

"Weak-Instrument Bias in Impulse Response Estimators"

We approximate the small-sample distribution of just-identified instrumental variables (IV) impulse response estimators identified with a weak instrument under the conventional local-to-zero asymptotic framework. Since this distribution lacks a mean, we assess bias using the modal impulse response across H horizons. As long as IV-identified local projections (LP-IV) and vector autoregressions (SVAR-IV) share the same OLS estimand and first-stage equation, the weak-instrument bias of SVAR-IV never exceeds that of LP-IV. Apart from trivial cases, SVAR-IV bias is strictly smaller than LP-IV bias for typical specifications. We propose a simple test for a weak instrument for LP-IV and SVAR-IV impulse responses based on the usual F -statistic, and show how to adjust the critical values to incorporate constraints that exclude ex-ante implausible DGPs.

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