How to Define the Market Structure?

Case I: No market structure

- A (40%)
- B (20%)
- C (20%)
- D (20%)

Case II: Market structure (2 submarkets)

- A (40%)
- B (20%)
- C (20%)
- D (20%)

If A is not available, what will happen?

Example: RCA Video Disk

Case I
- Home Video
- Beta
- VHS
- Video Disk
- Laser Disk
- DVD

Case II
- Home Video
- Beta
- VHS
- Video Disk
- Laser Disk
- DVD

How to Define the Market Structure? (cont’d)

- A market is defined by a series of submarkets, if, when a product is deleted from a submarket, its former consumers are more likely to buy again in that submarket than would be predicted by market share.

Case I

- Beta
- VHS
- Video Disk
- Laser Disk
- DVD

Case II

- Beta
- VHS
- Video Disk
- Laser Disk
- DVD

When A is unavailable, M/S of B will be increased more than 13.3% = 40 – 20 + 20 + 20.

If there is no market structure, M/S of A will go to B, C, and D equally.

Why is Market Structure important?

- Market definition
  - Which market will I enter?
  - Who are my direct competitors?

- Market structure information or decision will determine the entrepreneur’s competitive marketing strategies.

- Two approaches
  - Firm-oriented
  - Customer-oriented

- Question
  What are the problems of firm-oriented definition on market structure?
Customer-Oriented Market Structure Analysis

We Want to Know...

Which of the following is correct

Case I

<table>
<thead>
<tr>
<th>Products</th>
<th>Beta</th>
<th>VHS</th>
<th>Video Disk</th>
<th>Laser Disk</th>
<th>DVD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Share</td>
<td>0.56</td>
<td>0.36</td>
<td>0.38</td>
<td>0.29</td>
<td>0.41</td>
</tr>
<tr>
<td>Cases</td>
<td>16/30</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Case II

<table>
<thead>
<tr>
<th>Products</th>
<th>Beta</th>
<th>VHS</th>
<th>Video Disk</th>
<th>Laser Disk</th>
<th>DVD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Share</td>
<td>0.8</td>
<td>0.38</td>
<td>0.29</td>
<td>0.41</td>
<td>0.39</td>
</tr>
<tr>
<td>Cases</td>
<td>10/20</td>
<td>15</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

To make an inference on this, we need to examine the changes in market shares of products in a submarket when one of these products is deleted.

Under two conditions,

1. Under no market structure assumption
2. Under an assumed market structure

Example: Case II

Two submarkets: [Beta, VHS], [VD, LD, DVD]

<table>
<thead>
<tr>
<th>Products</th>
<th>P*(s)</th>
<th>P(s)</th>
<th>Z</th>
</tr>
</thead>
<tbody>
<tr>
<td>Beta</td>
<td>0.56</td>
<td>0.38</td>
<td>1.62</td>
</tr>
<tr>
<td>VHS</td>
<td>0.38</td>
<td>0.29</td>
<td>3.00</td>
</tr>
<tr>
<td>Video Disk</td>
<td>0.38</td>
<td>0.29</td>
<td>3.00</td>
</tr>
<tr>
<td>Laser Disk</td>
<td>0.41</td>
<td>0.41</td>
<td>2.01</td>
</tr>
<tr>
<td>DVD</td>
<td>0.41</td>
<td>0.41</td>
<td>2.01</td>
</tr>
</tbody>
</table>

P*(s): observed switching prob. in a submarket under the assumed market structure = ΣNi,j / Ni, where i,j ∈ s

P(s): switching prob. in a submarket under no market structure assumption = ΣNi,j / (1-(MSi)) where i,j ∈ s

Z = (P*(s)-P(s))/sqrt(P(s) × (1-P(s))/Ni)

Example: Case II (cont’d)

Hypothetical Switching Matrix

<table>
<thead>
<tr>
<th>Products</th>
<th>Beta</th>
<th>VHS</th>
<th>LD</th>
<th>DVD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Share</td>
<td>11/20</td>
<td>39/20</td>
<td>5/10</td>
<td>2/10</td>
</tr>
<tr>
<td>Cases</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Data: Switching Matrix

- **Forced switching**
  - First observe the product a customer most prefers
  - Place him/her in a choice situation in which his/her preferred product has been removed from the choice set
  - Then, observe the product a customer most prefer among remaining products

- **Preference rank**
  - Ask customers to rank order the products in terms of their preference
  - Then, identify their first and second ranked products

Example: Case II (cont’d)

Hypothetical Switching Matrix

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Example: Case II (cont’d)

- Then, compute aggregate statistics.
  - P = Total switching prob. in submarkets under assumed market structure
  - P = Total switching prob. in submarkets under no market structure assumption
  - Z = (P-P)/sqrt(P × (1-P)/Ni)

- In case II,
  - P = (11+16+10+6+4+6+3+7)/100=0.63
  - P = (0.36 × 20 + 0.29 × 30 + 0.38 × 20 + 0.41 × 15 + 0.41 × 15)/100=0.36
  - Z = (0.63-0.36)/sqrt(0.36*(1-0.36)/100)=5.64
Then,

• With the same token, for the case I,
  
  \( P = 0.51 \)
  
  \( P = 0.47 \)
  
  \( Z_{\text{case I}} = 0.71 < Z_{\text{case II}} = 5.64 \)

• Therefore, the hypothetical switching matrix are in favor of Case II over Case I.

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**What is Market Structure?**

• The structure of competition among products or substitutes

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**Indication of Market Structure (at industry level)**

<table>
<thead>
<tr>
<th>Conditions of entry</th>
<th>Size &amp; number of buyers</th>
<th>Size &amp; number of sellers</th>
<th>Degree of substitutability among products</th>
<th>Size &amp; number of buyers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Barriers prevent entry</td>
<td>Many buyers; small relative to the market</td>
<td>One seller</td>
<td>Close substitutes</td>
<td>Many buyers; small relative to the market</td>
</tr>
<tr>
<td>No barriers to entry; firms may be banned from making identical products</td>
<td>Many buyers; small relative to the market</td>
<td>Many sellers; some of them are large relative to the market</td>
<td>Close substitutes</td>
<td>Many buyers; small relative to the market</td>
</tr>
<tr>
<td>No barriers to entry</td>
<td>Many buyers; small relative to the market</td>
<td>Many buyers; small relative to the market</td>
<td>No close substitutes</td>
<td>Many buyers; small relative to the market</td>
</tr>
</tbody>
</table>

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**Monopoly**

- Perfect Competition
  (e.g. Monopolistic Competition, Oligopoly)

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**Perfect Competition**