Abstract

Economists have long known that time scale matters in that the structure of decisions as to the relevant time horizon, degree of time aggregation, strength of relationship, and even the relevant variables differ by time scale. Unfortunately, until recently it was difficult to decompose economic time series into orthogonal time scale components except for short and long run in which the former is dominated by noise. This paper uses wavelets to produce an orthogonal decomposition of some economic variables by time scale over six different time scales. The relationships of interest are the permanent income hypothesis and velocity. We confirm that time scale decomposition is very important for analyzing economic relationships and that a number of anomalies previously noted in the literature are explained by these means. The analysis also indicates the importance of recognizing variations in phase between variables when investigating the relationships between them and throws considerable light on the conflicting results that have been obtained in the literature using Granger causality tests.

- JEL Classification: C22, E17, E21, E44
- Keywords: Wavelets, time scale, velocity, permanent income hypothesis