

# Seasonality revisited - Statistical Testing for Almost Periodically Correlated Stochastic Processes

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## Abstract

This presentation aims at constructing a new method for testing the statistical significance of seasonal fluctuations for non-stationary processes. The constructed test is based on a method of subsampling and on the spectral theory of Almost Periodically Correlated (APC) time series. In the presentation we consider an equation of a nonstationary process, containing a component which includes seasonal fluctuations and business cycle fluctuations, both described by an almost periodic function. We build subsampling test justifying the significance of frequencies obtained from the Fourier representation of the unconditional mean of the process.

The empirical usefulness of the constructed test was examined for selected macroeconomic data. The article studies survey indicators of economic climate in industry, retail trade and consumption for European countries.

**Keywords:** Seasonality, almost periodically correlated stochastic processes, subsampling, business cycle

**JEL classification:** C14, C46, E32

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