Abstract

In recent years, there has been a rise of interest in the use of various spectral methods in economics and econometrics. These methods have their theoretical background in mathematics, particularly in Fourier analysis. The less traditional and relatively new branch of methods stems from the so-called wavelet analysis. Wavelet methods are believed to have a wide applicability in the analysis of economic time series. The motivation for this thesis is to introduce these methods and apply them in the analysis of economic problems, thereby showing their usefulness within the economic context. Particular attention is paid to band spectrum regression, which allows for decomposition of economic relationships into different frequency components. In this work, we use wavelet band spectrum regression, among other wavelet methods, to analyze the relationship between realized and implied volatilities for the price of crude oil. Second application is from the field of macroeconomics. We analyze the relationship between unemployment and labor productivity growth for four major European economies.