Data Analysis and Forecasting - Mock Exam

November 12, 2024

1. The `AirPassengers` time series contains the monthly number of airline passengers from Jan. 1949 to Dec. 1960. Draw a time plot of the series, of the fitted values and of the forecasts obtained via linear regression for the next 12 months.

(a) According to the plot, do you think that the method used for computing forecasts is appropriate? Why or why not?

(b) Display a table with the output of the estimation procedure and comment it.

2. Describe the Holt-Winters method for forecasting. For what kind of series is it appropriate?

3. Explain how the seasonal component is estimated in the additive classical decomposition of time series. What is meant by "seasonally adjusted" time series?   textbook 3.4

4. The file `series4.csv` contains an annual time series from 1981 to 2020. Plot the series and an estimate of the trend-cycle obtained by means of a 5-order moving average.