Econometric Game 2013

Case 1:

In a recent article Alan J. Auerbach and Yuriy Gorodnichenko from the University of California at Berkeley analyze the effects of fiscal policy shocks to output in the US.[1] The authors provided the data and codes for their analysis as downloadable Matlab files.

(i) Try to replicate the linear benchmark specification presented in Section II (Figure 2, solid line) by a traditional (structural) VAR analysis based on a suitable Cholesky decomposition by using your own codes or some other software like EViews, Rats, R, JMulti etc. Compare your results with the author's results and comment on the differences.

(ii) Check whether the linear reduced form VAR model with four lags is well specified. Do you find evidence for misspecification especially in the direction of an nonlinear alternative considered by the authors?

(iii) In footnote 6 the authors state: "We estimate the equations in log levels in order to preserve the cointegrating relation among the variables." Do you find any evidence for the presumed cointegration? If yes, provide an interpretation of the long-run relation.

(iv) Suggest and apply a reasonable alternative identification scheme that is not employed in the study of Auerbach and Gorodnichenko, for example an AB-model[2], long-run restrictions, sign restrictions[3], identification through heteroskedasticity[4] or external identifications schemes (such as the narrative approach of Romer and Romer (2010)[5]).

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[1] Auerbach, A.J. and Y. Gorodnichenko (2012), Measuring the Output Responses to Fiscal Policy, American Economic Journal: Economic Policy, 4(2): 1-27.

[2] e.g. Lütkepohl and Krätzig (2004), Applied Time Series Econometrics, Cambride University Press.

[3] e.g. Fry, R. and A. Pagan (2011) Sign Restrictions in Structural Vector Autoregressions: A critical review, Journal of Economic Literature, 49, 938–960.

[4] Rigobon, R. (2003), Identification through heteroskedasticity, The Review of Economics and Statistics 85, 777-792.

[5] Romer, C.D. and Romer, D.H. (2010), The Macroeconomic Effects of Tax Changes: Estimates Based on a New Measure of Fiscal Shocks, American Economic Review, 100(3): 763-801.

Case 2:

For the further development of the debt crisis in Southern Europe, the growth perspectives for these countries are crucial. In the attached Excel data file you find various economic indicators for Spain. A detailed list of the variables is provided in the Appendix.

(i) Develop an appropriate forecasting procedure for the quarterly growth rates of GDP and in the four quarters of 2013. Make sure that your forecast model exploits as much of the information in the data set as possible.

(ii) Estimate the root mean squared error (RMSE) for your forecasting approach in the time span 2003(i) – 2012(iv). Evaluate the performance of your one-step-ahead forecasting model relative to a simple univariate ARIMA model.