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Institut für Ökonometrie und Statistik

Forschungsseminar

Prof. Patrik Guggenberger, Ph.D.
27.06.2017, 16:00 (s.t.)

Seminargebäude - S12

A more powerful subvector Anderson Rubin test in linear instrumental variable regression

Abstract

We study the power of the subvector Anderson-Rubin test in linear IV regression with conditional homoskedasticity. We show that the version of the test that uses χ^2 critical values with degrees of freedom correction for the estimated nuisance parameters, proposed by Guggenberger et al (2012), is inadmissible. We propose more powerful tests that use data-dependent critical values. The critical values are conditional on a statistic that measures the strength of the identification of the nuisance parameters. In the case when the nuisance parameter is a coefficient of a single endogenous regressor, we obtain Gaussian power bounds and find that the conditional subvector AR test is nearly optimal. Moreover, we show that the test has correct asymptotic size. Conditional critical values can be tabulated, and conditional p-values can be computed easily using numerical integration.