December 2002

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Factor models in large panels of time series

Prerequisite of this course is basic time series. The course is divided in two parts. The first part provides some background: frequency domain techniques from an introductory standpoint, linear filtering, standard dynamic and static principal component and factor analysis. In the second part, I will discuss new research on principal component and factor analysis for large cross-section of time series and applications to business cycle analysis and the emprics of monetary policy. Lectures will be complemented by illustrations at the computer using MATLAB 5.

Part I

Sessions 1 and 2. Frequency domain analysis of time series and filtering.

Readings:

Class notes; Brockwell and Davis, 1996; Sargent, 1987, Chapter XI, Baxter and King, 1999, Christiano and Fitzgerald, 2001

Session 3. Standard factor analysis and principal components.

Readings :

Class notes; Altug, 1989; Brillinger, 1981; Doz and Langlaert, 1999; Geweke, 1977; Geweke and Singleton, 1981; Giannone, Reichlin and Sala, 2002; Harvey, 1985; Quah and Sargent, 1993; Sargent, 1989; Sargent and Sims, 1977; Stock and Watson, 1989

Part II

Session 4. Dynamic methods for large cross-sections: static and dynamic factor analysis: estimation, forecasting, (n, T) asymptotic.

Readings :

Class notes; Bai, 2002; Bai and Ng, 2000; Forni, Hallin, Lippi and Reichlin, 2000, 2001; Forni and Reichlin, 1998, 2001; Reichlin, 2002; Stock and Watson, 2002

Session 5. Applications: Real time coincident indicators

Readings:

Altissimo et al. 2001; Cristadoro et al., 2002; Marcellino, Stock and Watson, 2000; Stock and Watson, 200?, 2002,

Session 6. Structural VAR's and factor models as tools for policy analysis

Readings :

Class notes; Bernanke and Boivin, 2001; Christiano et al., 1999; Forni, Lippi and Reichlin, 2002; Giannone, Sala, Reichlin, 2002a and 2002b; Reichlin, 2002; Sala, 2001; Stock and Watson, 2001

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3 Altug, S. (1989), "Time-to-build and aggregate fluctuations: some new evidence", *International Economic Review*, vol. 30, Issue 4, 889-920.

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