

# Optimization of Regressing Analysis Technique to Estimate the Number of Tourists in Popular provinces in Tourism of Thailand



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**Abstract.** The objective of this research is to estimate the number of tourists in the provinces of Thailand with the international tourists. This research develops the Optimization of Regressing Analysis (ORA) model, which is used to estimate number of international tourists in each province of Thailand. Many mathematics equations are used to find the results of the ORA model that are linear regression for estimated number of international tourists, the first derivative for to find the trend of increased values, and the second derivative for to find the increase in international tourist arrivals. Results of this experiment show that the province with the highest number of tourists is Bangkok and the model can estimate the number of tourists are closest, including Bangkok, Chiang Mai and Phuket that three provinces with the highest number of tourists too. In addition, the average number of visitors from all provinces is 2.65%.

**Keywords** Linear Regression • First Derivative • Second Derivative

## 1 Introduction

Over the last 4 – 5 years, apart from exports, tourism is a major economic driver of the country. In some years, tourism growth is half of the growth rate of the economy ever. Many provinces in Thailand can earn revenue from tourism such as Bangkok, Phuket, Chonburi Chiang Mai etc. In 2017, the top three provinces with the highest revenue from tourism are Bangkok with estimated income 17,128,410.81 USD, Phuket 10,982,011.54 USD and Chonburi with income of 5,214.49 USD. In addition, consumption by foreigners accounts for about 12% of total domestic

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