Econometrics Lab 2

Hypothesis Testing on Linear Regression

1. Income Determination. We use the data set cgss05.csv. In this exercise we conduct hypothesis testing on the regression.

(1) Estimate the following model. Read significance tests from the results.

$$\log(income) = \beta_0 + \beta_1 edu + \beta_2 expr + u. \tag{1}$$

(2) Obtain confidence interval for β_1.

(3) Test

$$\mathrm{H}_0 : \ \beta_1 = 0 \quad \mathrm{H}_1 : \ \beta_1 > 0.$$

(4) An economist claims that the income of a Chinese worker increases 20% with each additional year of schooling. Test his claim use our data. Write down your hypothesis, calculate the statistic, obtain the critical values, obtain the p-value, and discuss your result.

(5) Test whether gender plays any role in labor income in China. Consider the following regression,

$$\log(income) = \beta_0 + \beta_1 edu + \beta_2 expr + \beta_3 female + \beta_4 female \cdot edu + u.$$

2. Granger Causality Test Collect data on monthly inflation rate and M2 growth in China. Test whether money growth "Granger" causes inflation.