Shin, J. (2005). The role of selling costs in signaling price image. *Journal of Marketing Research*, *42*(3), 302-312.

Background

- retailers cannot advertise prices of all products → inform overall price level, i.e., construct credible “price image”
- exists advertising with little commitment (e.g., “Everything priced $____ or above)

  → **RQ** can these ads help consumers form a reliable price image of the store?
- preliminary survey result indicates yes!
- Why? → selling cost (investments by the seller to make a sale, opportunity cost)
  - advertising low prices can backfire when selling cost is high since selling cost can be incurred without a sale → give retailers incentives to discourage consumers who are unlikely to make a purchase from visiting their stores

Model

- monopoly retailer sells a single product (analogy for the price image) at a posted price
- high- or low-cost-type $i \in \{c_L, c_H\}$ → Assume $0 = c_L < c_H < 1$
- price level is the same for all consumers & consumers puchase only 1 unit
- high or a low-price cue advertising option $a \in \{m_L, m_H\}$ (no commitment, same ad cost)
- consumer segments (unit mass) with different costs of traveling - L: 0, D: $t > 0$
- consumers’ prior beliefs: each firm’s cost type is equally likely
- consumer valuation $v \sim U[0,1]$ → utility function $U = (v - p) I_{\{buy\ at\ price\ p\}}$
- retailers incur selling cost (k) per consumer visit

Figure 2
TIMELINE FOR THE GAME

Stage 0	*Stage 1*	*Stage 2*	*Stage 3*	*Stage 4*
Nature chooses the retailer's cost type, which only the retailer observes.	The retailer decides which message to advertise and chooses the price. Consumers view the advertised message.	Consumers with traveling costs decide whether to visit the retailer. If they do, they incur the traveling cost t.	The retailer incurs the selling cost k for each consumer who visits the store. Consumers observe the true price when they arrive at the store.	Consumers decide whether to buy on the basis of the true price.

Analysis

- profit function of retailer of cost type i: $\pi(p, a|i) = -N(a) \times k + D(p, a)(p - c_i)$
- (benchmark: without traveling costs) $\pi(p, a|i) = 2(1 - p)(p - c_i) - 2k$

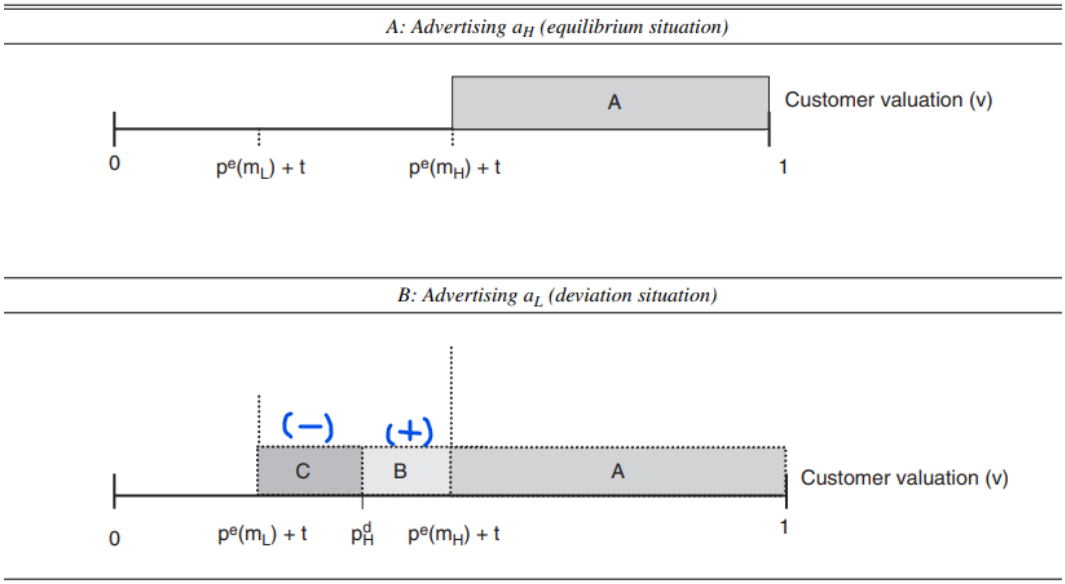
  $\rightarrow p_i^m = \frac{1+c_i}{2}, \pi^m(p|i) = \frac{(1-c_i)^2}{2} - 2k$

