

Rubio-Ramírez, Juan F.; Waggoner, Daniel F.; Zha, Tao

Structural vector autoregressions: theory of identification and algorithms for inference.

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Summary: Structural vector autoregressions (SVARs) are widely used for policy analysis and to provide stylized facts for dynamic stochastic general equilibrium (DSGE) models; yet no workable rank conditions to ascertain whether an SVAR is globally identified have been established. Moreover, when nonlinear identifying restrictions are used, no efficient algorithms exist for small-sample estimation and inference. This paper makes four contributions towards filling these important gaps in the literature. First, we establish general rank conditions for global identification of both identified and exactly identified models. These rank conditions are sufficient for general identification and are necessary and sufficient for exact identification. Second, we show that these conditions can be easily implemented and that they apply to a wide class of identifying restrictions, including linear and certain nonlinear restrictions. Third, we show that the rank condition for exactly identified models amounts to a straightforward counting exercise. Fourth, we develop efficient algorithms for small-sample estimation and inference, especially for SVARs with nonlinear restrictions.

MSC:

[91B84](#) Economic time series analysis

[91B51](#) Dynamic stochastic general equilibrium theory

[62M10](#) Time series, auto-correlation, regression, etc. in statistics (GARCH)

Cited in **31** Documents

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