



ECONOMETRICS RESEARCH SEMINAR

January 19, 2012, 9 am

**Institute for Advanced Studies
1060 Vienna, Stumpergasse 56
SZ II (seminar room 6th floor)**

Please note that the seminar will start at 9 am sharp!

Siegfried Hörmann

Université Libre de Bruxelles

Functional principal component analysis for sequential and spatial data

Data in many fields of science are sampled from processes that can most naturally be described as functional. Examples include growth curves, temperature curves, curves of financial transaction data and patterns of pollution data. Functional data analysis (FDA) is concerned with the statistical analysis of such data.

A problem that we encounter in studying functional data is the “curse of dimensionality”. Indeed, functions are intrinsically infinite dimensional objects and it seems evident that tools for reducing dimensionality are even more important than in the multivariate context. A key technique for dimension reduction and analyzing functional data is the functional principal component analysis (FPCA). This technique has been used in huge number of applications, often silently assuming that the functional data are independent. However, the assumption of independence is many times clearly violated in some of those applications, even in prime examples in FDA literature.

In this talk we propose a framework that is taking into account the temporal or spatial dependence of functional observations. We show when FPCA is robust against such dependence but we also formulate conditions for the lack thereof.

The talk is based on joint work with Piotr Kokoszka (Colorado State University).



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Manfred Deistler (University of Technology Vienna and IHS), **Robert Kunst** (IHS),
Benedikt Pötscher (University of Vienna and IHS), **Leopold Sögner** (IHS)

Venue: Institute for Advanced Studies, 1060 Vienna, Stumpergasse 56

Schedule 2011/2012

UNIT	DATE	ROOM	SEMINAR
1	Thu, Oct 27 9:00 am	HS II	Jerry Hausman, MIT
2	Thu, Nov 03 9:00 am	HS II	Carlos Velasco, Universidad Carlos III de Madrid
3	Thu, Nov 10 9:00 am	HS II	Matthias Koch, Vienna University of Economics and Business
4	Thu, Nov 17 9:00 am	HS II	Adam Rosen, University College London
5	Thu, Nov 24 9:00 am	HS II	Genaro Sucarrat, BI Norwegian Business School
6	Thu, Dec 01 9:00 am	HS II	Bernd Funovits, Vienna Graduate School of Economics
7	Thu, Dec 15 9:00 am	HS II	Ulrike Schneider, TU Vienna
8	Thu, Jan 12 9:00 am	HS II	Ingmar Prucha, University of Maryland
9	Thu, Jan 19 9:00 am	SZ VI	Siegfried Hörmann, Université Libre de Bruxelles
10	Thu, Jan 26 9:00 am	HS II	Martin Wagner, Institute for Advanced Studies
11	Thu, Feb 23 9:00 am	HS II	Michel Dacorogna, SCOR
12	Thu, Mar 15 9:00 am	HS II	Steven Durlauf, University of Wisconsin-Madison
13	Thu, Mar 22 9:00 am	HS II	Jan G. De Gooijer, Universiteit van Amsterdam
14	Thu, Apr 19 9:00 am	HS II	Peter Hansen, EUI
15	Thu, Apr 26 9:00 am	HS II	Domenico Giannone, Université libre de Bruxelles
16	Thu, May 24 9:00 am	HS II	Michael Wolf, University of Zurich
17	Thu, Jun 21 9:00 am	HS II	Maximilian Kasy, UCLA

DOWNLOAD SITE FOR PAPERS (IF AVAILABLE) AND SEMINAR SCHEDULE: <http://economics.ihs.ac.at/seminars>

NOTE: Participation of advanced students in this seminar is highly recommended.