PA 9950 Quantitative Methods

Problem Set #5

For this homework write-up and present your results in “journal” format. To do this present a hypothesis (variable of interest) and interpret your results. Standard reporting technique is to discuss your variable(s) of interest at length and only discuss “control” variables that are interesting or present some unexpected result.

Your results must be presented in tables. To facilitate this use the outreg2 command. You will have to download this routine from the STATA website. At the STATA command line type: findit outreg2 the rest will be obvious. ***All assignments must be typed. Use the equation editor (in MS – Word) for any equations you present.***

Questions:

Part I – Panel Data Estimators

Use the crime4 dataset for this portion of the homework

1. Using the data for all seven years estimate a fixed-effects and random effects models relating the crime rate (*lcrmrte)* to *lprbarr*, *lprbconv*, *lprbpris*, *lavegsen* and *lpolpc*. Include a full set of year dummies.
2. Use either the XTOVERID or HAUSMAN commands to compare the two models to determine a preferred specification. Interpret the results of the test you choose to run and justify your answer.
3. Compute a Breusch-Pagan test comparing the two models and interpret the results.
4. Add the wage variables (in logarithmic form), and test for joint significance after estimation by fixed effects. Discuss.
5. Estimate the equation by first differencing, and comment on any notable changes. Do the standard errors change much between fixed effects and first differencing? Why or why not?
   1. Using the first-difference model above determine whether urban crime was increasing or decreasing over time.