Erasmus School of Economics

MOOC Econometrics

Training Exercise 4.4

Notes:

- This exercise uses the datafile `TrainExer44` and requires a computer.
- The dataset `TrainExer44` is available on the website.

Questions

In this exercise we study the gasoline market and look at the relation between consumption and price in the USA. We will use yearly data on these variables from 1977 to 1999. Additionally we have data on disposable income, and some price indices. More precisely we have

- GC: log real gasoline consumption;
- PG: log real gasoline price index;
- RI: log real disposable income;
- RPT: log real price index of public transport;
- RPN: log real price index of new cars;
- RPU: log real price index of used cars.

We consider the following model

$$GC = \beta_1 + \beta_2 PG + \beta_3 RI + \varepsilon.$$

(a) Give an argument why the gasoline price may be endogenous in this equation.

(b) Use 2SLS to estimate the price elasticity (β_2). Use a constant, RI, RPT, RPN, and RPU as instruments.

(c) Perform a Sargan test to test whether the five instruments are correlated with ε. What do you conclude?