Does Difference in Secondary and Tertiary Literacy Influence Life Insurance Consumption in The Selected ASEAN Countries?

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ABSTRACT

Life insurance as financial tool has played essential roles to both individual and economy with the functions of promoting long term saving, reinvestment of funds, risk management, development of capital markets support on economic growth. The determinants of life insurance consumption in the perspective of economics and demographic are to be examined in the ASEAN context. The study on the difference of secondary and tertiary education towards demand for life insurance is investigated to highlight the importance of introducing insurance knowledge in the education syllabus to improve future economics with better income and social return with the support of life insurance in the market. This will ensure a well risk management among individuals, firms and countries as a whole and it align with the AEC blueprint with the purpose to rise up the living of the community.

Keywords: life insurance, income, youth dependency, tertiary education.

I INTRODUCTION

A key landmark in the regional economic integration agenda in ASEAN 2015 is to embark on ASEAN Economic Community (AEC). One of the five core blueprints is "A Resilient, Inclusive, People-Oriented, and People-Centred ASEAN" which focus on providing an enabling environment access to the formal financial system in addition to increase awareness, encourage and develop social business in empowering communities to generate revenue and social returns to improve the well-being and livelihood of the people (ASEAN, 2015). Outreville (1990 and 1996) and Beck and Webb (2003) suggested that life insurance as financial tool has played essential roles to both individual and economy with the functions of promoting long term saving, reinvestment of funds, risk management, development of capital markets support on economic growth. Outville (1996 and 1999) claimed that human development elements play significant relationship to the life insurance consumption and economic development in the developing countries. In view of the factors of human capital determine the utilization of life insurance which ensures the risk management of individuals, firms and countries as a whole and it align with the AEC blueprint with the purpose to rise up the well-being of the community, thus, the investigation on the factors that influence the life insurance consumption in ASEAN countries, especially on the attributes of literacy is crucial. The purpose of this paper is to examine the difference in secondary and tertiary literacy impact on the consumption of life insurance in the selected ASEAN countries.

Financial sector of many Asian countries passed through a stage of restructuring in the institutions in the 1990s. Lee and Park (2009) presented that in meeting the rising demand for financial services in Asian countries, the improvement on the performance and strength of financial institutions such as banking and insurance are needed. Sen and Madheswaran (2013) highlighted that the detail investigation on the performance of the insurance sector in Asian countries was lack of global standards. They explored the factors of life insurance demand in the selected Asian economies to complement the studies by Truett and Truett (1990), Li, Moshirian, Nguyen and Wee (2007) and Outreville (2011) which focuses on United States region, OECD countries and selected countries from the world. However, there is still lack of study on the life insurance consumption in ASEAN countries in the literature. From Table 1, 7 countries out of 10 countries in ASEAN shows positive change in the life insurance premium volume to GDP (%) from 1997 to 2010, which shows that the consumption of life insurance has increased for the past two decades for most of the countries in ASEAN. Thus, the present paper endeavors to assess the attributes that contribute to the consumption of life insurance in ASEAN countries. To be more specific, it entails two crucial objectives. First, it investigates the economic and demographic factors in influencing life insurance consumption in selected ASEAN countries. This study is imperative to illustrate whether developing countries in ASEAN will contribute to the demand for life insurance. Second, it intends to divide the literacy level into two segments which are secondary and tertiary literacy in order to determine the differences in influencing life insurance demand. This study differs from previous studies that it attempts not only to illustrate literacy influence life insurance consumption but it also highlights at what

level of literacy will influence the decision to acquire life insurance.

This paper is put in order as follows. In the next section, the relevant literature will be reviewed. Section 3 explains data and methodology. Section 4 presents data and discussion on the results. Finally, section 5 contains a summary of the main findings.

Table 1. Life insurance premium volume to GDP (%) in ASEAN.

