NEWSLETTER

Issue No. 1  Winter 2013

From the Managing Editor

A warm welcome to the first edition of The Econometrics Journal Newsletter. I hope you will find it informative and of interest.

The primary aim of The Econometrics Journal is the publication of econometric research with a standard of intellectual rigour and academic standing similar to that in the top field journals in econometrics. It is a general journal covering all areas of econometrics and encourages the submission of first-class papers in macro-, micro- and financial econometrics.

As an international Journal, the professional skills and experience of a wide array of well established econometricians from top institutions worldwide is utilised to help in the selection process of research papers for publication.

Recent editorial changes include the appointment of Michael Jansson (U.C. Berkeley) as Co-Editor to replace Pierre Perron (Boston University) who completed his term as Co-Editor and Andrew Patton (Duke University) as Co-editor replacing Jianqing Fan (Princeton) on his taking up the position of Editor of Journal of Econometrics. Alexei Onatski (University of Cambridge) succeeds Robert Taylor (University of Essex) who completed his term as Assistant Editor and Book Reviews Editor who has taken up the position of Editor-in-Chief of Journal of Time Series Analysis. The Econometrics Journal is very grateful to Jianqing, Pierre and Robert for their excellent service.

The Econometrics Journal Special Session at the 2014 Royal Economic Society Annual Conference, Monday 7 to Wednesday 9 April, 2014 at the University of Manchester, is concerned with Large Dimensional Models. The invited speakers are Jianqing Fan (Princeton University) and Matthew Harding (Stanford University). Recent Special Sessions have addressed Nonparametric Identification, the Econometrics of Forecasting and Heterogeneity. Further details will be announced in due course on the journal website http://www.res.org.uk/view/econometricshome.html

Encouragingly the journal two-year impact factor continues to improve and for the most recent year 2012 is 1.000 (0.870, 0.691, 0.733, 0.750, 0.479) with the immediacy index at 0.227 (0.240, 0.176, 0.125, 0.065, 0.034) also representing an improvement; 2011-07 data are given in parentheses. The eigen-factor score and five year impact factor are also improving being 0.00417 (0.00280, 0.00352, 0.00367, 0.00324, 0.00379) and 1.252 (0.964, 1.166) respectively; 2011-08 and 2011-10 figures respectively in parentheses. I would like to take this opportunity to thank all Co-Editors, Associate Editors of and referees for the journal for their continuing efforts and support without which these improvements would not have occurred.
Turn-around times continue to improve. For decisions on all submissions the mean for time to first decision in 2012-13 was 43 days down from 50 in 2011-12.

Richard J. Smith
Managing Editor
Abstracts of Forthcoming Articles

Improved Lagrange Multiplier Tests in Spatial Autoregressions by Peter M. Robinson and Francesca Rossi

For testing lack of correlation against spatial autoregressive alternatives, Lagrange multiplier tests enjoy their usual computational advantages, but the ($\chi^2$) first-order asymptotic approximation to critical values can be poor in small samples. We develop refined tests for lack of spatial error correlation in regressions, based on Edgeworth expansion. In Monte Carlo simulations these tests, and bootstrap ones, generally significantly outperform $\chi^2$ based tests.

Generalized Dynamic Semiparametric Factor Models for High Dimensional Nonstationary Time Series by Song Song, Wolfgang K. Härdle, Ya'acov Ritov

High dimensional nonstationary time series, which reveal both complex trends and stochastic behavior, occur in many scientific fields, e.g. macroeconomics, finance, neuro-economics, etc. To model them, we propose a generalized dynamic semiparametric factor model with a two-step estimation procedure. After choosing smoothed functional principal components as space functions (factor loadings), we extract various temporal trends by employing variable selection techniques for the time basis (common factors), and establish this estimator's non-asymptotic statistical properties under the dependent scenario ($\beta$-mixing and m-dependent) with the weakly cross-correlated error term. At the second step, we obtain a detrended low dimensional stochastic process that exhibits the dynamics of the original high dimensional (stochastic) objects and further justify statistical inference based on it. Crucially
required for pricing weather derivatives, an analysis of temperature dynamics in China is presented to illustrate the performance of our method together with a simulation study designed to mimic it.

