

**THE IMPACT OF MOST INFLUENTIAL MACRO ECONOMIC
FACTORS ON USD/LKR EXCHANGE RATE IN SRI LANKA
AND THEIR PREDICTIVE ABILITY**

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Abstract

Emerging markets like Sri Lanka are becoming an attractive place for foreign investors. Foreign investment mainly depends on the forecasted exchange rate movements. This study attempts to determine, how accurately a multiple regression model would predict the USD/LKR exchange rate considering most influential economic factors outlined by economists. The specific objective of this study is to determine the best model. This is done by analyzing forecasting performance of various regression models. Eight models including the Multiple Linear Regression (MLR), Lasso Regression, Elastic Net Regression, Ridge Regression, Support Vector Regression, Decision Tree Regression, Random Forest Regression and Vector Auto Regression. All these forecast models are executed using monthly data over the period January 2000 to December 2020.

This study undertakes an econometric analysis of determinants of exchange rate for US Dollar in terms of Sri Lankan Rupee within the framework of monetary approach. Worker's Remittance, Gross Official Reserves, Fuel Import, Machinery & Equipment Import, Tea Export, Apparel Export, Stock Turnover and Local Debt are taken as determinants of USD/LKR exchange rate during the managed floating regime in Sri Lanka. Exploratory Data Analysis (EDA) method in Python is used to identify the most significant features of the dataset and to handle missing values and make transformations to the dataset as needed.

The machine learning models were trained and tested to predict the response variable *USD/LKR Exchange Rate*. The Multiple Linear Regression, Ridge Regression, Elastic Net Regression, VAR and Random Forest yielded high accuracy levels predicting the exchange rate whereas the Decision Tree, SVM Regression model and Lasso Regression poorly performed and that could be due to the low magnitude of the dataset.

Given there is no standardized framework to predict the USD/LKR Exchange Rate in Sri Lanka, from this study it was proven that based on the current economic situation of the country, even the highly influential factors rather than going for broader parameters (i.e. Imports Total and Exports Total) can have a strong predictive ability on the Exchange Rate in Sri Lanka.