

REVIEW OF BRUZDA – “ON SOME PROBLEMS IN DISCRETE WAVELET ANALYSIS OF BIVARIATE SPECTRA WITH AN APPLICATION TO BUSINESS CYCLE SYNCHRONIZATION IN THE EURO ZONE

General

This is mostly a highly mathematical paper mostly dealing with the usage of the maximal overlap discrete wavelet transform and its Hilbert counterpart. While an interesting summary of the work of both Percival and Walden (2000) and Craigmile and Whitcher (2004) in this area, part of this paper was fairly similar to what could be read elsewhere outside of the economics literature. Also in many instances the author didn't really motivate the material in a way that could easily be understood by most applied economists, and that is, in my opinion, where the value added is here.

The paper is split into 3 sections – the first part defining the basics of wavelet analysis – the second doing simulations with 2 different wavelet estimators and the third a short empirical section with an application to euro area business cycle synchronization.

The first part of the paper should be shortened and stripped down to give an economist a basic feel for what is going on.

The second part of the paper was definitely the greatest contribution of the paper, with the estimation of a wavelet cross-correlator (WCC) and a wavelet phase angle (WPA) estimator with bootstrapped confidence interval estimates for each. The results are interesting and show how generally robust these two estimators are to changes in parameters. What was particularly interesting to me (p25, 4th bullet point down) was the comment that the performance of these estimators was not improved with more data if the sample size is increased when dealing with nonstationary processes. This tends to suggest that it is better to first difference or use a similar transform to get more efficient estimators than to deal with non-stationary data. This implies, for example, that it is better to look at first differenced (growth) data than level data, for example, when doing wavelet analysis with real GDP.

The third part is an application for the euro area – much more could be made of this section, particularly if statistical confidence intervals could be used wherever relevant. Also the graphics in this section need to be expanded and explained a little better – they were way too dense and a lot of interesting detail was missed. The general conclusions based on the 2 observations in this section were well stated, and perhaps more should be said about this in the abstract and introduction.

Specific points

I really don't like the first part of the paper title – it doesn't really reflect what you're doing in the paper at all.

English needs improving throughout paper.

Analyticity (p10) is not a word.

