Universität Trier

Applied Microeconometrics Using Stata

Panel Data – Student Exercise

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Assignment:

Load the dataset cigsonsump.dta from the course homepage, unzip it and store it to your in-folder. The dataset contains 48 states‘ annual data for 1985-1995

1. Declare the dataset to be a panel!

2. Fit a Fixed Effects model of demand for cigarettes, packpc, as a function of price (avgprs) and per capita income (incpc). What are the expected signs? Are they borne out by the estimates? If not, how might you explain the estimated coefficients? Can you reject the pooled OLS model of demand?

3. Store the estimates from the FE model, and refit the model with RE. How do these estimates compare? Does a Hausman test accept RE as the more appropriate estimator?

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4. Also, fit the model in first differences instead of the demeaned form. How do these results compare to those obtained before?

5. Refit the FE model in constant-elasticity form by generating logs for the appropriate variables. How do the results compare to those on the levels variables? Is this form of the model more in line with economic theory?

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Solution:

1. See do-file, also for all other „technical implementations“

2. Expecations are → negative for average price, positive for per capita income; both are significant, sign for average price as expected, for pc income not → maybe OVB? Maybe FE model is not appropriate? F-test for individual-specific effects tells us they are siginificant

3. For the RE model, the signs stay the same, both are significant → the hausman test tells us RE is not appropriate

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4. For the model in first differences, sign of incpc changes, but it is not significant → better in line with theory

5. The constant-elasticity model yields estimators with the expected signs which are both significant → more in line with theory!