Problem Set 4

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1 The Process

In order to craft maximum score estimates for buyouts of radio stations, I first take the characteristics of each match and divide them by year and target versus buyer characteristics. I then take these separates data frames and craft the counterfactuals by creating matches that did not happen[1]. From thence, I use the data and counterfactuals with the equation

$$f_m(b,t) = x_{1bm}y_{1tm} + \alpha x_{2bm}y_{1tm} + \beta distance_{btm} + \epsilon_{btm} \tag{1}$$

to create a matrices of payoffs for matches and counterfactuals respectively for an initial guess of the parameters. I then attempt to optimize the number of matches the function predicts to attain the values of the parameters. I then repeat the process with the HHI_{tm} as a covariate and allowing $x_{1bm}y_{1tm}$ to have a coefficient different from 1.

2 Results

Despite, numerous debugging sessions, I was unable to produce any reasonable output. For some reason, the score function constant held at a value of zero. I spent the better part of several nights trying to fix such errors with no success[2] Were this result a true result, we would be led to believe that in the initial model that $\alpha = 1$ and $\beta = 1$ which is just our initial guess. Intuitively this just means that every mile leads to a 1 increase in the likelihood of making a match.

[1] This places entities together where $i \neq j$.

[2] Many thanks to my classmates as well for their help.