Universiti Teknologi MARA

Comparison between Fuzzy Time Series and Box-Jenkins Method to Forecast Tourist Arrival in Malaysia

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STUDENT'S DECLARATION

I certify that this report and the research to which it refers are the product of my own work and that any ideas or quotation from the work of other people, published or otherwise are fully acknowledged in accordance with the standard referring practices of the discipline.

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ABSTRACT

Tourism forecasting is quite important role for the evolution of tourism industry in the future to balance out the growth of the economy. Proper forecast in tourism gives benefits to both government and private sectors as the information of future tourism flow is important in tourism. This study is conducted to forecast tourist arrival in Malaysia by using a secondary data. Hence, secondary data has been used in this study to reach main objective which is to forecast tourist arrival in Malaysia using the Fuzzy Time Series and Box-Jenkins method. The secondary data of tourist arrival in Malaysia for year 2013-2018 is obtained from the Tourism Malaysia website. Furthermore, this study has a sub-objective which is to determine the best-fitted model between the Fuzzy Time Series and the Box-Jenkins Method. The data were analyses using Microsoft Excel for the Fuzzy Time Series and R-Programming for the Box-Jenkins Method. The accuracy of these two models was determined by using Mean Squared Error (MSE), Root Mean Squared Error (RMSE), and Mean Absolute Percentage Error (MAPE) for a comparison on which method gives the smallest value and the results shows that the Fuzzy Time Series is the best model because it has the smallest MSE, RMSE and MAPE if compared to the Box-Jenkins method. Therefore, all of the objectives are achieved in this study. Thus, this study will be beneficial for the tourism industry and future researchers to evaluate the trend of tourist arrival in the past and present.

Keywords: Tourist, Fuzzy Time Series, Box-Jenkins, SARIMA, Forecasting

TABLE OF CONTENTS

CONTENTS	PAGE

CHAPTER ONE: INTRODUCTION

CHAPTER TWO: LITERATURE REVIEW

CHAPTER THREE: RESEARCH METHODOLOGY

CHAPTER FOUR: RESULTS AND DISCUSSIONS

CHAPTER FIVE: CONCLUSIONS AND RECOMMENDATIONS