	1997	2010	% Change from 1997 to 2010
Singapore	2.878	4.247	48%
Malaysia	2.114	3.058	45%
Thailand	1.242	2.887	132%
Brunei	0.747	0.44	-41%
Philippines	0.698	0.786	13%
Indonesia	0.561	1.085	93%
Myanmar	0.012	0.004	-67%
Vietnam	0.005	0.632	12540%
Lao PDR	0.002	0.011	450%
Cambodia	Data not available		

(Source: The World Bank)

II LITERATURE REVIEW

Hueber (1916) was one of the pioneer researchers who suggested that the importance of life insurance consumption as the qualitative prospects of human life that provides economic values. The significance of insurance service is not only narrowed to risk transfer, allocation and absorption but also the mobilisation and reinvestment of funds for the utilisation by financial markets to encourage the investment and growth induction (Alhassan and Fiador, 2014).

The classical Keynesian consumption hypothesis and permanent income hypothesis described individual consumption styles in relative to income, price, and interest rate. It is undeniable that human lives surrounded with uncertainties associated with the time of death, nevertheless, human can improve lifetime benefit through the purchase of a life insurance policy and can provide a bequest for their dependents. Hence, insurance engages a vital role in smoothing the utilisation, bequest or repayment of debt when the insurance purchasers discontinue receiving a stream of income (Pissarides, 1980).

Yuan and Jiang (2015) studied the determinants that concern the demand for life insurance in China, The results postulated that income level was one of the common economic factor, and the demographic factors such as education, development of social security pension, children and elderly dependency ratio were the main factors the affect life insurance demand. In the case of Poland, Slimwinski, Michalski and Roskzkiewicz (2013) confirmed that economic factors strongly motivate the demand for life insurance but one of the demographic factors which is education was found to be contradicted with the previous study where it did not affect the life insurance consumption.

Cross sectional analysis were done by some researchers such as Browne and Kim (1993) mainly focusing on economic variables. They divided 2 sample periods in 1980 and 1987 respectively over 45 countries and recommended that income was positively affecting life insurance consumption but inflation was negatively related to life insurance demand. In regards to demographic factors, Outreville (1996) employed the percentage of the labor force with tertiary education as a proxy variable for education (human capital endowment) to studied its impact to life insurance consumption by using bivariate, multivariate and auxiliary regression but failed to exhibit positive relationship. Later, Outreville (2015) used survey questionnaire analysis on developed and developing countries for cross sectional data and concluded that negative significant association between relative risk aversion and the level of education which leads to lower demand for life insurance. The studied by Outreville (1996 and 2015) were contradicted with the literature by (Browne *et al.*, 1993; Ward and Zurbruegg, 2002; Hwang and Gao, 2003; Beck *et al.*, 2003) which recommended a positive significant link between risk aversion and education level that resulted on higher awareness on the necessity of life insurance.

Sen (2013) diverted the research on the determinants of life insurance consumption to the developing countries in Asian region which is mostly different from the past studies that centred on the European countries or United States countries. The low insurance market penetration in Asian region was due to the restriction entry by the foreign insurance companies and required partial or full ownership by the government. However, in the past decade, the insurance industry in Asian region had postulated expansion in life insurance industry due to the liberal policies and regulatory changes. Simultaneously, economics and human social features were among the factors that contribution the expansion of awareness and consumption in life insurance. Income, inflation, and real interest rate and youth dependency ratio were found significantly impact life insurance consumption. In addition, urbanisation and literacy rate which were the few determinants to be included by the past literatures were established to significantly impact life insurance consumption

As a summary from the literature reviews, gross domestic product, income, interest rate and inflations

are among the economic variables that influence life insurance consumption. Moreover, youth dependency rate, urbanisation and education were among the demographic variables that determine the life insurance consumption. Founded on these studies, most of the economic variables are significantly influence life insurance consumption. Nevertheless, the issue as whether the demographic variables are significantly influence life insurance consumption seems to receive mixed evidence. More specifically, education may influence certain countries based on the nature of development. In the present study, the highlighted contribution is to separate the education level in order to assess whether the difference in education level will influence the life insurance consumption in selected ASEAN countries. It is believed that to include the study on the difference in education levels will enhance the insurance company's strategy in approaching potential customers, improve the social return and assist in stable economic growth in the ASEAN countries.

