Bounded Rationality and Industrial Organization
Chapter 11, 2nd part

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Statement

Proposition 11.3

Let σ be a symmetric Nash equilibrium strategy. Then

1. Firms earn the max-min payoff $\frac{1}{2} - c_{x^*}$
2. For every $M \in S(\sigma), |M| = 2 \Rightarrow b(M) = x^*$
3. $\beta_\sigma(x^*) = 1 - 2c_{r^*}$

About 1

Firms earn the max-min payoff $\frac{1}{2} - c_{x^*}$

- This payoff coincides with the rational consumer benchmark.
- The main reason for this is that "M beats M'" needs not only the sensational temptation but also switching the default.
- In other words, $\{x^*\}$ is never beaten in this sense.

Proof sketch

- From lemma 11.1, x^* beats no menu in $S(\sigma)$. And it is not beaten by any menu in $S(\sigma)$ because x^* is utility maximizer.
- So menu $\{x^*\}$ always gives a market share $\frac{1}{2}$. And the cost is c_{x^*}. Then the payoff is $\frac{1}{2} - c_{x^*}$
- Then the expected payoff of this strategy is also $\frac{1}{2} - c_{x^*}$.

About 2

For every $M \in S(\sigma), |M| = 2 \Rightarrow b(M) = x^*$

- This means that pure attention grabbers are included in a menu only when the menu has x^* in equilibrium.
- If there is such a menu M in $S(\sigma)$, $\{x^*\}$, which is also included in $S(\sigma)$, has an incentive to include the same pure attention grabber of M.
- Then σ is not an equilibrium.

Proof sketch

- Show its contraposition
- The condition for including some pure attention grabber in M results in the profitable deviation from $\{x^*\}$ to $\{x^*, r(M)\}$, where $r(M)$ denotes the pure attention grabber in M.

About 3

$\beta_\sigma(x^*) = 1 - 2c_{r^*}$

- This means that the probability utility maximizer is offered is entirely determined by the cost of the best attention grabber.
- As the sensations become costly, the less likely the utility maximizer is offered.
- This is directly derived from the fact $\{x^*\}$ and $\{x^*, r^*\}$ are indifferent. And both of them are included in $S(\sigma)$

Proof sketch

- Show there is no incentive to deviate from $\{x^*\}$ to $\{x^*, r^*\}$.
- To make it rational we confirm that the pure strategy $\{r^*\}$ gives the better payoff than σ if $\{x^*, r^*\}$ is out of σ.
- At first glance $\{x^*, r^*\}$ has wasteful costly alternative r^*, but it actually works for the higher market share.

Relaxed R

- Consider when R need not be neither complete nor transitive.
- We interpret this relation as the similarity between the items rather than sensation.
- "Pure attention grabbers are offered only in conjunction with x^* (Prop 11.3 (2))" does not hold in this more general relation.

Effective Marketing Property : Statement

Effective Marketing Property

Suppose that a symmetric Nash equilibrium strategy σ induces the max-min payoff $\frac{1}{2} - c_{x^*}$. Let $M, M' \in S(\sigma)$ that satisfy the below condition,

1. $b(M') \neq x^*$
2. $xRb(M')$ for some $x \in M$
3. $b(M)\neg Rb(M')$

Then M beats M'.

Effective Marketing Property : in Words

- When each firm obtains rational consumer benchmark payoff in symmetric Nash equilibrium,
- the attracted consumers by pure attention grabbers always switch their choice,
- unless the default menu does not have the utility maximizer.

As the menus are more attractive, the menus offer higher quality items. This general relation exists even under the relaxed R.

Proof sketch

- If M does note beat M',
- the condition for not deviating from M to $\{b(M)\}$ and the condition for not deviating from $\{x^*\}$ to $\{x^*\} \cup (M \setminus \{b(M)\})$ contradict.