The Impact of the Internet on Advertising Markets for News Media

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Newspaper Ad Revenue (1980 $m)

Source: Newspaper Association of America
Online advertising is ineffective (cf: psychological evidence)

Traditional news media business model – compete for customers and sell access to them to advertisers – is broken.

Need to find other sources of revenue to make up the difference – the waterbed effect.
Allow news organizations to jointly … erect paywalls and negotiate license fees with news aggregators.

Provide government subsidies to news organizations.

Allow tracking of consumers.
The Internet has disrupted the operation of advertising markets

Need to understand this and focus on how to improve their operation
Attention is still scarce ... and advertisers still want to access that attention.
The Internet has facilitated consumer switching between outlets

There is imperfect tracking between outlets
Browsing

Free content

Aggregators, social networks and search
Choice of ad supply:
- Anderson-Coate: competition reduces supply (increase ad prices)
- Ambrus-Reisinger: when ‘middle’ consumers multi-home may increase supply
Focus on matching rather than ad quantity

Sensitive to technology (esp: tracking)

Care regarding allocation of consumer attention

Market

Price

Supply

2a

Quantity (Impressions)

p
Evidence that competition reduces per reader ad prices

Outlets claim mergers will improve ad revenue

For-profit outlets object to lifting of ad restrictions on public broadcasters

Larger outlets earn higher ad revenue per consumer
Two attention periods.

Two outlets with ad capacity per unit of attention, $a_i$.

If they have opportunity to choose, consumers select outlet $i$ with probability $x_i$.

In a given period, the probability that a consumer can choose is $\rho$.

\[
D_i' = x_i - x_i (1 - x_i) \rho
\]
\[
D^s = 2 \rho x_1 x_2
\]

$i$'s ad inventory = $D_i' 2a_i + D^s a_i$
Advertisers want to impress each consumer once over the two periods …

and have heterogeneous values ($\nu$) on impressing consumers with distribution $F(\nu)$; assumed to be $U[0,1]$. 
If Starbucks single-homes, it misses impressions.
If Starbucks multi-homes, it wastes impressions.
The advertiser’s dilemma

Custom analysis of data provided to authors by ComScore of 30 recent large, cross-outlet campaigns

Wasted Impressions
No switching

No tracking

Coordination in time

Pay per click

Perfect tracking
Expected Unique Impressions

Single-Home on $i$ \[ D_i^l + \frac{1}{2} D^s \]

Multi-Home \[ D_1^l + D_2^l + \frac{3}{4} D^s \]

Multi-Home (2 on $i$) \[ 1 \]
To impress loyals, want to multi-home ... at the cost of wasted switcher impressions

To impress switchers, want to increase frequency ... at the cost of wasted loyal impressions

Higher value advertisers more willing to bear costs

Advertiser demand

Price

Quantity (Advertisers)

Single-homing

Multi-homing

Multi-homing + Frequency
Multi-homers
(1 impression)

No switching
Multi-homers (1 impression)

Supply

More switchers

Quantity (Impressions)

Price

2a

\[ v = p \]

\[ v = 1 \]

Single-home on 1

Single-home on 2

\[ D_s \Rightarrow \downarrow p \]
$v = 1$

MH 2 on 1 | MH 2 on 2
---|---
**Multi-homers** (1 impression)

$v = p$

Single-home on 1 | Single-home on 2

\[ \uparrow D^s \Rightarrow \uparrow p \]
if $a$ high

Price vs. Quantity (Impressions)

$2a$

$p$
Incentives to adopt perfect tracking

Low ad capacity \((a)\)

Profits

- Perfect Tracking
  - \(D^s\)
Incentives to adopt perfect tracking

High ad capacity \((a)\)

Profits

Imperfect Tracking

Perfect Tracking

\(D^s\)
<table>
<thead>
<tr>
<th>Allow intra-outlet tracking</th>
<th>Merge only if $a$ and $D^s$ not too high</th>
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<tbody>
<tr>
<td>No intra-outlet tracking</td>
<td>Neutral unless can price discriminate between single and multi-homers</td>
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Mergers may increase profits even when $D^s = 0$
Blogs and other non-ad content …

decrease available ad capacity in the market …

and reduce adverse effect of switching …

Causing impression prices to rise.
Larger or ‘better’ readership leads to a premium in the ad market …

• Less reason to enact paywalls
• Tracking may reduce competition for consumers
• Increased incentive to disaggregate and focus on reach rather than total reader attention
Theory requires empirical verification (examination of extent of wasted impressions).

Generalizations: impact of more outlets, aggregator behavior, incentives to adopt tracking technologies, impact of ad disutility and endogenous ad capacity.