**Identification-Robust Inference for Endogeneity Parameters in Linear Structural Models** by Firmin Doko Tchatoka and Jean-Marie Dufour

We provide a generalization of the Anderson-Rubin (AR) procedure for inference on parameters which represent the dependence between possibly endogenous explanatory variables and disturbances in a linear structural equation (endogeneity parameters). We stress the distinction between regression and covariance endogeneity parameters. Such parameters have intrinsic interest (because they measure the effect of latent variables which induce simultaneity) and play a central role in selecting an estimation method (such as OLS or IV methods). We observe that endogeneity parameters may not be identifiable and we give the relevant identification conditions. These conditions entail a simple identification correspondence between regression endogeneity parameters and usual structural parameters, while the identification of covariance endogeneity parameters typically fails as soon as global identification fails. We develop identification-robust finite-sample tests for joint hypotheses involving structural and regression endogeneity parameters, as well as marginal hypotheses on regression endogeneity parameters. For Gaussian errors, we provide tests and confidence sets based on standard Fisher critical values. For a wide class of parametric non-Gaussian errors (possibly heavy-tailed), we show that exact Monte Carlo procedures can be applied using the statistics considered. As a special case, this result also holds for usual AR-type tests on structural coefficients. For covariance endogeneity parameters, we supply an asymptotic (identification robust) distributional theory. Tests for partial exogeneity hypotheses (for individual potentially endogenous explanatory variables) are covered as special cases. The proposed tests are applied to two empirical examples: the relation between trade and economic growth, and the widely studied problem of returns to education.

**An Instrumental Variable Random Coefficients Model for Binary Outcomes** by Andrew Chesher and Adam M. Rosen

In this paper we study a random coefficient model for a binary outcome. We allow for the possibility that some or even all of the explanatory variables are arbitrarily correlated with the random coefficients, thus permitting endogeneity. We assume the existence of observed instrumental variables Z that are jointly independent with the random coefficients, although we place no structure on the joint determination of the endogenous variable X and instruments Z, as would be required for a control function approach. The model fits within the spectrum of generalized instrumental variable models studied in Chesher and Rosen (2012a), and we thus apply identification results from that and related studies to the present context, demonstrating their use. Specifically, we characterize the identified set for the distribution of random coefficients in the binary response model with endogeneity via a collection of conditional moment inequalities, and we investigate the structure of these sets by way of numerical illustration.
**Weighted Composite Quantile Regression Estimation of DTARCH Models** by Jiancheng Jiang, Xuejun Jian and Xinyuan Song

In modeling volatility in financial time series, the double-threshold autoregressive conditional heteroscedastic (DTARCH) model has been demonstrated as a useful variant of the autoregressive conditional heteroscedastic (ARCH) models. In this paper we propose a weighted composite quantile regression method for simultaneously estimating the autoregressive parameters and the ARCH parameters in the DTARCH model. This method involves a sequence of weights and takes a datadriven weighting scheme to maximize the asymptotic efficiency of the estimators. Under regularity conditions, we establish asymptotic distributions of the proposed estimators for a variety of heavy- or light-tailed error distributions. Simulations are conducted to compare the performance of different estimators, and the proposed approach is used to analyze the daily S&P 500 Composite index, which endorse our theoretical results.

**Direct Semiparametric Estimation of Fixed Effects Panel Data Varying Coefficient Models** by Juan M. Rodriguez-Poo, and Alexandra Soberon

In this paper we present a new technique to estimate varying coefficient models of unknown form in a panel data framework where individual effects are arbitrarily correlated with the explanatory variables in an unknown way. The estimator is based in first differences and then a local linear regression is applied to estimate the unknown coefficients. To avoid a non-negligible asymptotic bias, we need to introduce a higher dimensional kernel weight. This enables us to remove the bias at the price of enlarging the variance term and hence, achieving a slower rate of convergence. To overcome this problem we propose a one step backfitting algorithm that enables the resulting estimator to achieve optimal rates of convergence for this type of problems. It exhibits also the so called oracle efficiency property. We also obtain the asymptotic distribution. Since the estimation procedure depends on the choice of a bandwidth matrix, we also provide a method to compute this matrix empirically. Monte Carlo results indicates good performance of the estimator in finite samples.

**Multivariate Variance Targeting in the BEKK-GARCH Model** by Rasmus Søndergaard Pedersen and Anders Rahbek

This paper considers asymptotic inference in the multivariate BEKK model based on (co-)variance targeting (VT). By definition the VT estimator is a two-step estimator and the theory presented is based on expansions of the modified likelihood function, or estimating function, corresponding to these two steps. Strong consistency is established under weak moment conditions, while sixth-order moment restrictions are imposed to establish asymptotic normality. Included simulations indicate that the multivariately induced higher-order moment constraints are necessary.
**Backfitting and Smooth Backfitting in Varying Coefficient Quantile Regression** by Young K. Lee, Enno Mammen and Byeong U. Park

In this paper, we study the ordinary backfitting and smooth backfitting as methods of fitting varying coefficient quantile models. We do this in a unified framework that accommodates various types of varying coefficient models. Our framework also covers the additive quantile model as a special case. Under a set of weak conditions, we derive the asymptotic distributions of the backfitting estimators. We also briefly report the results of a simulation study.

