A MACHINE LEARNING APPROACH TO PREDICT GDP OF SRI LANKA

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Declaration

Abstract

Machine learning approaches are widely getting adopted around the world. However, it is still a novel concept for economic policy makers and forecasters in Sri Lanka. The research is aiming to predict GDP of Sri Lanka using machine learning algorithms. The objectives of the project are to understand whether GDP of Sri Lanka could be predicted using the variables private consumption, government expenditure, domestic investment, FDI, net exports and carbon emission.

The data was extracted from World Bank database. 10 machine learning algorithms were used for the analysis - Multiple Linear Regression, Ridge Regression, LASSO Regression, Elastic Net Regression, Decision Tree Regression, Random Forest Regression, Support Vector Regression, XG Boost, K-Nearest Neighbor and Polynomial Regression.

Two paths were followed when conducting the analysis. In Path 1 all variables were used for prediction and in Path 2 carbon emission was removed as it is not a macroeconomic variables and GDP was predicted using the 10 algorithms.

Out of the algorithms implemented top three performing algorithms are Random Forest Regression, K-Nearest Neighbor and Extreme Gradient Booster under both paths. Performance of Random Forest Regression, K-Nearest Neighbor, Polynomial Regression and Support Vector Regression improved when carbon emission was removed from the dataset.