Application of Support Vector Regression to Predict Unemployment Rate

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Abstract: This study utilized five economic factors; 1) Consumer Price Index, 2) Average ten-year return on treasury securities, 3) Total Nonfarm payroll, 4) Four week moving average of jobless claims filed, and 5) Stand & Poor 500 index to predict US unemployment rate. Historical time series data on factors 1-4 was obtained from the Economic Research web site of the Federal Reserve Bank of St. Louis. Time series data on factor 5 was obtained from the Yahoo Finance web site. Multiple Linear Regression, Back Propagation Algorithm, and Support Vector Regression techniques were utilized to predict US unemployment rate. Based on Mean Squared Error and adjusted R^2 values the Support Vector Regression technique provided superior results for the given dataset.

Keywords: Unemployment Rate, Prediction, Multiple Linear Regression, Artificial Neural Networks, Support Vector Regression