The `uroot` and `partsm` R-Packages: Some Functionalities for Time Series Analysis

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This document reviews the tools maintained by the author for time series analysis. These tools are available within the `uroot` and `partsm` packages. Although the major concern of the author is macroeconomic time series, the functions in these packages can be of interest for other areas of research as well.

`uroot` performs unit root tests and graphics for seasonal time series. The statistical analysis provided by this package allows the user to determine the order of differencing in seasonal ARMA processes. This package also includes a graphical user interface [GUI] built by means of the `tcltk` package. The main feature of the GUI is the way in which different time series are organized through the tree widget. A root node is created when a time series is loaded, then transformations of those data (logarithms, first differences, subsamples,...) can be added to the corresponding node in the tree as a child node.

`partsm` fits periodic autoregressive time series models. These models can be regarded as time varying parameter models where the autoregressive parameters take different values for each season. Tests for periodicity in the autoregressive parameters, periodic integration, as well as PAR order selection criteria are also included.

This presentation is based on the documentation attached to the packages. It provides a guidance in the use of the functions implemented in the packages as well as recommendations for the practical analysis.

By presenting this document, the author expects to get some feedback from maintainers of other packages related to time series analysis and users alike. Suggestions for improvement of future versions of the packages are welcome.

Keywords: R, time series, seasonality, unit roots, PAR models.