinants of life insurance consumption from the aspects of demographic, economic and social factors (Beck & Webb, 2003; Mahdzan & Victorian, 2013). There may be significant relationship associated with the life insurance consumption from the institutional factor. However, there were lacks of studies to examine the relationship of macroeconomics attributes toward the life insurance consumption by taking into account the control variables. Therefore, the purpose of this study is to examine the relationship between the macroeconomics attributes and life insurance consumption over the developed and developing countries. To be more precise

and understandable on the relationships, each issues that are not common will be discussed in this section.

Due to the significant role of insurance industry for an economy as well as the society, the industry is strictly regulated (Thels, 2015). As a result, the industry will be affected by any changes under the regulatory environment. Hereby this paper introduces the originality variable as degree of regulation, which is lack of studies on the life insurance consumption. This independent variable uses the proxy of economic freedom index to determine the relationship on life insurance consumption. Heckelman (2005) stated that the variable has become the quite useful indicator to measure the relationship between institutional structure and the creditability for which is promised for obliged. Meanwhile, it indicates the creditability of the life insurance contract which may influence on the consumption.

According to Šain and Selimović (2009), the insurance sector in developed countries may be established in the way that more attractive and powerful than in developing countries. The customers may have more confident on well-developed financial institutions, thus the countries will have relatively higher life insurance consumption (Ward & Zurbruegg, 2002). However, Han, Li, Moshirian and Tian (2010) stated that the insurance sector in developing countries was much more important player than in developed countries. This is because the insurance sector has been contributed to the developing economic growth. It helps in several aspects such as to improve the financial stability, reduce anxiety and manage the risks efficiently and effectively. The development or well-operated of insurance industry also represents the critical factor which it involves in calculation of insurance premiums that determine the monetary pattern of flow. Thus, it is important to examine the financial development on life insurance consumption among the developed and developing countries.

Besides, political stability is another independent variable to investigate its relationship on life insurance consumption. Basically, people will tend to consume insurance when they feel that they are in insecure living environment. Through protection of insurance, the can secure their life and property. Thus, in countries that with unstable politics, people will demand for the insurance to protect

themselves. However, the higher premiums of insurance have led to negative effect on insurance penetration which makes people could not afford the cost of insurance (Park, Borde, & Choi, 2002).

According to Ward and Zurbruegg (2002), the past studies always omitted the effect of legal and political factors on life insurance especially in developing countries. There are researchers claim that offering of insurance same alike to contribute a risky corporate debt to company as the insurances' claims payable can be defaulted by the companies. Hence, a national legal political system is important to ensure the growth of insurance industry because insurance is a credit-based product which contains risk of default. A researcher stated the effect of economic polarization will caused high potential of political intervention and reallocation of property rights within an economy. So, expansion of financial intermediation need stability of economic and political due to the capability and willingness of government to amend the legal basis across time conditions the maintenance and quality of rules and regulation as well as contractual obligations.

1.3 Research Objectives

1.3.1 General objective

The research aims to study the macroeconomics attributes on life insurance consumption over the developed and developing countries from 2003 to 2013.

1.3.2 Specific objectives

i) To examine the relationship between degree of regulation and life insurance consumption over the developed and developing countries from year 2003 to 2013.

ii) To examine the relationship between financial development and life insurance consumption over the developed and developing countries from year 2003 to 2013.

iii) To examine the relationship between political stability and life insurance consumption over the developed and developing countries from year 2003 to 2013.

1.4 Research Questions

This research will consider the following questions:

1.4.1 General Research Questions

Is there any relationship between the macroeconomics attributes and life insurance consumption over the developed and developing countries from year 2003 to 2013?

1.4.2 Specific Research Questions

i) Is there any relationship between degree of regulation and life insurance consumption over the developed and developing countries from year 2003 to 2013?

ii) Is there any relationship between financial development and life insurance consumption over the developed and developing countries from year 2003 to 2013?

iii) Is there any relationship between political stability and life insurance consumption over the developed and developing countries from year 2003 to 2013?

1.5 Research Hypothesis

The dependent variable in the study is life insurance consumption; the independent variables included degree of regulation, financial development, and political stability.

i) Degree of regulation

H_1 : The higher the degree of regulation, the higher the life insurance consumption over developed countries.

H_2 : The higher the degree of regulation, the higher the life insurance consumption over developing countries.

ii) Financial development

H_1 : The higher the quality of financial development, the higher the life insurance consumption over developed countries.

H_2 : The higher the quality of financial development, the higher the life insurance consumption over developing countries.

iii) Political stability

H_1 : The higher the level of political stability, the higher the life insurance consumption over developed countries.

H_2 : The higher the level of political stability, the higher the life insurance consumption over developing countries.

1.6 Significance of Study

The study gives a better understanding on the relationship of macroeconomics attributes on the life insurance consumption over developed and developing countries. There are 11 developed countries and 11 developing countries are chosen for the research. This study mainly investigate the independent variables of degree of regulation, financial development and political stability by taking into account the control variable on the life insurance consumption which were found

to be lack in the study by Beck and Webb (2003), Mahdzan and Victorian, (2013). Therefore, the study able to provide some evidences that relate the macroeconomics attributes to the life insurance consumption over the developed and developing countries.

Firstly, the study serves as a guideline for policymakers. The macroeconomics attributes as well as others control variable such as the education level, income, inflation, population, life expectancy, real interest rate, and number of dependent are essential elements for the policymakers in identification and consideration of a better insurance policy over the developed and developing countries. In addition, it promotes the public's credibility on life insurance and well development of life insurance sector in the economy.

Besides, this study also contributes knowledge to academician. As the life insurance consumption that measured by using the economic freedom index as proxy for degree of regulation are limited, this study allow them to further investigate the confidential of public towards the insurance consumption in the regulatory environment. Moreover, the proxy of economic freedom index from the source of Fraser Institute is more accurate for the research over the time period (Doucouliagos & Ulubasoglu, 2006; Gwartney & Lawson, 2003). Thus, it is a good recommendation for them as a guideline for further research.

1.7 Chapter Layout

There are five chapters will be covered in this study. Firstly, Chapter 1 introduces and makes an overall review on the research which is comprises of research background, problem statement, research questions, objectives and hypothesis as well as the significance of the study. Next, Chapter 2 reviews on the literature about the life insurance consumption and the macroeconomics attributes as the independent variables. It also discussed on the theoretical model, proposed conceptual framework as well as the hypothesis development. Besides, Chapter 3 is the methodology part which describes and explains on the estimated model, data findings as well as the test that will be conducted in the study. Thus, data analysis will be discussed on Chapter 4 which computes the result based on the

estimated model. It analyses the comparative study which examine the relationship of the macroeconomics attributes and life insurance consumption among the developed and developing countries. Finally, Chapter 5 will emphasize on the main findings and limitations in this research paper and discusses on the recommendation as well as policy implications to improve the future study.

1.8 Conclusion

In this chapter, the life insurance consumption over developed and developing countries have been clearly explained and illustrated. The objective of this research paper is to determine the relationship between macroeconomics attributes and the life insurance consumption. The research overview has also been discussed on the problem statement, research questions as well as hypothesis of the study. The following chapter for literature review will discuss in details the relationship of independent variables on the life insurance consumption.

CHAPTER 2: LITERATURE REVIEW

2.0 Introduction

This chapter will review on the literatures about the life insurance consumption and the macroeconomics attributes. Life insurance consumption was determined by some control variables such as education level, number of dependent, life expectancy, population, interest rate, inflation, and income level as the theoretical framework of this research. Therefore, this study is ought to study the macroeconomics attributes with taking into account the control variables to examine its relationship on life insurance consumption over the developed and developing countries. This paper may able to acquire for better understanding on the relationship of the macroeconomics attributes with respect to the life insurance consumption. The hypothesis regarding the relationship between independent variables and dependent variable will be developed in this chapter.

2.1 Review of Literature

2.1.1 Dependent variable - Life insurance consumption

Life insurance sector plays an important role to mobilize the savings or unspent income into the long term investment vehicles hence to stimulate the economic growth and development. Insurance consumption can be the buyers that are to be insured enter into the contract for which the risks are transferred to sellers, the insurers or insurance companies. The seller in the life insurance agreement will provide monetary coverage to the beneficiary in case of the event of the person

insured death has been confirmed without any null and void within the stated term (Zietz, 2003). However it will require the buyer of insurance to pay lump sum of policy money or to pay the premium on monthly basis. The accumulated cash values hence become the claims for the monetary coverage (Mahdzan & Victorian, 2013).

The life insurance penetration has been used as the proxy to determine the life insurance consumption (Beck & Webb, 2003). It measures the insurance gross premium volumes to GDP ratio and indicates the level of insurance activities in relation to a country' economy. Beck and Webb (2003) and Mapharing, Otuteye, and Radikoko (2015) also using the proxy of life insurance density that measured life insurance premium per capita. It indicates the expenditure on insurance within the country. The first development of framework for the life-cycle theoretical context about the life insurance consumption was created by Yaari (1965) and Hakansson (1969). The framework explained for the condition in which a person which to be insured will demand for life insurance in exchange of their wealth in order to obtain lifetime coverage and possibly future income for the dependent.

The owner of the life policy can be different person of the person insured (Hakansson, 1969). For instance, the life insurance can be purchased by one party on behalf of another person that he or she wishes to be insured. Thus in the event of death for the person insured, the policy income will be in charged by the purchaser. The beneficiary to the insurance policy will also be changed at the discretion of the policy owner. It should be noted that the owner and the person insured in the contract should be supported by the insurable interest otherwise the contract will be invalid. It means that they must have particular relationship such as blood relationship or contractual relationship in order to ensure the contract is legally entered (Frederick, 1999). By purchasing life insurance, it able to reduce the potential large losses on those concerned. In another word, the scheme of life insurance assures to the owner to get financial assistance to cover the losses in the case of death for the person insured.

2.1.1.1 Types of life insurance policies

The life insurance policies are also defined of insurance plans. It embedded of two elements which are death and survival benefit. It depends on the condition of the person insured over the policy period. If there is an event of death occurred before the specified policy period, the policyholder will receive the lump sum of compensation from the regular payment throughout the periods. However, if the person insured still alive after the policy period, the policyholder will get the amount of premium assured. The insurance plans can be further categorized into the three main types such as term policy, whole life policy and endowment policy. The three policies have been reviewed and will be discussed further for each of the policy.

i. Term policy

This is the most basic and simple policy of life insurance whereas the insurer offers protection for a specified time period (George, 2003). The policyholder will decide for the term for temporary coverage. They will pay the premium over the stated term. This type of policy usually requires the policyholder to pay low premium only but will increase with the age of the person insured. If the event of death was occurred during the term, the insurer will pay the face value of policy for the compensation of loss. If there is nothing happen during the stated term, the policy will expire and the policyholder will get nothing. This policy still can be renewed without any valid reason however with the increase in the premium required to be paid upon the renewal.

ii. Whole life policy

It sometimes referred to as ordinary life insurance and limited life policy that will insure the person for a lifetime or over specified of lifetime period only. The ordinary policyholder will pay premium throughout the life until the death and the insurer will pay in the event of death (Patukale, 2009). This policy is considered to be the cheapest due to its exempted tax function. The life of the person insured also able to be safeguard throughout the life as the validity of policy is not defined for when the event will be occurred. For limited policy holder, they can decide how long the payment of premium to be done. They can

still enjoy the lifetime coverage but depending on the premium level they paid which may have potential of policy default.

iii. Endowment policy

This is the most attractive policy that suitable for the middle aged to elderly as it embedded with the mixture of savings and coverage. This scheme will be undertaken if the elderly wish to get insured and provide financial coverage for the dependents in case of arranging for the unexpected event of the person insured dies. It may divide into two purposes in which the policyholder may pay for education or retirement purpose (Greene & Trieschman, 2005). For illustration, the father that wishes to be insured will purchase the insurance and select his son as beneficiary or the survivor. If the person insured passed away during the coverage period, the insurer will pay to the survivor; if the person alive after the policy expires, he will get the policy amount.

2.1.2 Independent variables - Degree of regulation

Degree of regulation can be defined as the level of governance in controlling the particular industries' activity in a country. There are empirical studies have found the legal and regulatory environment have significant relationship on life insurance consumption. The empirical evidence done by Sepehrdoust and Ebrahimnasab (2015) measured by using the proxy of Economic Freedom Index showed positive and significant between quality of rule and regulation and life insurance consumption. This indicates good condition of legal environment in the country will ultimately improve the life insurance society. Similarly the credibility on insurance will also strengthen when there are strong legislative system in developing countries Dragos and Dragos (2013). Thus, supervisory process matter is greater in solving the insurability in the society. It also can be supported by the theoretical framework of New Institutional Economic based on the transaction cost in arguing the degree of regulation influence the demand of life insurance consumption (Williamson, 2000). The study indicates an increase in quality of law and legislation able to increase the trustworthiness and assurance of consumer toward insurance, thus increase in the life insurance

consumption consistent with the Dragos and Dragos (2013) and Sepehrdoust and Ebrahimnasab (2015) stated that there is significant relationship between regulatory environment and life insurance consumption.

Figure 2.1: Four level model of institutional analysis

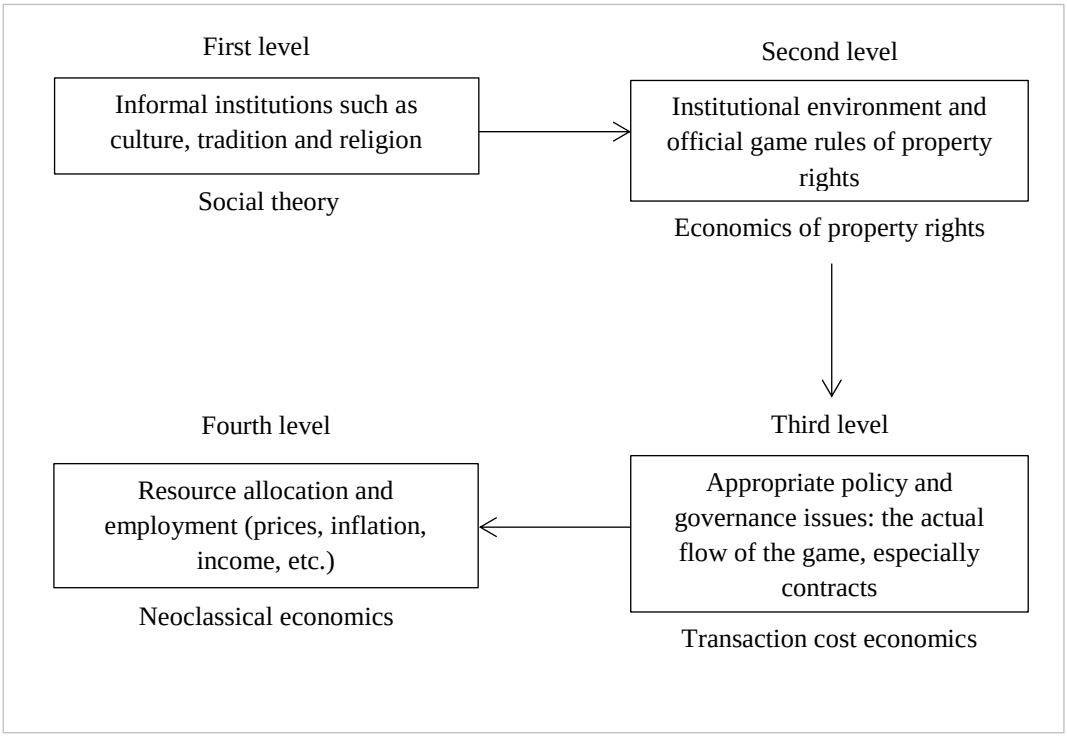


Figure 2.1 showed the four level model of institutional analysis. Whereby, the first level indicated that variability of social-embedded level of society including culture, religion, tradition, norm and custom. The second and third level indicated on the legal and regulatory environment and institutional level. At this level, William believed that an appropriate governmental environment, increase confident of investor toward long term investment of life insurance corporate activities, thus increase on consumption level of insurance by investor. The fourth level includes indicator on level of resources allocation and price optimization. According to National Association of Insurance Commissioners (2017), the argument regarding the use of embrace price optimization tools result in unfair premium rate charge toward the policyholder. The regulator has responded to control these practice in order to prevent extreme price on the products and services, thus inflation less likely to occur. Consistent to Williamson (2000) indicated that the optimal government system tend to decline the transaction cost and uncertainty and develop motivation toward life insurance

contract in the society. In general, one may come up with the conclusion that the confident level of investor raise up the demand of life insurance are associated with legal and regulatory environment.

However, there is an argument whereby the degree of regulation will reduce the supply side of insurance market (Guerineau & Sawadogo, 2015; Park et al., 2002). Both studies have come into the same conclusion but with different reasons. One of the reasons is due to increase in the size of federal funded partly reducing the need for insurance, thus negative impact to institutional industry to provide insurance service (Guerineau & Sawadogo, 2015). Thus, quality of the legal and political environment obstructs life insurance sector development. Yet, Park et al. (2002) commented toward the limit on the entry of firm and competitive ability in the insurance market. When the degree of economic regulation on the entry barriers of the countries is higher, the level of insurance pervasiveness that the insurance industry participated will be lower.

In conclusion, degree of regulation will positively relate trustworthiness toward the demand of insurance product (Sepehrdoust & Ebrahimnasab, 2015; Dragos & Dragos, 2013; Williamson, 2000), while negative relate toward insurance market (Guerineau & Sawadogo, 2015; Park et al, 2002). This can be supported and consistent to study by Elango and Jones (2011) in analysing the drivers of insurance demand in emerging markets showed that regulation provide financial freedom toward insurance demand while hinder business freedom. Although strict regulation have imposed in majority of developed countries that mainly to ensure reasonable insurance market and which beneficial for investor in term of high degree of transparency; however influence the growth on insurance industry in term of imposed to higher costs and low earning (Grier, 2007).

2.1.2.1 The Fraser Institute's Economic Freedom Index

The introduction of indicator of Index of Economic freedom published by The Fraser Institute as proxy for degree of regulation will be discuss in the following. Economic freedom is a concept where individual has fundamental right to private property, the ability to profit from their own ideas and labour, an

individual voluntary produces trade and purchases goods and services in free market place devoid of onerous government interference. The Economic freedom Index published by Fraser Institute included the five major indicator; size of government, legal system and right property, sound money, freedom to trade internationally and regulation, is widely used by many literature as the Index of Economic Freedom taken from the sources of Heritage Foundation and Wall Street was criticized for the lack accuracy. First, most importantly is because of the index from Fraser Institute including of time span which enable researcher to analyse the changes of economic freedom over the time period (Doucouliagos & Ulubasoglu, 2006). Second, Gwartney and Lawson (2003) indicated that large number of countries was covered over longer time of period and index of Heritage Foundation and Wall Street Journal are less accurate. Lastly, De Haan, Lundström and Sturm (2006) stated that detail explanation on the indicator of economic freedom published by Fraser Institute was hence essential for the research.

Besides, the past studies by Trinh, Sgro and Nguyen (2015) used the economic freedom index published by Fraser institute as proxy for degree of regulation found to be significant to non-life insurance consumption between developed and developing countries. Thus, the life insurance consumption based on the use of the index of Economic freedom published by Frasier Institute as proxy of degree of regulation are lack in the studies.

2.1.3 Independent variables - Financial development

The financial development can be described as the country's level of institutional sector activities in the economy in terms of its breadth and depth. Most of the previous studies have included financial development as the determinants of life insurance consumption. The empirical studies found that the overall insurance development for life insurance and non-life insurance play significant role over the developing countries than the developed countries (Han et al., 2010). The ratio of broad money supply to GDP is used as the proxy to this variable

(Mapharing et al., 2015). The higher the broad money supply to GDP ratio, the higher the level of financial development.

The financial or banking development may impact positively on the savings behavior for the individuals and households. As life insurance products can be described as one of the saving related instrument, the financial liberalization is critical towards the life insurance consumption. The life insurer or the life insurance companies may be added value if the financial system is improved to be more efficient. It can be done through the function of risk transfer and the role that facilitated by the financial intermediation (Ward & Zurbruegg 2002; Beck & Webb 2003; Hussels et al., 2005). It should also be noted that the lack of financial product consumption may result from the lack of financial development. However, there was an argument indicated that the higher level of financial development may not encourage people to demand for the life insurance products as the individuals and households are not necessary wish to save for the precautionary balance (Savvides, 2006).

In addition, the results in the research paper show that the level of financial development also found to be in a causal relationship toward the economic growth in the long run (Christopoulos & Tsionas, 2004). The well development of institution will drive the savings demand for investments which will stimulate the economic growth. Hence the good economic condition creates additional demand for the financial services to safeguard for the potential earnings which contribute to development of financial sectors. The case of financial development plays the important role for developing countries have been related to the countries' government. It has been termed as the supply-leading approach at which the government percept that the financial development may not equivalent to the development of a country. This may be resulted from the lower portion of life insurance premiums generated but still with good economic growth (Outreville, 2011).

