

ABSTRACT

This research investigates the factors influencing the premium of motor insurance, a type of non-life insurance, in Thailand. The study utilizes 84 quarters of secondary data, spanning from the first quarter of 2003 to the last quarter of 2023. Six factors were analyzed: the Consumer Price Index (CPI), Gross Domestic Product (GDP), National Income (NI), unemployment rate, population size, and the number of passenger cars (not exceeding seven seats). The dependent variable is the premium for motor insurance in Thailand. In addition, the significance level was determined to be 0.05. Findings from the multiple linear regression analysis illustrate that Gross Domestic Product and population size are the crucial factors in the purchase of motor insurance. Both GDP and population size demonstrate a near-perfect positive relationship with insurance premiums, suggesting that higher GDP or population size is associated with an increased demand for motor insurance in Thailand.

INTRODUCTION

Nowadays, everyone faces uncertainty, which may result in risks such as natural disasters, accidents, or human actions. Non-life insurance plays a crucial role in mitigating these risks and providing financial security. (Jirawit Phomrat, 2010) In Thailand, motor insurance is particularly important, as vehicles represent valuable assets and are essential for daily life. The increase in the number of vehicles in recent years has driven up the demand for motor insurance. Insurance enables individuals to transfer risk and receive protection against accidents. This study aims to analyze the factors influencing premium of motor insurance in Thailand to help insurance businesses develop strategies that align with economic trends and consumer needs.

OBJECTIVE

To study factors affecting the premiums of motor insurance in Thailand.



METHODOLOGE

Collected data on factors affecting premiums of motor insurance in Thailand from Q1 2003 to Q4 2023: (The amount of motor insurance premiums, Consumer Price Index, Gross Domestic Product, National Income, Unemployment rate, Population, Number of passenger cars (not exceeding 7 seats).

- Saved the data in Microsoft Excel
- Checked and clean the data
- Data analysis by Rstudio

Analysis

The statistics used are multiple linear regression analysis with analysis steps:

- Correlation analysis using the Pearson correlation
- Analysis of the relationship within independent variables using statistical values (VIF)
- Selection of independent variables by using stepwise regression
- Coefficient of determination by using R-squared and Adjusted R-squared
- Model fit testing using analysis of variance by using Residual Analysis

RESULTS



Figure 1. Motor Insurance Premium in Thailand since 2003-2023 by Quarter

From 2003 to 2023 motor insurance premiums consistently increased each quarter with Q4 typically the highest. From Q1 2003 to Q1 2015 Q1 had the lowest premiums but from Q1 2016 onward they surpassed those in Q2 and Q3 annually.

Table 1. Pearson correlation coefficients among study variables.

	CPI	GDP	NI	UR	Population	Car	Premiums
CPI	1.0000						
GDP	0.9477	1.0000					
NI	0.8559	0.8816	1.0000				
UR	-0.4923	-0.3625	-0.3519	1.0000			
Population	0.8836	0.9418	0.8257	-0.2597	1.0000		
Car	0.6359	0.5759	0.5391	-0.4782	0.5564	1.0000	
Premiums	0.9174	0.9366	0.8441	-0.3410	0.9013	0.5320	1.0000

The variable Premiums has a very strong positive relationship with the variables CPI, NI, GDP, and Population. The variable Car has a moderate positive relationship with Premiums. Conversely, the variable UR has a very weak negative relationship with Premiums, CPI, NI, GDP, Car, and Population.

Table 2. Model summary and coefficients of each linear regression model

Model	Equation	R ²	Adj R ²	Goodness of fit	The independent variables are correlated	Residual Analysis		
						Variance	Independence	Distribution
1	$\hat{y} = -206.5103 + 0.5448CPI + 0.1364NI + 2.7720Population - 0.0479Car$	0.8868	0.8868	Fit	No correlation	Constant	Independent	Normal
2	$\hat{y} = -83.4304 + 0.8701GDP + 1.2623Population$	0.8805	0.8776	Fit	No correlation	Constant	Independent	Normal
3	$\hat{y} = -294.7790 + 0.3158NI - 1.4979UR + 4.8271Population$	0.8484	0.8427	Fit	No correlation	Constant	Independent	Normal
4	$\hat{y} = -294.3121 + 0.3511NI + 4.7744Population$	0.8805	0.8776	Fit	No correlation	Not constant	Independent	Normal

This study investigates the factors influencing the purchase of general insurance, specifically automobile insurance, in Thailand, using multiple regression analysis. The results of the model analysis suggest that the most suitable model is Model 2, with the following equation: $\hat{y} = -83.4304 + 0.8701GDP + 1.2623Population$ The independent variables included in the model are Gross Domestic Product and the population of Thailand.

CONCLUSION

The analysis results indicate that as the Gross Domestic Product and population of Thailand increase, the premiums for motor insurance are likely to rise. This suggests that GDP and population size are significant factors influencing the purchase of motor insurance in the country.



REFERENCE

- Jirawit Phomrat. (2010). Factors influencing the purchase of general insurance in Thailand. Bangkok (Master's Thesis). Srinakharinwirot University
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