Dataset Exercises

Chapter 10 Multicollinearity

Let us consider the linear equation from the CARS.SAV file for acceleration regressed on mpg, weight and horsepower.

1. Compute the partial (zero order) correlations between the three independent variables to assess the possible presence of multicollinearity.

You can do this by going to the following sequence of menus:

- Analyze-correlation-bivariate
- Once in the last menu you paste in the three variables and click OK.

2. Look at the correlation results to see if there may be multicollinearity problems.

3. Now re-estimate your regression equation with weight removed and compare the results with your original regression equation in terms of the magnitude and significance of the coefficients.

4. This time remove horsepower so that your regression only consists of acceleration regressed on mpg. Compare your results with your previous results in terms of the magnitude and significance of the coefficients.

5. Overall do the above explorations suggest that multicollinearity is or is not a serious problem for these data

6. Are there any particular features of this data set that would make you suspect that your model might not be prone to multicollinearity?