PhD IO 2018
Problem Set 2
Due Nov 12

Building off of Problem 1, now estimate the parameters of a random coefficients demand system. Specifically, using the last set of data I sent you estimate the parameters of the following utility model using the approach of BLP:

$$u_{ij} = x_j\beta_i - \alpha p_j + \xi_j + e_{ij} \tag{1}$$

where $\beta_{ik} \sim N(\bar{\beta}_k, \sigma_k^2)$. Note that the price coefficient is not random and is fixed. The vector of characteristics, x_j is the same as in Problem Set 1.

With this specification, 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? You can decide whether or not to impose the insurer's FOC on the BLP estimation. You may also try to estimate the parameters using the approach outline in BLP or you can use MPEC (Dube et al. 2012) or a Gauss Newton Regression approach (Houde, J.F. and Ganhdi, A. (2016)). If you go with the BLP approach try to use the BLP standard error formula or you can also bootstrap the standard errors. Please write all your programs from scratch – it is the best way to learn.

2. What is the mean own price and cross price elasticities and mean mark-up implied by the three 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 BLP estimates, recompute and report the Nash-Bertrand equilibrium.

1. How much did the uninsurance rate decline?
2. How much did profits per enrollee increase?
3. How much did mean consumer surplus increase? Does it vary by market structure?
4. Are your answers sensitive to the functional form specification – e.g. compare the BLP results to the estimates from Problem Set 1.