**ABSTRACT**

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**Econometrics Seminar on 5/4/18**

TITLE: Predictive inference for locally stationary time series
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Abstract:
The Model-free Prediction Principle of Politis (2015) has been successfully applied
to general regression problems, as well as problems involving stationary time series.
However, with long time series, e.g. annual temperature measurements spanning over
100 years or daily financial returns spanning several years, it may be unrealistic to
assume stationarity throughout the span of the dataset. In the paper at hand, we show
how Model-free Prediction can be applied to handle time series that are only locally
stationary, i.e., they can be assumed to be as stationary only over short time-windows.
Surprisingly there is little literature on point prediction for general locally stationary
time series even in model-based setups and there is no literature on the construction of
prediction intervals of locally stationary time series. We attempt to fill this gap here as
well. Both one-step-ahead point predictors and prediction intervals are constructed, and
the performance of model-free is compared to model-based prediction using models that
incorporate a trend and/or heteroscedasticity. Both aspects of the paper, model-free and
model-based, are novel in the context of time-series that are locally (but not globally)
stationary.