

Using wavelets to decompose the time-frequency effects of monetary policy

Luis Aguiar-Conraria, Departamento Economia, Univ. do Minho, lfaguiar@eeg.uminho.pt

Nuno Azevedo, Faculdade de Ciencias, Univ. do Porto, ncazevedo@gmail.com

Maria Joana Soares, Departamento de Matematica, Univ. do Minho, jsoares@math.uminho.pt

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Abstract

Central banks have different objectives in the short and long run. Governments operate simultaneously at different timescales. Many economic processes are the result of the actions of several agents, who have different term objectives. Therefore, a macroeconomic time series is a combination of components operating on different frequencies. Several questions about economic time series are connected to the understanding of the behavior of key variables at different frequencies over time, but this type of information is difficult to uncover using pure time-domain or pure frequency-domain methods.

To our knowledge, for the first time in an economic setup, we use cross-wavelet tools to show that the relation between monetary policy variables and macroeconomic variables has changed and evolved with time. These changes are not homogeneous across the different frequencies.

Keywords: Monetary policy; Time-frequency analysis; Non-stationary time series; Wavelets; Cross-wavelets; Wavelet coherency.