The level of financial development has found to be positive related to the life insurance consumption (Ward & Zurbruegg, 2002; Savvides, 2006). Hence it is important to indicate the level of financial development as the higher the degree of competition among the insurance sectors, it will stimulate the life insurance

consumption. Institutional development can offer the ownership of financial assets for the individuals and households in order to safeguard their future cash flow by which the institution providing the innovative investment vehicles. The researchers proposed that the financial sector development is one of the drivers for the life insurance consumption. This can be supported in the way that the institution that performing well will strengthen the consumers' confidence toward the financial development. Thus the well development of insurance institution which embedded with an efficient financial system will attract demand for life insurance.

As a result, the level of financial development is critical factor to the growth of insurance demand. The insurance sectors will issue various insurance policies in order to raise funds and act as active participant in the capital market hence may stimulate the financial development. It implied that the level of financial development to be the complement of life insurance consumption among the developed countries.

2.1.4 Independent variables - Political stability

Political stability defined as the policies of a country fit on a spectrum between two extremes. For example, if there is a country which constantly faces political revolution or civil war, the country can be claim as a country with low political stability. On the other hand, if the politics of a country were highly predictable, the country has a higher political stability.

Ward and Zurbruegg (2002), Sepehrdoust and Ebrahimnasab (2015) and Laura, Codruta and Mihai (n.d.) proved the political stability is significant in affecting life insurance consumption. Ward and Zurbruegg (2002) indicate the improvement in political stability can increase the life insurance consumption in Asia. While, according to Sepehrdoust and Ebrahimnasab (2015), household is one of the major resources that transfer the capital to the financial market through the financial instrument such as life insurance. They studied based on the data of developing countries from year 1999 to year 2011.

Laura et al (n.d.) focused their study within European countries which analyze of 32 European countries (20 European developed countries and 12 European developing countries) from year 2002 and 2012. The investors will have a better bargaining power as there is any government economic decision and policy implementation when there is a stable political environment. Besides, insurance industry will have a greater chance to take part in financial market to satisfy the increasing demand of life insurance of the society. Therefore, the higher the stability of political environment, the higher the reliability and confidence of the investors toward the financial market, thus they are willing to make investment.

On the other hand, Beck and Webb (2002), Nesterova (2008) and Ibiwoye, Ideji and Oke (2010) have proved that the political stability is not significant in affecting the increasing consumption of life insurance. Beck and Webb (2002) stated the insurance has two main functions which are acted as a long term saving instrument and replacement of income for premature death. Political instability can affect the confidence of buyers, thus reduce the consumption of life insurance. However, the result does not show any significant relationship.

Nesterova (2008) conducted a study mainly in investigate the demand of life insurance in Ukraine and others 13 countries in CEE and CIS region. While, Ibiwoye et al. (2010) focused the study in Nigeria by obtaining the data of 35 years of life insurance consumption in Nigeria which started from year 1970 to year 2005. They expected the political stability has a sign to the life insurance consumption because of a stable political system can initiate the investors' demand on life insurance.

However, the study has indicated a different result where political stability is not significant in the demand of life insurance in Ukraine, CEE and CIS region as it unable to explain the variation of demand of life insurance of investigated countries. The empirical result also shows the political stability has no any significant relationship with life insurance demand in Nigeria (Ibiwoye et al., 2010). They have suggested the government can strengthen the real gross domestic product (RGDP) and economic liberalization to increase the life insurance consumption. To conclude, political stability with a different influence within different countries, thus the relationship is ambiguous.

2.1.5 Control variables - Level of education

Education level can be defined as the level of completion at which an individual acquire for knowledge or training. According to Li (2008) assumed education sign of stock of human capital within household parallel with life insurance consumption. In the research, different grading of education (lower than high school, high school, college, degree or more) was taken into account for hypothesis. Results showed that level of education within household positively and significantly affect life insurance ownership, whereby household with high education are predicted to have high income growth, thus encourage them to increase the need for life insurance.

The measurement on level of education by Li (2008) also similar with Li et al. (2007) which examined different grade level of the education (elementary, middle, high school) as determinant of life insurance demand in OECD developed countries from 1993-2000. Empirical finding also showed that the education tend to positively influence the consumption of life insurance, whereby, awareness on uncertainty in life are more concern by educated person, hence increase their consumption level of life insurance.

Thampy and Sitharamu (2002) commented that the urban circumstance like India do discompose the public confidence to purchase life insurance. This can be supported the study of Kakar and Shukla (2010) indicated that life insurance are demand positively associated with educational level in emerging market. The paper identified the life insurance ownership and awareness among the Indian household, showed that more than half of percentage of Indian grandaunt own the ownership of life insurance, while majority showed that primary educated and illiterate are subject to non-owner of life insurance. Therefore, well-education in developing countries tends to influence with life insurance ownership.

Besides, the argument indicated by Beck and Webb (2003) showed that the education measured by the year of schooling, appeared to be no robust relationship with life insurance demand. The result was not similar with the theory which implied that higher level of education will increase the knowledge

of individual perspective toward the risk management and assurance. Thus, education here does not seem an important driver of life insurance. Previous literature have educational level is associated with life insurance consumption (Li, 2008; Li et al., 2007; Kakar & Shukla, 2010). Even, the association also found to be significant in developed and developing countries. Yet, there are conflicting on this influencing factor (Beck & Webb, 2003). Hence, the expected sign was imprecise.

2.1.6 Control variables - Income level

There are some empirical results shows that the level of income has significant relationship with demand of life insurance. The relationship between the level of income and demand of life insurance is positive and significant in China by using proxy for GDP per capita. Although the level of income in China is lower, but the quick growth of economic in China has boost the consumption of life insurance (Hwang & Gao, 2003). Similarly, Sepehrdoust and Ebrahimnasab (2015) found that the national income level (GDP per capita) has positive relationship with the insurance consumption level in the developing countries.

The result from Redzuan (2011) stated that for every 1% increase in income, the consumption of life insurance will increased by 6%. This is because consumer is affordable to buy insurance when their income growth. When the level of income increased, the consumption of life insurance should be increased (Beck & Webb, 2003; Redzuan, 2011). This is causes by few reasons. Firstly, the consumption of an individual increased together with the income, this will lead them to purchase the insurance to protect them from any uncertainty occur. Moreover, life insurance can be a comfort product because people will look for some insurance product that suitable for investment when their income rises.

Lastly, the overhead costs such as administrating and marketing costs can increase the size of insurance policies, thus reduce the insurance's costs per dollar in operation, which decrease the price of life insurance policies. The researcher Kjosevski (2012) indicates that the income level for the real GDP per capita has a positive relationship with then consumption level of insurance.

Conversely, Nesterova (2008) result showed the people who leave in the transition countries think that insurance is a superior product. Therefore, the level of income rise will not affect the penetration of life insurance. However, for the middle class people, when their income increases the life insurance demand are expected to be increased. While the researches for developed countries state that income level is the strong positive factor in affecting the demand of life insurance.

2.1.7 Control variables - Population

Population can be defined as all the residents in a country regardless whether they are in legal status or the citizen of the country. In another word, it measures the total number of people in the country. The population in the study will be measured in total population among the developed and developing countries. Based on the studies conducted by Çelik and Kayali (2009), the results indicated that population is statistically related to life insurance consumption. This is because the population growth represents the number of potential insurance policyholder to involve in demanding the life insurance. Kakar and Shukla (2010) have conducted the research to study the urban population on demand of life insurance which also resulted in significant relationship of urban population on the life insurance consumption. It interpreted the result as the life insurance consumption will increase with the size of the countries' population.

According to Dragos (2014), population is an important indicator to measure on the life insurance consumption. The higher the population, the higher the level of fairness for the insurance premium and contribute to insurance growth. Population growth in developing countries is found to be higher compared to population growth in the developed countries due to its low birth rates. Thus it can be assumed that the population growth in developing countries contribute relative much higher than in developed countries on the life insurance consumption.

Besides, Nakata and Sawada (2007) have carried out the research on non-life insurance consumption by using population as one of the determinants. They found that there is positive relationship between population to the consumption but with insignificant influence toward the non-life insurance. Meanwhile, population is substantially influence on the life insurance consumption. Feyen et al. (2011) also found that higher population indicated number of the customers to consume on life insurance policy is larger as it allow them to pool the risks that reduce and prevent against the potential large losses in case of unfavourable event occur. As a conclusion, most of the studies found that population and life insurance consumption are positive significant relationship. Therefore the greater the population size able to contribute for the substantial growth in insurance sector.

2.1.8 Control variables - Inflation

Inflation can be defined as the increase in overall price level of goods and services. In this study, the proxy that used to measure inflation is average consumer price in term of percentage change. The measurement of the consumer price index indicates the annual percentage change in the costs that consumer will incur in purchasing the basket of goods and services at given fixed of time period. The lower rate of inflation able contributes to substantial insurance sector growth. Thus it can be described that inflation and life insurance consumption are negatively related.

There are some researchers had found out that there is no significant positive relationship between inflation and life insurance consumption (Beck &Webb, 2003; Çelik and Kayali (2009). They found that inflation was negatively related to the demand of life insurance. They explained that when there were inflationary periods, the consumer might tend to reduce their spending on life insurance because they perceived the real costs for life insurance may be affected to rise over the period. Thus they were not willing to demand life insurance during the period that inflation rate was high. As a result, the life insurance consumption will decrease with the presence of inflation (Çelik & Kayali, 2009).

It has been found that life insurers will be affected indirectly from the presence of inflation. This is because high inflation might erode the present value of the fixed future payments which makes the consumer difficult to justify the worthiness to purchase the insurance policy. At the same time, it will discourage the consumption on life insurance as the future value might decrease in the true value. Moreover, life insurance consumption is negatively related to inflation and its volatility. Volatility here represents the fluctuation or uncertainty of the inflation rate at which it intended to affect the returns from life insurance consumption that provide life protection with monetary benefits over the long term period to the policyholders. To conclude, the volatility can be resulted as one of the disruptive attributes to the inflation which causing higher inflation rate and thus reduce the life insurance consumption.

2.1.9 Control variables - Life expectancy

Life expectancy can be defined as the average life span of an individual. In detail, life expectancy in social science is the statistical age until which a person can be expected to live. It is more like a statistical measurement for multipurpose in research sectors. Human life expectancy has a sharp increase in developing countries over the past two hundred years. The study used life expectancy at birth for the total years over the developed the developing countries.

Beck and Webb (2003) stated that previous studies have proven life expectancy is positively related with consumption of life insurance. However, Beck and Webb (2003) claims that society with longer life expectancy should have lower mortality coverage costs, lesser perceived need for mortality coverage, however higher saving via life insurance vehicles and more consumption for annuities. This caused an ambiguous relation between life expectancy and life insurance consumption. Therefore, life expectancy has no strong relationship with life insurance consumption (Beck & Webb, 2003).

According to Li et al. (2007), they considered life expectancy is negatively related to probability of death, and assumed to get a negative relationship between life expectancy and life insurance consumption. With the supporting of

past researches and one of the researches is Beck and Webb (2003), Li et al. (2007) stated that life expectancy is lack of significant to life insurance consumption, with an explanation of longer life expectancy will decreases the price of insurance and thus might stimulate its consumption.

Nesterova (2008) claimed that there is an ambiguous relationship between life expectancy and life insurance consumption. Some of the researchers stated that life expectancy is significant to life insurance consumption, however, some claims in contrast. Supposedly, longer life duration will decrease life insurance price and gives stimulus to purchase more, to accumulate more capital via savings, hence to increase the life insurance products' consumption. In this research, life expectancy is showing a significant relationship with life insurance consumption. It prove that longer life expectancy tend to decrease the life insurance price, therefore increase the demand of life insurance. Thus, higher level of life expectancy brings higher life insurance penetration in the market (Nesterova, 2008).

2.1.10 Control variables - Number of dependent

Dependency ratio is the ratio that used to measure the number of dependents, who aged 0 to 14 and above 65 years old, to the population (between 15 and 64 years old). For most of the empirical studies, the dependency ratio is separated into young dependency ratio (people between 0 and 14 years old) and old dependency ratio (people above 65 years old) to determine the relationship between the dependency ratio and life insurance consumption.

Beck and Webb (2002) stated that the life insurance plays an essential role in financial sector and motivate the growth of GDP of countries. The result shows a significant relationship between old dependency ratio and life insurance consumption. However, the young dependency ratio has an ambiguous relationship with life insurance demand. The result of Beck and Webb (2002) is similar with Nesterova (2008). During year 1980 to year 1985, the life insurance consumption had only made up 11% of GDP in 13 samples of countries. However, with the same sample of countries, life insurance consumption can

make up 28% of GDP. This has indicated the importance of life insurance. According to Beck and Webb (2002), the study had make the assumption that a higher young dependency ratio is because of the demand increases for the morality coverage and decreases the saving demand by using insurance instruments. Also, a higher old dependency ratio is because of the increases in morality coverage and saving demand by using insurance instruments.

While, according to Nesterova (2008), the study explained dependency ratio as under a household's structure, how many of people who depend on the main sources of income. Nesterova (2008) had taken young dependency ratio and old dependency ratio to analyze the result and shows the old dependency ratio is significant to the consumption of life insurance.

Moreover, Kjosevski (2012) had conducted a study to investigate the determinant of life insurance of 14 countries in Central and South-Eastern European (CSEE). According to Kjosevski (2012) the young dependency ratio is negatively correlated to life insurance consumption as the teenager with no enough salaries, they have not extra money to purchase the life insurance. While, the old dependency ratio is positive related to life insurance consumption but it is insignificant.

According to Mapharing et al. (2015), life insurance becomes a famous topic after World War II. Mapharing et al. (2015) examined the determinant of life insurance in Canada. The study collected the data from year 1990 to 2006 from Organization for Economic Cooperation and Development (OECD), Statistic Canada and World Bank Group. The empirical result shows the dependency ratio is positively correlated to the demand of life insurance. Alhassan and Biekpe (2016) had conducted a research to study the determinant of life insurance of 31 countries in Africa from year 1996 to year 2010. Recent year, Africa faced huge economic expansion, the people are able to gain more salaries, thus increasingly demand in the health facilities. According to Alhassan and Beikpe (2016), the study stated the dependency ratio is significant and has a negative relationship with life insurance demand. In the conclusion, number of dependent especially old dependency ratio is a significant relationship in influencing life insurance consumption.

2.1.11 Control variables – Real Interest rate

The real interest rate is represented by the borrowing interest rate on government bond or the rate of money market without including the inflation rate (Beck & Webb, 2003; Li et al., 2007). Redzuan (2011); Mathew & Sivaraman (n.d.) the result showed that the relationship between interest rates and insurance consumption is negatively related and significant. However, the interest rate only has effect in the long-run.

The researchers Beck and Webb (2003); Elango and Jones (2011) found that the real interest rate is positively related to the life insurance consumption. This means that when the lending interest increased, the demand for life insurance will increase. Following Li et al. (2007) the Univariate Analysis showed that the real interest rate does not have any effect on the life insurance consumption. While for the Multivariate Analysis, the real interest rate is negatively related to the demand of life insurance. This result is not consistent with the results of Beck and Webb (2003).

The real interest rate also refers to the return that the insurers will get when they invested their money to the insurance company. If they get return that is higher than other financial instruments, therefore, there is a possibility the people will purchase the insurance (Lenten & Rulli, 2006). According to Lim and Haberman (2003), they found that the interest rates are negatively related to the life insurance demand. In their study, there are two types of interest rates were employed which are interest rate on lending and interest rate on saving. The interest rate on the other instrument high, the demand for saving related product of life insurance will become less. While for the interest rate on saving deposits is high, the consumptions of life insurance will become lesser.

2.2 Review of relevant theoretical model

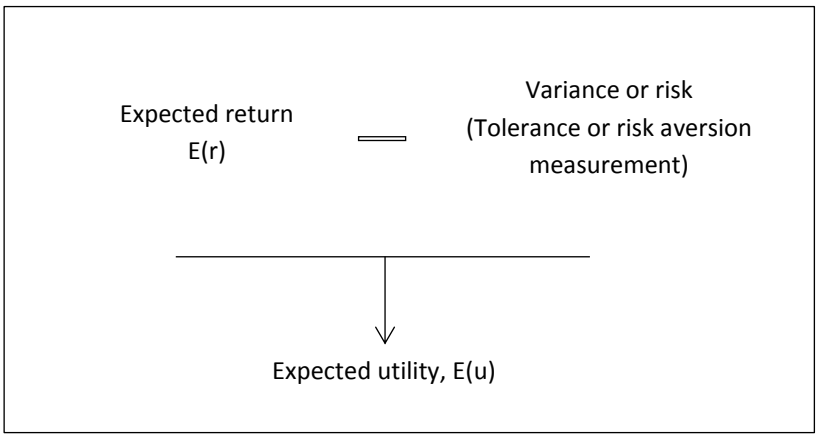
2.2.1 Expected Utility Theory (1738)

Expected utility theory (EUT) can be described as an individual or a household taking into account the expected utility to decide on risky or uncertain event that was created by Daniel Bernoulli in 1738. It concerns on the decision making at which do the individuals or the households are certain regarding the outcome of the event.

Expected utility theory has been widely used to describe and explain the consumption on life insurance. It indicates that insurance allows the policyholder or the buyer to possibly reduce the uncertain or potential losses into small effect. The consumers that purchase the insurance policy intend to eliminate and protect against themselves from certain unfavourable event.

The theory can be divided into two attributes at which the first attribute represented that whether an individual or a household will refer to their expected utility values of many different potential outcomes when making a decision. The second attribute is about the idea or insight that might create additional utility but the utility value was in decreasing pattern. In another word, the individual or household might allocate their income in the way that marginal contribution of money to utility is equal to all others way of spending their income (Lengwiler, 2008).

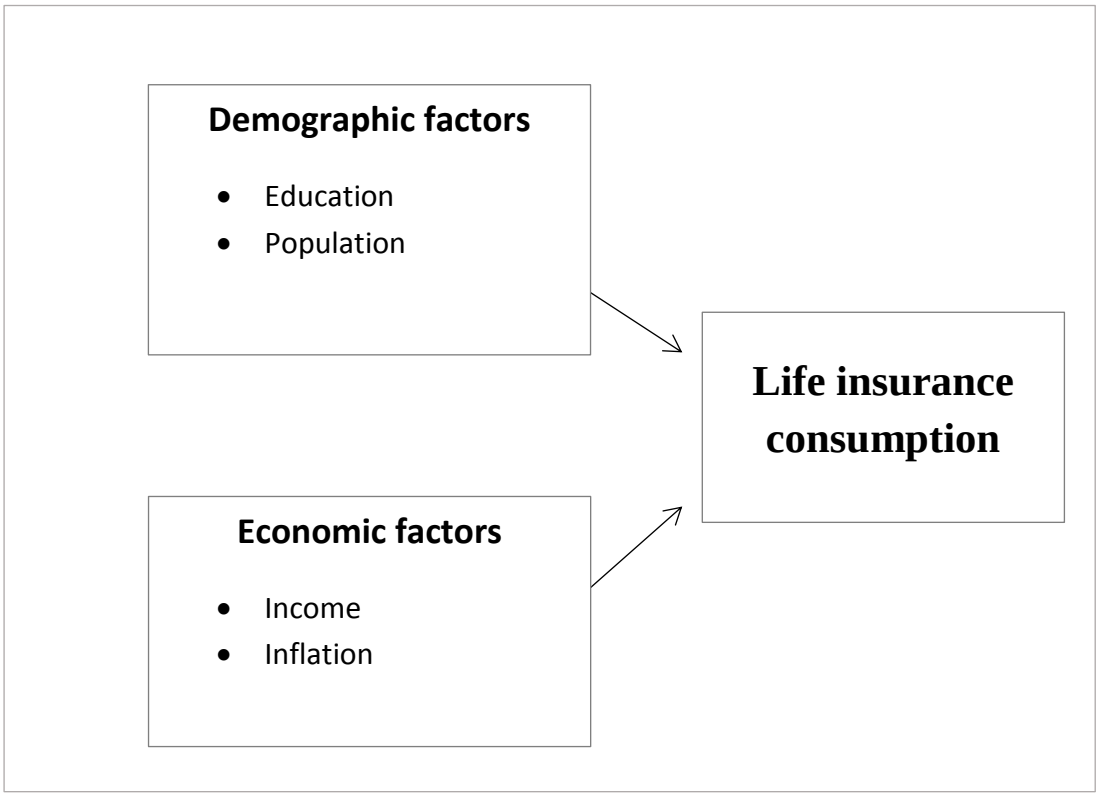
Figure 2.2: Calculation for expected utility



Refer to figure 2.2, an individual or a household might consider the expected return that they able to earn after taking into account the risk or uncertainty associated with the decisions. Thus it can be assumed that the risk aversion is underlying element in the utility theory. In addition, the empirical research by Schechter (2006) stated that the risk will take place under the expected utility theory which resulted from the curvature function of the utility. It implies that an individual or a household might be relatively risk averse when facing decision with greater risk. It assumes that the utility function able to indicate the degree of how an individual or a household is averse toward the risks.

