Coding Exercise 2: BLP Contraction Mapping

In this coding exercise students will write code to implement the contraction mapping of Berry, Levinsohn, and Pakes (1995 ECMA). Build skills!

I have supplied a data file, mumat.csv, with the following columns:

- cdid: market identifier
- prodid: product identifier (for concreteness, you won't need it)
- s_jt: the market share of the product in the market
- cons1-cons40: the value of $\mu_{ijt}(\theta_2)$

Thus, these data contain 40 consumer draws for each market. Presumably, there are a range of demographics such as income or age that interact with various product attributes, but for simplicity I have already combined these into $\mu_{ijt}(\theta_2)$, the consumer-specific deviation from the mean valuation.

You have the option using R, Python, or Julia.

Please do the following:

1. Find the mean valuations that generate the market shares provided. That is, find $\delta(\theta_2)$, a vector with elements for each product$\times$market combination. Assume that consumers substitute across products in the same market but do not substitute across markets.

The deliverables are the code and .pdf file with a printout of your answer.