

ABSTRAK

RENATA YASMINE SELOMITA. Prediksi Nilai Ekspor Produk Industri Kehutanan Indonesia Dengan Menggunakan Metode *Multiple Linear Regression*. Dibimbing oleh Dr. EFY YOSRITA, S.SI., M.KOM

Ekspor produk industri kehutanan Indonesia memiliki peranan penting dalam perekonomian nasional, namun fluktuasi nilai ekspor bulanan menjadi tantangan bagi kebijakan perdagangan Kementerian Kehutanan. Dampak fluktuasi ini menyebabkan Kementerian Kehutanan kesulitan dalam mengambil keputusan untuk menentukan nilai ekspor bulanan di masa depan. Penelitian ini bertujuan mengembangkan model prediksi nilai ekspor produk industri kehutanan Indonesia menggunakan metode *multiple linear regression* dengan indikator produksi kayu bulat, kayu olahan, dan hasil hutan bukan kayu selama 2020–2024, melalui pendekatan alur kerja CRISP-DM. Hasil analisis menunjukkan hubungan linier signifikan antara ketiga indikator produksi dan nilai ekspor. Model yang dibentuk menggunakan data 2020–2023 menghasilkan variabel yang berpengaruh positif dan signifikan secara parsial maupun simultan. Model selanjutnya divalidasi menggunakan data uji tahun 2024 dan menghasilkan nilai R^2 sebesar 97,55%, MAE sekitar USD 10 juta, dan RMSE sekitar USD 14 juta pada data uji 2024, menunjukkan akurasi yang tinggi. Pada prediksi agregat nasional bulanan, MAE berkisar antara USD 7 juta hingga USD 12 juta, RMSE antara USD 9 juta hingga USD 19 juta, dan R^2 antara 95% hingga 98%, dengan bulan Juli sebagai bulan paling optimal. Model ini efektif dan akurat dalam memprediksi tren ekspor bulanan dan dapat mendukung kebijakan ekspor Kementerian Kehutanan.

Kata kunci: Ekspor Kehutanan, Hasil Hutan Bukan Kayu, Kayu Bulat, Kayu Olahan, *Multiple Linear Regression*

ABSTRACT

RENATA YASMINE SELOMITA. *Prediction Of Indonesian Forestry Industry Product Export Value Using The Multiple Linear Regression Method*. Supervised by Dr. EFY YOSRITA, S.SI., M.KOM

Indonesia's forestry industry exports play a significant role in the national economy; however, fluctuations in monthly export values present challenges for the Ministry of Forestry in formulating trade policy. These fluctuations complicate decision-making processes related to determining future monthly export values. This study aims to develop a predictive model for the export value of Indonesia's forestry industry products using multiple linear regression, with logs, processed wood, and non-timber forest products as production indicators over the period 2020–2024, following the CRISP-DM workflow framework. The results indicate a significant linear relationship between the three production indicators and export value. The model developed using 2020–2023 data shows that all variables exert positive and statistically significant effects on export value, both individually and jointly. The model was subsequently validated using 2024 testing data, achieving an R^2 of 97.55%, a mean absolute error (MAE) of approximately USD 10 million, and a root mean square error (RMSE) of approximately USD 14 million, indicating strong predictive performance. For aggregated national monthly predictions, the MAE ranges from USD 7 million to USD 12 million, the RMSE from USD 9 million to USD 19 million, and the R^2 from 95% to 98%, with July identified as the month exhibiting the highest predictive accuracy. Overall, the model demonstrates effectiveness and reliability in forecasting monthly export trends and provides empirical support for export policy formulation within the forestry sector.

Keywords: Forestry Export, Logs, Multiple Linear Regression, Non-Timber Forest Products, Processed Wood