

## A Cointegration Study of Life Insurance Demand in Malaysia

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**Abstract:** The expansion of the insurance sector has a profound effect on a country's economy. Insurance companies experienced a slowdown in premiums during the COVID-19 pandemic, particularly in the life sector. Due to consumers' discretionary decision to spend less on life insurance policies, premium volumes decreased globally. One way to provide income protection for dependents or beneficiaries upon the death of an insured person, total permanent disability, or policy contract maturity is through life insurance. This study, therefore, this study considers recent events as it examines the factors that influence the demand for life insurance in Malaysia. The ordinary least square (OLS) method is employed using 34 years of data spanning from 1988 until 2021. The result of VECM showed that Income positively affects demand in the long run, while the other two variables, savings, and unemployment negatively affect demand in the long run. The empirical findings are expected to enrich the existing literature and to create awareness of the benefits that life insurance may offer in potential risks transferred to the insurer. Furthermore, the research findings could also help policymakers create preventative measures to protect life insurance companies from the consequences of diminished market confidence in the slowdown of the business cycle.

**Keywords:** *Demand, Life Insurance, Income, Savings, Unemployment, Long Run.*

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### 1. Introduction and Background

The life insurance services sector has been aware of the various economic situations because history has demonstrated that the insurance industry grows in tandem with economic conditions. Life insurance is one of the approaches to give dependents or beneficiaries financial security if the insured person passes away, suffers a total and permanent disability, or when the contract for the policy matures. The development of the insurance industry has shown the rise of the industry has a profound effect on a country's economic progress. Insurance companies worldwide experienced a marked slowdown in premiums. Premium volumes in the life sector particularly recorded a declining trend following customers' decision in cutting back their discretionary expenditure on life insurance policies (OECD, 2022). According to BNM (2022), the Malaysian economy contracted the most by 4.5 percent in the third quarter of 2021 (2Q 2021: 15.9%, 1Q 2021: -0.5%) 2021. This happened as a result of the National Recovery Plan's rigorous containment efforts, which resulted in new demand and supply shocks (NRP).

With the Full Movement Control Order announced on the 28th of May 2021, these events pressured the economy and created a great degree of uncertainty in its economic recovery. This study employs an empirical quantitative framework with a 34-year data span between 1988 and 2021 to study the co-integration of life insurance demand in Malaysia. Life insurance-related data are gathered from reports by the Life Insurance Association of Malaysia (LIAM). Meanwhile, the macroeconomic variables' data are sourced from Bank Negara Malaysia (BNM), the Department of Statistics Malaysia (DOSM), the International Monetary Fund (IMF), and the World Bank. This study is expected to contribute to the existing literature by showing that household income has a positive relationship with the demand for life insurance in Malaysia while unemployment and savings showed a negative relationship with the life insurance demand. The results of this study should raise awareness of the advantages that life insurance may provide by partially shifting risk to the insurer. Therefore, it is hoped to persuade more people to acquire life insurance policies in an effort to raise their standard of living.

### 2. Literature Review

**Demand for life Insurance:** the economic considerations are the most significant of the many elements that have an impact on the demand for life insurance. Researchers have started looking into different facets of life

insurance by using the numerous types of economic data and research techniques available because there are so many economic factors to consider. Life insurance serves as a risk transfer tool in addition to providing financial and social security to safeguard the surviving family members (Fadun 2013; Surminski 2013). Thus, life insurance is among the best tools for preventing financial hardship for one's family and loved ones in the case of the death or permanent disability of the breadwinner. The demand for life insurance is what matters, the majority of research projects are primarily focusing on the discovery of factors that affect the consumption of life insurance.

This is in line with a study undertaken by Mathew and Sivaraman (2017) that looked at the co-integration link between macroeconomic factors and the demand for life insurance in India. The development of the financial sector and the level of social security spending were added to the list of independent variables along with inflation, the real interest rate, and income. In the early 2000s, Beck and Webb (2002) discovered that most emerging nations have very low rates of life insurance usage. According to the World Bank (2019), premiums as a percentage of gross domestic product (GDP) in developed countries are recorded to be higher than in developing countries. Developed economies like Singapore (5.9%), Hong Kong (6.18%), and Japan (6.23%) have a higher level of premium expenditures as compared to developing countries like Malaysia, recording a meager 2.8% of GDP.

**Income:** Higher income may make things more affordable for an individual, which may ultimately result in a bigger demand for life insurance products (Browne and Kim, 1993; Hammond et al., 1967; Dash, 2018). By using a Tobit analysis, Shower and Shotick (1994) discovered that there is a positive correlation between income and the consumption of life insurance. The investigation revealed a significant positive association between income and life insurance premium spending. Similarly, Gandolfi and Miners (1996), and Razak et al. (2014), discovered that income is the primary determinant of life insurance demand. Emamgholipour et al. (2017) have recently highlighted how purchasing power affects the demand for life insurance.

