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MACROECONOMIC FORECASTING USING MACHINE LEARNING: A CASE OF SLOVAKIA

Abstract:

We assess the forecasting performance of the selected machine learning methods. According to previous research, they can enhance short-term forecasting performance. We forecast industrial production, inflation and unemployment in Slovakia. We compare the forecasting performance of the models using the mean absolute error and root-mean-squared error. We forecast the variables using ensemble machine learning techniques, such as random forest, bagging and boosting. Additionally, we explore regularized least squares models, such as ridge regression, lasso regression, and elastic net models. Finally, we examine the forecasting performance of neural networks and compare the mean and trimmed mean of model forecasts with individual model performance. Our findings affirm that these methods can enhance forecast accuracy of short-term forecasts, particularly when a relatively large dataset is available. Individual machine learning models prove themselves to be even more accurate than the averages of model forecasts.

Keywords:

Economic forecasting, Slovakia, Ensemble machine learning, Regularized least squares, Neural networks

JEL Classification: C53, E37, E27