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Factors Influencing Health Insurance Premiums in Thailand



Abstract:

This study aims to analyze the factors influencing health insurance premiums in Thailand using quarterly secondary data covering 44 quarters over an 11-year period (2013–2023). The independent variables investigated include Population size, Unemployment Rate (UR), Inflation Rate (CPI), Elderly Population, Gross Domestic Product (GDP), and Total Consumer Spending (TCS). Multiple linear regression analysis was employed as the primary analytical method.

The results indicate that the model achieves a coefficient of determination (R^2) of 93.04%.We found that the elderly population and the total population of Thailand have a statistically significant positive impact on health insurance premiums at the 0.05 significance level. Conversely, the inflation rate (CPI) does not demonstrate a statistically significant effect on health insurance premiums within the scope of this study.

Introduction



Health insurance is a key mechanism for reducing the risk of unexpected medical expenses. Although Thailand has a universal health coverage system that includes the majority of the population, some benefits are still insufficient to meet people's needs. As a result, some individuals choose to purchase additional private health insurance to enhance their security and quality of life.

Health insurance premiums are determined by various factors, along with situations such as air pollution—especially severe PM2.5 dust during certain seasons—which increases health risks for the public.



The researcher is interested in studying the factors influencing health insurance premium determination in order to understand the relationship between the economy, society, health, and the environment. This knowledge will be useful for financial planning as well as for the long-term health care of the population.

Objectives:

The aim of this study is to develop a model for forecasting health insurance premiums in Thailand.

Methodology:

Scope and Data Collection: This study, titled "Factors Affecting Health Insurance Premiums in Thailand," was conducted between July and October 2025. It uses quarterly secondary data covering both the life insurance and non-life insurance sectors. The dataset comprises information from 44 quarters, covering the period.

Independent Variables

1. Elderly Population (Elderly): Quarterly number of elderly people in Thailand (Unit: Millions)
2. Gross Domestic Product (GDP): Quarterly Gross Domestic Product of Thailand (Unit: Million Baht)
3. Total Consumer Spending (TCS): Quarterly consumer expenditure in Thailand (Unit: Million Baht)
4. Unemployment Rate (UR): Quarterly unemployment rate in Thailand (Unit: Percentage)
5. Total Population (Population): Quarterly total population in Thailand (Unit: Millions)
6. Inflation Rate (CPI): Quarterly inflation rate in Thailand (Unit: Percentage)

Dependent Variable

Health Insurance Premiums (Premiums): Quarterly total health insurance premiums in Thailand (Unit: Billion Baht)

Tools : Microsoft Excel, R Studio

Result:

Table 1: Comparison of the Three Models

Model	Equation	Coefficient of Determination		Homoscedasticity Test	Independence Test	Normality Test	AIC
		R2	Adj. R2				
1	$\hat{y}$ = -408.3381-11.5548x_2 +41.375x_3+5.9236x_5+0.4282x_6	0.9108	0.9016	Passed	Passed	Passed	207.7082
2	$\hat{y}$ = -233.995+1.3348x_1+ 3.2298x_5+0.285x_6	0.9352	0.9304	Passed	Passed	Passed	191.6252
3	$\hat{y}$ = -201.1401+2.0931x_1-18.0454 x_3- 2.9609x_4+2.7939x_5	0.9382	0.9319	Passed	Not Passed	Passed	-

- Considering only the models that met the basic assumptions (Model 1 and Model 2) and using the AIC criterion, it was found that Model 2 had the lowest AIC value (AIC = 191.63), making it the most suitable model.
- Model 2 can explain 93.52% of the variance in health insurance premiums in Thailand (Adjusted R^2 = 0.9304), and the overall model was statistically significant
- The factors that significantly affect health insurance premiums include the number of elderly people and the country's population, both of which have a positive influence.
- The inflation rate (CPI) does not significantly affect health insurance premiums in this model.

The factors that significantly affect health insurance premiums include the number of elderly people and the total population in the country, both of which have a positive influence.

The inflation rate (CPI) does not have a significant impact on health insurance premiums in this model.

Conclusion & Discussion:

The appropriate model is $\hat{y} = -233.995 + 1.3348x_1 + 3.2298x_5 + 0.285x_6$

Studies have found that the number of elderly people is a key factor that positively affects health insurance premiums, as seniors have higher health risks and greater medical needs. Insurance companies therefore need to adjust premiums to accommodate the increased risk. At the same time, the overall growth in population reflects the expansion of the health insurance market, resulting in an increase in the total value of health insurance premiums in the system.

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Result:

1. Department of Provincial Administration. (n.d.). Monthly population statistics. https://stat.bora.dopa.go.th/stat/statnew/statMONTH/statmonth/#/view
2. National Statistical Office. (n.d.). Unemployment rate and elderly population in Thailand. https://www.nso.go.th