**Savings:** Haeden and Lee (1974) and Beck and Webb (1976) have examined the connection between savings rates and the need for life insurance. They proposed that life insurance would appear more alluring to potential savers if the effective return within a policy compared favorably with the return of alternative savings tools. The substitute for competing life insurance policies is savings instruments. If savings and life insurance products were sold, the need for life insurance might rise (Sen, 2008). There has previously been research on how savings affect the demand for life insurance (Headen and Lee, 1974; Chang, 1995; Beck and Webb, 2002; Sen and Madheswaran, 2007; Sen, 2008; Ibiwoye et al., 2010). The literature demonstrates that the savings rate has an adverse effect on the demand for life insurance (Beck and Webb, 2002). Consumers prefer to consider other savings options when an insurance policy's effective return is less than savings.

**Unemployment:** According to Bhatia and Jain (2018), the insurance business is expanding due to a variety of factors. Their study, which was based on data from India, revealed that the growth in demand for life insurance is negatively correlated to variables: unemployment and inflation. A negative relationship was also found in several other studies (Sliwinski, et al., 2013; Liebenberg, et al., 2012). Similarly, a study on demand insurance employing data from 1983 to 1989 by Liebenberg, et al. (2012) has confirmed these findings. A study on demand insurance employing data from 1983 to 1989 by Liebenberg, et al. (2012) has confirmed these findings. Additionally, this study discovered that households frequently cancel their whole life insurance policies as a result of job loss or other major life events like a spouse's death, divorce, or retirement.

### 3. Research Methodology

This study used a statistical model using Vector Error Correction Model (VECM) to estimate to capture the relationship between multiple quantities that change over time. Based on previous studies (Najla et al., 2020; Alzyadat et al., 2020), an econometric model will estimate the macroeconomic factors influencing the demand for life insurance. To estimate and analyzed the relationship between macroeconomic variables (Income, savings, and unemployment) on demand for life Insurance in Malaysia during the period of 1987 - 2021 based on annual data series. By using the Maximum Likelihood Procedure, a co-integration test is performed to determine the nature of the equilibrium relationship between variables over the long term. Johansen and

Juselius (1990). The Johansen test is used in this study because there are more than two variables because multiple joint integrations may occur. The unit root needs to be tested in time series data before performing the Johansen test.

#### 4. Results

**Table 1: Phillip-Perron Test (Stationary test)**

Variable	Level			1 <sup>st</sup> difference		
	None	Intercept	Trend and Intercept	None	Intercept	Trend and Intercept
Demand	3.869891	-24.39306*	-3.772881	-2.302240*	-3.607249*	-9.871399*
Income	5.739508	-0.376222	-2.823802	-4.735320*	-6.984790*	-6.809720*
Savings	-1.294845	0.431595	-2.2149614	-4.361627*	-4.878415*	-4.991505*
Unemployment	-1.097015	-4.015845	-0.3629488	-4.85337*	-4.772296*	-7.089390*

(\*p<0.05; \*\*p<0.001)

**Phillip-Perron Test:** After performing the stationary test, the result in Table 1 shows all the series are integrated of order I (1), which is stationary after the first difference. The null hypothesis was rejected by the presence of the unit root of the first difference of time series at a significant level of 5%. The series are drifting apart or trending.

**Table 2: Co-Integration Test**

Hypothesized No of CE(s)	Critical Value at 5%			
	Trace	Max-Eigen	Trace	Max-Eigen
r = 0	54.56186*	23.71254	47.85613	27.58434
r ≤ 1	30.84932*	15.95271	29.79707	21.13162
r ≤ 2	14.89662	10.22498	15.49471	14.26460
r ≤ 3	4.671632*	4.671632*	3.841466	3.841466

(\*p<0.05; \*\*p<0.001)

**Co-Integration Test:** Optimum lag time is necessary for the model since the Johansen co-integration test determines the number of integral vectors which is very sensitive to the lag length time. The result of the Joint Integration Test is based on the Trace and Maximum Eigenvalue. Therefore, there are three (3) long-run co-integration relationships at 5% significant levels. Thus, the time series variables in this model are considered integrated. This indicates that over time, the variables stay quite close to one another. This signifies the existence of a long-run equilibrium relationship between the variables during the period of study.

**Vector Error Correction Model (VECM):** The existence of the long-run relationship between variables indicates that if there is a co-integration relation between two variables, there is unidirectional causality Granger at least (Granger, 1988). If the model contains a co-integration relationship among variables the next to proceed to VECM, where the existence of a long-run relationship can be verified through the significance and sign of error correction term (Rosilawati et al., 2007). Therefore, a long-run relationship can be verified through the significance and sign of error correlation term (Rosilawati et al., 2007).