III DATA AND METHODOLOGY

The ASEAN countries selected are Malaysia, Thailand, Philippines and Indonesia from 10 of the ASEAN economies. Singapore is not selected due to its background as a developed country which may deviate the study results compared to the other 9 countries which are not developed countries. Brunei and Myanmar are not in the sample as they demonstrated negative growth in life insurance premium volume to GDP for the past decade. Vietnam and Lao are not included in the analysis as the insurance penetration were far lower compared to the other selected countries both in 1990 or 2010. Cambodia is excluded as the data is not accessible. The sample period cover in this study is from 1990 to the recent data availability in 2013 and also due to the financial sector of many Asian countries passed through a stage of restructuring in the institutions start from 1990s (Lee et al., 2009). The data is extracted from The World Bank.

The dependent variable is the percentage of life insurance premium volume to GDP and independent variables are segmented to economic and demographic variables as illustrated in Table 2.

Table 2. Independent Variables of Life Insurance Consumption.

Segment	Variable	Explanation
Economics	GDP per capita, GDP	GDP per capita is gross domestic product divided by midyear population.
	Inflation (%), INF	Inflation as measured by the consumer price index reflects the annual percentage change in the cost to the average consumer of acquiring a basket of goods and services.
	Real interest rate (%), RIR	Deposit interest rate minus the inflation rate.
Demographic	Urban-isation, URB	Urban population refers to people living in urban areas as defined by national statistical offices.
	Youth dependency ratio, YOUTH	The ratio of younger dependents-people younger than 15.
	Life expectancy, LIFE	Number of years a newborn infant would live if prevailing patterns of mortality at the time of its birth were to stay the same throughout its life.
	Secondary enrolment ratio, SEC	Completes the provision of basic education that began at the primary level, and aims at laying the foundations for lifelong learning and human development.
	Tertiary enrolment ratio, TER	Requires minimum condition of admission, the successful completion of education at the secondary level.

(Source: The World Bank)

Table 3. Expected result of Independent Variables towards Life Insurance Consumption.

Variable	Expected Result	Rationale
GDP per capita, GDP	positive	As a proxy for income that indicates higher income will support life insurance consumption.
Inflation (%), INF	negative	Inflation and its instability to have a reverse relationship with the demand for life insurance.
Real interest rate (%), RIR	positive	Higher rates are expected to increase investment returns of life insurance and hence the profitability and as the consequence, insurer could offer higher financial benefits to insured. Thus, it will stimulate the demand for life insurance sales through

		consumer expectations.
Urbanisation, URB	positive	Growing of urbanisation indicates development of economics that experiencing the number of children declines, expenditures on cost of children will decline that leads to saving accumulation through investment in life insurance.
Youth dependency ratio, YOUTH	positive	To reduce the risk of uncertainties in raising up the children, the family is in favour of life insurance to protect their children's future.
Life expectancy, LIFE	positive	Expected living age is longer requires income benefits from insurance retirement plan that supports higher demand for life insurance.
Secondary enrolment ratio, SEC	positive	Education in secondary school enables the students to understand the basic needs that could encourage consumption in life insurance to protect future income.
Tertiary enrolment ratio, TER	positive	Higher education in tertiary level that makes the individual understands how the insurance functions that provide safeguard to their future and guides them to acquire life insurance.

The data will be analysed through panel data regression model as it is practical in controlling individual (cross-section) heterogeneity and consequences which are complicated to be observed through pure cross sections or pure time series data.(Gujarati and Dawn, 2009). Stata software is used to run the panel data.

As recommended by Sen (2013), the estimated equation by taking percentage of life insurance premium volume to GDP as the proxy for life insurance consumption is as follows:

$$\begin{aligned}\log(PREM)_{\mathrm{it}} = {} & \alpha_{\mathrm{i}} + \beta_1 \log(\mathrm{GDP})_{\mathrm{it}} + \beta_2 (INF)_{it} \\ & + \beta_3 (RIR)_{it} + \beta_4 \log(\mathrm{URB})_{\mathrm{it}} \\ & + \beta_5 \log(\mathrm{YOUTH})_{\mathrm{it}} \\ & + \beta_6 \log(\mathrm{LIFE})_{\mathrm{it}} + \beta_7 \log(\mathrm{SEC})_{\mathrm{it}} \\ & + \beta_8 \log(\mathrm{TER})_{\mathrm{it}} + \varepsilon_i\end{aligned}$$

Firstly, pooled ordinary linear regression model (Pooled OLS) is exploited to present result based on poolability of the data but disregards the panel structure of the data. The second model to be employed is random effect model (REM) which handles the constants for each section as random parameters. The third model is fixed effect model (FEM) where the constant is treated as group specific which means the model allows for different constants for each country. The selection between pooled OLS and REM is based on Breusch-Pagan Lagrangian Multiplier (BPLM) Test where the null hypothesis refers to Pooled OLS is preferred versus alternative hypothesis refers to REM is preferred. The choice between REM and FEM is based on Hausman Test where the null hypothesis refers to REM is preferred (Gujarati et al., 2009). Robustness check will be used to test for heterogeneity and serial correlation.

