

STAT 3008
Exercise 9

Problems refer to the problem sets in the textbook: Applied Linear Regression, 3rd edition by Weisberg.

1. Problem 7.1
2. Problem 7.2. (For 7.2.3, only compare two models qualitatively by looking at the fitted curve. F-test cannot compare two models with different weight.)
3. The data file UN3.txt contains data described in Table 7.5 of the Textbook. There are data for $n = 125$ localities, mostly UN member countries, for which values are observed for all the variables recorded.

Consider the regression problem with ModernC as the response variable and the other variables in the file as defining terms.

- i) Use Box-Cox transformation to select a model (transform response only). Select among $\lambda = (-1, -1/2, 0, 1/3, 1/2, 1, 2)$.
- ii) Use modified power transformation to select a model (transform predictors only). (There are a lot of possibilities, just target at one transformation that you feel reasonable.)
- iii) Compute the RSS for the best fit models in i) and ii). Which method gives a smaller RSS?

Caution: Some predictors are negative!