Discussion of “Advertising competition in retail markets”, by Bagwell and Lee

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N firms with heterogeneous marginal costs $\theta_i$, private information.

Fundamental question: Can dissipative advertising be used as a sorting device in equilibrium? (Yes!)
Setting

Timing:
1. Firms learn $\theta_i$
2. Firms choose $A(\theta)$ and monopoly price $p(\theta)$
3. $I$ consumers observe all $A(\theta)$; $U$ consumers observe nothing.
4. Consumers select one firm and buy $D(p)$. 
Advertising vs Random equilibrium

∃! advertising equilibrium, s.t. $A'(\theta) < 0$, informed consumers visit the firm that advertises most.

*Intuition*: firms with low $\theta$ have more incentives to compete for market shares.

∃ Random equilibrium s.t. $A(\theta) = 0$ and consumers ignore advertising.

*Question*: Is there a way to refine the equilibrium concept so as to obtain a unique equilibrium?
For (informed) consumers, Advertising Eq. $\succ$ Random Eq.: lower prices.

For firms, Random Eq. has two opposite effects
  ▶ Positive: no more advertising expenses.
  ▶ Negative: reallocates demand to high cost firms.

When $\bar{\theta} - \theta$ small or demand not very elastic, Random Eq. $\succ$ Advertising Eq.
Apparent conflict between firms and consumers?
Not really:
Rnd. Eq. $>_firms$ Adv. Eq. $\Rightarrow$ Rnd. Eq. $\approx_{cons}$ Adv. Eq. (Think $\overline{\theta} - \underline{\theta} \to 0$)

Informed consumers observe prices $\rho(\theta)$ (framework à la Varian)
In equilibrium, $\rho(\theta) < p(\theta)$. Good for consumers.
But it is also good form firms!
*Intuition:* It is more costly for high cost firms to mimick low cost firms $\Rightarrow$ more rents.

To a large extent, consumers and firms agree over the ranking of advertising technologies.
Sequential search

Same timing but consumers can visit more than one firm by paying $d > 0$ every time. If $I < I^*$, limit pricing by high cost firms ($\theta \geq \theta_c$), in order to dissuade uninformed consumers from searching again. If $I > I^*$, $p^*(\theta) = \text{monopoly price}$ (?).

Interestingly, there is a positive externality of uninformed consumers over informed consumers: more $U$ implies limit pricing, and thus a lower price for $I$ with positive probability ($[1 – F(\theta_c)]^N$).
Possible extension

Partially informed consumers: I visit $i$ with a probability $q(A(\theta_i))$, without necessarily observing the whole set of advertising expenses.