ECOM30003/ECOM90003: Applied Microeconometric Modelling

Tutorial 5

Please read Chapter 14 of Wooldridge before attempting the following.

1. Use the data in AIRFARE.dta for this exercise. We are interested in estimating the model:

$$log(fare)_{it} = \eta_t + \beta_1 concen_{it} + \beta_2 log(dist)_i + \beta_3 [log(dist)_i]^2 + \alpha_i + u_{it}, \text{ t} = 1\ldots4$$

(a) Estimate the above equation by pooled OLS, being sure to include year dummies. If concentration on a route (concen) increases by 0.10 what is the estimated percentage increase in *fare* (holding all other explanatory variables constant)?

(b) What is the usual OLS 95% confidence interval for β_1? Why is it probably not reliable? Find the fully robust 95% CI for β_1. Compare it to the usual CI and comment.

(c) Describe what is happening with the quadratic in *log* $(dist_i)$. In particular for what value of *dist* does the relationship between *log (fare)* and *dist* become positive?

(d) Now estimate the equation using random effects. How does the estimate of β_1 change?

(e) Now estimate the equation using fixed effects. What is the FE estimate of β_1? Why is it fairly similar to the RE estimate?

(f) Name two characteristics of a route that are captured by α_i. Might these be correlated with $concen_{it}$?

(g) Are you convinced that higher concentration on a route increases air fares? What is your best estimate?