Econometrics II: Time Series Data
Homework and Reading Assignment #1

September 22, 2021

1 Reading Assignment

- Pages 3–21 and 53–59 in Pfaff

- Sections 1.1, 2.2 - 2.9, 3.1, 4.1 - 4.2 in Enders.

2 Homework Assignment

Note: If you prefer, feel free to re-write the questions in Danish and answer the assignment in Danish (Max 4 people per group!).

- Use the the following data from your exercises (If you are feeling adventurous, feel free to get newer QUARTERLY data)

    - Use data in constant prices (preferable).
        * Real GDP
        * Real house prices
        * Real stock of credit
        * Stock prices

- Make sure that you first remove the seasonality (run an F-test to see if this is necessary). Make sure to write the regression equations and hypotheses when you perform these procedures.

- Plot the series with and without seasonality on the same graph.

- If there is a trend in the data, detrend the variables using HP-filter. Use the HP-filter with $\lambda = 1600$. Don't forget to re-normalize the series.

- Explore the dynamic correlations (or cross-correlations) using real GDP as a reference variable. You can make a Table like the one in Lecture no. 2. Also, show the plots of dynamic correlations. The plots should clearly show all the statistically relevant lags.

- Calculate cyclical volatility of your data.

- Do a short and precise commentary on the correlations and volatility (e.g., which variable is the most and least volatile, which variables are procyclical and countercyclical, which variables lag and lead the business cycle, etc.).