

ABSTRAK

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Pendekatan Algoritma Exponential Triple Smoothing saat ini yang digunakan untuk mengantisipasi nilai ekspor dua komoditas utama Indonesia, batubara dan minyak kelapa sawit, memiliki nilai Mean Percentage Absolute error (MAPE) sebesar 30-50%, yang dapat dikatakan sebagai kesalahan peramalan yang "Wajar". Kesalahan peramalan lebih dari 30% akan memberikan efek domino pada output industri, karena produksi tambahan akan menambah biaya bahan baku, produksi, dan penyimpanan. Sementara itu, untuk mencapai klasifikasi "Sangat Baik" dengan nilai kesalahan kurang dari 10% akan memberikan kepercayaan kepada investor dan eksportir baru dalam pengembangan komersial sektor terkait. Pertumbuhan industry tersebut akan berdampak positif pada perkembangan ekonomi. Jika kesalahan peramalan kurang dari 10%, maka metode ini dapat digunakan untuk komoditas lain. Tujuan dari proyek ini adalah untuk membuat teknik peramalan yang dapat menghasilkan hasil peramalan yang tepat dengan kesalahan kurang dari 10%. Penelitian ini menganalisa metode peramalan seperti ARIMA (*Autoregressive Integrated Moving Average*), ANN (*Artificial Neural Network*), dan LSTM (*Long-Short Term Memory*). Dengan MAPE sebesar 1%, penelitian ini menunjukkan bahwa ANN merupakan strategi yang paling baik untuk meramalkan komoditas batubara dan kelapa sawit di Indonesia.

Kata Kunci : ANN (*Artificial Neural Network*), ARIMA (*Autoregressive Integrated Moving Average*), Nilai Ekspor, *Forecast*, LSTM (*Long Short Term Memory*).

ABSTRACT

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The present Exponential Triple Smoothing Algorithm approach, which is used to anticipate the export value of Indonesia's two major commodities, coal and palm oil, has a Mean Percentage Absolute mistake (MAPE) value of 30-50%, which may be regarded as a "Reasonable" forecasting mistake. Forecasting errors of more than 30% will have a domino effect on industrial output, as extra production adds to raw material, manufacturing, and storage expenses. Meanwhile, reaching "Excellent" classification with an error value less than 10% will provide new investors and exporters with confidence in the commercial development of related sectors. Industrial growth will have a positive impact on economic development. If the forecast error is less than 10%, it can be used in other circumstances. Meanwhile, reaching "Excellent" classification with an error value less than 10% will provide new investors and exporters with confidence in the commercial development of related sectors. Industrial growth will have a positive impact on economic development. It may be used for other commodities if the forecast error is less than 10%. The purpose of this project is to create a forecasting technique that can produce precise forecasting results with an error of less than 10%. This research analyzes forecasting methods such as ARIMA (Autoregressive Integrated Moving Average), ANN (Artificial Neural Network), and LSTM (Long-Short Term Memory). With a MAPE of 1%, this study reveals that ANN is the most successful strategy for forecasting coal and palm oil commodities in Indonesia.

Keywords: ANN (Artificial Neural Network), ARIMA (Autoregressive Integrated Moving Average), Export Value, Forecast, LSTM (Long Short Term Memory).