

How (not) to do the Cholesky Decomposition: Or, how does the UK economy respond to international shocks?

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Abstract

We develop an identification result based on relative variances of the idiosyncratic shocks. The analysis allows to make inferences on the structural ordering of macroeconomic variables in a vector autoregression (VAR) or a Factor-Augmented VAR (FAVAR) context. It shows how to do the Cholesky decomposition correctly, and how to correctly look at permutations of endogenous variables. To illustrate our findings we apply the framework and methods to the study of propagation of international and UK economy wide shocks, based on an extension, initially proposed by Mumtaz and Surico (2009). There is a the FAVAR model developed in Bernanke, Boivin, and Elias (2005) in to a small open economy setting. However, the structural ordering implied by the model, whereby UK macroeconomic factors trail the international economic variables, is not supported by the data. The empirical evidence rather reveals an ordering where real activity in the UK emerges at the top of the order, followed by the international economy, and finally the UK policy rate. This suggests characterisation of the UK not as a small open economy, but an (medium sized) open economy with significant contemporaneous influences on the international economy.