



A note on lag selection in time series using multi-step estimation

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In applied time series analysis there is a great need to decide upon the number of lags. This is due to the fact that the theories at hand most often do not supply information regarding the number of lags, so we need procedures to let the data decide for us. Commonly used method includes information criteria, such as AIC and BIC, the bottom up and top down methods (start with a minimum/maximum number of lags and then test up/down) and testing for autocorrelation in the residuals. In this note we propose a new approach which is based on comparing the parameter estimates gained from minimizing one step ahead forecast error with the ones from minimizing the h -step ahead forecast errors. This evolves to a non-nested type of test. The proposed test statistic has an asymptotic χ^2 -distribution. A small Monte Carlo Simulation is performed which shows that the size is close to the nominal and that it has good power. Compared to AIC, BIC, top-down and the Breusch-Godfrey test for autocorrelation in the residuals our test is the only one with both good size and power properties.

Keywords: AR(1); Size and power; Non-nested test.