PhD IO
Problem Set 1
Due October 15

Your team (teams will have 2 or 3 members) will receive Monte Carlo generated data on health plan characteristics, premiums (measured in \$1,000) and shares for 600 markets. You can download the data from Canvas. The number of insurers participating in these markets varies but the insurers only offer one product in each market. There are three plan characteristics: HMO/PPO (a dichotomous variable), the ratio of providers that are in-network (takes the values between 0 and 1) and the mean customer satisfaction score (takes the values between 0 and 1). Preferences are stable across the markets. The outside good is no health insurance – i.e. uninsurance.

With these data, answer the following questions. Your answers should include a write-up discussing the results and please include your programs with your answers.

1. What are the utility parameters? Estimate the parameters of the utility function using Logit and Nested Logit (use HMO/PPO as the nest). That is, for the logit model estimate the parameters of the following utility specification: $u_{ijm} = \xi_{jm} + x_j\beta - \alpha p_{jm} + e_{ijm}$ where x is the characteristics vector, p is premium and e_{ijm} is the logit error. The unobservable quality of the product is given by $\xi_{jm} = \bar{\xi}_j + v_{jm}$ where v_{jm} is an iid error. The nested logit specification will have the analogous structure as in Berry (1994). Please write all your programs from scratch (but it can be in Stata) – it is the best way to learn. Hint: exclude the constant from the estimation.

2. What are the mean own price and cross price elasticities and mean mark-up implied by the two models? How do the mark-ups vary with market structure?

3. What is the relationship between MC and the plan characteristics?

4. Suppose the government now provides a \$250 subsidy for insurance. This is implemented by the government paying the insurer for each enrollee it receives. Using your Logit estimates, recompute and report the Nash-Bertrand equilibrium.

1. How much will the uninsurance (the outside good) rate decline?
2. How much will profits per enrollee increase?
3. How much will mean consumer surplus increase? Does it vary by market structure?