IV DATA ANALYSIS

Table 4 demonstrated the descriptive statistic for the data.

Table 4. Summary of Descriptive Data.

Variables	Obs	Mean	Std Dev	Min	Max
PREM	95	1.482	0.961	0.216	3.663
GDP	96	2533.281	1724.459	827.2374	7051.793
INF	96	5.814	6.507	-0.846	58.387
RER	96	2.158	4.047	-19.32	13.9
URBAN	96	4.21E+07	3.28E+07	9068034	1.31E+08
YOUTH	96	49.618	12.471	25.322	73.212
LIFE	96	69.420	3.172	63.260	74.568
SEC	89	65.585	13.798	28.505	88.389
TER	86	26.515	11.760	7.190	52.747

The result in Table 5 represents the outcome based on panel data model as discussed in section 3. The poolability test will be employed to examine the feasibility of poolability among the independent variables in a panel although it is presumed that in a panel the character of heterogeneity will be controlled (Baltagi, 2005).

In model 1, five variables namely GDP per capita, inflation, real interest rate, youth dependency ratio and tertiary education significantly influence life insurance consumption. GDP per capita is the proxy for income, the result recommends that life insurance consumption increases with income which could due the reason that an individual's consumption and human capital classically rise in tandem with income, allowing a higher demand for insurance to protect the his potential of income and the anticipated consumption of his dependents. Beck *et al.* (2003) also proposed that life insurance could be a luxury good as when a person's income rise, he would spend a larger proportion of his income to invest in investment-linked life insurance product. The result shows negative significant relationship between inflation and demand for life insurance which is consistent with the finding by Outreville (1996), Ward *et al.* (2000), Li *et al.* (2007), Sen *et al.* (2013).

When inflation increases, life insurance product becomes less desirable good. This is probably due to the disruptive effect of inflation towards monetary benefits which makes the monetary benefits become uncertain that could result in negative return on the insurance benefits hence it erodes the value of life insurance. However, the inflation result contradicts with the finding by Yuan and Jiang (2015) which recommended that the stable moderate increase in inflation signalling a stable economic growth in China that encouraged the demand for life insurance. This might indicate that the economic growth in ASEAN countries are subjected to volatility. The third variable shows significant negative result toward life insurance consumption is real interest rate. The main reason for the negative impact which is different from the expected result could be due to the greater preference of ASEAN individuals for immediate consumption compared to deferred consumption that discourage them in purchasing life insurance. Another reason as suggested by Li *et al.* (2007) could be due to availability of other products than life insurance that offer higher expected benefits as opposed to insurance. The forth significant variable is youth dependency ratio which exhibits negative relationship in relative to life insurance consumption which indicates a contrarily outcome to the expected result. This could be probably due to the needs to raise up children that amplifies the expenditure of a family, the higher burden of a family leads to unwillingness to allocate some expenditure on life insurance which could only provide benefits in the future but not current.

Table 5. Results of Panel Data.

