



## Research Working Papers

# Threshold Endogeneity in Threshold VARs: An Application to Monetary State Dependence

by: Dimitris Christopoulos, Peter McAdam and Elias Tzavalis

July 28, 2023

A new method refines the threshold vector autoregressive model used to study the effects of monetary policy.

---

RWP 23-09, July 2023

We contribute a new method for dealing with the problem of endogeneity of the threshold variable in threshold vector auto-regression (TVAR) models. Drawing on copula theory enables us to capture the dependence structure between the threshold variable and the vector of TVAR innovations, independently of the marginal distribution of the threshold variable. A Monte Carlo demonstrates that our method works well, and that ignoring threshold endogeneity leads to biased estimates of the threshold parameter and the variance-covariance error structure, thus invalidating dynamic analysis. As an application, we assess the effects of interest rate shocks on output and inflation: when “expected” inflation exceeds 3.6 percent, the effects of monetary policy are faster and stronger than otherwise.

JEL Classifications: E40, E50, C32

## Article Citations

- Christopoulos, Dimitris, Peter McAdam, and Elias Tzavalis. 2023. “Threshold Endogeneity in Threshold VARs: An Application to Monetary State Dependence.” Federal Reserve Bank of Kansas City, Research Working Paper no. 23-09, July. Available at <https://doi.org/10.18651/RWP2023-09>