2.2.2 Determinants of demand for life insurance in European countries

Figure 2.3: Determinants of demand for life insurance in European countries

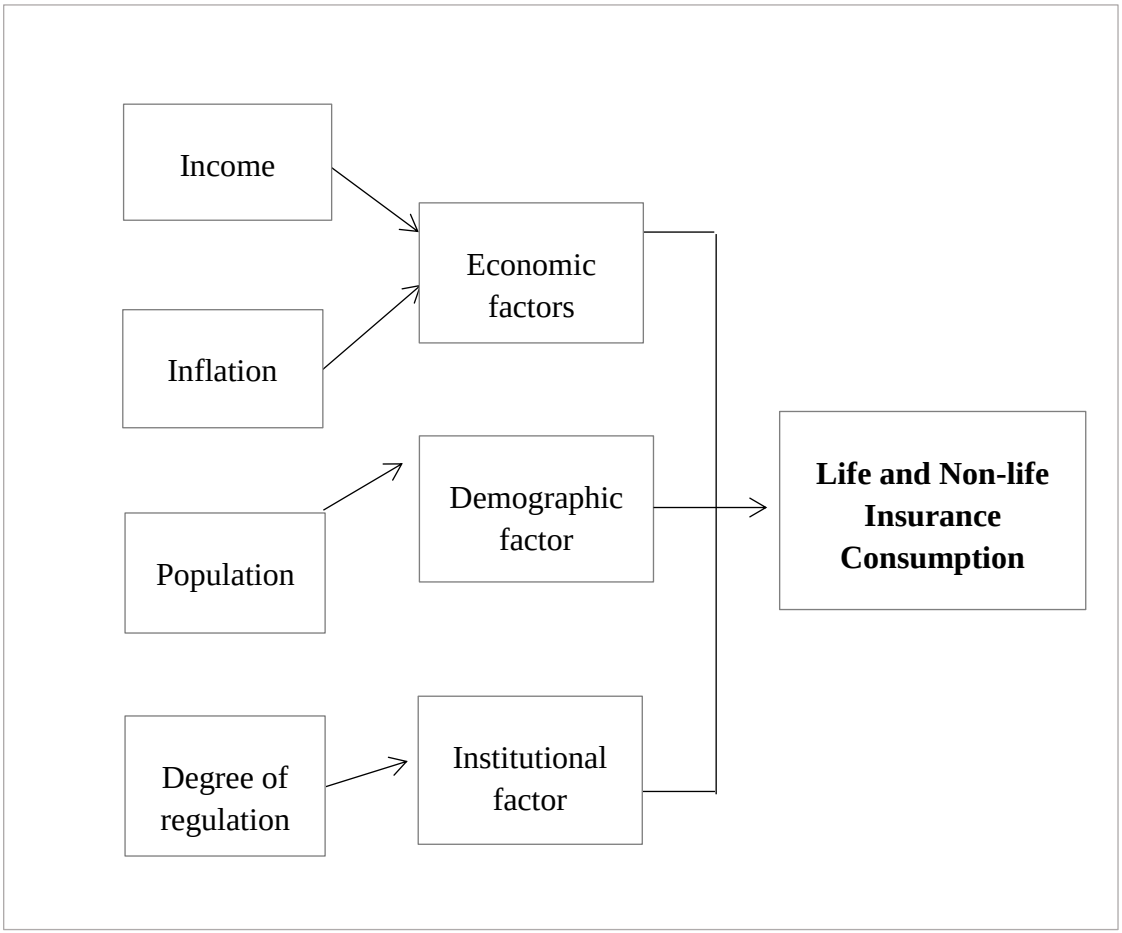


Adapted from: Çelik & Kayali (2009). Determinants of demand for life insurance in European countries.

The figure 2.3 study examine on the determinants of life insurance consumption in term of economic and demographic aspects in European countries (Çelik & Kayali, 2009). Control variables were used as independent variables in this study. The research paper found that income was the central factor that will affect demand on life insurance because it will affect the purchasing power of the consumers. For instance, the higher the income level, the more likely they will purchase the life insurance. This paper is lack of study on the relationship between macroeconomics attributes and the life insurance consumption.

2.2.3 The role of institutional factors over the national insurance demand: theoretical approach and econometric estimations

Figure 2.4: The role of institutional factors over the national insurance demand: theoretical approach and econometric estimations



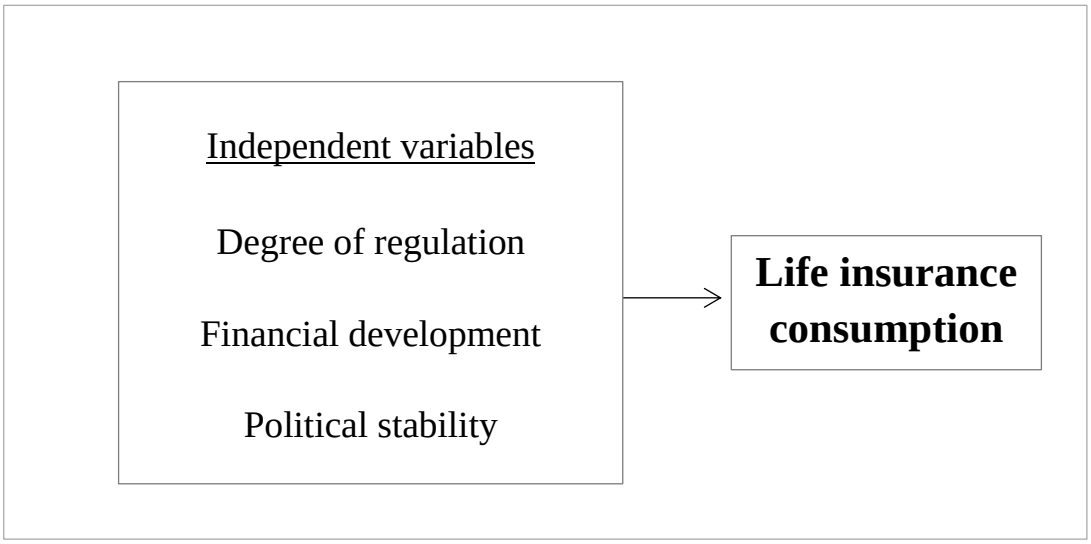
Source: Adopted from Dragos and Dragos (2013).

The figure 2.4 study examine the economic, demographic and institutional factors on life and non-life insurance over time period of 2006-2010 based on 31 European Countries through Ordinary Least Square regression model. The study resulted that the income, population and the degree of regulation were significant while inflation negatively related to the consumption on life and non-life insurance (Dragos & Dragos, 2013).

2.3 Proposed conceptual framework

2.3.1 Macroeconomics attributes on life insurance consumption over the developed and developing countries

Figure 2.5 Proposed conceptual framework



The proposed conceptual framework in figure 2.5 is developed in this paper in order to examine on the relationship between macroeconomics attributes and life insurance consumption among the developed and developing countries which included the degree of regulation, financial development, and political stability as well as the control variables. This research include education level, income level, population, inflation, life expectancy, number of dependent and real interest rate as the control variables. It aims for the purpose to introduce that the control variables play significant role on the relationship between degree of regulation, financial development and political stability on the life insurance consumption.

2.4 Hypothesis Development

IV_1: Degree of regulation

H_1: The higher the degree of regulation, the higher the life insurance consumption over developed countries.

H_2: The higher the degree of regulation, the higher the life insurance consumption over developing countries.

According to Sepehrdoust and Ebrahimnasab (2015), Dragos and Dragos (2013) and Williamson (2000), there is a positive relationship between degree of regulation and life insurance demand. The good quality of regulation could increase the confident of buyers. Thus, the study was predicted that degree of regulation is positively correlated to life insurance consumption over developed and developing countries.

IV_2: Financial development

H_1: The higher the quality of financial development, the higher the life insurance consumption over developed countries.

H_2: The higher the quality of financial development, the higher the life insurance consumption over developing countries.

The level of financial development has found to be positive related to the life insurance consumption (Ward & Zurbruegg, 2002; Savvides, 2006). The researchers also found that the level of financial development has a causal relationship toward the economic growth in the long run (Christopoulos & Tsionas, 2004). Besides, Han et al. (2010) said that the overall insurance development for life insurance and non-life insurance play significant role over the developing countries than the developed countries. Therefore, the study was assumed financial development is positively correlated to life insurance consumption over developed and developing countries.

IV_3: Political stability

H_1: The higher the level of political stability, the higher the life insurance consumption over developed countries.

H_2: The higher the level of political stability, the higher the life insurance consumption over developing countries.

According to Ward and Zurbruegg (2002) and Sepehrdoust and Ebrahimnasab (2015), there is a positive relationship between political stability and life insurance consumption. Besides, Laura et al. (n.d.) stated that the political stability is significant in influencing the life insurance demand. As the political environment is stable, the buyers are more confident. Therefore, the study was predicted political stability is positively correlated to life insurance demand over developed and developing countries.

2.5 Conclusion

This chapter describes and explains on the literature review of the dependent variable, independent variables as well as the control variables that involved in the research model of the study. The theoretical framework for life insurance consumption as well as the relationship between the macroeconomics attributes and life insurance consumption have also been reviewed and discussed in this chapter. The following chapter will proceed and discuss about the methodology used to conduct the hypothesis for this study.

CHAPTER 3: METHODOLOGY

3.0 Introduction

This chapter will present the methodologies that are applied in order to conduct the study. There are three independent variables and eight control variables are used to study the macroeconomic attributes on life insurance consumption over developed and developing countries. The sample size of the study is 11 developing countries and 11 developed countries which from year 2003 to 2013. The study is based on secondary data. Research design, method of data collection, sampling design, research instruction, construction measurement, data processing and data analysis are discussed in below.

3.1 Research Design

In this study, there are 22 countries (11 developed countries and 11 developing countries) are included. As there is different economic condition between developed and developing countries, the study is to determine and compare the macroeconomic factors that affect the life insurance consumption between developed and developing countries. The developed countries included Australia, Switzerland, Chile, United Kingdom, Iceland, Japan, South Korea, Poland, Romania, Russia and United States. While, the developing countries included are Argentina, Bangladesh, Brazil, China, Indonesia, India, Mexico, Malaysia, Philippines, Thailand and Ukraine.

Besides, the research focuses on the periods between years 2003 to 2013 to have a balanced panel data. Besides, owing to the huge amount of missing data between years 2014 to 2016, the study has excluded them in order to generate a reliable

and high accuracy result. Thus, there are 242 observations which are collected from several online sources for data analysis.

The study implemented Eviews to estimate all data. Furthermore, the study used panel regression model to determine the outcomes. Under panel regression model, there are three different types of models, which are Fixed Effect Model (FEM), Random Effect Model (REM) and Pooled Ordinary Least Square (Pooled OLS) can be used to generate the output. In order to investigate the most suited model for the study, there are several tests such as Poolability Hypothesis test and Hausman test are applied. Moreover, there are also some diagnostic checking tests such as autocorrelation test, multicollinearity test, normality test, t-test and F-test are carried out in the study.

3.2 Method of Data Collection

The study is to determine the relationship of macroeconomics attributes on the life insurance consumption between developed and developing countries. The independent variables included are such as degree of regulation, financial development and political stability. While, the control variables used are level of education, income level, life expectancy, young dependency ratio, old dependency ratio and real interest rate. The study allocated the secondary data which mainly from Data Market, The Fraser Institute, Worldwide Governance Indicator, International Monetary Fund and World Bank. Below table 3.1 shows the details of all types of variables, unit of measurement and sources.

Table 3.1: Type of Variables, Variables, Unit of Measurement and Source and Method

Type of variables	Variables	Unit of Measurement	Sources and Method
Dependent Variable	Life Insurance Premium	Percentage (%)	Data Market

Independent Variable	Degree of Regulation	Overall Score (0-10 marks)	The Fraser Institute
	Financial Development	Percentage (%)	Data Market
	Political Stability	Rank Percentile (0 -100)	Worldwide Governance Indicator
Control Variable	Level of Education	Percentage (%)	World Bank Data
	Income Level	USD	World Bank Data
	Population	Population, total	World Bank Data
	Inflation	Percentage change (%)	International Monetary Fund
	Life Expectancy	Total Years	World Bank Data
	Dependency Ratio	Percentage (%)	World Bank Data
	Real interest Rate	Percentage (%)	World Bank Data

3.3 Sampling Design

3.3.1 Target Populations

In this study, the target populations for the date collection were developed countries and developing countries. Thus, it involves any policyholders that contribute to the growth of life insurance consumption among the selected developed and developing countries.

3.3.2 Sampling Locations

Developed countries that involved in the study will be Australia, Switzerland, Chile, United Kingdom, Iceland, Japan, South Korea, Poland, Romania, Russia and United States. While the developing countries included are Argentina, Bangladesh, Brazil, China, Indonesia, India, Mexico, Malaysia, Philippines, Thailand and Ukraine.

3.3.3 Sampling Element

The data collection in this study is taking the period from 2003 to 2013 and total of 22 countries which included the 11 developed and 11 developing countries to study the relationship of macroeconomics attributes as well as taking into account the effect of control variables on the life insurance consumption.

3.3.4 Sampling Technique

Due to missing data of some countries, this study is limited to include the latest data thus the panel data was run for 242 observations between the periods of 2003 to 2013. Therefore, balanced panel data with 242 observations were involved in examining the hypothesis of the study.

3.4 Research Instrument

Firstly, since the study is based on secondary data, the primary research instrument is the previous studies. All the variables are added into the study after referred to the earlier researches. After reviewing the relevance and importance of the variables, the proxies (data) are allocated from the online sources such as World Bank and Data Market. There are several weeks are used to select and confirm the quantity of developed and developing countries as well as the time period included in the research.

3.5 Construct Measurement

Table 3.2: Type of Variable, Proxy and Source or References

Variable	Proxy	Sources/References
Life Insurance Premium	Life Insurance Premium Volume to GDP	Beck and Webb (2003)
Degree of Regulation	Economic Freedom Index	Sepehrdoust and Ebrahimnasab (2015), Guerineau and Sawadogo (2015), Trinh et al. (2015), Dragos and Dragos (2013), Park et al. (2002)
Financial Development	Financial Development	Mapharing et al. (2015)
Political Stability	Political Stability And Absence of Violence/ Terrorism	Laura et al. (n.d.), Nesterova (2008)
Level of Education	Tertiary Gross Enrollment Ratio	Li (2008), Li et al. (2007)
Income Level	GDP Per Capita	Kjosevski (2012), Outreville (1999), Sepehrdoust and Ebrahimnasab (2015)
Population	Population, total	Sibel and Kayali (2009), Nakata and Sawada (2007)
Inflation	Consumer Price Index (CPI) in percentage change (%)	Beck and Webb (2003), Çelik and Kayali (2009)
Life Expectancy	At birth, total years	Beck and Webb (2003), Nesterova (2008)
Dependency Ratio	Young Dependency Ratio	Beck and Webb (2002), Nesterova (2008), Kjosevski (2012)
	Old Dependency Ratio	Beck and Webb (2002), Nesterova (2008), Kjosevski (2012)
Real interest Rate	Real Interest Rate	Beck and Webb (2003), Elango and Jones (2011), Lenten and Rulli (2006), Li et al. (2008), Lim and Haberman (2003), Mathew and Sivaraman (n.d.), Redzuan (2011)

3.6 Data Processing

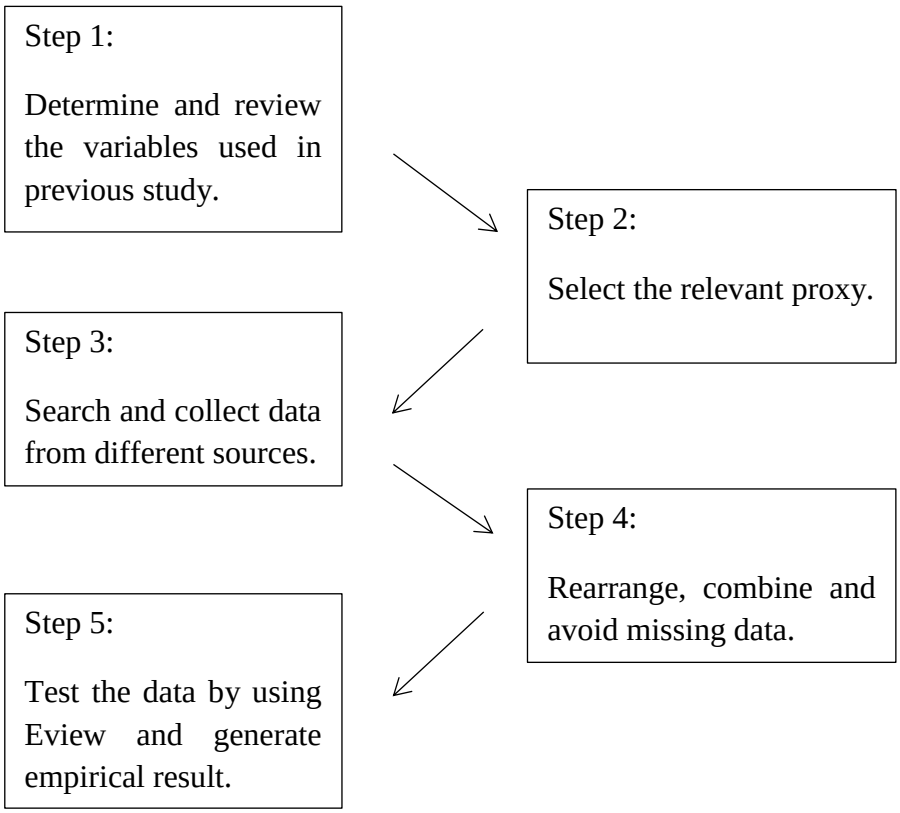
In Step 1, the variables are reviewed and determined from the similar past researches.

In Step 2, after the variables are selected, the proxies are selected according to its popularity, relevance and availability.

In Step 3, the data are allocated from the famous online sources such as World Bank, Data Market, Worldwide Governance Indicators, The Fraser Institute and International Monetary Fund.

In Step 4, the data are retrieved, rearrange and combine in Excel Worksheet before analyse it.

In Step 5, all the independent variables and control variables are tested to determine the macroeconomic attributes that affect the life insurance consumption between developed and developing countries.



3.7 Data Analysis

The mechanism that used for data analysis is Eviews. Since the panel data is applied in the study, there will be three types of models which are Fixed Effects Model (FEM), Random Effect Model (REM) and Pooled Ordinary Least Square Model (Pooled OLS). Therefore, the poolability test and Hausman test are applied to determine the best suit model for the study. Then, the diagnostic checking test such as normality test, multicollinearity test and autocorrelation test are implemented to increase the reliability and accuracy of the outcomes.

3.7.1 Descriptive Analysis

It is important that the study to present the data sets after the collecting period (Hussain, 2012). Descriptive statistical analysis is used to describe and summarize the data in the study. Descriptive analysis is essential as it allowed the study to present and interpret the data set in a simple ways ("Descriptive Statistic", n.d.). For example, if there are more than 50 observations of life insurance consumption data in all states of a country, it would be more meaningful to have an average life insurance consumption data of a country instead of presenting the data of each state.

Descriptive analysis including the presentation of data in frequency term, mean, median, quartiles, standard deviation, interquartile range, proportions, maximum, minimum, kurtosis, skewness and so on. Besides, these statistics measurement should be depended on its type of variables, which are quantitative variable or qualitative variable (Hussain, 2012). If there is qualitative variable, the variable should be categorical, attributable and characterized. While, for quantitative variables should be measurable, numerable and continuable.

3.7.2 Scale Measurement

3.7.2.1 Pooled Ordinary Least Square (OLS)

Pooled OLS can be described as powerful and common method of regression analysis which involves a model with relationship between explained and a combination of explanatory variable (Pohlman & Leitner, 2003). Another, the method of OLS has some very attractive statistical properties whereby it provides traditional and current approach that considered the independent variable as fixed and random sampling with stochastic explanatory variable (Wooldridge, 2010). It also considered as easiest estimator for all the researchers. The regression equation for pooled OLS defined the dependent variable as linear combination of independent variable plus an error term which are shown below:

$$\mathbf{Y_{it} = \alpha + x_{0\,it}\beta + \varepsilon it,\ i = 1,\ldots,\ n;\ t = 1,\ldots,\ Ti}$$

There are several advantages for using OLS regression model. First, this Pooled OLS model gained popularity because this model combined the cross sectional data and time period data. It allows to test on the relationship of collection of explanatory toward the dependent variable within the analysis (Podesta, 2002). Thus, continuous observation on the fixed unit can be determined. However, there are problems for using OLS regression model. The estimation on the coefficient will be biased when the unobserved cross-sectional and time period of the error term correlated with it (Desilva, n.d.).

