THE 2006–2008
TJALLING C. KOOPMANS
ECONOMETRIC THEORY PRIZE
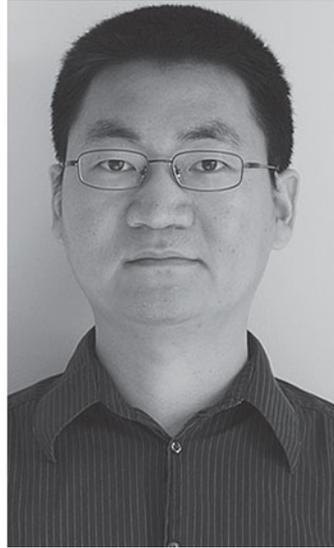
Wei Biao Wu   Xiaofeng Shao

Econometric Theory is proud to announce the winning article for The Tjalling C. Koopmans *Econometric Theory* Prize for the period 2006–2008 inclusive. The winning article and citation (written by the Advisory Board and Editor) are as follows:

Wei Biao Wu and Xiaofeng Shao are awarded
the Tjalling C. Koopmans *Econometric Theory* Prize
for their paper

A Limit Theorem for Quadratic Forms
and its Applications

which appeared in
Econometric Theory 23(5),
October 2007, pages 930–951.

    1447

Citation

The paper derives a central limit theorem for quadratic forms of martingale differences. Particular emphasis is laid on the application of this result to estimation of the spectral density of a stationary process by the smoothed periodogram. For this case asymptotic normality is obtained from the result on general quadratic forms by approximating the Fourier transforms of the underlying stationary process by martingales. Such limiting results are important, for instance in hypothesis testing and the construction of confidence intervals in the frequency domain.

For both the general case and for the special case of estimation of spectra, there exists a substantial body of preceding literature. A special feature of this paper is that the results are derived under assumptions that are very general and easily verifiable. For spectral estimation the main assumptions are that the underlying stationary process is obtained from a (in general, nonlinear) causal transformation of an i.i.d. sequence and a very weak assumption of short range dependence. By the first assumption the stationary process can be interpreted as the output of a general, possibly nonlinear, system with i.i.d. inputs. The class of such processes is very large. The second assumption avoids the classical strong mixing conditions or summability conditions on the joint cumulants.

The prize is jointly supported by the publishers, Cambridge University Press, and Mrs. Truus Koopmans. It is named in honor of Tjalling C. Koopmans, the 1975 Nobel Laureate in Economic Science. The selection of the winning article was made by the Advisory Board of the Journal and all articles published in *Econometric Theory* over 2006–2008 inclusive were candidates for the prize, except those that were authored or coauthored by the Editor and members of the Advisory Board. The prize is accompanied by a financial award of $1,000 to the winning authors.

Cambridge University Press joins me in congratulating the authors on their success in receiving this award.

Peter C.B. Phillips
New Haven, CT
2009