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TESTING FOR NONCAUSAL VECTOR AUTOREGRESSIVE REPRESENTATION

Abstract:

We propose a test for non-causal vector autoregressive representation generated by non-Gaussian shocks. We prove that in these models the Wold innovations are martingale difference if and only if the model is correctly specified. We propose a test based on a generalized spectral density to check for martingale difference property of the Wold innovations. Our approach does not require to identify and estimate the non-causal models. No specific estimation method is required, and the test has the appealing nuisance parameter free property. The test statistic uses all lags in the sample and
it has a convenient asymptotic standard normal distribution under the null hypothesis. A Monte Carlo study is conducted to examine the finite-sample performance of our test.

Keywords:

Explosive Bubble; Identification; Non-causal Process; Vector Autoregressive.

JEL Classification: C32, C50