3.7.2.2 Fixed Effect Model

Fixed effect model can be described as the statistical model where all the variables are treated as non-random value to the factoring process. It used to determine the optimal value to the inputs to business but not to determine the effect to the output process. In addition, it also determined the variable of Social-Economic status which considered as not explicitly measured are then say to have approximately

same true effect for all group (Williams, 2015). The regression equation is shown below:

$$\mathbf{Yit = \beta_0 + \beta_1 X_{1it} + \beta_2 X_{2i} + \beta_3 X_{3t} + £_i + £_{it}}$$

The major advantage of fixed effect model is it has the ability to control immeasurable stable characteristic which effect change over the time, thus abolished huge source of bias (Williams, 2015). However, the cost for fixed effect model is it ignores the between-person variation (Allison, 2005). This was due to the between-person variation likely corrupted immeasurable characteristic. Thus, it will lead to the high standard error; hence outcome of fixed effect model was affected.

3.7.2.3 Random Effect Model

Random effect model can be described as the multi-level model or error component model which assumes there is no fixed effect occurs and utilize in the panel data analysis (Gujarati & Porter, 2009). There is an assumption that the random effect model is preferable in estimating the coefficient than fixed effect model (Clark & Linzer, 2012) as the individual effects are not correlated with any regressors. According to Williams (2017), random effect model shows unbiased estimate of coefficient and small standard error, thus probably considered as the best model. The regression equation is shown below:

$$\mathbf{Y_{it} = \beta_{i1} + \beta_2 X_{it} + u_{it}\ Y_{it} = (\beta_1 + \beta_i\ \varepsilon_i) + \beta_2 X_{it} + u_{it} Y_{it} = \beta_1 + \beta_2 X_{it} + \varepsilon_i + u_{it}}$$

3.7.2.4 Hausman Test

The Hausman test can be described as the standard technique that used in empirical analysis on the panel data. Clark and Linzer (2012) stated that Hausman test is used to determine the explanatory variables whether got violate the assumption of random effects modeling. Gujarati and Porter (2009) state the main purpose is to determine the reliability of the result between random effect model (REM) and fixed effect model (FEM). In addition, O'Brien and Patacchini (2006) stated that it is applied for the purpose of comparing the estimated coefficients from the fixed effect model and random effect model. The null hypothesis for the Hausman test will be the appropriate model is random effect model while for the alternative hypothesis is fixed effect model as defined below (Sheytanova, 2015):

> H_0: The preferred model is random effect model. The presence of correlation between the individual effects and independent variables in the panel data model is not exists ($Cov\ \alpha i, \boldsymbol{xit} = 0$).
> H_1: The preferred model is fixed effect model. The presence of correlation between the fixed effects and the independent variables in the panel data model do exits ($Cov\ \alpha i, \boldsymbol{xit} \neq 0$).

Below is the formula for Hausman test statistic, H:

$$H = (\widehat{B}_{RE} - \widehat{B}_{FE})' \ [\text{Var}(\widehat{B}_{FE}) - \text{Var}(\widehat{B}_{RE})]^{-1} \ (\widehat{B}_{RE} - \widehat{B}_{FE})$$

If the probability value of Hausman test statistic, H is lower than the significance level, this means that it is significant, the null hypothesis will be rejected and there is sufficient evidence to prove that fixed effect model (FEM) is better than random effect model (REM). On the other hand, if the probability value is higher than the significance level, the null hypothesis will not be rejected; the result will be preferred random effect model (REM).

3.7.2.5 Poolability Test

The Poolability test can be described as the econometric technique that used to examine whether pooled OLS model is preferred or the fixed effect model is preferred for the panel data analysis. In a more restricted model, it assumes that the slope and intercept coefficients are the same across the panel data. While for an unrestricted model, it indicates that the slope and intercept coefficients are vary across the panel data either time or cross-sectionals.

The Poolability test is determined on its F statistic which given the below formula, the alternative other than probability value in Eviews:

$$F = \frac{(R^2_{FEM} - R^2_{POLS})/(K_{FEM} - K_{POLS})}{(1 - R^2_{FEM})/(N - K_{FEM})}$$

The null hypothesis of the Poolability test will be pooled OLS model is preferred while fixed effect model is preferred for alternative hypothesis. The null hypothesis will be rejected if the probability value is smaller than significant level at 90%, 95% or 99%. Otherwise, do not reject the null hypothesis. If the null hypothesis is rejected, it can be interpreted that there is no common intercept exist in the panel data model. Thus, the fixed effect model is preferred and proceeds for the selection between fixed effect model and random effect model.

3.7.2.6 Normality Test

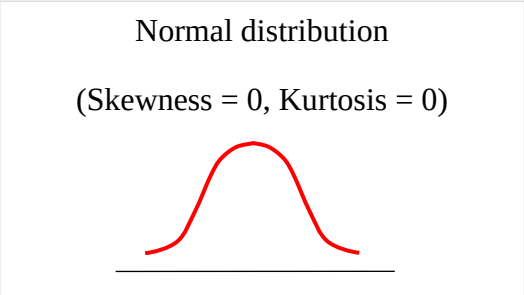
Normality test can be described as the technique to figure out whether the sample data which used in a research is normally distributed. It concerns about normality test in the study as the error term or the residual associated with the model are critical to fulfil the normality assumptions. The normality assumption indicates that a function is normally distributed in the way that one or more than one of the variables in the function follow normal distribution. If the error term is normally distributed, the variables in the model are considered as normally distributed. Therefore, the variables can proceed for T-test and F-test validly (Field, 2013; Pallant, 2013).

Before running the t-test and F-test for hypothesis testing, the probability distribution of the OLS estimators (β) has to be normally distributed in order to relate the variables to its true values. Jarque-Bera test will be conducted in this research for the purpose to test whether the residuals follow normal distribution. The formula of Jarque-Bera test is as follow:

$$\boldsymbol{JB = n\,(\frac{s^2}{6} + \frac{(k-3)^2}{24})}$$

where n represents the sample size of the study, s represents the skewness which measured the degree of symmetry and k represents the kurtosis indicates the tail behavior of the distribution. If the skewness value greater than zero, it indicates positive right skew while if smaller than zero indicates negative left skew. Similarly, kurtosis value that greater than zero is positive kurtosis and vice versa. Diagram 3.7.1 illustrated the normal distribution with zero skewness and kurtosis.

Figure 3.1: The normal distribution with zero skewness and kurtosis



3.7.2.7 Multicollinearity

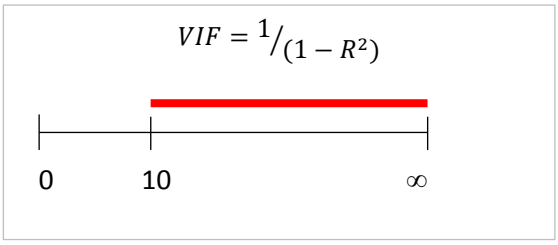
Multicollinearity can be interpreted as one of the econometric problems that exist among some of the independent variables in the model. In another word, the predictor variables might be highly correlated to each other. Multicollinearity will present in every model just the matter is that the degree is high or low. The purpose of econometric model can be to determine to what extent the dependent variables can explain or predict by the independent variables (De Jager, 2008). It can also be described as the goodness of fit which determined through the R-squared (R^2).

The high degree of multicollinearity problem can be detected as follow:

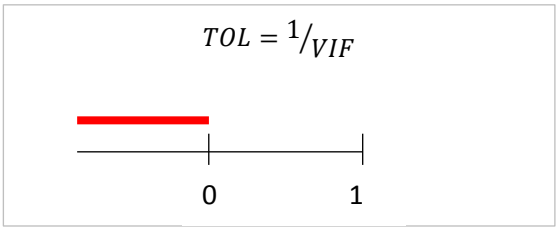
(i) R^2 is higher than 0.9 and F statistic is significant;

(ii) Most t statistics are insignificant;

(iii) Variance inflation factor (VIF) greater than 10;



(iv) Tolerance factors (TOL) smaller than zero.



According to Paul (2006), the existence of serious multicollinearity problems might lead the estimates to be unbiased. There will be insignificant t statistics which resulted from higher standard error and smaller value of t statistics thus most of the time do not reject null hypothesis. In addition, the conclusion made for the analysis may not be accurate and reliable.

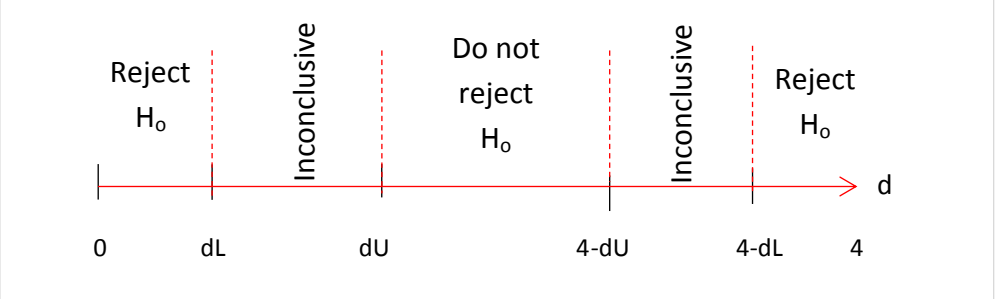
3.7.2.8 Autocorrelation

Autocorrelation can be defined as one of the specification errors that arise when there is variable in the panel data model that is correlated with other variable. This problem was caused by error term which represented the omitted of important variables from the model thus affecting the dependent variable. If there are important regressors that related to regressand are omitted from the model, the error terms might be correlated (Babatunde, Ikughur, Ogunmola & Oguntunde, 2014).

Autocorrelation can be categorized into two types which are pure autocorrelation and impure autocorrelation. Pure autocorrelation can be resulted by the data nature but impure autocorrelation caused by the model specification error. It exists in the form of first order and high order of autocorrelation. According to Sarafidis and Wansbeek (2010), the drawbacks of autocorrelation involved in results of inefficient estimators which given lower variance and false inferences regarding the hypothesis testing on the variables. However, there are several techniques can be carried out to check on the existence of autocorrelation.

The null hypothesis is there is no autocorrelation and alternative as there is autocorrelation. Durbin-Watson *d* test is used to test on first order autocorrelation while Durbin-Watson *m* test or Lagrange Multiplier (LM) is for high order autocorrelation. Diagram 3.7.2 illustrated the decision rule for Durbin-Watson test as follow:

Figure 3.2: The decision rule for Durbin-Watson test



3.7.3 Inferential Analysis

3.7.3.1 T-test

T-test can be known as Student t-test which introduced by William Sealy Gosset in year 1908. T-test is one of the statistic tests that are implemented to compare the means of two groups (Kim, 2015). T-test is implemented to identify the significance between an individual independent variable toward dependent variable in a hypothesis testing. As a simple talk, t-test is a method to identify the true or false of the null hypothesis in hypothesis testing (Gujarati, 2003). As using t-test in hypothesis testing, there are five major assumptions which are listed in below:

Assumption (1)	*Continuous or ordinary scale*
Assumption (2)	*Random sample*
Assumption (3)	*Normal distribution*
Assumption (4)	*Large sample size (n)*
Assumption (5)	*Homogeneous*

While, the hypothesis example is listed in below:

$$H_0 : \beta i = 0$$
$$H_1 : \beta i \neq 0$$
$$where\ i = 1,2,3...$$

Null hypothesis (H_0) shows there is no significant relationship between an independent variable and dependent variable at a certain level of significance. While, alternative hypothesis (H_1) shows there is a significant relationship between an independent variable and dependent variable at a certain level of significance.

Besides, there are two main ways to determine the significance of hypothesis testing. Firstly, by using the t-statistic value; as the t-statistic value is lower than or higher than the critical value, H_0 will be rejected. It shows a significant

relationship between an individual independent variable and dependent variable. Otherwise, do not reject H_0. Secondly, by using the p-value; as the p-value is lower than the significance level, H_0 will be rejected. It shows a significant relationship between an individual independent variable and dependent variable. Otherwise, do not reject H_0.

3.7.3.2 F-test

F-test is a better statistic tool as it comparing more than two groups of means (Kim, 2014). It can also be said that the F-test is used to determine the significance of the overall model in a certain level of significance. Instead of using multiple t-test, by using F-test can reduce the probability of making errors (Kim, 2014). The following shows the hypothesis example of F-test.

$$H_0 : \beta_1 = \beta_2 = \beta_3 ... \beta_i = 0$$
$$H_1 : At\ least\ one\ of\ the\ \beta_i\ is\ not\ equal\ to\ zero$$
$$where\ \ i = 1,2,3...$$

Null hypothesis (H_0) shows there is no significant relationship of the overall model with dependent variable at a certain level of significance. While, alternative hypothesis (H_1) shows there is significant relationship of the overall model with dependent variable at a certain level of significance.

Besides, there are two main ways to determine the significance of hypothesis testing. Firstly, by using the F-statistic value; as the F-statistic value is higher than the critical value, H_0 will be rejected. It shows a significant relationship of the overall model with dependent variable. Otherwise, do not reject H_0. Secondly, by using the p-value; as the p-value is lower than the significance level, H_0 will be rejected. It shows a significant relationship of the overall model with dependent variable. Otherwise, do not reject H_0.

3.8 Conclusion

This chapter discussed on the research methodologies of the study. The data was collected from World Bank, Data Market and The Fraser Institute from the period of 2003 to 2013 over the developed and developing countries. Eviews is used in the study to run the test and the detail of analysis will be illustrated and discussed in the following chapter.

CHAPTER 4: DATA ANALYSIS

4.0 Introduction

This chapter explains the data analysis for life insurance consumption from 11 developed and 11 developing countries from 2003 to 2013. In this chapter, the tests included descriptive analysis, poolability test, hausman test, normality test, multicollinearity, autocorrelation and inferential analysis on R-squared, F-test and the empirical result. The relationship between the dependent and independent variable on developing countries was examined using random effect model, while for the relationship between the dependent and independent variable on developed countries was examined using fixed effect model.

4.1 Descriptive Analysis

Table 4.1: Summary Descriptive Statistic for All Variables over Developed Countries

Variables	Mean	Median	Maximum	Minimum	Std. Dev.
LIP	3.635455	3.340000	14.70000	0.040000	3.080206
LOG_ERF	2.020305	2.050270	2.144761	1.790091	0.080586
FD	98.25940	87.78296	235.3415	27.39280	52.19015
LOG_PS	4.104199	4.180522	4.600359	2.045109	0.473361

Notes: 1. Data run between year 2003 to 2013, N=121 from 11 developed countries; 2. LOG_ERF= log degree of regulation, FD= Financial development, LOG_PS= Log political stability.

Source: Developed for the research

Table 4.1 shows the summary of descriptive statistic of developed countries for a dependent variable, life insurance premium and three independent variables used in the research which are degree of regulation, financial development and political stability.

For life insurance premium (LIP), it shows mean and median of 3.64% and 3.34% among 11 developed countries. The maximum percentage of life insurance premium is 14.7% while for the minimum is 0.04%. The high percentage of life insurance premium received from certain developed countries is as high as 14.7% as well as some developed countries only received minimum of 0.04% of life insurance premium.

For degree of regulation (LOG_ERF), it represents the level of governance in each country. In the analysis shows an average mean of 2.02%. Results also show an average median of 2.05%. This indicates the most developed countries subject relatively low regulatory environment. The maximum degree of regulation in the analysis show only 2.14%, while the minimum percentage is 1.79%, which mean there are certain developed countries has as high as 2.14% of regulatory supervision and as lower as 1.79%.

Another independent variable of financial development (FD) was also tested which represents strategy to stimulate economic growth for particular countries. The result shows an average mean of 98.26%, and median stood at 87.78%. The figure shows that most developed countries have stronger development in term of financial activities. The analysis shows an extreme of 235.34% as maximum financial development which means certain developed countries has stimulate well-built financial development while some developed countries encountered slow expansion where it only shows a minimum of 27.39%.

The last variable that was taken into account to the test is political stability which indicates the propensity of government collapse. In the analysis, test result shows a quiet dissatisfaction on the average mean of political stability of 4.10% and median of 4.18%. From the result, the percentage for political stability in most developed countries shows maximum of 4.60% and minimum of 2.04%. This

shows that most developed countries do encounter with some confluent and competition among political parties.

Table 4.2: Summary Descriptive Statistic for All Variables over Developing Countries

Variables	Mean	Median	Maximum	Minimum	Std. Dev.
LIP	1.387190	0.980000	3.580000	0.030000	1.001333
LOG_ERF	0.809201	0.814248	0.866287	0.699838	0.029441
FD	74.67938	60.41572	185.8942	23.49367	41.58295
LOG_PS	1.333006	1.399993	1.811134	0.462181	0.306490

Notes: 1. Data run between year 2003 to 2013, N=121 from 11 developing countries; 2. LIP = life insurance premium, LOG_ERF= log degree of regulation, FD= Financial development, LOG_PS= Log political stability.

Source: Developed for the research

Table 4.2 shows the summary of descriptive statistic on developing countries for a dependent variable, life insurance premium and three independent variables used in the research which are degree of regulation, financial development and political stability.

For life insurance premium (LIP), it shows mean and median of 1.39% and 0.98% respectively among 11 developing countries. The maximum percentage of life insurance premium is 3.58% while for the minimum is 0.03%. This means that high percentage of life insurance premium received from certain developing countries as high as 3.58% as well as some developing countries only received minimum of 0.03% of life insurance premium.

For degree of regulation (LOG_ERF), it represents the level of governance in each country. In the analysis show an average mean of 0.81%. Results also show an average median of 0.81%. This indicates the most developing countries subject to relatively low regulatory environment. The maximum degree of regulation in the analysis show only 0.87%, while the minimum percentage is 0.70%, which mean there was weak regulation among the developing countries.

Another independent variable of financial development (FD) was also tested which represents strategy to stimulate economic growth for particular countries. The result shows an average mean of 74.68%, and median stood at 60.42%. The figure shows that most developing countries have stability of development in term of financial activities. The analysis shows extreme of 185.89% as maximum financial development which means as the certain developing countries has stimulate strong and fast financial development while some developing countries encountered slow expansion where it only shows a minimum of 23.49%.

The last variable that was taken into account to the test is political stability which indicates the propensity of government collapse. In the analysis, test result shows an average mean of political stability of 1.33% and median of 1.40%, which is quiet dissatisfied. The percentage for political stability on most developing countries shows maximum of 1.81% and minimum of 0.46%. This shows that most developing countries are encountered with much confluent and competition among political parties.

4.2 Scale Measurement

4.2.1 Poolability Test

Table 4.3: Result of Poolability Test over Developed Countries

Models	Cross-Section Chi Square	Decision
Model	247.1369	Proceed to Hausman Test

Source: Developed for the research

Null hypothesis (H_0) shows the Pooled OLS is preferred while alternative hypothesis (H_1) shows the fixed effect model is preferred.

Based on Table 4.3, the poolability test's result shows the cross-section chi square is 247.1369 for the regression model on developed countries. The probability value is 0.0000 which is less than 5% of level of significance. In other words, the results for both cross-section chi square and probability value are significant at 5% significant level. This means that the null hypothesis $H_0$is rejected. Therefore, fixed effect model (FEM) is preferred as compared with Pooled OLS. Next, the research will proceed to Hausman test to determine the greatest model between fixed effect model (FEM) and random effect model (REM).

Table 4.4: Result of Poolability Test over Developing Countries

Models	**Cross Section Chi Square**	**Decision**
Model	252.1929	Proceed to Hausman Test

Source: Developed for the research

Null hypothesis (H_0) shows the Pooled OLS is preferred while alternative hypothesis shows the fixed effect model (FEM) is preferred.

Based on Table 4.4, the poolability test's result shows the cross-section chi square is 252.1929 for the model on developing countries. The probability value is 0.0000 which is less than 5% of level of significance. In other words, the results for both cross-section chi square and probability value are significant at 5% significant level. This means that the null hypothesis $H_0$is rejected. Therefore, fixed effect model (FEM) is preferred as compared with Pooled OLS. Next, the research will proceed to Hausman test to determine the greatest model between fixed effect model (FEM) and random effect model (REM).

4.2.2 Hausman Test

Table 4.5: Result of Hausman Test over Developed Countries

Models	Chi-Square Statistic	Decision
Model	18.8169	Fixed Effect Model

Source: Developed for the research

Null hypothesis (H_0) shows the random effect model (REM) is preferred while alternative hypothesis (H_1) shows the fixed effect model (FEM) is preferred.

Based on Table 4.5, the Hausman test's result shows the chi-square statistic is 18.8169 for the model on developed countries. The probability value is 0.0003 which is less than 5% of level of significance. In other words, the result for both chi square statistic and probability value are significant at 5% significant level. This means that the null hypothesis $H_0$is rejected. Therefore, fixed effect model (FEM) is the best model for developed countries.

Table 4.6: Result of Hausman Test over Developing Countries

Models	Chi Square Statistic	Decision
Model	2.9463	Random Effect Model

Source: Developed for the research

Null hypothesis (H_0) shows the random effect model (REM) is preferred while alternative hypothesis (H_1) shows the fixed effect model (FEM) is preferred.

Based on table 4.6, the Hausman test's result shows the chi-square statistic is 2.9463 for the model on developing countries. The probability value is 0.4000 which is more than 5% of level of significance. In other words, the result for both chi square statistic and probability value are not significant at 5% significant level. This means that the null hypothesis $H_0$is not rejected. Therefore, random effect model (REM) is the best model for developing countries.

