Econometrics Lab 7

Panel Data

1. The Environmental Kuznets Curve To study the environmental Kuznets curve, we consider

$$c_{it} = \beta_1 y_{it} + \beta_2 y_{it}^2 + \beta_3 e_{it} + \mu_i + \alpha_t + v_{it},$$

where c_{it} is the log of CO_2 emission per capita, y_{it} is the log of the GDP per capita, e_{it} is the per capita consumption of energy. The data ekcpanel.mat contains following variables:

- co2: CO_2 emission per capita.
- gdppc: GDP per capita.
- energy: per capita consumption of energy.
- trade: trade per capita (not used in this exercise)

Each one of the above is stored in 40×74 matrix. Each column represents a country. Rows are in time order, from 1971 to 2010. To load the data in Matlab, simply run:
>> load ekcpanel;

(1) Estimate the model using LSDV (using myols.m). Check whether the relationship between c and y can be represented by an inverted U curve. At what level of per capita GDP does the EKC start to decline? (Or in other words, what is the turning point?)

(2) Get the sub-sample from 1971 to 1989, and the sub-sample from 1992 to 2010. Estimate the model in each sub-sample. What conclusions can you draw from the sub-sample estimation?