Time Series Analysis
Lecture 2

Regression With Time Series, an Intro to Exploratory Time Series Data Analysis, and Time Series Smoothing

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Classical Linear Regression Model for Time Series Data

Classical Linear Regression Revisit

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Recall that a classical linear regression model takes the following conditional mean functional form with the following assumptions:

$$y_t = \beta_0 + \beta_1 x_{t1} + \beta_2 x_{t2} + \cdots + +\beta_k x_{k1} + \epsilon_t$$

where the β's are (unknown) regression parameters and ϵ_t represents a stochastic (error) process with random variables with mean 0 and variance σ_ϵ^2. If we also assume that the random variables follow the Gaussian distribution, then this setup gives the Classical Normal Linear Regression Model.

- It is a good place to review (again) your notes from w203 on linear regression modeling (regression model setup, , the coefficient estimates, SEs, t-stat, p-value, residual SE and the residual DF, R-squared, Adjusted R-squared, F-stat (and the associated DF), and p-value (of the regression), ANOVA for regression, etc).