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Estimation and Inference of Dynamic Structural Factor Models with Over-identifying Restrictions*

Xu Han[†]

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Abstract

This paper develops a new estimator for the impulse response functions in structural factor models with a fixed number of over-identifying restrictions. The proposed identification scheme nests the conventional just-identified recursive scheme as a special case. We establish the asymptotic distributions of the new estimator and develop test statistics for the over-identifying restrictions. Simulation results show that adding a few more over-identifying restrictions can lead to a substantial improvement in estimation accuracy for impulse response functions at both zero and nonzero horizons. We estimate the effects of a monetary policy shock using a U.S. data set. The results show that our over-identified scheme can help to detect incorrect specifications that lead to spurious impulse responses.

Key words: High-dimensional Factor Models, Identification and Estimation, Structural Impulse Responses

JEL Classification: C33, C13, E32

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