

On selecting valid instruments for structural vector autoregression

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Abstract: With the prevalence of the so-called "big data", structural models/equations are often estimated with high-dimensional instruments. Notable research papers include Belloni, Chen, Chernozhukov and Hansen (2012); and Kang, Zhang, Cai and Small (2016). The former assumes all instruments are valid and considers an efficient estimator; while the latter proposes some confidence sets of the structural parameters, and investigates their properties under various assumptions on the number of valid instruments. In this paper, we adopt and modify the OGA-HDIC algorithm proposed by Ing (2019) and search for valid instruments out of some high-dimensional potential instruments. Unlike Lasso, this algorithm is arguably more suitable for time-series data. We close this paper with (i) Some comparisons with the high-dimensional Durbin-Wu-Hausman (DWH) test proposed by Guo, Kang, Cai and Small (2018); (ii) Some Monte-Carlo simulations.