Marketing Analytics

Group Homework #3

Due Date: May 20, 2015 (Week 8)

1. The data in headache.csv contains sales and price data for a major brand of headache medicine.
2. Using the data estimate a demand model for each store (j) of the form...

$$Q_{jt} = \alpha_j + \beta_j P_{jt} + \varepsilon_{jt}$$

   Once these regressions are run, save the store level parameter estimates. Describe and discuss the estimates.

3. Assume that the cost of one unit is \$3.66. Using this information compute optimal prices (and profits) for each store separately. Sum these to compute the total profits across all stores.
4. Conduct a series of cluster analysis ($K = 1...6$) on the regression coefficients. For each analysis, compute the total optimal profits for the brand using the cluster means as demand estimates. That is, compute the profits for the brand if we only had one group of stores all the way to six groups of stores.
5. Use the data to estimate a model on the pooled data of the form

$$Q_{jt} = \alpha + \beta P_{jt} + \epsilon_{jt}$$

   Compute optimal profits based on these results.

6. Construct a plot that plots the $K = 1..6$ cluster level profits as well as the profits computed in parts (3) and (5) above. Comment on the plot and what it means. In particular, comment on why the$K = 1$ profits and prices are different from those computed in part (5).

All code and analysis should be uploaded to the CCLE site before class on the due date. Please place your name on all files.