**Long Run Equation:** Demand t-1 = 13.22734 + 0.378008 Income t-1 - 01.806856 Savings t-2 - 5.012047 Unemployment t-3

(0.63280)                      (0.79168)                      (0.94358)  
[0.59736]                      [-2.28232]                      [-5.31174]

The result of VECM showed that income positively affects demand in the long run while the other two variables; savings and unemployment negatively affect demand in the long run.

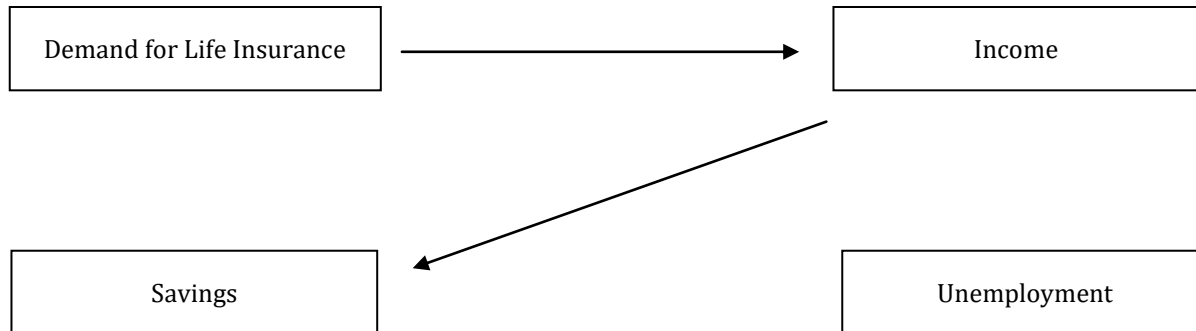
**Table 3: Granger Causality Test to the Variables**

Null Hypothesis:	Observation	F-Statistic	Probability
Income does not Granger Cause Demand	33	0.04064	0.8416
Demand does not Granger Cause Income		4.17389	0.0499
Savings does not Granger Cause Demand	33	0.32657	0.5719
Demand does not Granger Cause Savings		2.79157	0.1052
Unemployment does not Granger Cause Demand	33	0.37147	0.5468
Demand does not Granger Cause Unemployment		1.32625	0.2586
Savings does not Granger Cause Income	33	4.00010	0.0546
Income does not Granger Cause Savings		4.30269	0.0467
Unemployment does not Granger Cause Income	33	0.15156	0.6998
Income does not Granger Cause Unemployment		2.06696	0.1609
Unemployment does not Granger Cause Savings	33	0.02155	0.8843
Savings do not Granger Cause Unemployment		0.91403	0.3467

(\*p<0.05; \*\*p<0.001)

**The Causal Channels:** Figure 1 shows the results of the unidirectional causality relationship between demand for insurance, income, and savings. The Granger Causality test does not indicate causality relationships between savings, unemployment, and demand for life insurance.

**Figure 1: The Causal Channels of VECM Granger Causality Approach**



**Discussion**

In the long run, there is a positive correlation between the demand for life insurance and income, as determined by GDP per capita. This has shown an advantageous connection that explains how rising individual income encourages savings that result in life insurance subscriptions. Meanwhile, savings and unemployment, on the other hand, are proven to have adverse connections over time. The amount that a person contributes to a life insurance policy depends on their savings and their income. When an insurance policy has a lower effective rate of return, customers usually choose savings as a replacement. In lieu of unemployment, households frequently cancel their entire life insurance plans. The results imply that income has a significant impact on the cointegration of the demand for life insurance.

**Implications and Recommendations:** Various macroeconomic variables such as income, savings, and unemployment, have a significant impact on the power of demand for life insurance policies in Malaysia. Due to the size of the Malaysian population and the vast number of uninsured or underinsured Malaysians, the insurance sector is thought to have a very substantial potential to market life insurance products. Malaysian insurance businesses, particularly those that specialize in life insurance, need to be more creative in creating new products. They should place more emphasis on items that highlight the saving component of their life insurance policies rather than emphasizing on life protection aspect. This is supported by the research's findings indicating that the most significant factors influencing Malaysian individuals' desire for insurance are their income and savings.

## 5. Conclusion

The results of this study show that the demand for life insurance and income as the independent variable in the long run, as measured by GDP per capita has a positive relationship. It demonstrates a beneficial link that explains how increased individual income stimulates savings that lead to life insurance subscriptions. On the other hand, savings and unemployment are found to display a negative relationship in the long run. Savings influence an individual's income to determine the subscriptions to a life insurance policy. In the event that an insurance policy offers a lower effective rate of return, consumers frequently opt for savings as a substitute. In relation to unemployment, households tend to cancel their whole life insurance policies as a result of job loss. In conclusion, the findings suggest that income has a strong influence on the cointegration of the demand for life insurance.

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