**P507 In-Class Heteroscedasticity Exercise**

1. Download the inventory.sas7bdat data set from the In-Class Examples folder of the v507 Canvas site and place it in the Box folder you use for SAS datasets. This data set contains time series data on year, inventories, sales, and GDP per capita from 1950 to 1983. The respective variables should be named year, invent, sales, and gdppc in this order.

2. Run an OLS regression to determine the relationship between inventories as the dependent variable and sales and GDP per capita as the independent variables, capturing the residuals into an output file. Write out the regression equation and briefly interpret the results. Is there any evidence of heteroscedasticity from the plots?

3. Carry out Goldfeld-Quandt test using the assumption that heteroskedasticity is a function of the sales variable (use C=8). Next carry out White’s Test. Interpret the results of these tests.

4. Generate the Weighted Least Squares transformations to eliminate the heteroscedasticity based on the assumption that σ2i = σ2isalesi2. Then carry out the WLS regression, write out the final regression equation (don’t forget the appropriate transformations), and briefly interpret your results. Looking at the of the residuals in the WLS regression, is there evidence that the heteroscedasticity has been eliminated?

5. Carry out White’s test again on the transformed data and interpret the results. Has the heteroscedasticity been eliminated?

6. Calculate a new R2 and adjusted R2 value and interpret the results.

7. Use PROC MODEL to replicate both the WLS Regression and White’s test and make sure that these results match what you did in steps 4 and 5 above.