

Homework

Econ 5243

November 13, 2007

Problem 5

Data on gasoline consumption in the United States from years 1960-1995 appear in Greene's *Econometric Analysis* text (5th edition, Table F2.2). You can find the data on my website. The variables are:

- G = total gasoline consumption
- P_g = the price of gasoline
- Y = per capita disposable income
- P_{nc} = price index of new cars
- P_{uc} = price index of use cars
- P_{pt} = price index of public transportation
- P_d = price index of durable goods
- P_n = aggregate price index of nondurable goods
- P_s = aggregate price index of consumer services
- Pop = population

$$\ln G = \beta_1 + \beta_g \ln P_g + \beta_Y \ln Y + \beta_{nc} \ln P_{nc} + \beta_{uc} \ln P_{uc} + \beta_{pt} \ln P_{pt} + \beta_d \ln P_d + \beta_n \ln P_n + \beta_s \ln P_s + e \quad (1)$$

Using the data provided on the website, use GAUSS and STATA to answer the following.

1. Estimate the model using least squares. Compute and report coefficient estimates, their standard errors, t-ratios, and their p-values.
2. Reestimate the standard errors using White's HCCME (Gauss and Stata). Compare the HCCME HC0 standard errors to the ones you get with HC3.
3. Perform the overall F-test for regression significance that is robust to heteroskedasticity (use HC3, GAUSS and Stata).

Problem 6

(Gauss and Stata) Data on Canadian consumption expenditures and disposable income for the years 1947-1996 appear in consumption.txt data on our website. Consider the following model:

$$C_t = \alpha + \beta Y_t + \gamma C_{t-1} + e_t \quad (2)$$

In this model the short-run MPC is β and the long-run MPC is $\delta = \beta/(1 - \gamma)$.

1. Test the null hypothesis that $\delta = 1$ against the alternative that it is not at the 5% level.
2. Test the (joint) null hypothesis that $\delta = 1$ and $\beta = .05$ against the alternative $\delta \neq 1$ or $\beta \neq .05$ at the 5% level

Problem 7

Exercise 6.11 in ETM.

Problem 8

Exercise 6.12 in ETM. (Gauss and Stata)