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PhD Student at the University of Paris I Panthéon-Sorbonne and the Paris school of economics.

EDUCATION

2004-2008	**PhD in Economics at the University of Paris I Panthéon-Sorbonne under the supervision of Professor Jean-Marc Robin** *Title: "Bayesian Estimation of nonlinear state-space models"*
2003-2004	**MSc of econometrics, University of Paris I**
1999-2003	**BSc of Economics, University of Paris II Panthéon-Assas**

RESEARCH

Interests

Bayesian econometrics, state-space models, hidden Markov models, nonparametric statistics, financial statistics, macro-econometrics and labor market empirics.

Working Papers

- A Multivariate Generalization of the Markov Switching Model

Abstract
We present a multivariate generalization of the simple markov-switching model. We allow for the introduction of several latent processes that have a simple parametric distribution. The matrix-variate bernoulli distribution yields a flexible yet parsimonious pattern of dependence between the different latent processes while preserving the markovian property. We derive several analytic results and show how to compute quantities such marginal and conditional distributions. We also show how to estimate the model in the bayesian framework and give several examples.
We then apply our approach to multivariate volatility clustering models. In the usual approaches to the problem, volatility clusters need either occur simultaneously in different series or be completely independent across those series. Contrary to those approaches, the framework in the paper allows for a rich pattern of dependence in the volatility clusters taking place across different variables.

- **Distributional Dynamics with Exponential family state-space models** (with Herman K. van Dijk, Econometric Institute)

Abstract
A class of state-space models is introduced that allows for modeling evolving bimodal economic processes and some other features of distributional dynamics for the case of longitudinal datasets. The quartic family of distributions is used for the construction of a simple and flexible state-space model that allows for the cross-section distribution to be either unimodal or bimodal and to let it evolve over time. Different modeling strategies are investigated and Bayesian inferential techniques are used. Empirical evidence on the evolution of the World Income distribution over the period 1950-2004 indicates the feasibility of our approach. Other applications are presently explored.

- **Hidden Markov models with covariate-dependent transitions** (with Nicolas Chopin)

Abstract
In typical applications of markov-switching models, a question of practical interest is whether transitions between states depend on given covariates. Markov-switching Models with covariate-dependent transition probabilities are rarely used however, presumably because they involve K(K - 1) probit-like regressions, where K is the number of states, which becomes quickly too large to handle as K increases. In this paper, we derive a markov-switching model such that the dependence of transitions on covariates is modeled parsimoniously, using a multivariate probit structure; this leads to K regressions to interpret. We derive an efficient MCMC algorithm for estimating the model from the Bayesian perspective and illustrate with an application in finance.

- **Bayesian Estimation of Potential Output Using Penalized Splines**

Abstract
We propose the use of penalized splines as a new methodology for the estimation of potential output. We begin by presenting two frequently used approaches for the estimation of potential output, namely the HP filter on one hand and the normal linear state-space approach on the other hand. We compare these two methods to the penalized spline approach on Bulgarian data.
We argue for the advantages of the routine use of penalized splines over the approaches commonly used in central banks.

Conferences

JAE annual lectures and conference on distributional dynamics, CEMFI, Madrid, Spain, June 2008
CEF 2008 – Paris, France, June 2008
18 EC² Meeting – Faro, Portugal, December 2007
RTN Meeting – Amsterdam Netherlands, December 2007
17th EC² Meeting – Rotterdam, Netherlands, December 2006
NAKE (The Netherlands Network of Economics) Day 2006 – Amsterdam, Netherlands, October 2006
61st European Meeting of the Econometric Society – Vienna, Austria August 2006

Seminars and Invitations

Econometrics Seminar – CORE, Louvain-La-Neuve, Belgium – 2007
Econometrics Seminar – Econometric Institute, Rotterdam, Netherlands – 2006
Research Seminar – Bulgarian National Bank, Sofia, Bulgaria – 2005
Econometrics and statistics Seminars – University of Paris I, Paris, France – (2004-2008)

Visiting Researcher Positions

- **Econometric Institute**, Erasmus University, Rotterdam, Netherlands, 2006.
- **Visiting Researcher Program**, Bulgarian National Bank, Sofia, Bulgaria, 2005.

TEACHING EXPERIENCE

University de Paris I Panthéon-Sorbonne

2007-2008	Introductory Econometrics
2007	Time Series Analysis
2007-2008	Intermediate Statistics
2005	Intermediate Macroeconomics

ENSAE (French National School of Statistics)

2005-2007	Advanced Econometrics
2006-2007	Time Series Analysis

University de Paris VII Denis Diderot

2005	Intermediate Macroeconomics

ACADEMIC REFERENCES

Jean-Marc Robin: Professor University Paris 1 Panthéon-Sorbonne and University College London

Email: jmrobin@univ-paris1.fr
Webpage: http://eurequa.univ-paris1.fr/membres/robin/robin.htm

Herman K. van Dijk: Professor Erasmus University Rotterdam and director of the Tinbergen Institute

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