

Non-technical summary for ‘Estimating the Effects of Monetary Policy in Australia Using Sign-restricted Structural Vector Autoregressions’

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For a central bank to set monetary policy effectively, it is important to understand the macroeconomic effects of changes in its policy rate. Estimating these effects is difficult, because it requires disentangling the effects of policy rate changes from the effects of other forces that drive macroeconomic fluctuations and to which monetary policy itself responds. A common way to do this is to use econometric models called structural vector autoregressions (SVARs). Roughly speaking, these models can be used to decompose the correlations among a group of macroeconomic variables such that particular components can be interpreted as the effects of a change in monetary policy. Conducting this decomposition requires making assumptions about the economy’s structure (that is, the relationships between macroeconomic variables), which are known as ‘identifying restrictions’.

Previous estimates of the macroeconomic effects of Australian monetary policy have usually been based on strong, potentially controversial, identifying restrictions. Moreover, estimates obtained under these restrictions often imply responses of inflation or consumer prices that are at odds with conventional macroeconomic theory (a ‘price puzzle’). I instead consider using an arguably weaker set of identifying restrictions, known as ‘sign restrictions’. For example, rather than assuming that inflation does not respond within the quarter to a change in the policy rate (a zero restriction), we might assume that inflation does not increase in response to an increase in the policy rate (a sign restriction). The cost of using these ‘weaker’ restrictions is that they only determine a *set* of possible values for the effects of monetary policy.

This paper explores the extent to which different sign restrictions are informative about the macroeconomic effects of changes in the cash rate. There are three broad types of restrictions that I consider:

1. Restrictions on the responses of macroeconomic variables to changes in monetary policy (‘impulse responses’).
2. Restrictions on how the central bank sets monetary policy in response to macroeconomic variables (the ‘reaction function’).
3. Restrictions based on an existing measure of unanticipated changes in monetary policy.

It turns out that some sets of identifying restrictions are not particularly informative about the effects of monetary policy in Australia. However, combining the restrictions allows us to draw some useful inferences. In particular, I find strong evidence that an increase in the cash rate lowers real GDP and trimmed mean CPI at horizons beyond a year or so. The results are consistent with the macroeconomic effects of a 100 basis point increase in the cash rate lying towards the upper end of the range of existing estimates. For instance, the results suggest that the response of real GDP is likely to be larger in magnitude than in the RBA’s multi-sector and MARTIN models (Gibbs, Hambur and Nodari 2018; Ballantyne *et al* 2019). One caveat around these results is that they are sensitive to shortening the estimation sample to the inflation-targeting period.

A general message from this work is that it is important to continue searching for credible identifying restrictions and to question the assumptions underlying existing estimates of the effects of monetary policy.

References

Ballantyne A, T Cusbert, R Evans, R Guttman, J Hambur, A Hamilton, E Kendall, R McCrick, G Nodari and D Rees (2019), ‘[MARTIN Has Its Place: A Macroeconometric Model of the Australian Economy](#)’, RBA Research Discussion Paper No 2019-07.

Gibbs CG, J Hambur and G Nodari (2018), ‘[DSGE Reno: Adding a Housing Block to a Small Open Economy Model](#)’, RBA Research Discussion Paper No 2018-04.