Analytical Results in Demand

August 7, 2024

Part 1: Market demand heterogeneity: Quan, Willims (2018)

utility for good j in market l by consumer i is given by:

$$u_{ijl} = \delta_j - \alpha p_j + \nu_{ijl} \tag{1}$$

Also, suppose that the structure of the error term is as follows:

$$\nu_{ijl} = \eta_{jl} + \underbrace{\zeta_{ic} + \varepsilon_{ijl}}_{GEV(\lambda)} \tag{2}$$

In other words, we want same goods have different utilities based on the location of the market (η_{jl}). For example, in Alaska, utility of a snow shovel is higher than in Florida. Also, ζ_{ic} is the individual specific taste for class (or nest c).

We are in a nested logit framework. Also, the outside option exist alone in its own nest. For the share of each product j as a whole, we have $\pi_j = \sum_l w_l \pi_{jl}$, where w_l is the share of population in market l and π_{jl} is the share of product j in market l. Notice that, as we are in the nested logit framework, we have:

$$\pi_{jl} = \pi_{jl|c} \times \pi_{lc} \tag{3}$$