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.

Proof sketch