The Bundling and Unbundling of Information Goods:
Economic Incentives for the Network-Delivery of Academic Journal Articles

Conference on Economics of Digital Information and Intellectual Property
Jan 23-25 1997

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Outline

• Introduction
  – Academic Journal Publishing in a Networked Environment

• Economics of Bundling
  – 2-good bundling model
  – N-good bundling model

• Results
Economics of Academic Journals

- Natural Monopoly
- 3rd Degree Price Discrimination
- Network-Delivery
  - shifts in economies of scale
  - marginal cost --> 0 ?

Question: Should publishers choose to unbundle academic journals, i.e., go from offering subscriptions only to offering on-demand network access to individual articles?
Bundling Strategies

- Pure Bundling
- Pure Unbundling
- Mixed Bundling

Pure Unbundling
Pure Bundling

Mixed Bundling
N-Good Bundling Model

View 1:
– buy n (between 0 and N) articles from journal

View 2:
– buy \{0,1\} unit of each of N articles

• Two prices: \( P_{\text{article}} \) and \( P_{\text{journal}} \)
• N-dimensional consumer preferences captured in two dimensions \( \{w_o,k\} \)
Consumer Valuation of N articles

\[ w(n) = w_0 \left[ 1 - \frac{n}{kN} \right] \]

Pure Unbundling

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Pure Bundling

Mixed Bundling
# of Articles Read in a Journal

<table>
<thead>
<tr>
<th>Number of Articles Read in a Journal</th>
<th>Proportion of Readers (%)</th>
<th>Cumulative Proportion of Readers (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 to 5</td>
<td>43.60</td>
<td>43.60</td>
</tr>
<tr>
<td>6 to 10</td>
<td>34.40</td>
<td>78.00</td>
</tr>
<tr>
<td>11 to 15</td>
<td>8.21</td>
<td>86.21</td>
</tr>
<tr>
<td>16 to 20</td>
<td>5.50</td>
<td>91.71</td>
</tr>
<tr>
<td>21 to 25</td>
<td>3.37</td>
<td>95.08</td>
</tr>
<tr>
<td>26 to 30</td>
<td>1.97</td>
<td>97.05</td>
</tr>
<tr>
<td>31 to 40</td>
<td>1.23</td>
<td>98.28</td>
</tr>
<tr>
<td>41 to 50</td>
<td>0.82</td>
<td>99.10</td>
</tr>
<tr>
<td>more than 50</td>
<td>0.90</td>
<td>100.00</td>
</tr>
</tbody>
</table>

Data Source: King and Griffiths 1995

Economies of Scale (EoS)

\[ MC_{\text{journal}} = N^\gamma \cdot MC_{\text{article}} \]

\( \gamma = 1: \) no economies of scale --> no cost savings
\( \gamma = 0: \) extreme economies of scale --> \( MC_j = MC_A \)

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Optimal Bundling Strategy
($\gamma = 1$: no economies of scale)

Optimal Bundling Strategy
($\gamma = 0$: extreme economies of scale)
Optimal Bundling Strategy
$(\gamma = 0.5)$

Optimal Bundling Strategy
$(\gamma = 0.75)$
What is the ‘right’ value for $\gamma$?

- Two components of MC:
  - reproduction and transmission costs
  - transaction and payment processing costs

- Value of $\gamma$ dependent on relative magnitudes of cost components

Optimal Revenue Mix

![Graph showing optimal revenue mix for different values of $\gamma$.]
Conclusions

- MB always dominant
  - Publishers should offer both journal subscriptions and individual article access

- PB inferior to PU when:
  - there are weak or no economies of scale
  - marginal costs are not negligible
  - readers positively value only a subset of all articles --> violation of Exclusion and loss of social welfare

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