Independent Variables	Pooled OLS Model 1	Pooled OLS (Robust) Model 2	REM Model 3	FEM Model 4	FEM (Robust) Model 5
Constant	-5.410 (12.745)	-4.918 (25.691)	-5.409 (12.744)	-111.28*** (19.318)	-81.476*** (11.777)
GDP	0.719*** (0.175)	0.592* (0.306)	0.719*** (0.174)	0.273 (0.286)	-0.656* (0.240)
INF	-0.019*** (0.006)	-0.011 (0.007)	-0.018*** (0.005)	-0.024*** (0.004)	-0.011 (0.006)
RIR	-0.029*** (0.010)	-0.014 (0.014)	-0.029*** (0.010)	-0.037*** (0.008)	-0.020 (0.011)
URB	-1.77e-12 (1.04e-9)	-3.89e-09 (3.24e-09)	-1.77e-12 (1.04e-09)	-2.21e-08*** (3.30e-09)	-2.34e-08*** (7.30e-10)
YOUTH	-3.207*** (0.165)	-0.854*** (0.158)	-0.840*** (0.165)	0.911** (0.446)	2.188*** (0.333)
LIFE	0.875 (3.206)	1.344 (6.197)	0.875 (3.206)	24.969*** (4.378)	18.514*** (2.700)
SEC	0.128 (0.199)	0.051 (0.198)	0.128 (0.199)	0.386** (0.180)	0.559** (0.102)
TER	-0.235** (0.096)	-0.464*** (0.173)	-0.235** (0.096)	-0.128 (0.101)	-0.137 (0.074)
Observations	79	79	79	79	79
F-Test/Chi	132.02***		1056.18***	47.85***	
R2 Within	-	0.851	0.739	0.851	0.9348
R2 Between	-	0.999	0.999	0.719	0.2615
R2 Overall	0.9378	0.964	0.9378	0.677	0.4134
BPLM Test			1.13		
Hausman Test				56.24***	
Wald Test				33.62***	
Woolridge test-autocorrelation				12.93**	

Note: Figures in parentheses are standard errors.
*, **, *** indicate statistical significance at 10%, 5% and 1% respectively

Lastly, tertiary education level exhibits and unexpected negative significant sign towards life insurance consumption. The rationale could be due to tertiary education level fail to increase the awareness on the importance of life insurance as they do not understand the complexity of insurance products because these information may not be educated in schools (Sen *et al.*, 2013).

Following the poolability test outcomes, the robust Pooled OLS is performed to improve the existence of heterogeneity and autocorrelation in model 1. The outcome in model 2 also supports 3 significant variables out of 5 from model 1, namely income, youth dependency ratio and tertiary education level. In model 3, it is assumed that the intercept is a random variable with a mean value for all sample countries. However, the result of BPLM Test does not reject null hypothesis indicates that pooled OLS is preferable to REM. Hausman test is carried out to measure the suitability between REM and FEM. The result rejects null hypothesis which demonstrates that REM is not suitable. Model 5 is the robust of FEM to improve the issue of heterogeneity and autocorrelation in model 4. The result in model 5 is in contrast with model 2 where it indicates significant variables of urbanisation, life expectancy and secondary education level. Despite of this result, model 2 is superior than the other 4 models as the diagnostic test BPLM supported pooled OLS is preferred and robust pooled OLS has improved the heterogeneity and serial correlation problem.

V CONCLUSION

In this study, the determinants of life insurance consumption in the perspective of economics and demographic are to be examined. The results show that in ASEAN countries, the factors that influence life insurance consumption are income (economics factor), youth dependency ratio and tertiary education level (demographic factors). In contrary, economics factors such as inflation and real interest rate in addition to demographic factors such as urbanization, life expectancy and secondary education level do not indicate strong association with demand for life insurance.

As the ASEAN countries are developing towards achieving developed countries, the income per capita will need to improve to accomplish this goal. Since life insurance had been proven with its benefits that enable the individual to safeguard the uncertainty in risks, and income has positive association with life insurance, insurance companies could globalise their markets in ASEAN countries. This may increase the sales of life insurance and provide profit to the insurance companies. The indirect result will further assist the countries in ASEAN to continue growing with the better social return provided by insurance product. Furthermore, the study on the difference of secondary and tertiary education towards demand for life insurance is investigated. The result shows that secondary education has no influence towards life consumption but tertiary education results reverse outcome towards life consumption.

Therefore, it is recommended that the students in ASEAN countries should be exposed to the knowledge of insurance in increasing their awareness on the crucial roles of insurance to the individuals and economics. This will indirectly improve the family to safeguard their children future if they purchase life insurance product.

In a nutshell, tertiary education in ASEAN countries may become the key agents to improve future economics with better income and social return with the support of life insurance in the market to achieve AEC blueprint of "A Resilient, Inclusive, People-Oriented, and People-Centred ASEAN".

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