Separating Equilibrium

- consumers correctly infer the retailer's cost type from advertising message

▼ (P1) A pure strategy Bayesian separating equilibrium, in which a retailer truthfully advertises its type and a consumer believes the advertising message is truthful exists if $c_H - c_L$ and k are sufficiently large $\rightarrow p_i^* = \frac{2+c_i-t}{3} \geq p_i^m, \forall i$

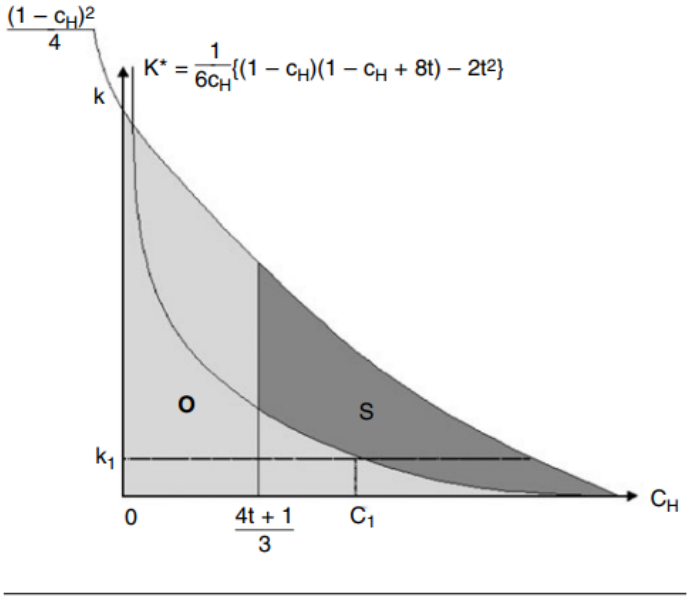
Figure 3
DEMAND FROM SEGMENT D FOR THE HIGH-COST TYPE



- negative effect from region C gets bigger as $c_H - c_L$ increases when k is sufficiently large

Other Equilibriums

- (P2) In a semiseparating equilibrium in which the low-cost retailer chooses m_L and the high-cost type randomizes between m_L and m_H with the respective probabilities β and $1 - \beta$, β decreases with the selling cost k and the cost difference $c_H - c_L$ when Assumption 2 holds



- S is the region where the separating equilibrium exists.
- separating equilibrium exists when $c_H - c_L$ and k are large (P1)
- O is the region where semi-separating equilibrium exist
- semi-separating equilibrium gets more informative as $c_H - c_L$ and k gets large (P2)

- **Answer for RQ:** such advertising is can be informative (P1) or partially informative (P2) and becomes more informative as selling cost k increases and marginal production cost $c_H - c_L$ increases

Implications

- vague advertising without commitment can be informative when retailers' cost types differs al lot and selling cost is high
- selling costs can explain why retailers sometimes dissuade consumers from vising stores in making product line decisions
- selling costs can explain why extremely low-price claims appear more often in online advertising → due to extremely low selling cost

Thoughts

Contributions

- seemingly uninformative ads without commitment can be informative afterall (counterintuitive)
- bridge the gap between real-world convention and academia (explain the convention)
- highlights the impact of selling costs, which has been rarely addressed in literature

Questions, Critiques, and Other Relevant Thoughts

- Why does the author assume that quality is the same for different cost types (although the assumption can be relaxed)
- In this model, the existence of consumer segments with different traveling cost is crucial. Here, traveling cost is either k or 0 but what if we make it continuous? Afterall, traveling cost varies across individuals.
- Here, there are only two cost types and the cost, which are assumed to be common knowledge to both retailers and consumers. Does this assumption well represent reality? Are consumers aware of the cost structure or advertising message space in many cases?
- In this paper, one product with a fixed price is assumed (which represents the overall price image). How will the result differ if each retailer have multiple products with different prices? Will the equilibrium condition depend on the price variance within a retailer?
- What if the market is not monoply? Suppose customers can visit only one retailer due to traveling cost. The competiton can work as an incentive for retailer to advertise as having low price (so as to not lose potential buyers to competitors). Would non-commitment ads still be informative with competition?
- Selling cost provides a good explanation on the informativeness of non-commitment ads, but are there other drivers as well? If there are, How can we model them? For instance, we can model trust relationship with customers with a repeated game in which consumers trust retailer's advertising less in the subsequent games when the expected price and real price differs a lot.
- Are there other marketing strategies that seem unrational but prevail in reality?