A nonlinear analysis of the Spanish Index Industrial Production

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Abstract: For many years the economic time series analysis has been dominated by the linear paradigm and the Box-Jenkins approach. Lately the influence of the nonlinear models have extended so far this kind of data, especially to study the business cycle in macroeconomics data. Our aim is to analyze the nonlinearities of Spanish Economy, using a Self-Exciting Threshold Autoregressive model (SETAR) to estimate the Spanish Index of Industrial Production. The hypothesis of linearity in the model is refused, and the SETAR model improve the fitting of the series, and moreover it permits to add information at the dynamic of the series. The relevance of our results lies in the analysis of the cyclical fluctuation of the Spanish economy. Finally we realize an exercise of prediction where the roots-mean-square error of the SETAR is lower than the linear model.

Keywords: Nonlinear Analysis; Spanish Economy; Threshold Autoregressive Models