**Testing for the Stochastic Dominance Efficiency of a Given Portfolio** by Oliver Linton, Thierry Post and Yoon-Jae Whang

We propose a new statistical test of the stochastic dominance efficiency of a given portfolio over a class of portfolios. We establish its null and alternative asymptotic properties, and define a method for consistently estimating critical values. We present some numerical evidence that our tests work well in moderate sized samples.

**Confidence Sets Based on Inverting Anderson-Rubin Tests** by Russell Davidson, James G. MacKinnon

Economists are often interested in the coefficient of a single endogenous explanatory variable in a linear simultaneous-equations model. One way to obtain a confidence set for this coefficient is to invert the Anderson-Rubin test. The “AR confidence sets” that result have correct coverage under classical assumptions. However, AR confidence sets also have many undesirable properties. It is well known that they can be unbounded when the instruments are weak, as is true of any test with correct coverage. But, even when they are bounded, their length may be very misleading, and their coverage conditional on quantities that the investigator can observe, notably the Sargan statistic for overidentifying restrictions, can be far from correct. A similar property manifests itself, for similar reasons, when a confidence set for a single parameter is based on inverting an F test for two or more parameters.

**Estimation of State-Space Models with Endogenous Markov Regime Switching Parameters** by Kyu Ho Kang

This study extends the endogenous Markov-switching model of Kim, Piger, and Startz’ (2008) to a general state-space model. It also complements Kim's (1994) regime switching dynamic linear model by allowing the discrete regime to be jointly determined with observed or unobserved continuous state variables. The estimation framework involves a Bayesian Markov chain Monte Carlo (MCMC) scheme to simulate the latent state variable that controls the regime shifts. A simulation exercise shows that neglecting endogeneity leads to biased inference. This method is then applied to the dynamic Nelson-Siegel yield curve model where the unobserved time-varying level, slope and curvature factors are contemporaneously correlated with the Markov switching volatility regimes. The estimation results indicate that the high volatility tends to be associated with positive innovations in the level and slope.
factors. More importantly, we find that the endogenous regime-switching dynamic Nelson-Siegel model outperforms the model with and without exogenous regime-switching in terms of out-of-sample prediction accuracy.

**Stochastic Equicontinuity in Nonlinear Time Series Models** by Andreas Hagemann

In this paper I provide simple and easily verifiable conditions under which a strong form of stochastic equicontinuity holds in a wide variety of modern time series models. In contrast to most results currently available in the literature, my methods avoid mixing conditions. I discuss several applications in detail.

**Estimation of Fixed Effects Panel Data Partially Linear Additive Regression Models** by Chunrong Ai, Jinhong You and Yong Zhou

In this paper we investigate the estimation problem of fixed effects panel data partially linear additive regression models. Semiparametric fixed effects panel data regression models are well-suited tools to make econometric analysis and analysis of cDNA micro-arrays (e.g. Fan, Peng and Huang 2005, Ai, You and Zhou 2011). By applying a polynomial spline series approximation and profile least squares procedure we propose a semiparametric least squares dummy variables estimator (SLSDVE) for the parametric component and a series estimator for the nonparametric component. Under very weak conditions we show the SLSDVE is asymptotically normal and the series estimator achieves the optimal convergence rate of the nonparametric regression. In addition, we propose a two-stage local polynomial estimation for the nonparametric component by applying the additive structure and the series estimator. The resultant estimator is asymptotically normal and the asymptotic distribution of each additive component is the same as it would be if the other components were known with certainty. Simulation studies are conducted to demonstrate the finite sample performance of the proposed procedures and an illustrative empirical application is also presented.

**Managing Editor’s Annual Report 2013**

### Top Five Most Downloaded Published Articles During 2013*

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* To end of October 2013
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Aims and Scope

The Econometrics Journal was established in 1998 by the Royal Economic Society with the aim of creating a top international field journal for the publication of econometric research with a standard of intellectual rigour and academic standing similar to those of the pre-existing top field journals in econometrics. The Econometrics Journal is committed to publishing first-class papers in macro-, micro- and financial econometrics. It is a general journal for econometric research open to all areas of econometrics, whether applied, computational, methodological or theoretical contributions.
Submissions to The Econometrics Journal receive detailed and informative appraisal. Some papers may be rejected without seeking the advice of referees and the provision of reports but are scrutinised in detail by a member of the Editorial Board. This practice is only invoked for submissions unlikely to prove publishable in The Econometrics Journal to avoid unnecessarily prolonging the editorial process and taxing the limited resource of referees.

The Econometrics Journal is dedicated to achieving an exacting standard for the editorial process, both in terms of usefulness and speed, to promote the submission of high-quality econometric research. The Econometrics Journal provides annual reports concerning the editorial process.

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