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MODELLING ON GROSS DOMESTIC PRODUCT IN MALAYSIA USING ARTIFICIAL NEURAL NETWORK AND TIME SERIES ANALYSIS

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ABSTRACT

Unemployment and Gross Domestic Product growth is interrelated to each other. This determine to compare the predicted model by using the Artificial Neural Network method and Time Series Analysis. This study also aims to determine the relationship of unemployment rate to the Gross Domestic Product in Malaysia. The data used is quarterly data of unemployment rate and GDP growth rate ranged from 1998-2017. The model built is based on the First Quarter and Fourth Quarter. Based on the Artificial Neural Network, the best model belongs to Y_{t1}, Y_{t-1} and Y_{t4}, Y_{t-4} for first and fourth quarter, respectively. For Time Series Analysis, the results found that the model ARIMA(1,1,1) is the best model for first quarter because of the lower Akaike and Schwartz Information Criterion and no serial correlation existed. The fourth quarter using Time Series Analysis could not be done as there is not significant spike exist in the Autocorrelation Function and Partial Autocorrelation result. From Johansen cointegration test shows the unemployment rate effect the GDP growth. Then, by using Artificial Neural Network the relationship of unemployment and Gross Domestic Product existed due to the present of weight in training data. This study hope that macroeconomic researcher would have the idea on what future of both of the variable in the study as to make it well balance in the future.

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