4.2.3 Normality Test

Table 4.7: Result of Normality Test over Developed Countries

Models	Jarque-Bera	Decision
Model	124.8639	Non-Normality

Source: Developed for the research

Null hypothesis (H_0) shows the error term is normally distributed while alternative hypothesis (H_1) shows the error term is not normally distributed.

Based on Table 4.7, the Normality test's shows the value of Jarque-Bera is 124.8639 for developed countries. The probability value is 0.0000 which is lower than 5% of level of significance. The result for both Jarque-Bera and probability value are significant at 5% significant level. This means that the null hypothesis $H_0$is rejected. Therefore, there is not a normally distribution on error terms in the model for developed countries.

Table 4.8: Result of Normality Test over Developing Countries

Models	Jarque-Bera	Decision
Model	19.0882	Non-Normality

Source: Developed for the research

Null hypothesis (H_0) shows the error term is normally distributed while alternative hypothesis (H_1) shows the error term is not normally distributed.

Based on Table 4.8, the Normality test's shows the value of Jarque-Bera is 19.0882 for developing countries. The probability value is 0.0001 which is lower than 5% of level of significance. The results for both Jarque-Bera and probability value are significant at 5% significant level. This means that the null hypothesis $H_0$is rejected. Therefore, there is not a normally distribution on error terms in the model for developing countries.

4.2.4 Multicollinearity

Table 4.9: Correlation Matrix for the Variables over Developed Countries

	LOG_ERF	FD	LOG_PS
LOG_ERF	1		
FD	0.4604	1	
LOG_PS	0.6287	0.4484	1

Notes: 1. Data run between year 2003 to 2013, N=121 from 11 developed countries; 2. LOG_ERF= log degree of regulation, FD= Financial development, LOG_PS= Log political stability.

Source: Developed for the research

$$VIF_{LOG\_ERF,\ LOG\_PS} = 1 / 1\text{-}R^2$$

$$= 1.7703$$

Based on Table 4.9, the highest pair wise correlation is between LOG_ERF and LOG_PS recorded at 0.6287 or 62.87%, while for the lowest was recorded at 0.4484 or 44.84% for FD and LOG_PS. Variance Inflation Factor (VIF) is used to identify the multicollinearity, where there is no multicollinearity problem occurs as the value shows 1.7703 is less than 10 which can be interpreted as there is moderate correlation between the two variables, LOG_ERF and LOG_PS as the correlation are fall in between 1 to 5. Hence, the output can consider as no serious multicollinearity problem among the variables in developed countries because the highest pair wise coefficient is not more than 10.

Table 4.10: Correlation Matrix for All Variables over Developing Countries

	LOG_ERF	FD	LOG_PS
LOG_ERF	1		
FD	0.2297	1	
LOG_PS	-0.2245	0.1730	1

Notes: 1. Data run between year 2003 to 2013, N=121 from 11 developing countries; 2. LOG_ERF= log degree of regulation, FD= Financial development, LOG_PS= Log political stability.

Source: Developed for the research

$$VIF_{LOG\_ERF,\ FD} = 1 / 1\text{-}R^2$$

$$= \quad 1.1425$$

According to Vatcheva, Lee, McCormick and Rahbar (2016), they have used correlation matrix table as well as variance inflation factor to identify the multicollinearity problem between the independent variables. Based on Table 4.10, the highest pair wise correlation is between LOG_ERF and FD recorded at 0.2297 or 22.97%, while the lowest was recorded at -0.2245 or -22.45% for LOG_ERF and LOG_PS. Variance Inflation Factor (VIF) is used to identify the multicollinearity, where there is no multicollinearity problem occurs as the value shows 1.1425 is less than 10. It indicates that there is moderate correlation between the two variables, LOG_ERF and FD as the correlation is fall in between 1 to 5. Thus, the output can consider as no serious multicollinearity problem between variables in developing countries since the highest pair wise coefficient is not more than 10.

4.2.5 Autocorrelation

Table 4.11: Result of Autocorrelation over Developed Countries

Models	Breusch-Pagan LM p-value	Decision
Model	0.0000	Autocorrelation

Source: Developed for the research

Null hypothesis (H_0) shows there is no autocorrelation problem while alternative hypothesis (H_1) shows there is autocorrelation problem.

Table 4.11 shows the result of autocorrelation over developed countries, which Breusch-Pagan LM p-value is 0.0000 at 5% of level of significance. As the Breusch-Pagan LM p-value is 0.0000 which is less than 5% of level of

significance, null hypothesis (H_0) will be rejected. Therefore, there is an autocorrelation problem.

Table 4.12: Result of Autocorrelation over Developing Countries

Models	Breusch-Pagan LM p-value	Decision
Model	0.0000	Autocorrelation

Source: Developed for the research

Table 4.12 shows the result of autocorrelation over developing countries, which Breusch-Pagan LM p-value is 0.0000 at 5% of level of significance. As the Breusch-Pagan LM p-value is 0.0000 which is less than 5% of level of significance, null hypothesis (H_0) will be rejected. Therefore, there is an autocorrelation problem.

4.3 Inferential Analysis

4.3.1 R-squared

Table 4.13: Result of R-squared and Adjusted R-squared over Developed Countries

Models	R-Squared	Adjusted R-squared
Model	0.6036	0.5935

Source: Developed for the research

R-squared can be known as coefficient of determination or coefficient of multiple determinations (for multiple regressions). R-squared is to indicate how many percentage of the total variation in dependent variable can be explained by the variation in independent variables. Besides, R-squared will only display from 0%

to 100% (Frost, 2013). If the result shows 0%, there is no any total variation in dependent variable can be explained by variation in independent variables. If the result shows 100%, the variation in dependent variable can be fully explained by variation in independent variables.

Table 4.13 shows the result of R-squared on developed countries, which is 0.6036. There is 60.36% of total variation in life insurance consumption in developed countries can be explained by variation in degree of regulation, financial development and political stability.

While, table 4.13 also shows the result of adjusted R-squared on developed countries, which is 0.5935. By taking into account of the degrees of freedom, 59.35% of total variation in life insurance consumption in developed countries can be explained by variation in degree of regulation, financial development and political stability.

Table 4.14: Result of R-Squared and Adjusted R-squared on Developing Countries

Models	**R-Squared**	**Adjusted R-squared**
Model	0.2909	0.2727

Source: Developed for the research

Table 4.14 shows the result of R-squared on developing countries, which is 0.2909. There is 29.09% of total variation in life insurance consumption in developing countries can be explained by variation in degree of regulation, financial development and political stability.

While, adjusted R-squared is the adjusted version of R-squared to test on how many percentage of total variation in dependent variable can be explained by the variation in independent variables, by taking into account the degree of freedom. If the model adds more useless independent variable, the adjusted R-squared will reduce, and vice versa.

Table 4.14 shows the result of adjusted R-squared on developing countries, which is 0.2727. By taking into account the degrees of freedom, 27.27% of total

variation in life insurance consumption in developing countries can be explained by variation in degree of regulation, financial development and political stability.

4.3.2 F-test

Table 4.15: Result of F-Test over Developed Countries

Models	F-Test	P-Value
Model	59.3951	0.0000

Source: Developed for the research

F-test is to test the significance of the overall model in a certain level of significance. Null hypothesis (H_0) shows the overall model is insignificant while alternative hypothesis (H_1) shows the overall model is significant.

Table 4.15 shows thee result of F-test on developed countries, which is 59.3951 and its p-value is 0.0000 at 5% of level of significance. As the p-value is 0.0000 which is less than the level of significance (0.05), null hypothesis (H_0) will be rejected. Therefore, there is a significant relationship of the overall model with life insurance consumption in developed countries.

Table 4.16: Result of F-Test over Developing Countries

Models	F-Test	P-Value
Model	15.9983	0.0000

Source: Developed for the research

Table 4.16 shows thee result of F-test on developing countries, which is 15.9983 and its p-value is 0.0000 at 5% of level of significance. As the p-value is 0.00000 which is less than the 5% of level of significance, null hypothesis (H_0) will be rejected. Therefore, there is a significant relationship of the overall model with life insurance consumption in developing countries.

4.3.3 Empirical Result

Table 4.17: Regression results for FEM estimation over Developed Countries

Variables	Dependent Variables: LIP
	Coefficient
Constant	2.3306
	(4.1447)
Independent Variables	
LOG_ERF	0.2941
	(1.9482)
FD	-0.0117**
	(0.0058)
LOG_PS	0.4543
	(0.5517)
R-squared	0.9485
Adjusted R-squared	0.9423
F-statistic	151.8634***
Poolability stat	247.1368***
Hausman stat	18.8168***
Jarque-Bera stat	124.8639***
Breusch-Pagan LM	309.8544***

Notes: 1. The asterisks ***,**,* shows significant at 1%, 5%, 10% significant level respectively; 2. Figure in parentheses are t-statistic; 3.Data period within 10 years, from 2003 to 2013, N=121 from 11 developed countries; 4. LOG_ERF= log degree of regulation, FD= Financial development, LOG_PS= Log political stability.

Source: Developed for the research

Table 4.17 shows regression result of FEM estimation over developed countries. The result shows that there is a significant relationship between financial development (FD) and life insurance premium (LIP) in developed countries at 5% of level of significance. The coefficient of financial development (FD) is -0.0117. It indicates the financial development (FD) is negatively related to life insurance premium (LIP) in developed countries. When the financial development (FD) increases by 1%, on average, the life insurance premium (LIP) in developed countries will decrease by 0.0117%, as holding other variables constant. The result is inconsistent with hypothesis development which the financial development is predicted to be positively correlated to life insurance consumption in developed countries.

Besides, the result shows there is an insignificant relationship between political stability (LOG_PS) and life insurance premium (LIP) in developed countries. The result is inconsistent with hypothesis development which the political stability (LOG_PS) is predicted to be positively correlated to life insurance consumption in developed countries.

While, the result shows there is an insignificant relationship between degree of regulation (LOG_ERF) and life insurance premium (LIP) in developed countries. The result is inconsistent with hypothesis development which the degree of regulation (LOG_ERF) is predicted to be positively correlated to life insurance consumption in developed countries.

Table 4.18: Regression result for REM estimation over Developing Countries

Variables	**Dependent Variables: LIP**
	Coefficient
Constant	-0.3329 (-0.2660)
Independent Variables	
LOG_ERF	0.0656 (0.0408)

FD	0.0188***
	(6.5995)
LOG_PS	0.1930
	(1.1734)
R-squared	0.2908
Adjusted R-squared	0.2727
F-statistic	15.9982***
Poolability stat	252.1928***
Hausman stat	2.9462
Jarque-Bera stat	19.0881***
Breusch-Pagan LM	402.5514***

Notes: 1. The asterisks ***,**,* shows significant at 1%, 5%, 10% significant level respectively; 2. Figure in parentheses are t-statistic; 3.Data period within 10 years, from 2003 to 2013, N=121 from 11 developing countries; 4. LOG_ERF= log degree of regulation, FD= Financial development, LOG_PS= Log political stability.

Source: Developed for the research

Table 4.18 shows regression result of REM estimation on developing countries. The result shows that there is a significant relationship between financial development (FD) and life insurance premium (LIP) in developing countries at 1% of level of significance. The coefficient of financial development (FD) is 0.0188. It indicates the financial development (FD) is positively related to life insurance premium (LIP) in developing countries. When the financial development (FD) increases by 1%, on average, the life insurance premium (LIP) in developing countries will increase by 0.0188%, as holding other variables constant. The result is consistent with hypothesis development which the financial development is predicted to be positively correlated to life insurance consumption in developing countries.

While, the result shows there is an insignificant relationship between degree of regulation (LOG_ERF) and life insurance premium (LIP) in developing countries. The result is inconsistent with hypothesis development which the degree of regulation (LOG_ERF) is predicted to be positively correlated to life insurance consumption in developing countries.

Besides, the result shows there is an insignificant relationship between political stability (LOG_PS) and life insurance premium (LIP) in developing countries. The result is inconsistent with hypothesis development which the political stability (LOG_PS) is predicted to be positively correlated to life insurance consumption in developing countries.

Table 4.19: POLS Regression Result with Control Variable over Developed Countries

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
LERF	14.7842***	14.7540***	16.8294***	18.6924***	16.5566***	16.8409***	16.7492***	15.3135***	15.4813***
	(2.9601)	(2.9629)	(3.3099)	(3.6493)	(4.2221)	(4.3069)	(4.4058)	(4.3636)	(4.3888)
FD	0.0395***	0.0399***	0.0435***	0.0419***	0.0400***	0.0419***	0.0424***	0.0496***	0.0483***
	(0.0040)	(0.0040)	(0.0047)	(0.0049)	(0.0053)	(0.0074)	(0.0089)	(0.0092)	(0.0096)
LPS	-1.8989***	-1.9359***	-1.7451***	-1.7309***	-1.9149***	-1.5788	-1.5389	-1.5093	-1.2945
	(0.5005)	(0.5093)	(0.5257)	(0.5249)	(0.5558)	(1.0627)	(1.1274)	(1.1054)	(1.1778)
EDU	-	yes	yes	yes	yes	yes	yes	yes	yes
LINC	-	-	yes	yes	yes	yes	yes	yes	yes
POP	-	-	-	yes	yes	yes	yes	yes	yes
INF	-	-	-	-		yes	yes	yes	yes
LLE	-	-	-	-	-	yes	yes	yes	yes
YDEP[a]	-	-	-	-	-	-	yes	yes	yes

ODEP[b]	-	-	-	-	-	-	-	yes	yes
RIR	-	-	-	-	-	-	-	-	yes
CONSTANT	-22.3194***	-22.9766***	-23.7436***	-29.0233***	-23.5980***	-5.3119	-2.1150	13.6279	10.4283
	(5.052)	(5.2160)	(5.2248)	(6.8192)	(8.6948)	(49.9857)	(58.0127)	(57.2811)	(57.7706)
R^2	0.6036	0.6057	0.6123	0.6172	0.6206	0.6211	0.6211	0.6391	0.6400

Notes: 1. [a] represent the first proxy of dependency ratio, [b] represent the second proxy of dependency ratio; 2. The asterisks ***,**,* shows significant at 1%, 5%, 10% significant level respectively; 3. Figure in parentheses are standard error; 4.Data period within 10 years, from 2003 to 2013, N=120 from 11 developed countries; 5. LOG_ERF= log degree of regulation, FD= Financial development, LOG_PS= Log political stability. EDU= Education, LOG_INC=Log income, POP= Population, INF= inflation, LOG_LE= Log life expectancy, YDEP= Young Dependency, ODEP= Old Dependency, RIR= Real Interest Rate. R^2= R-squared.

Table 4.19 shows the POLS regression result with control variable over developed countries. Model (1) does not include any control variables. The result shows there is a significant relationship of degree of regulation (LOG_ERF), financial development (FD) and political stability (LOG_PS) with the life insurance premium (LIP) in developed countries at 1% of level of significance. The coefficient of degree of regulation (LOG_ERF), financial development (FD), and political stability are 14.7842, 0.0395 and -1.8989 respectively. When the degree of regulation (LOG_ERF) increased by 1%, on average, the life insurance consumption (LIP) in developed countries will increase by 14.7842%, as holding other variables constant. Besides, when the financial development (FD) increased by 1%, on average, the life insurance consumption (LIP) in developed countries will increase by 0.0395%, as holding other variables constant. Moreover, when the political stability (LOG_PS) increased by 1%, on average, the life insurance consumption (LIP) in developed countries will decrease by 1.8989%, as holding other variables constant.

Model (2) includes a control variable, which is education level (EDU). The result shows there is a significant relationship of degree of regulation (LOG_ERF), financial development (FD) and political stability (LOG_PS) with the life insurance premium (LIP) in developed countries at 1% of level of significance. The coefficient of degree of regulation (LOG_ERF), financial development (FD), and political stability are 14.7540, 0.0399 and -1.9358 respectively. When the degree of regulation (LOG_ERF) increased by 1%, on average, the life insurance consumption (LIP) in developed countries will increase by 14.7540%, as holding other variables constant. Besides, when the financial development (FD) increased by 1%, on average, the life insurance consumption (LIP) in developed countries will increase by 0.0399%, as holding other variables constant. Moreover, when the political stability (LOG_PS) increased by 1%, on average, the life insurance consumption (LIP) in developed countries will decrease by 1.9358%, as holding other variables constant.

Model (3) includes two control variables, which are education level (EDU) and income level (LOG_INC). The result shows there is a significant relationship of

degree of regulation (LOG_ERF), financial development (FD) and political stability (LOG_PS) with the life insurance premium (LIP) in developed countries at 1% of level of significance. The coefficient of degree of regulation (LOG_ERF), financial development (FD), and political stability are 16.8294, 0.0435 and -1.7451 respectively. When the degree of regulation (LOG_ERF) increased by 1%, on average, the life insurance consumption (LIP) in developed countries will increase by 16.8294%, as holding other variables constant. Besides, when the financial development (FD) increased by 1%, on average, the life insurance consumption (LIP) in developed countries will increase by 0.0435%, as holding other variables constant. Moreover, when the political stability (LOG_PS) increased by 1%, on average, the life insurance consumption (LIP) in developed countries will decrease by 1.7451%, as holding other variables constant.

Model (4) includes three control variables, which are education level (EDU), income level (LOG_INC) and population level (POP). The result shows there is a significant relationship of degree of regulation (LOG_ERF), financial development (FD) and political stability (LOG_PS) with the life insurance premium (LIP) in developed countries at 1% of level of significance. The coefficient of degree of regulation (LOG_ERF), financial development (FD), and political stability are 18.6924, 0.0419and -1.7309 respectively. When the degree of regulation (LOG_ERF) increased by 1%, on average, the life insurance consumption (LIP) in developed countries will increase by 18.6924%, as holding other variables constant. Besides, when the financial development (FD) increased by 1%, on average, the life insurance consumption (LIP) in developed countries will increase by 0.0419%, as holding other variables constant. Moreover, when the political stability (LOG_PS) increased by 1%, on average, the life insurance consumption (LIP) in developed countries will decrease by 1.7309%, as holding other variables constant.

Model (5) includes four control variables, which are education level (EDU), income level (LOG_INC), population level (POP) and inflation rate (INF). The result shows there is a significant relationship of degree of regulation (LOG_ERF), financial development (FD) and political stability (LOG_PS) with the life

insurance premium (LIP) in developed countries at 1% of level of significance. The coefficient of degree of regulation (LOG_ERF), financial development (FD), and political stability are 16.5566, 0.0400 and -1.9149 respectively. When the degree of regulation (LOG_ERF) increased by 1%, on average, the life insurance consumption (LIP) in developed countries will increase by 16.5566%, as holding other variables constant. Besides, when the financial development (FD) increased by 1%, on average, the life insurance consumption (LIP) in developed countries will increase by 0.0400%, as holding other variables constant. Moreover, when the political stability (LOG_PS) increased by 1%, on average, the life insurance consumption (LIP) in developed countries will decrease by 1.9149%, as holding other variables constant.

Model (6) includes five control variables, which are education level (EDU), income level (LOG_INC), population level (POP), inflation rate (INF) and life expectancy (LOG_LE). The result shows there is a significant relationship of degree of regulation (LOG_ERF) and financial development (FD) with the life insurance premium (LIP) in developed countries at 1% of level of significance. The coefficient of degree of regulation (LOG_ERF) and financial development (FD) are 16.8409 and 0.0419respectively. When the degree of regulation (LOG_ERF) increased by 1%, on average, the life insurance consumption (LIP) in developed countries will increase by 16.8409%, as holding other variables constant. Besides, when the financial development (FD) increased by 1%, on average, the life insurance consumption (LIP) in developed countries will increase by 0.0419%, as holding other variables constant. Furthermore, the result shows there is an insignificant relationship between political stability (LOG_PS) and life insurance premium (LIP) in developed countries.

Model (7) includes six control variables, which are education level (EDU), income level (LOG_INC), population level (POP), inflation rate (INF), life expectancy (LOG_LE) and Dependency Ratio ($YDEP^{a}$). The result shows there is a significant relationship of degree of regulation (LOG_ERF) and financial development (FD) with the life insurance premium (LIP) in developed countries at 1% of level of significance. The coefficient of degree of regulation (LOG_ERF)

and financial development (FD) are 16.7492 and 0.0419respectively. When the degree of regulation (LOG_ERF) increased by 1%, on average, the life insurance consumption (LIP) in developed countries will increase by 16.7492%, as holding other variables constant. Besides, when the financial development (FD) increased by 1%, on average, the life insurance consumption (LIP) in developed countries will increase by 0.0424%, as holding other variables constant. Furthermore, the result shows there is an insignificant relationship between political stability (LOG_PS) and life insurance premium (LIP) in developed countries.

