

ABSTRAK

Pricilia Audy Wijaya (01112210007)

ANALISIS FAKTOR MAKROEKONOMI TERHADAP NILAI EKSPOR IMPOR INDONESIA MENGGUNAKAN METODE REGRESI RIDGE, REGRESI LASSO, DAN REGRESI *ELASTIC NET*

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(xiii + 116 halaman; 39 gambar; 42 tabel; 1 lampiran)

Aktivitas ekonomi sangatlah penting dalam pergerakan ekonomi negara. Beberapa aktivitas ekonomi yang memengaruhi adalah pergerakan ekspor dan impor. Oleh karena itu, penelitian ini melakukan analisis ekspor dan impor Indonesia menggunakan faktor-faktor makroekonomi seperti nilai Produk Domestik Bruto (PDB), kurs valuta asing, jumlah uang beredar, nilai inflasi, Indeks Harga Perdagangan Besar (IHPB), harga emas berjangka, dan indeks harga saham. Dengan adanya masalah multikolinearitas pada data, maka analisis dilakukan menggunakan *Regularized Least Square Regression* (RIDGE), *Least Absolute Shrinkage and Selection Operator Regression* (LASSO), dan regresi Elastic Net. Lalu, ketiga model ini akan diukur kinerja performanya menggunakan *Mean Absolute Percentage Error* (MAPE), *Root Mean Square Error* (RMSE), dan *R-Squared*. Hasil performa menunjukkan bahwa metode regresi LASSO memberikan hasil terbaik untuk Impor yaitu dengan MAPE *testing* sebesar 12,02%, RMSE *testing* sebesar 2411,343, dan *R-Squared testing* sebesar -106,61%. Metode regresi LASSO juga memberikan hasil terbaik untuk Ekspor Migas (Januari 2012- Maret 2024) dengan MAPE *testing* sebesar 59%, RMSE *testing* sebesar 846,639, dan *R-Squared testing* sebesar -2433,63%. Lalu, untuk ekspor migas (Januari 2012- Agustus 2022), Metode regresi RIDGE memberikan hasil terbaik dengan MAPE *testing* sebesar 22,07%, RMSE *testing* sebesar 329,8969 , dan *R-Squared testing* sebesar -71,19%. Terakhir, metode regresi LASSO juga memberikan hasil terbaik untuk ekspor non migas dengan MAPE *testing* sebesar 9,24%, RMSE *testing* sebesar 2321,691, dan *R-Squared testing* sebesar 1,07%.

Kata Kunci: ekspor, impor, multikolinearitas, metode RIDGE, metode LASSO, metode *Elastic Net*

Referensi : 38 (2003-2024)

ABSTRACT

Pricilia Audy Wijaya (01112210007)

ANALYSIS OF THE INFLUENCING MACROECONOMIC FACTORS ON INDONESIA'S EXPORT AND IMPORT VALUES USING RIDGE, LASSO, AND ELASTIC NET REGRESSIONS

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Economic activities play an important role towards a country's economic movements. Some economic activities that influence this movement include export and import activities. Therefore, this study analyzes Indonesia's export and import activities using several macroeconomic factors such as Gross Domestic Product (GDP), foreign exchange rates, money supply, inflation rate, Wholesale Price Index (WPI), gold futures prices, and stock indices. Due to the presence of multicollinearity in the data, the analysis is conducted using Regularized Least Squares Regression (RIDGE), Least Absolute Shrinkage and Selection Operator Regression (LASSO), and Elastic Net regression. Furthermore, the performance of these three models is evaluated using Mean Absolute Percentage Error (MAPE), Root Mean Square Error (RMSE), and R-Squared. The results show that the LASSO method provided the best result for imports with a testing MAPE of 12.02%, a testing RMSE of 2411.343, and a testing R-Squared of -106.61%. The LASSO method also provided the best results for oil and gas exports (January 2012 – March 2024), with a testing MAPE of 59%, a testing RMSE of 846.639, and a testing R-Squared of -2433.63%. Meanwhile, for oil and gas exports (January 2012 – August 2022), RIDGE method provided the best performance, with a testing MAPE of 22.07%, a testing RMSE of 329.8969, and a testing R-Squared of -71.19%. Lastly, the LASSO method also showed the best results for non-oil and gas exports, with a testing MAPE of 9.24%, a testing RMSE of 2321.691, and a testing R-Squared of 1.07%.

Keywords: exports , imports , multicollinearity, RIDGE method, LASSO method, Elastic Net method

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