ECO 82800

Panel Econometrics

Homework 5
Due: 9 May 2017

Use the cigarette data of Baltagi and Levin (1992) expanded to 1963-1992, that are discussed in Section 8.9.1 of Baltagi's textbook and attached to the email. The information about these data is as follows:

Source: Baltagi and Levin (1992) and Baltagi, Griffin and Xiong (2000).
Description: Panel Data, 46 U.S. States over the period 1963-1992.
Variables:

(1) STATE = State abbreviation.
(2) YR = YEAR.
(3) Price per pack of cigarettes.
(4) Population.
(5) Population above the age of 16.
(6) CPI = Consumer price index with (1983=100).
(7) NDI = Per capita disposable income.
(8) C = Cigarette sales in packs per capita.
(9) PIMIN = Minimum price in adjoining states per pack of cigarettes.

Create the variables that are indicated in this model.

1. Print out descriptive statistics (mean and standard deviation) of the raw variables and the created variables.

In reporting the answers to the following questions, report the parameter estimates of lnClag, lnP, lnY and lnPn only, as in Table 8.1. Combine them in tables when suitable.

2. The dataset has 30 years. Baltagi focuses on a two-error-component model with a state and a year component. In Table 8.2, he shows that the year component is modeled as a fixed effect—but he omits a few years. Both with OLS and this `xtabond2` command (which is technically outdated), estimate this model with the year dummies that are indicated in Table 8.2. Do you replicate the results of Table 8.1 and 8.2? (`Hint: probably not…`)

From now on, use all available year dummies. Produce one summary table of all the estimates that you produce below; in your summary table, include only the slopes (and standard errors and t-stats) of lnc_{t-1}, $lnpc$, lny, $lnpn$, and their lags, if any; omit all the year dummies.

3. Estimate the model both with OLS and xtabond2. How much difference do you see with the results of Q2 above?

4. Estimate FE and RE models. How much do the slope estimates differ?

(continued)

5. Estimate a regular 2SLS model (`ivregress`), a FE 2SLS model and a RE 2SLS model (`xtivreg`). How do these compare with the OLS, RE and FE results of Q3 and Q4: do you see a systematic pattern?

6. Use the `xtdpdsys` and `xtabond` commands to estimate the model. Precisely what model is being estimated? How do the estimates differ compared to FE and RE?

7. Use the `xtdpd` command to replicate the `xtabond` result (to the extent feasible).

8. To the command used in Q7, add the option dgmmiv(lnpc lny lnpn,lag(1 .)). Run another model modifying this option as dgmmiv(lnpc lny lnpn,lag(1 1)). What model is being estimated here? How much difference does it make relative to Q7?

9. To the last command used in Q8, add the option lgmmiv(lnc). Run another model modifying this option as lgmmiv(lnc lnpc lny lnpn). What model is being estimated here? How much difference does it make relative to Q8?

10. Out of all these models, which one do you prefer? Why?