Exploration 8A: Regression Modeling Practice

StateSteins is a tourist trade vendor. The company manufactures hand-crafted beer steins with state logos and images. They have facilities in each of the fifty states (and in Washington, DC). The data file “C08 Profit.xls” contains last year’s figures for profit, revenue, cost, number of steins sold, and labor for each of the separate state facilities. Your job is to investigate these data and determine which variable is the best predictor for the company’s profits.

1. Formulate and estimate linear regression models to predict profit as a function of each of the four explanatory variables. Be sure that you have the routine construct the important diagnostic graphs (Fitted v. Actual, Residuals v. Fitted) to help in your analysis.
2. Interpret the slopes of each of the four regression models you created. Be sure to include the units for each slope.
3. Examine the diagnostic graphs to see what they tell you about the quality of your model. You will learn more about how to interpret these graphs in the next section, but for now, see what you can learn from them.