Empirical IO DEEQA 2020-2021
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Homework
Deadline: December 15

Simulations can be done with the software of your choice (Stata, R, Matlab, Python). Provide the code and results for questions below.

Assume individual utility for the J goods is ($j = 1, .., J$)

$$u_{ij} = \xi_j - \alpha_i p_j + \varepsilon_{ij}$$

and outside good utility is

$$u_{i0} = \varepsilon_{i0}$$

where ε_{ij} is type I extreme value distributed (cdf is $F(\varepsilon_{ij}) = \exp(-\exp(-\varepsilon_{ij}))$) and α_i is log normal such that $\log(\alpha_i) \to N(1, 1)$.

Individual chooses good that maximizes indirect utility.

Question 1 Assume there are $I = 2000$ consumers and $J = 5$ goods with consumers tastes $\xi_j = 4 + j/5$. Each product is owned by one firm and their marginal costs of production are $c_j = 1 + j/8$. Compute the Bertrand Nash equilibrium in prices.

Question 2 Now assume that the products are sold by two retailers who sign two part tariffs contracts with the producers allowing the producers to include resale price maintenance clauses. The first retailer sells products 1 and 2 and the second sells products 3, 4, 5. Assuming the marginal cost of distribution is zero and wholesale price are equal to the marginal cost of production, what are the new equilibrium prices of goods?

Question 3 Compute the welfare change implied by these vertical Two Part Tariffs contracts.