Model (8) includes six control variables, which are education level (EDU), income level (LOG_INC), population level (POP), inflation rate (INF), life expectancy (LOG_LE) and dependency ratio (YDEP[a]) and (ODEP[b]). The result shows there is a significant relationship of degree of regulation (LOG_ERF) and financial development (FD) with the life insurance premium (LIP) in developed countries at 1% of level of significance. The coefficient of degree of regulation (LOG_ERF) and financial development (FD) are 15.3135 and 0.0496 respectively. When the degree of regulation (LOG_ERF) increased by 1%, on average, the life insurance consumption (LIP) in developed countries will increase by 15.3135%, as holding other variables constant. Besides, when the financial development (FD) increased by 1%, on average, the life insurance consumption (LIP) in developed countries will increase by 0.0496%, as holding other variables constant. Furthermore, the result shows there is an insignificant relationship between political stability (LOG_PS) and life insurance premium (LIP) in developed countries.

Model (9) includes seven control variables, which are education level (EDU), income level (LOG_INC), population level (POP), inflation rate (INF), life expectancy (LOG_LE), dependency ratio (YDEP[a]) and (ODEP[b]) and real interest rate (RIR). The result shows there is a significant relationship of degree of regulation (LOG_ERF) and financial development (FD) with the life insurance premium (LIP) in developed countries at 1% of level of significance. The coefficient of degree of regulation (LOG_ERF) and financial development (FD) are 15.4813 and 0.0483 respectively. When the degree of regulation (LOG_ERF)

increased by 1%, on average, the life insurance consumption (LIP) in developed countries will increase by 15.4813%, as holding other variables constant. Besides, when the financial development (FD) increased by 1%, on average, the life insurance consumption (LIP) in developed countries will increase by 0.0483%, as holding other variables constant. Furthermore, the result shows there is an insignificant relationship between political stability (LOG_PS) and life insurance premium (LIP) in developed countries.

Table 4.20: POLS Regression Result with Control Variable over Developing Countries

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
LOG_ERF	9.9630***	9.6898***	9.6618***	5.5559**	6.4312**	2.2620	2.9399	3.0912	2.3071
	(2.2627)	(2.4295)	(2.7525)	(2.7395)	(2.8172)	(3.0295)	(3.0463)	(3.1970)	(3.3176)
FD	0.0148***	0.0146***	0.0146***	0.0179***	0.0189***	0.0200***	0.0168***	0.0170***	0.0165***
	(0.0016)	(0.0017)	(0.0017)	(0.0017)	(0.0019)	(0.0019)	(0.0028)	(0.0030)	(0.0030)
LOG_PS	-0.0507	-0.0482	-0.0524	-0.1040	-0.1308	-0.1718	-0.1632	-0.1821	-0.1224
	(0.2148)	(0.2580)	(0.3205)	(0.2986)	(0.2985)	(0.2877)	(0.2861)	(0.3100)	(0.3174)
EDU	-	yes	yes	yes	yes	yes	yes	yes	yes
LOG_INC	-	-	yes	yes	yes	yes	yes	yes	yes
POP	-	-	-	yes	yes	yes	yes	yes	yes
INF	-	-	-	-	yes	yes	yes	yes	yes
LOG_LE	-	-	-	-	-	yes	yes	yes	yes

YDEP[a]	-	-	-	-	-	-	yes	yes	yes
ODEP[b]	-	-	-	-	-	-	-	yes	yes
RIR	-	-	-	-	-	-	-	-	yes
CONSTANT	-7.7145***	-7.4087***	-7.3983***	-4.3360**	-5.3724**	28.5361**	26.2248**	26.3009**	29.4179**
	(1.8984)	(2.0326)	(2.0951)	(2.0800)	(2.2287)	(11.1874)	(11.2310)	(11.2925)	(11.8269)
R^2	0.5468	0.5494	0.5494	0.6131	0.6189	0.6500	0.6572	0.6573	00.6599

Notes: 1. [a] represent the first proxy of dependency ratio, [b] represent the second proxy of dependency ratio; 2. The asterisks ***,**,* shows significant at 1%, 5%, 10% significant level respectively; 3. Figure in parentheses are standard error; 4.Data period within 10 years, from 2003 to 2013, N=116 from 11 developed countries; 5. LOG_ERF= log degree of regulation, FD= Financial development, LOG_PS= Log political stability. EDU= Education, LOG_INC=Log income, POP= Population, INF= inflation, LOG_LE= Log life expectancy, YDEP= Young Dependency, ODEP= Old Dependency, RIR= Real Interest Rate. R^2= R-squared.

Table 4.20 shows the POLS regression result with control variable on developing countries. Model (1) does not include any control variables. The result shows there is a significant relationship of degree of regulation (LOG_ERF) and financial development (FD) with the life insurance premium (LIP) in developing countries at 1% of level of significance. The coefficient of degree of regulation (LOG_ERF) and financial development (FD) are 9.9630 and 0.0148 respectively. When the degree of regulation (LOG_ERF) increased by 1%, on average, the life insurance consumption (LIP) in developing countries will increase by 9.9630%, as holding other variables constant. Besides, when the financial development (FD) increased by 1%, on average, the life insurance consumption (LIP) in developing countries will increase by 0.0148%, as holding other variables constant. Furthermore, the result shows there is an insignificant relationship between political stability (LOG_PS) and life insurance premium (LIP) in developing countries.

Model (2) includes a control variable, which is education level (EDU). The result shows there is a significant relationship of degree of regulation (LOG_ERF) and financial development (FD) with the life insurance premium (LIP) in developing countries at 1% of level of significance. The coefficient of degree of regulation (LOG_ERF) and financial development (FD) are 9.6898 and 0.0146 respectively. When the degree of regulation (LOG_ERF) increased by 1%, on average, the life insurance consumption (LIP) in developing countries will increase by 9.6898%, as holding other variables constant. Besides, when the financial development (FD) increased by 1%, on average, the life insurance consumption (LIP) in developing countries will increase by 0.0146%, as holding other variables constant. Furthermore, the result shows there is an insignificant relationship between political stability (LOG_PS) and life insurance premium (LIP) in developing countries.

Model (3) includes two control variables, which are education level (EDU) and income level (LOG_INC). The result shows there is a significant relationship of degree of regulation (LOG_ERF) and financial development (FD) with the life insurance premium (LIP) in developing countries at 1% of level of significance. The coefficient of degree of regulation (LOG_ERF) and financial development

(FD) are 9.6618 and 0.0146 respectively. When the degree of regulation (LOG_ERF) increased by 1%, on average, the life insurance consumption (LIP) in developing countries will increase by 9.6618%, as holding other variables constant. Besides, when the financial development (FD) increased by 1%, on average, the life insurance consumption (LIP) in developing countries will increase by 0.0146%, as holding other variables constant. Furthermore, the result shows there is an insignificant relationship between political stability (LOG_PS) and life insurance premium (LIP) in developing countries.

Model (4) includes three control variables, which are education level (EDU), income level (LOG_INC) and population level (POP). The result shows there is a significant relationship of degree of regulation (LOG_ERF) and financial development (FD) with the life insurance premium (LIP) in developing countries at 5% significance level and 1% significance level respectively. The coefficient of degree of regulation (LOG_ERF) and financial development (FD) are 5.5559 and 0.0179 respectively. When the degree of regulation (LOG_ERF) increased by 1%, on average, the life insurance consumption (LIP) in developing countries will increase by 5.5559%, as holding other variables constant. Besides, when the financial development (FD) increased by 1%, on average, the life insurance consumption (LIP) in developing countries will increase by 0.0179%, as holding other variables constant. Furthermore, the result shows there is an insignificant relationship between political stability (LOG_PS) and life insurance premium (LIP) in developing countries.

Model (5) includes four control variables, which are education level (EDU), income level (LOG_INC), population level (POP) and inflation rate (INF). The result shows there is a significant relationship of degree of regulation (LOG_ERF) and financial development (FD) with the life insurance premium (LIP) in developing countries at 5% significance level and 1% significance level respectively. The coefficient of degree of regulation (LOG_ERF) and financial development (FD) are 6.4312 and 0.0189 respectively. When the degree of regulation (LOG_ERF) increased by 1%, on average, the life insurance consumption (LIP) in developing countries will increase by 6.4312%, as holding other variables constant. Besides, when the financial development (FD) increased

by 1%, on average, the life insurance consumption (LIP) in developing countries will increase by 0.0189%, as holding other variables constant. Furthermore, the result shows there is an insignificant relationship between political stability (LOG_PS) and life insurance premium (LIP) in developing countries.

Model (6) includes five control variables, which are education level (EDU), income level (LOG_INC), population level (POP), inflation rate (INF) and life expectancy (LOG_LE). The result shows there is a significant relationship between financial development (FD) and the life insurance premium (LIP) in developing countries at 1% of level of significance. The coefficient of financial development (FD) is 0.0200. When the financial development (FD) increased by 1%, on average, the life insurance consumption (LIP) in developing countries will increase by 0.0200%, as holding other variables constant. Furthermore, the result shows there is an insignificant relationship of degree of regulation (LOG_ERF) and political stability (LOG_PS) with life insurance premium (LIP) in developing countries.

Model (7) includes six control variables, which are education level (EDU), income level (LOG_INC), population level (POP), inflation rate (INF), life expectancy (LOG_LE) and Dependency Ratio (YDEP[a]). The result shows there is a significant relationship between financial development (FD) and the life insurance premium (LIP) in developing countries at 1% of level of significance. The coefficient of financial development (FD) is 0.0168. When the financial development (FD) increased by 1%, on average, the life insurance consumption (LIP) in developing countries will increase by 0.0168%, as holding other variables constant. Furthermore, the result shows there is an insignificant relationship of degree of regulation (LOG_ERF) and political stability (LOG_PS) with life insurance premium (LIP) in developing countries.

Model (8) includes six control variables, which are education level (EDU), income level (LOG_INC), population level (POP), inflation rate (INF), life expectancy (LOG_LE) and dependency ratio (YDEP[a]) and (ODEP[b]). The result shows there is a significant relationship between financial development (FD) and the life insurance premium (LIP) in developing countries at 1% of level of significance. The coefficient of financial development (FD) is 0.0170. When the

financial development (FD) increased by 1%, on average, the life insurance consumption (LIP) in developing countries will increase by 0.0170%, as holding other variables constant. Furthermore, the result shows there is an insignificant relationship of degree of regulation (LOG_ERF) and political stability (LOG_PS) with life insurance premium (LIP) in developing countries.

Model (9) includes seven control variables, which are education level (EDU), income level (LOG_INC), population level (POP), inflation rate (INF), life expectancy (LOG_LE), dependency ratio (YDEP[a]) and (ODEP[b]) and real interest rate (RIR). The result shows there is a significant relationship between financial development (FD) and the life insurance premium (LIP) in developing countries at 1% of level of significance. The coefficient of financial development (FD) is 0.0165. When the financial development (FD) increased by 1%, on average, the life insurance consumption (LIP) in developing countries will increase by 0.0165%, as holding other variables constant. Furthermore, the result shows there is an insignificant relationship of degree of regulation (LOG_ERF) and political stability (LOG_PS) with life insurance premium (LIP) in developing countries.

4.4 Conclusion

This chapter has been conducted several tests and analyzed on the results by involving 242 observations in the study. The descriptive analysis and inferential analysis have been applied in order to study the relationship between the macroeconomics attributes and the life insurance consumption with taking into testing by adding the control variables toward the dependent and independent variables. The comparison study for the results between developed and developing countries will be further explained in the next chapter.

CHAPTER 5: DISCUSSION, CONCLUSION AND IMPLICATION

5.0 Introduction

The study has collected data on the variables over developed and developing countries from 2003 to 2013 for the purpose of conduct several tests and analyze on the results. The major findings and conclusion on the relationship between macroeconomics attributes and life insurance consumption will be discussed in the way of comparative study over developed and developing countries. The implications, limitations and recommendations of the study have been discussed in this chapter.

5.1 Summary of Statistical Analysis

Table 5.1: Summary of Findings on Macroeconomics Attributes on Life Insurance Consumptions

Hypotheses of the study	***Expectation***	***Result***	***Consistency***
i) Degree of regulation			
H_1: The higher the degree of regulation, the higher the life insurance consumption over developed countries.	Positive Significant	Positive Insignificant	Inconsistent
H_2: The higher the degree of regulation, the higher the life insurance consumption over developing countries.	Positive Significant	Positive Insignificant	Inconsistent

ii) Financial development H_1: The higher the quality of financial development, the higher the life insurance consumption over developed countries.	Positive Significant	Negative Significant	Inconsistent
H_2: The higher the quality of financial development, the higher the life insurance consumption over developing countries.	Positive Significant	Positive Significant	Consistent
iii) Political stability H_1: The higher the level of political stability, the higher the life insurance consumption over developed countries.	Positive Significant	Positive Insignificant	Inconsistent
H_2: The higher the level of political stability, the higher the life insurance consumption over developing countries.	Positive Significant	Positive Insignificant	Inconsistent

5.1.1 Degree of Regulation and Life Insurance Consumption

The p-value of the degree of regulation over developed countries is 0.8803, which is higher than 5% of level of significance. This indicates the degree of regulation is insignificant and with no relationship with the life insurance consumption over developed countries from year 2003 to 2013. Therefore, is not accepted which means the degree of regulation will not influence the demand of life insurance consumption.

While, the p-value of the degree of regulation over developing countries is 0.9675, which is higher than 5% of level of significance. This indicates the degree of

regulation is insignificant and with no relationship with the life insurance consumption over developing countries from year 2003 to 2013. Therefore, it is not accepted which means the degree of regulation will not influence the demand of life insurance consumption.

As compare over developed and developing countries, both of the results of degree of regulation in influencing the demand of life insurance consumption are same, which are insignificant. The results are inconsistent with the study of Guerineau and Sawadog (2015) and Park et al. (2002). Based on Dragos, Mare, Dragota and Muresan (2017), the study stated that the developed countries are with high confidence level in rule of law can aid to solve the conflict and implement contracts. Ward and Zurbruegg (2002) stated that when the level of civil rights does not change very much through the economies, this means that it has reached the maximum level. Therefore, the demand of life insurance consumption will not be affected over developed countries. Also, when the legal system of developing countries is weak, it can be a barrier for the life insurance company to build a long term relationship with its customer. Levine (1997) and Levine (1998) stated that when investor think that they are protected it can stimulate the growth of economy. This can be applied to the life insurance where a long term relationship between customer and insurance company can be established. Thus, the degree of regulation in developing countries is not likely affected the insurance consumption with the presence of weak regulation.

5.1.2 Financial Development and Life Insurance Consumption

The p-value for developed countries and developing countries is 0.0466 and 0.0000 respectively which rejected H_0 at 5% significance level. The result indicates that the financial development has significant relationship on life insurance consumption over developed and developing countries. However, the financial development in developed countries shows negative relationship on the life insurance consumption. In developing countries, the result is consistent with the research objective and hypothesis development which is positive and significant relationship (Ward & Zurbruegg, 2002; Savvides, 2006).

Besides, the result obtained over developing countries can be supported by Han et al. (2010) which stated that the financial development is more significant for the life insurance consumption over developing countries. Developing countries with well development of the financial institution, intermediation or any financial related services is critical for the life insurance consumption as it can provide substantial growth to insurance sector and economic growth. Thus, the higher the level of financial development, it will increase the life insurance consumption over the developing countries (Han et al., 2010).

For developed countries, the result obtained over the developed countries is contradict with the research objective and hypothesis as it shows that there is negative relationship between financial development and life insurance consumption. This may be due to the financial system in developed countries is well developed thus is quickly in path with the economic growth (Mehrara & Ghamati, 2014). It substantially reduce the needs for a person to demand on life insurance as good economic growth may contribute to his or her financial position to have ability for own coverage plan. Thus, according to Mehrara and Ghamati (2014), the higher the level of financial development, it will reduce the life insurance consumption over the developed countries.

5.1.3 Political Stability and Life Insurance Consumption

The p-value of the political stability over developed countries is 0.4120 which is higher than 5% of level of significance. This indicates the political stability is insignificant and with no relationship on the life insurance consumption over developed countries from year 2003 to 2013. Therefore, it is not consistent with the research objective and hypothesis development which indicates that the political stability will not influence the demand of life insurance consumption.

While, the p-value of the political stability over developed countries is 0.2430 which is higher than 5% of level of significance. This indicates the political stability is insignificant and with no relationship with the life insurance consumption over developing countries from year 2003 to 2013. Therefore, is not

accepted which means the political stability will not influence the demand of life insurance consumption.

As compare over developed and developing countries, both of the results of political stability in influencing the demand of life insurance consumption are same, which are insignificant. The results are consistent with the study of Beck and Webb (2003), Nesterova (2008) and Ibiwoye et al. (2010). According to Laura et al. (n.d.), political stability will increase the confidence and reliability of the investor toward the financial market, thus increase the consumption of life insurance. However, according to Khalid and Rajaguru (2010), the impact of political events and financial market volatility is positively related in short-run, but does not support a long-run relationship.

5.2 Discussion of Major Findings

Table 5.2 Summary of Findings on POLS regression result with control variables over developed and developing countries

	Significant	**Insignificant**
$LERF^{(1)}$	Model (1) - Model (9)	-
$FD^{(1)}$	Model (1) - Model (9)	-
$LPS^{(1)}$	Model (1) - Model (5)	Model (6) - Model (9)
$LERF^{(2)}$	Model (1) - Model (5)	Model (6) - Model (9)
$FD^{(2)}$	Model (1) - Model (9)	-
$LPS^{(2)}$	-	Model (1) - Model (9)

Notes: 1. [1] represent the independent variable for developed countries, [2] represent the independent variable for developing countries; 3. LOG_ERF= log degree of regulation, FD= Financial development, LOG_PS= Log political stability.

Table 5.2 shows the comparison of POLS regression result with control variables over developed and developing countries. First of all, the degree of regulation is significant from model (1) to model (9) in developed countries. It means that degree of regulation is significant in influencing the life insurance consumption over developed countries by including of all control variables. The degree of regulation is only significant from model (1) to model (5) over the developing countries. The rest of the models which are from model (6) to model (9) are not significant in influencing the life insurance consumption in developing countries.

Secondly, the financial development is significant from model (1) to model (9) in developed countries. As similar to developed countries, financial development is also significant from model (1) to model (9), which is significant in influencing the life insurance consumption in developing countries.

Lastly, the political stability is only significant from model (1) to model (5) in developed countries. Started from model (6) to model (9), the political stability is insignificant in influencing life insurance consumption in developed countries. At the same time, as compare to developed countries, the political stability is not significant from model (1) to model (9) in influencing the life insurance consumption in developing countries.

5.3 Implication of Study

5.3.1 Policy Makers and Regulators

The results on this study are conducted based on the macroeconomics attributes toward the life insurance consumption over the developed and developing countries. It may be useful for the policy makers and regulators to implement new rules or policy that is within the coverage of the study and act as a guide to be referred. The result shows that financial development is consistent with the research hypothesis while degree of regulation and political stability show insignificant result. The policy makers should expertise to categorize the relationship between degree of regulation and life insurance consumption in its own country so that they implemented an effective rules and regulation to life insurance sector. Besides, policy makers and regulators should also improve and ensure the political stability in the country so that to increase confidence of buyer. Therefore, policy makers and regulators should examine well whether the rules and regulations that implemented are developing and expanding the life insurance sector in the country.

5.3.2 Academician and Future Researchers

The results on this study conducted are based on the macroeconomics attributes toward the life insurance consumption over the developed and developing countries. It may be useful for the academician and future researcher to do their research that is within the coverage of the study as act as a guide to be referred. The contradiction of the results in this study with previous studies is narrowing down the gaps for future research purpose. The future research can be improved by referring to the recommendation of the study which is based on the limitation when conducting this research paper. The academician and future researcher can further examine on the macroeconomics attributes such as degree of regulation and political stability on life insurance consumption which are often resulted in insignificant result. Therefore, this study implies that the academician and future researcher should take into account the recommendation on the study to serve as a guideline when conducting the research that is in similar aspect, for the purpose of improving the accuracy of the study.

5.3.3 Life Insurance Sectors

The result of the study indicates that financial development is the most critical macroeconomics attributes on the life insurance consumption over both developed and developing countries. While for degree of regulation and political stability are found to be inconsistent with the research hypothesis of the study. The study may contribute a better understanding for the life insurance sector to use as reference for the purpose of increasing the life insurance consumption. Since financial development is contributing substantial growth on life insurance consumption, this implies the sector should take into consideration the effort on further develop the financial structure. However, life insurance sector over the developed countries with better financial development can take possible ways to promote the life insurance policies and assure that the policies is good than appropriate coverage for the consumer. In other word, this can attract the consumer to demand the life insurance policies as long as the sector is with good faith to put the best interest of their policyholders above everything.

5.4 Limitation of Study

There are some limitations found throughout the study. The first limitation is there are problem faced during the data collection in order to complete the statistical analysis in the research. The data selection for the study which is only covered from the year 2003 to 2013. This is due to the incomplete and missing data for the following year in certain selected developed and developing countries. Even in the process of the selection for developed and developing countries, some data needed for the selected countries could not find from World Bank, Data Market, Worldwide Governance Indicators and The Fraser Institute and International Monetary Fund sources. Thus, it leads to a longer time to search for the complete data for the 11 developed and 11 developing countries.

