General comments on the Course

I plan to adjust the course to include material on a recent and growing field of network analysis within a multiple time series framework. However, this adjustment can just take place gradually due to time constraints on my side.

To include some new content, I will shorten material in some parts of the course or even skip some material completely. For example, in Part 1 we only briefly introduce and review a few concepts from probability theory and time series analysis that we need later on without going much into detail. If you are interested in the technical details I refer to White (2000) or, in particular, Davidson (2002) for a more advanced treatment of the issues covered in Part 1. I skip the part on stable ARMA models completely as we have dealt with them in Advanced Econometrics III. Depending on time, we may also leave out Part 5 on VAR(∞) and stable VARMA models or I focus on a very few remarks. As regards Part 8, I will only briefly introduce the concept of cointegration without discussing any inference issue with respect to cointegration. We only look into inference with respect to VARs that might be cointegrated.

Part 9 will be new and prepares for the papers I select for your presentations. At the moment, I plan to first discuss Krampe, Kreiss & Paparoditis (2021) to introduce into Lasso estimation of high-dimensional VARs. By now, there exists a too large literature in this field to be reviewed in class. I focus on Krampe et al. (2021) as it permits for inference on the reduced form VAR parameters. Second, I will provide you with an overview on dynamic factor models. To this end, I will rely on the handbook article of Stock & Watson (2016).

The presentation part will then be devoted to network analysis within a multiple time series framework. I collect a set of papers from which you can choose one to be discussed/reviewed in a presentation and paper. Your paper may also contain an own empirical illustration. These papers are often based on high-dimensional VARs or factor models using mainly forecast error variance decompositions or, sometimes, Granger causality, to represent networks. Therefore, I try to deal with Part 9 earlier. However, I do not know whether I can manage to achieve that.

References

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White, H. (2000). *Asymptotic Theory for Econometricians*, revised edn, San Diego: Academic Press.