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PEMODELAN KETIBAAN PELANCONG ANTARABANGSA KE MALAYSIA

(Modelling of International Tourist Arrivals to Malaysia)

SHARIFAH HUDA SYED IBRAHIM & HUMAIDA BANU SAMSUDIN*

ABSTRAK

Peramalan jumlah ketibaan pelancong adalah penting bagi memberi gambaran prestasi sektor pelancongan yang tepat bagi tahun-tahun akan datang. Ramalan tersebut dapat membantu pihak berkepentingan membuat keputusan strategik seperti pelaburan, pembangunan infrastruktur dan sebagainya. Langkah strategik ini mampu memberi impak negatif atau positif bergantung kepada ketepatan nilai ramalan yang diperolehi. Kajian ini bertujuan untuk memilih model terbaik untuk peramalan jumlah ketibaan pelancong antarabangsa ke Malaysia menggunakan data bulanan dari Januari 2000 hingga Disember 2019. Dua kaedah digunakan iaitu Autoregresi Purata Bergerak Bersepadu Bermusim (SARIMA) dan Analisis Spektrum Tunggal (SSA). Ketepatan ramalan bagi data dalam dan luar sampel diuji dengan nilai RMSE, MAE dan MAPE. Model terbaik dipilih berdasarkan prestasi ramalan iaitu model yang mempunyai nilai paling kecil bagi ketiga-tiga pengukur ralat yang digunakan. Kajian menunjukkan data siri masa yang di analisis mempunyai trend linear dan komponen bermusim. Selain itu, kajian juga menunjukkan model ARIMA *(3,1,3)(2,0,0)[12]* menghasilkan nilai RMSE, MAE, dan MAPE yang paling kecil bagi peramalan data luar sampel. Model ARIMA *(3,1,3)(2,0,0)[12]* dan SSA *(24,14)* mempunyai nilai MAPE lebih kecil daripada 10%, maka kedua-dua model ini adalah dalam kategori ramalan yang sangat tepat dan boleh digunakan bagi peramalan.

Kata kunci: peramalan; pelancongan; SARIMA; SSA

ABSTRACT

The forecast of tourist arrivals is important in showing an accurate description of the tourism industry's performance in the future. The forecast can help all stakeholders to make any strategic decisions such as investments, infrastructure development and others. These strategic moves can either give a positive or negative outcome depending on how reliable and accurate the forecast values are. Therefore, this paper aims to choose the best model for forecasting by modelling the international tourist arrivals to Malaysia using monthly data set from January 2000 to December 2019. Two methods are used, Seasonal Autoregressive Integrated Moving Average (SARIMA) and Singular Spectrum Analysis (SSA). The forecasting accuracy for in sample and out sample are tested using the value of RMSE, MAE, and MAPE. The best model is chosen from the forecasting performance that produces the minimum value for all three tests. The study shows that the time series data has a linear trend and a seasonal component. Besides that, the study also shows that ARIMA *(3,1,3)(2,0,0)[12]* produces the smallest value for RMSE, MAE, and MAPE based on the out sample forecasting. Both ARIMA *(3,1,3)(2,0,0)[12]* and SSA *(24,14*) model have MAPE value of less than 10%, thus both model have a very accurate forecasting results and can be used for forecasting.

Keywords: forecast; tourism; SARIMA; SSA

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Program Sains Aktuari,
Jabatan Sains Matematik,
Fakulti Sains dan Teknologi,
Universiti Kebangsaan Malaysia,
43600 Bangi, Selangor, Malaysia
*Mel-e: humaida@ukm.edu.my**

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*Corresponding author