Quantitative Method

Assignment 8

Due January 10, 2007

Use the data GPA2.xls for this exercise.

(1) Consider the equation

$$colgpa = \beta_0 + \beta_1 hsize + \beta_2 sperc + \beta_3 sat + \varepsilon,$$

where *colgpa* is cumulative college grade point average, *hsize* is size of high school graduating class, in hundreds, *hsperc* is academic percentile in graduating class, *sat* is combined SAT score. What are your expectations for the coefficients in this equation?

(2) Verify the coefficients $\beta_1, \beta_2, \beta_3$ are ***partial coefficients***.

(3) Use the variance inflation factor (VIF) to examine the multicollinearity.

(4) Test, at the $\alpha = 0.05$ level of significance, each of the following hypotheses:

(a) $H_0 : \beta_2 = \beta_3 = 0$

(b) $H_0 : \beta_1 + \beta_2 = 1$

(c) $H_0 : \beta_1 = \beta_2 = \beta_3 = 0$