

PENERAPAN METODE *DOUBLE MOVING AVERAGE* DALAM PERAMALAN JUMLAH KENDARAAN AKTIF DI BALI

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ABSTRAK

Penelitian ini bertujuan untuk melakukan peramalan jumlah kendaraan aktif di Provinsi Bali menggunakan metode *Double Moving Average*. Data yang digunakan merupakan data jumlah kendaraan aktif di Provinsi Bali periode 2011 hingga 2024 yang diperoleh dari Badan Pendapatan Daerah Provinsi Bali. Metode *Double Moving Average* diterapkan dengan variasi ordo 2×2 , 3×3 , 4×4 , dan 5×5 untuk memperoleh model peramalan dengan tingkat akurasi terbaik. Evaluasi akurasi model dilakukan menggunakan ukuran kesalahan *Mean Absolute Percentage Error* (MAPE) dan *Mean Absolute Deviation* (MAD). Hasil penelitian menunjukkan bahwa seluruh variasi ordo *Double Moving Average* menghasilkan nilai $MAPE < 10\%$, yang mengindikasikan bahwa metode ini memiliki tingkat akurasi yang sangat baik dalam memprediksi jumlah kendaraan aktif di Provinsi Bali. Berdasarkan hasil evaluasi, model peramalan terbaik diperoleh pada *Double Moving Average* ordo 4×4 yang diterapkan pada data hasil *Linear Interpolation* dengan nilai MAPE sebesar 2,59% dan MAD sebesar 63.532. Perbandingan antara hasil peramalan dan data aktual tahun 2025 menunjukkan bahwa nilai peramalan yang dihasilkan mendekati kondisi aktual. Selanjutnya, hasil peramalan menunjukkan bahwa jumlah kendaraan aktif di Provinsi Bali diperkirakan mengalami peningkatan yaitu sebesar 2.457.672 kendaraan pada tahun 2026 dan 2.458.216 kendaraan pada tahun 2027. Berdasarkan hasil tersebut, dapat disimpulkan bahwa metode *Double Moving Average* efektif digunakan dalam peramalan jumlah kendaraan aktif di Provinsi Bali serta mampu memberikan gambaran perkembangan jumlah kendaraan aktif pada periode mendatang.

Kata-kata kunci: Peramalan Deret Waktu, *Double Moving Average* (DMA), Analisis Data Kendaraan, MAPE, MAD.

APPLICATION OF THE DOUBLE MOVING AVERAGE METHOD IN FORECASTING THE NUMBER OF ACTIVE VEHICLES IN BALI

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ABSTRACT

This research aims to forecast the number of active vehicles in Bali Province using the Double Moving Average method. The data used is the data on the number of active vehicles in Bali Province for the period of 2011 to 2024 obtained from the Regional Revenue Agency of Bali Province. The Double Moving Average method is applied with variations of 2×2 , 3×3 , 4×4 , and 5×5 to obtain a forecasting model with the best accuracy level. Model accuracy evaluation is carried out using the size of Mean Absolute Percentage Error (MAPE) and Mean Absolute Deviation (MAD). The research results show that all variations of the Double Moving Average order produce a MAPE value of $< 10\%$, which indicates that this method has a very good level of accuracy in predicting the number of active vehicles in Bali Province. Based on the evaluation results, the best forecasting model was obtained on the Double Moving Average of the 4×4 order which was applied to the Linear Interpolation result data with a MAPE value of 2.59% and a MAD of 63.532. The comparison between the forecast results and the actual data in 2025 shows that the resulting forecast value is close to the actual condition. Furthermore, the forecasting results show that the number of active vehicles in Bali Province is estimated to increase by 2,457,672 vehicles in 2026 and 2,458,216 vehicles in 2027. Based on these results, it can be concluded that the Double Moving Average method is effectively used in forecasting the number of active vehicles in Bali Province and is able to provide an overview of the development of the number of active vehicles in the coming period.

Keywords: Time Series Forecasting, Double Moving Average (DMA), Vehicle Data Analysis, MAPE, MAD.