EE325 STATA Heteroscedasticity

1. **Table 11.1** The relationship between compensation and employment size

$$Y_i = \beta_1 + \beta_2 X_i + u_i$$

Is the Homogenous assumption valid? If the assumption on Homogenous does not hold, perform GLS estimation. Assume population variance is known.
Methods of Weighted Least Squares

$$\frac{Y_i}{\sigma_i} = \beta_1 \left(\frac{1}{\sigma_i}\right) + \beta_2 \left(\frac{X_i}{\sigma_i}\right) + \left(\frac{u_i}{\sigma_i}\right)$$

2. **Table 11.5** R&D Expenditure, Sales, and Profits in 14 Industry Groupings in the United States, 2005 Since the cross-sectional data presented in this table are quite heterogenous, in a regression of R&D on sales, heteroscedasticity is likely. The regression results are as follows:

$$R\&D_i = \beta_1 + \beta_2 Sales_i + u_i$$