Application of regression models to forecasting of macroeconomic indicators

Formal foundations of application of regression analysis to forecasting macroeconomic indices were presented. Emphasis was put on sources of modeling error, especially the correct choice of exogenous variables, effects of small samples number of non-stationary time series and of their dynamics. Two methods for input selection were proposed: Karhunen-Loeve transformation and statistical significance tests, as well as three approaches to eliminating the series non-stationarity, i.e. detrending by linear trends, single-sample series increments and increments in the forecast horizon. The effectiveness of the proposed method was shown based on a forecast of three indices: GDP, investments and interest rates for the polish economy based on nominal quarterly data from GUS and NBP from 1995 to 2008. An effort was made to construct multi-factor predictors by employing tens of exogenous indices characterizing the financial and real spheres of polish economy. Acceptable forecasting results for 2008 are shown. They May be found satisfactory, also when confronted with alternative research by other authors.

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