Besides, the small sample size is another limitation found in the study. The study only based on the selection of 11 developed countries and 11 developing countries. Other than those selected developed and developing countries that are not taken into account may result to the decrease in statistical power. This is because the large detection on effect of the size may increase the power of study. In addition, the problem is that low number of observation may also lead to the low percentage in coefficient of determination. Whereby, the variation of its independent variable can be more accurate in interpreting the dependent variable when there is a high percentage of a coefficient of determination. Thus, the test hypothesis may be not reliable in the study when there is a low sample size.

In addition, the research conducted in those selected developing and developed countries may not be generated to least developed countries. This is because the macroeconomics attributes like degree of regulation, financial development and political stability may be vary under different categories of development over the countries. Thus, the limitation was the outcome of the research may only be able to undertake those macroeconomics characteristic for developed and developing countries as for further researches.

5.5 Recommendation for Future Research

There are some suggestions to advice future researchers who are interested to conduct similar area of studies related to the relationship of macroeconomics attributes and life insurance consumption. First of all, future research can consider having more efficient results by using the latest data in their study. This is due to the data collected in the study is not the latest whereby the data from the year 2014 onward was incomplete from the sources. Thus, the data collected for this research is only from 2003 to 2013.

Other than that, the sample size of the study is advisable to increase in future research. To increase the sample size, the number of selected countries and the number or year can be added to conduct the test. According to Stockwell and Peterson (2002) stated that large sample size will increase the accuracy of model. Similar to Cornish (2006) commented as the sample size become larger, the more statistically significant of the model. However, even the model is not statistically significant, it still practically important. Thus, small sample size only may cause the result become inconclusive.

Furthermore, future researcher is suggested to extend the research by focusing on the least developed countries. This is to find out significance of the relationship of macroeconomics attributes toward the life insurance consumption over the least developed countries. This information might be useful for the insurance sector to look for further opportunity for extension.

In addition, the consideration on global financial crisis is also recommended to have further discussion for the future research. This is because global financial crisis that will also bring negative impact to the life insurance consumption over the countries. Thus, the past, present and future financial crisis event should be taking into account by future researches to be more understand of the cause and effect toward life insurance consumption throughout the countries during the unfavorable event.

5.6 Conclusion

The study is to examine on the relationship between macroeconomics attributes and life insurance consumption over developed and developing countries from 2003 to 2013. This research is further explaining on the relationship after taking into testing the control variables and the results have been discussed. In short, financial development can be described as most significant macroeconomics attribute on life insurance consumption. The comparative studies for the result found between the developed and developing countries and implication have also been discussed in this paper. To conclude, the limitations have been explained and possible techniques have been suggested to serve as future guideline and reference.

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APPENDICES

Appendix I: List of 11 Developed Countries and 11 Developing Countries

Developed countries	**Country code**	**Country ID**
Australia	AUS	1
Switzerland	CHE	2
Chile	CHL	3
United Kingdom	GBR	4
Iceland	ISL	5
Japan	JPN	6
South Korea	KOR	7
Poland	POL	8
Romania	ROU	9
Russia	RUS	10
United State	USA	11

Developing countries	**Country code**	**Country ID**
Argentina	ARG	12
Bangladesh	BGD	13
Brazil	BRA	14
China	CHN	15
Indonesia	IDN	16
India	IND	17
Mexico	MEX	18
Malaysia	MYS	19
Philippines	PHL	20
Thailand	THA	21
Ukraine	UKR	22

Appendix II: Eviews Outputs for Developed Countries

Descriptive Data Analysis

	LIP	LERF	FD	LPS
Mean	3.635455	2.020305	98.25940	4.104199
Median	3.340000	2.050270	87.78296	4.180522
Maximum	14.70000	2.144761	235.3415	4.600359
Minimum	0.040000	1.790091	27.39280	2.045109
Std. Dev.	3.080206	0.080586	52.19015	0.473361
Skewness	0.832423	-0.867092	0.792292	-1.989059
Kurtosis	3.487982	2.891438	2.909096	7.237679
Jarque-Bera	15.17459	15.22169	12.70083	170.3244
Probability	0.000507	0.000495	0.001746	0.000000
Sum	439.8900	244.4569	11889.39	496.6081
Sum Sq. Dev.	1138.520	0.779290	326857.4	26.88848
Observations	121	121	121	121

Poolability Test

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

Effects Test	Statistic	d.f.	Prob.
Cross-section F	71.791680	(10,107)	0.0000
Cross-section Chi-square	247.136897	10	0.0000

Cross-section fixed effects test equation:
Dependent Variable: LIP
Method: Panel Least Squares
Date: 01/24/18 Time: 18:48
Sample: 2003 2013
Periods included: 11
Cross-sections included: 11
Total panel (balanced) observations: 121

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LERF	14.78422	2.960050	4.994586	0.0000
FD	0.039486	0.003976	9.930174	0.0000
LPS	-1.898949	0.500482	-3.794244	0.0002
C	-22.31943	5.052000	-4.417941	0.0000

R-squared	0.603639	Mean dependent var	3.635455
Adjusted R-squared	0.593476	S.D. dependent var	3.080206
S.E. of regression	1.963917	Akaike info criterion	4.220258
Sum squared resid	451.2654	Schwarz criterion	4.312681
Log likelihood	-251.3256	Hannan-Quinn criter.	4.257794
F-statistic	59.39507	Durbin-Watson stat	0.206035
Prob(F-statistic)	0.000000		

Fixed Effect Model estimated output

Dependent Variable: LIP
Method: Panel Least Squares
Date: 01/25/18 Time: 01:13
Sample: 2003 2013
Periods included: 11
Cross-sections included: 11
Total panel (balanced) observations: 121

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	2.330604	4.144739	0.562304	0.5751
LERF	0.294143	1.948275	0.150976	0.8803
FD	-0.011748	0.005836	-2.012929	0.0466
LPS	0.454389	0.551705	0.823609	0.4120

Effects Specification

Cross-section fixed (dummy variables)

R-squared	0.948588	Mean dependent var	3.635455
Adjusted R-squared	0.942342	S.D. dependent var	3.080206
S.E. of regression	0.739624	Akaike info criterion	2.343093
Sum squared resid	58.53365	Schwarz criterion	2.666573
Log likelihood	-127.7571	Hannan-Quinn criter.	2.474471
F-statistic	151.8634	Durbin-Watson stat	1.023717
Prob(F-statistic)	0.000000		

Random Effect Model estimated output

Correlated Random Effects - Hausman Test
Equation: Untitled
Test cross-section random effects

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	18.816851	3	0.0003

Cross-section random effects test comparisons:

Variable	Fixed	Random	Var(Diff.)	Prob.
LERF	0.294143	2.001779	0.195451	0.0001
FD	-0.011748	-0.001600	0.000006	0.0000
LPS	0.454389	0.329644	0.030281	0.4735

Cross-section random effects test equation:
Dependent Variable: LIP
Method: Panel Least Squares
Date: 01/24/18 Time: 15:31
Sample: 2003 2013
Periods included: 11
Cross-sections included: 11
Total panel (balanced) observations: 121

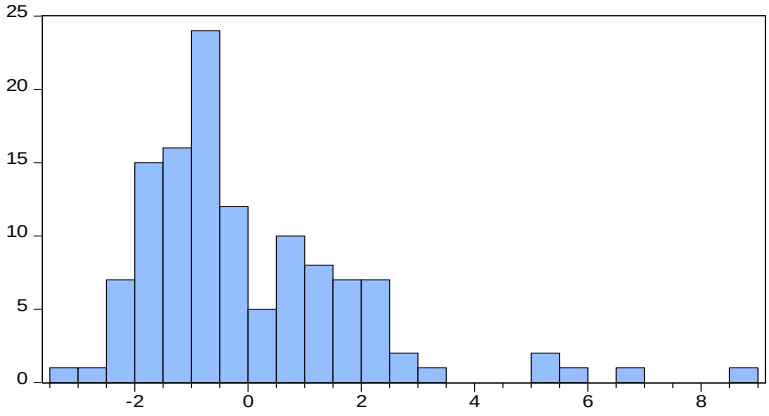
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	2.330604	4.144739	0.562304	0.5751
LERF	0.294143	1.948275	0.150976	0.8803
FD	-0.011748	0.005836	-2.012929	0.0466
LPS	0.454389	0.551705	0.823609	0.4120

Effects Specification

Cross-section fixed (dummy variables)

R-squared	0.948588	Mean dependent var	3.635455
Adjusted R-squared	0.942342	S.D. dependent var	3.080206
S.E. of regression	0.739624	Akaike info criterion	2.343093
Sum squared resid	58.53365	Schwarz criterion	2.666573
Log likelihood	-127.7571	Hannan-Quinn criter.	2.474471
F-statistic	151.8634	Durbin-Watson stat	1.023717
Prob(F-statistic)	0.000000		

Normality Test



Series: Standardized Residuals	
Sample 2003 2013	
Observations 121	
Mean	1.56e-16
Median	-0.583013
Maximum	8.637844
Minimum	-3.226669
Std. Dev.	1.939212
Skewness	1.621593
Kurtosis	6.774670
Jarque-Bera	124.8639
Probability	0.000000

Correlation Matrix for the variables

	LERF	FD	LPS
LERF	1	0.46036058780 67081	0.62870366790 55266
FD	0.46036058780 67081	1	0.44838841531 89731
LPS	0.62870366790 55266	0.44838841531 89731	1

Autocorrelation Test

Lagrange Multiplier Tests for Random Effects
Null hypotheses: No effects
Alternative hypotheses: Two-sided (Breusch-Pagan) and one-sided (all others) alternatives

	Test Hypothesis		
	Cross-section	Time	Both
Breusch-Pagan	307.5192 (0.0000)	2.335172 (0.1265)	309.8544 (0.0000)
Honda	17.53623 (0.0000)	-1.528127 (0.9368)	11.31944 (0.0000)
King-Wu	17.53623 (0.0000)	-1.528127 (0.9368)	11.31944 (0.0000)
Standardized Honda	21.78401 (0.0000)	-1.398834 (0.9191)	9.693497 (0.0000)
Standardized King-Wu	21.78401 (0.0000)	-1.398834 (0.9191)	9.693497 (0.0000)
Gourieroux, et al.*	--	--	307.5192 (0.0000)

Pool OLS Model estimated output

Dependent Variable: LIP
Method: Panel Least Squares
Date: 01/22/18 Time: 21:49
Sample: 2003 2013
Periods included: 11
Cross-sections included: 11
Total panel (balanced) observations: 121

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-22.31943	5.052000	-4.417941	0.0000
LERF_F	14.78422	2.960050	4.994586	0.0000
FD	0.039486	0.003976	9.930174	0.0000
LPS	-1.898949	0.500482	-3.794244	0.0002

R-squared	0.603639	Mean dependent var	3.635455
Adjusted R-squared	0.593476	S.D. dependent var	3.080206
S.E. of regression	1.963917	Akaike info criterion	4.220258
Sum squared resid	451.2654	Schwarz criterion	4.312681
Log likelihood	-251.3256	Hannan-Quinn criter.	4.257794
F-statistic	59.39507	Durbin-Watson stat	0.206035
Prob(F-statistic)	0.000000		

Pool OLS Model estimated output with control variables

Control variable: education

Dependent Variable: LIP
Method: Panel Least Squares
Date: 01/22/18 Time: 22:43
Sample: 2003 2013
Periods included: 11
Cross-sections included: 11
Total panel (unbalanced) observations: 120

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-22.97659	5.216023	-4.405002	0.0000
LERF_F	14.75399	2.962868	4.979632	0.0000
FD	0.039911	0.003991	9.999059	0.0000
LPS	-1.935879	0.509384	-3.800435	0.0002
EDU	0.012270	0.012284	0.998863	0.3200

R-squared	0.605748	Mean dependent var	3.665250
Adjusted R-squared	0.592035	S.D. dependent var	3.075561
S.E. of regression	1.964426	Akaike info criterion	4.229051
Sum squared resid	443.7816	Schwarz criterion	4.345197
Log likelihood	-248.7431	Hannan-Quinn criter.	4.276219
F-statistic	44.17293	Durbin-Watson stat	0.212592
Prob(F-statistic)	0.000000		

Control variable: education and income

Dependent Variable: LIP
Method: Panel Least Squares
Date: 01/22/18 Time: 22:52
Sample: 2003 2013
Periods included: 11
Cross-sections included: 11
Total panel (unbalanced) observations: 120

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-23.74361	5.224782	-4.544422	0.0000
LERF F	16.82940	3.309885	5.084587	0.0000
FD	0.043496	0.004744	9.168069	0.0000
LPS	-1.745074	0.525741	-3.319265	0.0012
EDU	0.020798	0.013697	1.518369	0.1317
LINC	-0.511231	0.369184	-1.384761	0.1688

R-squared	0.612270	Mean dependent var	3.665250
Adjusted R-squared	0.595264	S.D. dependent var	3.075561
S.E. of regression	1.956636	Akaike info criterion	4.229037
Sum squared resid	436.4404	Schwarz criterion	4.368412
Log likelihood	-247.7422	Hannan-Quinn criter.	4.285638
F-statistic	36.00381	Durbin-Watson stat	0.222516
Prob(F-statistic)	0.000000		

Control variable: education, income and population

Dependent Variable: LIP
Method: Panel Least Squares
Date: 01/22/18 Time: 23:02
Sample: 2003 2013
Periods included: 11
Cross-sections included: 11
Total panel (unbalanced) observations: 120

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-29.02329	6.819181	-4.256126	0.0000
LERF	18.69240	3.649253	5.122255	0.0000
FD	0.041879	0.004923	8.507650	0.0000
LPS	-1.730898	0.524854	-3.297868	0.0013
EDU	0.023881	0.013910	1.716865	0.0887
LINC	-0.349359	0.392324	-0.890486	0.3751
POP	-0.440158	0.366334	-1.201521	0.2321

R-squared	0.617161	Mean dependent var	3.665250
Adjusted R-squared	0.596833	S.D. dependent var	3.075561
S.E. of regression	1.952840	Akaike info criterion	4.233009
Sum squared resid	430.9349	Schwarz criterion	4.395613
Log likelihood	-246.9805	Hannan-Quinn criter.	4.299043
F-statistic	30.36055	Durbin-Watson stat	0.223111
Prob(F-statistic)	0.000000		

Control variable: education, income, population and inflation

Dependent Variable: LIP
Method: Panel Least Squares
Date: 01/22/18 Time: 23:06
Sample: 2003 2013
Periods included: 11
Cross-sections included: 11
Total panel (unbalanced) observations: 120

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-23.59796	8.694752	-2.714046	0.0077
LERF	16.55661	4.222068	3.921446	0.0002
FD	0.039959	0.005280	7.568565	0.0000
LPS	-1.914870	0.555794	-3.445285	0.0008
EDU	0.020452	0.014321	1.428176	0.1560
LINC	-0.316023	0.393703	-0.802694	0.4239
POP	-0.341504	0.379222	-0.900538	0.3698
INF	-0.086863	0.086371	-1.005689	0.3167

R-squared	0.620587	Mean dependent var	3.665250
Adjusted R-squared	0.596874	S.D. dependent var	3.075561
S.E. of regression	1.952741	Akaike info criterion	4.240686
Sum squared resid	427.0782	Schwarz criterion	4.426519
Log likelihood	-246.4411	Hannan-Quinn criter.	4.316153
F-statistic	26.17044	Durbin-Watson stat	0.231242
Prob(F-statistic)	0.000000		

Control variable: education, income, population, inflation and life expectancy

Dependent Variable: LIP
Method: Panel Least Squares
Date: 01/22/18 Time: 23:10
Sample: 2003 2013
Periods included: 11
Cross-sections included: 11
Total panel (unbalanced) observations: 120

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-5.311918	49.98566	-0.106269	0.9156
LERF	16.84092	4.306937	3.910186	0.0002
FD	0.041873	0.007391	5.665179	0.0000
LPS	-1.578843	1.062685	-1.485711	0.1402
EDU	0.022859	0.015768	1.449707	0.1500
LINC	-0.319759	0.395354	-0.808790	0.4204
POP	-0.269685	0.426956	-0.631646	0.5289
INF	-0.090487	0.087253	-1.037074	0.3020
LLE	-4.721426	12.70793	-0.371534	0.7109

R-squared	0.621059	Mean dependent var	3.665250
Adjusted R-squared	0.593747	S.D. dependent var	3.075561
S.E. of regression	1.960299	Akaike info criterion	4.256110
Sum squared resid	426.5477	Schwarz criterion	4.465172
Log likelihood	-246.3666	Hannan-Quinn criter.	4.341011
F-statistic	22.74016	Durbin-Watson stat	0.226302
Prob(F-statistic)	0.000000		

Control variable: education, income, population, inflation, life expectancy and young dependency

Dependent Variable: LIP
Method: Panel Least Squares
Date: 01/22/18 Time: 23:25
Sample: 2003 2013
Periods included: 11
Cross-sections included: 11
Total panel (unbalanced) observations: 120

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-2.115019	58.01271	-0.036458	0.9710
LERF	16.74923	4.405785	3.801645	0.0002
FD	0.042406	0.008865	4.783353	0.0000
LPS	-1.538949	1.127362	-1.365089	0.1750
EDU	0.023145	0.016051	1.442000	0.1521
LINC	-0.310478	0.405987	-0.764749	0.4461
POP	-0.285005	0.450912	-0.632064	0.5287
INF	-0.093109	0.090824	-1.025150	0.3075
LLE	-5.530134	14.73027	-0.375426	0.7081
YDEP	0.007746	0.070410	0.110011	0.9126

R-squared	0.621100	Mean dependent var	3.665250
Adjusted R-squared	0.590099	S.D. dependent var	3.075561
S.E. of regression	1.969081	Akaike info criterion	4.272666
Sum squared resid	426.5008	Schwarz criterion	4.504957
Log likelihood	-246.3600	Hannan-Quinn criter.	4.367001
F-statistic	20.03492	Durbin-Watson stat	0.225459
Prob(F-statistic)	0.000000		

Control variable: education, income, population, inflation, life expectancy, young dependency and old dependency

Dependent Variable: LIP
Method: Panel Least Squares
Date: 01/22/18 Time: 23:28
Sample: 2003 2013
Periods included: 11
Cross-sections included: 11
Total panel (unbalanced) observations: 120

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	13.62793	57.28105	0.237913	0.8124
LERF	15.31351	4.363593	3.509380	0.0007
FD	0.049599	0.009225	5.376612	0.0000
LPS	-1.509316	1.105436	-1.365358	0.1750
EDU	-0.000962	0.018838	-0.051085	0.9594
LINC	0.344052	0.487307	0.706027	0.4817
POP	-0.814453	0.497155	-1.638227	0.1043
INF	-0.106635	0.089241	-1.194905	0.2347
LLE	-8.812038	14.51144	-0.607248	0.5449
YDEP	-0.014623	0.069701	-0.209798	0.8342
ODEP	-0.163679	0.070293	-2.328527	0.0217

R-squared	0.639055	Mean dependent var	3.665250
Adjusted R-squared	0.605941	S.D. dependent var	3.075561
S.E. of regression	1.930657	Akaike info criterion	4.240787
Sum squared resid	406.2905	Schwarz criterion	4.496307
Log likelihood	-243.4472	Hannan-Quinn criter.	4.344555
F-statistic	19.29850	Durbin-Watson stat	0.241282
Prob(F-statistic)	0.000000		

Control variable: education, income, population, inflation, life expectancy, young dependency, old dependency and real interest rate

Dependent Variable: LIP
Method: Panel Least Squares
Date: 01/22/18 Time: 23:31
Sample: 2003 2013
Periods included: 11
Cross-sections included: 11
Total panel (unbalanced) observations: 120

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	10.42829	57.77063	0.180512	0.8571
LERF	15.48134	4.388766	3.527492	0.0006
FD	0.048323	0.009550	5.060135	0.0000
LPS	-1.294519	1.177838	-1.099064	0.2742
EDU	0.001852	0.019600	0.094485	0.9249
LINC	0.292357	0.498128	0.586911	0.5585
POP	-0.792409	0.500433	-1.583448	0.1162
INF	-0.095823	0.091731	-1.044603	0.2985
LLE	-8.236071	14.59752	-0.564210	0.5738
YDEP	-0.021048	0.070927	-0.296750	0.7672
ODEP	-0.156924	0.071617	-2.191161	0.0306
RIR	-0.030718	0.056726	-0.541517	0.5893

R-squared	0.640032	Mean dependent var	3.665250
Adjusted R-squared	0.603369	S.D. dependent var	3.075561
S.E. of regression	1.936947	Akaike info criterion	4.254742
Sum squared resid	405.1903	Schwarz criterion	4.533491
Log likelihood	-243.2845	Hannan-Quinn criter.	4.367944
F-statistic	17.45699	Durbin-Watson stat	0.242649
Prob(F-statistic)	0.000000		

