Assignment 10
Model Fitting

1. Consider a version of the Burdett-Judd (1983) model of posted price selling in which buyers may observe one or two prices with probabilities $q_1 = q > 0$ and $q_2 = 1 - q > 0$. Buyers buy either one unit of the good or none. If they acquire the good, they receive utility v. Sellers can produce the good at constant marginal cost, $r < v$.

(i) Find the median price, denoted by $\hat{p}$, in the distribution of posted prices in a seller equilibrium. How would an increase in q affect the median price, $\hat{p}$?

(ii) Consider the following set of observed prices:

$$\{23.72,\ 23.73,\ 24.35,\ 24.47,\ 26.14,\ 26.74,\ 27.95\}.$$

Set v equal to the highest observed price; set r so that $\underline{p}$ equals the lowest observed price, and set q so that the average price implied by the parameterized model coincides with the average observed price.

(iii) Suppose buyers search non-sequentially by choosing how many prices to sample at a fixed cost per quote. What is the search cost, c, that rationalizes the value of q obtained in part (ii)?

(iv) Plot the empirical distribution of prices along with the equilibrium distribution of prices implied by the parameterized model.

[*HINT*: you can use the Matlab command `stairs` to plot the empirical CDF.]