Exclusive vs. Overlapping Viewers: Two-Sided Multi-Homing in Media Markets

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Motivation

- TV advertising expenditures have grown sharply in almost all western countries in the last years

- European Union: advertising ceiling of 12 minutes per hour; Till recently media commission of the EU was discussing to abolish this law

- Widely used framework for analysing this question: Advertisers can multi-home; viewers can only watch one channel
Aim of this paper

• Provide a model in which viewers can connect to multiple platforms

• This changes the nature of competition substantially

• The model emphasizes on the value of exclusive viewerships ('indirect' competition for exclusive viewers)

• In contrast to previous models it can explain recent developments in media markets (ITV premium puzzle)
Structure of the Talk

1. Introduction

2. The Model

3. Equilibrium and Results

4. Model Predictions and Recent Developments

5. Conclusion
Existing literature

- Anderson & Coate (2005): Seminal paper

- Dukes & Gal-Or (2003), Peitz & Valletti (2004): Stations can choose their programme content

- Crampes, Haritchabalet, & Jullien (2005): Comparison between price and quantity competition

- Rochet & Tirole (2003), Armstrong (2005), Armstrong & Wright (2006): Point out the distinction between single- and multi-homing
The Model

Platforms

- Two horizontally differentiated platforms, indexed by $i \in 0, 1$

- Platforms set advertising levels $a_0$ and $a_1$

- 3 different regimes:
  - monopoly, discriminating monopoly, and duopoly

- For simplicity, costs are assumed to be zero

- Profit of platform $i$: $\Pi_i = a_ip_i$
Viewers

- Continuum of viewers with mass M uniformly distributed on [0, 1]

- Viewers can watch both channels.

- Viewing benefit of a viewer on $x_j$:
  $\beta - \gamma a_0 - \tau x_j$ from watching station 0
  $\beta - \gamma a_1 - \tau (1 - x_j)$ from watching station 1
  with $\beta$: gross utility from watching
  $\gamma$: nuisance cost of advertising
**Producers**

- Continuum of \( N \) homogeneous advertisers

- Advertising is informative and every producer is a monopolist in its product market

- Advertisers can multi-home

- Value of an advertisement slot depends on the number of viewers and if the viewer watches one or more channels. Viewers who only watch one channel are more valuable
Producers (ctd.)

- Profit of an advertiser who only advertises on platform $i$:
  \[(n_i + n_{01})\omega - p_i,\]
  with $n_i$: viewers who only watch channel $i$
  $n_{01}$: viewers who watch both channels
  $\omega$: per viewer value of an advertising slot

- If advertising on both channels:
  \[(n_0 + n_1 + n_{01})\omega + n_{01}\omega' - p_0 - p_1,\]
  with $\omega' \leq \omega$.

- $\omega' \leq \omega$ because there is a positive probability that viewer has seen the advertisement already on the other channel
Equilibrium Levels of Advertising

Viewerships

\[ u_0 = 1 - \frac{\beta - \gamma a_1}{\tau} \]
\[ n_0 = 1 - \frac{\beta - \gamma a_1}{\tau} \]
\[ n_{01} = \frac{2\beta - \gamma (a_0 + a_1)}{\tau} - 1 \]
\[ n_1 = 1 - \frac{\beta - \gamma a_0}{\tau} \]
Equilibrium Levels of Advertising (ctd.)

If $\beta < \tau$ then there is no viewer overlap and stations are local monopolists:

$$a_i = \frac{\beta}{2\gamma} \text{ in all regimes}$$

If $\beta \geq \tau$ then three different possibilities:

- Two-sided multi-homing:
  - Occurs if $\omega'$ is high
  - $a_{ND} = \frac{\omega'(2\beta-\tau) - \omega(\beta-\tau)}{2\gamma(2\omega'-\omega)}$, $a_{dis} = \frac{\omega'(2\beta-\tau) - \omega(\beta-\tau) - N(\omega-\omega')}{2\gamma(2\omega'-\omega)}$, and
  - $a_{duo} = \frac{\omega'(2\beta-\tau) - \omega(\beta-\tau)}{\gamma(3\omega'-\omega)}$
Equilibrium Levels of Advertising (ctd.)

- Viewers single-home, advertisers multi-home
  - Occurs if $\omega'$ is low and $N$ is low
  - $a_i = \frac{2\beta - \gamma}{2\tau}

- Viewers multi-home, advertisers single-home
  - Occurs if $\omega'$ is low and $N$ is high
  - $a_i = \frac{N}{2}$
Equilibrium Levels of Advertising (ctd.)

- In duopoly advertising levels are strategic complements

- For some parameter values two of the above equilibria can exist at the same time
Results

No general welfare conclusion possible but

**Proposition 1:**
If there is overlap on both sides in equilibrium, then advertising levels are too high in all three regimes compared to the socially optimal level. The order of welfare levels is $a_{WF} < a_{dis} < a_{duo} < a_{ND}$.

- Stations do not care about direct utility loss of viewers

- Discriminating monopolist is most efficient because in this regime an additional viewer is most valuable
Results (ctd.)

Proposition 2: The entrance of a competitor often increases the level of advertising on the incumbent platform.

Intuition:
Nature of advertising levels as strategic complements
Incumbent station avoids overlapping of viewers
Results (ctd.)

Proposition 3:
There is a parameter range in duopoly in which profits are strictly decreasing in the attractiveness of stations.

Intuition:

• If $\tau$ is decreasing stations become more attractive and so more viewers watch

• But also viewer overlap increases and some viewers are less valuable

• This effect can dominate the effect of an increased viewer base.
Results (ctd.)

**Proposition 4:**
There exist asymmetric equilibria in which station $i$ gets most, or even all, of its revenues from advertising while station $j$ gets most of its revenue via viewer fees.

Intuition:

- Multi-homing viewers are not very valuable
- Station $i$ advertises a lot
- Then it is optimal for station $j$ to serve only the remaining advertisers and charge viewer fees
Model Predictions and Recent Developments

*ITV Premium Puzzle*

- ITV enjoys a premium in its advertising price per eye ball over smaller channels

- Premium increased lately after entry of new channels

- Possible explanation: ITV has many mass audience programmes and is good at reaching 'light' viewers
  \[\Rightarrow\] Reaching million eye balls on ITV means reaching almost a million viewers while for smaller channels its likely that a viewer has seen the ad already somewhere else
Model Predictions and Recent Developments (ctd.)

- German government is currently discussing to abolish the regulation of no commercials after 8:00 p.m. for public stations

- Private stations are strictly against this abolishment

- Leaving quality issues aside previous models cannot explain this behaviour

- But behaviour is in line with predictions of our model: Private stations want to stay monopolists in the provision of their viewers to advertisers
Conclusion

- Possibility if multi-homing of viewers changes the nature of competition substantially

- Exclusive viewers are more valuable

- In case of two-sided multi-homing there is a clear cut welfare result, namely too much advertising

- Model can explain recent developments in media markets