Appendix III: Eviews Output for Developing Countries

Descriptive Data Analysis

	LIP	LERF	FD	LPS
Mean	1.387190	0.809201	74.67938	1.333006
Median	0.980000	0.814248	60.41572	1.399993
Maximum	3.580000	0.866287	185.8942	1.811134
Minimum	0.030000	0.699838	23.49367	0.462181
Std. Dev.	1.001333	0.029441	41.58295	0.306490
Skewness	0.668446	-0.902782	0.980039	-0.541935
Kurtosis	2.147100	4.414271	2.911878	2.348306
Jarque-Bera	12.67836	26.52028	19.40877	8.064031
Probability	0.001766	0.000002	0.000061	0.017739
Sum	167.8500	97.91336	9036.204	161.2937
Sum Sq. Dev.	120.3200	0.104011	207497.1	11.27234
Observations	121	121	121	121

Poolability Test

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

Effects Test	Statistic	d.f.	Prob.
Cross-section F	75.311620	(10,107)	0.0000
Cross-section Chi-square	252.192879	10	0.0000

Cross-section fixed effects test equation:
Dependent Variable: LIP
Method: Panel Least Squares
Date: 01/24/18 Time: 22:02
Sample: 2003 2013
Periods included: 11
Cross-sections included: 11
Total panel (balanced) observations: 121

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-7.714519	1.898384	-4.063729	0.0001
LERF	9.962959	2.262678	4.403172	0.0000
FD	0.014827	0.001585	9.354581	0.0000
LPS	-0.050714	0.214773	-0.236130	0.8137

R-squared	0.546775	Mean dependent var	1.387190
Adjusted R-squared	0.535153	S.D. dependent var	1.001333
S.E. of regression	0.682705	Akaike info criterion	2.106992
Sum squared resid	54.53210	Schwarz criterion	2.199414
Log likelihood	-123.4730	Hannan-Quinn criter.	2.144528
F-statistic	47.04991	Durbin-Watson stat	0.114079
Prob(F-statistic)	0.000000		

Fixed Effect Model estimated output

Dependent Variable: LIP
Method: Panel Least Squares
Date: 01/24/18 Time: 18:06
Sample: 2003 2013
Periods included: 11
Cross-sections included: 11
Total panel (balanced) observations: 121

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.022702	1.249477	0.018169	0.9855
LERF	-0.586818	1.655624	-0.354439	0.7237
FD	0.020278	0.003326	6.096919	0.0000
LPS	0.243792	0.169837	1.435445	0.1541

Effects Specification

Cross-section fixed (dummy variables)

R-squared	0.943618	Mean dependent var	1.387190
Adjusted R-squared	0.936768	S.D. dependent var	1.001333
S.E. of regression	0.251795	Akaike info criterion	0.188042
Sum squared resid	6.783891	Schwarz criterion	0.511522
Log likelihood	2.623444	Hannan-Quinn criter.	0.319420
F-statistic	137.7513	Durbin-Watson stat	0.635988
Prob(F-statistic)	0.000000		

Random Effect Model estimated output

Dependent Variable: LIP
Method: Panel EGLS (Cross-section random effects)
Date: 01/24/18 Time: 18:07
Sample: 2003 2013
Periods included: 11
Cross-sections included: 11
Total panel (balanced) observations: 121
Swamy and Arora estimator of component variances

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.332965	1.251633	-0.266025	0.7907
LERF	0.065687	1.608400	0.040840	0.9675
FD	0.018877	0.002860	6.599573	0.0000
LPS	0.193019	0.164483	1.173493	0.2430

Effects Specification

	S.D.	Rho
Cross-section random	0.753421	0.8995
Idiosyncratic random	0.251795	0.1005

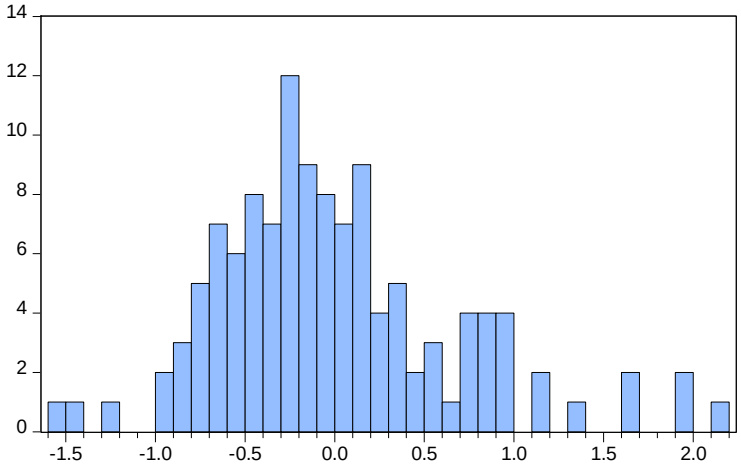
Weighted Statistics

R-squared	0.290887	Mean dependent var	0.139077
Adjusted R-squared	0.272704	S.D. dependent var	0.295184
S.E. of regression	0.251737	Sum squared resid	7.414493
F-statistic	15.99826	Durbin-Watson stat	0.577815
Prob(F-statistic)	0.000000		

Unweighted Statistics

R-squared	0.436647	Mean dependent var	1.387190
Sum squared resid	67.78272	Durbin-Watson stat	0.063205

Normality Test



Series: Standardized Residuals	
Sample 2003 2013	
Observations 121	
Mean	1.91e-16
Median	-0.112376
Maximum	2.108859
Minimum	-1.516358
Std. Dev.	0.674117
Skewness	0.833975
Kurtosis	4.002009
Jarque-Bera	19.08813
Probability	0.000072

Correlation Matrix for the variables

	LERF	FD	LPS
LERF	1	0.22972907...	-0.2244515...
FD	0.22972907...	1	0.17300254...
LPS	-0.2244515...	0.17300254...	1

Autocorrelation Test

Lagrange Multiplier Tests for Random Effects
Null hypotheses: No effects
Alternative hypotheses: Two-sided (Breusch-Pagan) and one-sided (all others) alternatives

	Test Hypothesis		
	Cross-section	Time	Both
Breusch-Pagan	397.8742	4.677236	402.5514
	(0.0000)	(0.0306)	(0.0000)
Honda	19.94678	-2.162692	12.57525
	(0.0000)	(0.9847)	(0.0000)
King-Wu	19.94678	-2.162692	12.57525
	(0.0000)	(0.9847)	(0.0000)
Standardized Honda	24.60736	-2.053342	11.10650
	(0.0000)	(0.9800)	(0.0000)
Standardized King-Wu	24.60736	-2.053342	11.10650
	(0.0000)	(0.9800)	(0.0000)
Gourieroux, et al.*	--	--	397.8742
			(0.0000)

Pool OLS Model estimated output

Dependent Variable: LIP
Method: Panel Least Squares
Date: 01/24/18 Time: 18:05
Sample: 2003 2013
Periods included: 11
Cross-sections included: 11
Total panel (balanced) observations: 121

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-7.714519	1.898384	-4.063729	0.0001
LERF	9.962959	2.262678	4.403172	0.0000
FD	0.014827	0.001585	9.354581	0.0000
LPS	-0.050714	0.214773	-0.236130	0.8137

R-squared	0.546775	Mean dependent var	1.387190
Adjusted R-squared	0.535153	S.D. dependent var	1.001333
S.E. of regression	0.682705	Akaike info criterion	2.106992
Sum squared resid	54.53210	Schwarz criterion	2.199414
Log likelihood	-123.4730	Hannan-Quinn criter.	2.144528
F-statistic	47.04991	Durbin-Watson stat	0.114079
Prob(F-statistic)	0.000000		

Pool OLS Model estimated output with control variables

Control variable: education

Dependent Variable: LIP
Method: Panel Least Squares
Date: 02/27/18 Time: 23:20
Sample: 2003 2013
Periods included: 11
Cross-sections included: 11
Total panel (unbalanced) observations: 116

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-7.408690	2.032639	-3.644862	0.0004
LERF	9.689842	2.429499	3.988412	0.0001
FD	0.014598	0.001670	8.738952	0.0000
LPS	-0.048195	0.258002	-0.186801	0.8522
EDU	-0.001555	0.003835	-0.405552	0.6859

R-squared	0.549445	Mean dependent var	1.406810
Adjusted R-squared	0.533209	S.D. dependent var	1.016721
S.E. of regression	0.694645	Akaike info criterion	2.151315
Sum squared resid	53.56101	Schwarz criterion	2.270004
Log likelihood	-119.7763	Hannan-Quinn criter.	2.199496
F-statistic	33.84074	Durbin-Watson stat	0.114809
Prob(F-statistic)	0.000000		

Control variable: education and income

Dependent Variable: LIP
Method: Panel Least Squares
Date: 02/27/18 Time: 23:29
Sample: 2003 2013
Periods included: 11
Cross-sections included: 11
Total panel (unbalanced) observations: 116

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-7.398343	2.095109	-3.531246	0.0006
LERF	9.661784	2.752511	3.510171	0.0007
FD	0.014596	0.001680	8.688207	0.0000
LPS	-0.052352	0.320509	-0.163339	0.8706
EDU	-0.001592	0.004203	-0.378838	0.7055
LINC	0.005540	0.251304	0.022043	0.9825

R-squared	0.549447	Mean dependent var	1.406810
Adjusted R-squared	0.528968	S.D. dependent var	1.016721
S.E. of regression	0.697794	Akaike info criterion	2.168552
Sum squared resid	53.56078	Schwarz criterion	2.310979
Log likelihood	-119.7760	Hannan-Quinn criter.	2.226369
F-statistic	26.82891	Durbin-Watson stat	0.114652
Prob(F-statistic)	0.000000		

Control variable: education, income and population

Dependent Variable: LIP
Method: Panel Least Squares
Date: 02/27/18 Time: 23:33
Sample: 2003 2013
Periods included: 11
Cross-sections included: 11
Total panel (unbalanced) observations: 116

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-4.335941	2.079967	-2.084620	0.0394
LERF	5.555931	2.739451	2.028118	0.0450
FD	0.017898	0.001747	10.24287	0.0000
LPS	-0.104048	0.298603	-0.348450	0.7282
EDU	0.012437	0.005126	2.426393	0.0169
LINC	-0.303443	0.245041	-1.238337	0.2183
POP	0.617952	0.145882	4.235972	0.0000

R-squared	0.613133	Mean dependent var	1.406810
Adjusted R-squared	0.591837	S.D. dependent var	1.016721
S.E. of regression	0.649558	Akaike info criterion	2.033400
Sum squared resid	45.98996	Schwarz criterion	2.199565
Log likelihood	-110.9372	Hannan-Quinn criter.	2.100853
F-statistic	28.79175	Durbin-Watson stat	0.118351
Prob(F-statistic)	0.000000		

Control variable: education, income, population and inflation

Dependent Variable: LIP
Method: Panel Least Squares
Date: 02/27/18 Time: 23:35
Sample: 2003 2013
Periods included: 11
Cross-sections included: 11
Total panel (unbalanced) observations: 116

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-5.372366	2.228695	-2.410544	0.0176
LERF	6.431154	2.817228	2.282795	0.0244
FD	0.018848	0.001896	9.940720	0.0000
LPS	-0.130821	0.298509	-0.438248	0.6621
EDU	0.012016	0.005122	2.345853	0.0208
LINC	-0.260331	0.246696	-1.055271	0.2937
POP	0.626938	0.145644	4.304597	0.0000
INF	0.025308	0.019914	1.270859	0.2065

R-squared	0.618833	Mean dependent var	1.406810
Adjusted R-squared	0.594128	S.D. dependent var	1.016721
S.E. of regression	0.647733	Akaike info criterion	2.035797
Sum squared resid	45.31234	Schwarz criterion	2.225700
Log likelihood	-110.0762	Hannan-Quinn criter.	2.112887
F-statistic	25.04863	Durbin-Watson stat	0.132172
Prob(F-statistic)	0.000000		

Control variable: education, income, population, inflation and life expectancy

Dependent Variable: LIP
Method: Panel Least Squares
Date: 02/27/18 Time: 23:37
Sample: 2003 2013
Periods included: 11
Cross-sections included: 11
Total panel (unbalanced) observations: 116

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	28.53608	11.18738	2.550739	0.0122
LERF	2.261969	3.029494	0.746649	0.4569
FD	0.020006	0.001863	10.73639	0.0000
LPS	-0.171848	0.287673	-0.597373	0.5515
EDU	0.008255	0.005079	1.625283	0.1070
LINC	0.640055	0.376034	1.702120	0.0916
POP	0.601052	0.140458	4.279230	0.0000
INF	0.008683	0.019912	0.436064	0.6637
LLE	-18.05795	5.847251	-3.088280	0.0026

R-squared	0.650028	Mean dependent var	1.406810
Adjusted R-squared	0.623862	S.D. dependent var	1.016721
S.E. of regression	0.623556	Akaike info criterion	1.967655
Sum squared resid	41.60396	Schwarz criterion	2.181295
Log likelihood	-105.1240	Hannan-Quinn criter.	2.054380
F-statistic	24.84233	Durbin-Watson stat	0.123053
Prob(F-statistic)	0.000000		

Control variable: education, income, population, inflation, life expectancy and young dependency

Dependent Variable: LIP
Method: Panel Least Squares
Date: 02/27/18 Time: 23:43
Sample: 2003 2013
Periods included: 11
Cross-sections included: 11
Total panel (unbalanced) observations: 116

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	26.22482	11.23106	2.335026	0.0214
LERF	2.939886	3.046327	0.965059	0.3367
FD	0.016827	0.002824	5.959312	0.0000
LPS	-0.163151	0.286097	-0.570264	0.5697
EDU	0.007997	0.005053	1.582603	0.1165
LINC	0.309136	0.434702	0.711144	0.4786
POP	1.051500	0.332576	3.161684	0.0020
INF	0.010258	0.019827	0.517357	0.6060
LLE	-15.91167	5.989234	-2.656712	0.0091
YDEP	-0.032044	0.021472	-1.492384	0.1386

R-squared	0.657230	Mean dependent var	1.406810
Adjusted R-squared	0.628127	S.D. dependent var	1.016721
S.E. of regression	0.620011	Akaike info criterion	1.964102
Sum squared resid	40.74779	Schwarz criterion	2.201481
Log likelihood	-103.9179	Hannan-Quinn criter.	2.060464
F-statistic	22.58280	Durbin-Watson stat	0.125559
Prob(F-statistic)	0.000000		

Control variable: education, income, population, inflation, life expectancy, young dependency and old dependency

Dependent Variable: LIP
Method: Panel Least Squares
Date: 02/27/18 Time: 23:45
Sample: 2003 2013
Periods included: 11
Cross-sections included: 11
Total panel (unbalanced) observations: 116

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	26.30087	11.29254	2.329048	0.0218
LERF	3.091156	3.196953	0.966907	0.3358
FD	0.016963	0.002956	5.737728	0.0000
LPS	-0.182167	0.310021	-0.587598	0.5581
EDU	0.006727	0.009275	0.725298	0.4699
LINC	0.331730	0.458016	0.724277	0.4705
POP	1.082420	0.383837	2.820000	0.0057
INF	0.010164	0.019927	0.510062	0.6111
LLE	-16.11352	6.142038	-2.623482	0.0100
YDEP	-0.031786	0.021629	-1.469642	0.1446
ODEP	0.010682	0.065274	0.163652	0.8703

R-squared	0.657317	Mean dependent var	1.406810
Adjusted R-squared	0.624681	S.D. dependent var	1.016721
S.E. of regression	0.622877	Akaike info criterion	1.981089
Sum squared resid	40.73740	Schwarz criterion	2.242205
Log likelihood	-103.9031	Hannan-Quinn criter.	2.087087
F-statistic	20.14060	Durbin-Watson stat	0.126995
Prob(F-statistic)	0.000000		

Control variable: education, income, population, inflation, life expectancy, young dependency, old dependency and real interest rate

Dependent Variable: LIP
Method: Panel Least Squares
Date: 02/27/18 Time: 23:48
Sample: 2003 2013
Periods included: 11
Cross-sections included: 11
Total panel (unbalanced) observations: 116

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	29.41794	11.82688	2.487379	0.0145
LERF	2.307104	3.317557	0.695423	0.4883
FD	0.016543	0.002996	5.521444	0.0000
LPS	-0.122413	0.317405	-0.385667	0.7005
EDU	0.007396	0.009314	0.794084	0.4290
LINC	0.412139	0.467156	0.882230	0.3797
POP	0.982012	0.400222	2.453667	0.0158
INF	0.007788	0.020122	0.387057	0.6995
LLE	-17.43849	6.323325	-2.757803	0.0069
YDEP	-0.031659	0.021650	-1.462329	0.1467
ODEP	-0.011469	0.069861	-0.164174	0.8699
RIR	-0.006094	0.006804	-0.895617	0.3725

R-squared	0.659940	Mean dependent var	1.406810
Adjusted R-squared	0.623972	S.D. dependent var	1.016721
S.E. of regression	0.623464	Akaike info criterion	1.990647
Sum squared resid	40.42560	Schwarz criterion	2.275501
Log likelihood	-103.4575	Hannan-Quinn criter.	2.106281
F-statistic	18.34805	Durbin-Watson stat	0.122434
Prob(F-statistic)	0.000000		

POLS Regression Result with Control Variable on Developed Countries

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
LOG_ERF	9.9630*** (2.2627)	9.6898*** (2.4295)	9.6618*** (2.7525)	5.5559** (2.7395)	6.4312** (2.8172)	2.2620 (3.0295)	2.9399 (3.0463)	3.0912 (3.1970)	2.3071 (3.3176)
FD	0.0148*** (0.0016)	0.0146*** (0.0017)	0.0146*** (0.0017)	0.0179*** (0.0017)	0.0189*** (0.0019)	0.0200*** (0.0019)	0.0168*** (0.0028)	0.0170*** (0.0030)	0.0165*** (0.0030)
LOG_PS	-0.0507 (0.2148)	-0.0482 (0.2580)	-0.0524 (0.3205)	-0.1040 (0.2986)	-0.1308 (0.2985)	-0.1718 (0.2877)	-0.1632 (0.2861)	-0.1821 (0.3100)	-0.1224 (0.3174)
EDU	-	yes	yes	yes	yes	yes	yes	yes	yes
LOG_INC	-	-	yes	yes	yes	yes	yes	yes	yes
POP	-	-	-	yes	yes	yes	yes	yes	yes
INF	-	-	-	-	yes	yes	yes	yes	yes
LOG_LE	-	-	-	-	-	yes	yes	yes	yes
YDEP	-	-	-	-	-	-	yes	yes	yes
ODEP	-	-	-	-	-	-	-	yes	yes
RIR	-	-	-	-	-	-	-	-	yes
CONSTANT	-7.7145*** (1.8984)	-7.4087*** (2.0326)	-7.3983*** (2.0951)	-4.3360** (2.0800)	-5.3724** (2.2287)	28.5361** (11.1874)	26.2248** (11.2310)	26.3009** (11.2925)	29.4179** (11.8269)
R^2	0.5468	0.5494	0.5494	0.6131	0.6189	0.6500	0.6572	0.6573	00.6599

POLS Regression Result with Control Variable on Developing Countries

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
LERF	14.7842*** (2.9601)	14.7540*** (2.9629)	16.8294*** (3.3099)	18.6924*** (3.6493)	16.5566*** (4.2221)	16.8409*** (4.3069)	16.7492*** (4.4058)	15.3135*** (4.3636)	15.4813*** (4.3888)
FD	0.0395*** (0.0040)	0.0399*** (0.0040)	0.0435*** (0.0047)	0.0419*** (0.0049)	0.0400*** (0.0053)	0.0419*** (0.0074)	0.0424*** (0.0089)	0.0496*** (0.0092)	0.0483*** (0.0096)
LPS	-1.8989*** (0.5005)	-1.9359*** (0.5093)	-1.7451*** (0.5257)	-1.7309*** (0.5249)	-1.9149*** (0.5558)	-1.5788 (1.0627)	-1.5389 (1.1274)	-1.5093 (1.1054)	-1.2945 (1.1778)
EDU	-	yes	yes	yes	yes	yes	yes	yes	yes
LINC	-	-	yes	yes	yes	yes	yes	yes	yes
POP	-	-	-	yes	yes	yes	yes	yes	yes
INF	-	-	-	-		yes	yes	yes	yes
LLE	-	-	-	-	-	yes	yes	yes	yes
YDEP	-	-	-	-	-	-	yes	yes	yes
ODEP	-	-	-	-	-	-	-	yes	yes
RIR	-	-	-	-	-	-	-	-	yes
CONSTANT	-22.3194*** (5.052)	-22.9766*** (5.2160)	-23.7436*** (5.2248)	-29.0233*** (6.8192)	-23.5980*** (8.6948)	-5.3119 (49.9857)	-2.1150 (58.0127)	13.6279 (57.2811)	10.4283 (57.7706)
R^2	0.6036	0.6057	0.6123	0.6172	0.6206	0.6211	0.6211	0.6391	0.6400