

Homework

Econometrics

Spring 2017

Complete the following exercises using gretl. Turn in a summary of your results and a copy of your gretl code. Refer to the gretl example on computing influence diagnostics to help get you started. You may also find some useful information in the gretl manuals and in my book on gretl.

Problem

Consider the following example based on Wooldridge baseball data:

$$\ln(\text{salary}) = \beta_1 + \beta_2 \text{gamesyr} + \beta_3 \text{years} + \beta_4 \text{bavg} + \beta_5 \text{hrunsyr} + \beta_6 \text{rbisyr} + \beta_7 \text{runsyr} + u$$

1. Using the built-in function of gretl, estimate the model using least squares.
2. Using gretl's matrix language, estimate the model using least squares. Estimate σ^2 , R^2 , standard errors, and t-ratios with two-sided p-values. These results should match those from step 1.
3. Use gretl's restrict statement to impose the following restrictions (jointly) on the model.

$$\begin{aligned}\beta_4 + \beta_5 + \beta_7 &= .1 \\ \beta_3 &= \beta_6\end{aligned}$$

Reproduce your results using gretl's matrix language.

4. Now compute a Wald statistic that jointly tests these restrictions as hypotheses. Your result should match the one obtained in 3, above.
5. Confirm that the Wald statistic is equal to the other two versions of the test discussed in class, i.e., $\lambda_1 = \lambda_2 = \lambda_3$.