

# The Economics of Internet Advertising: Implications for the Google-DoubleClick Merger

**AEI-Brookings Joint Center**

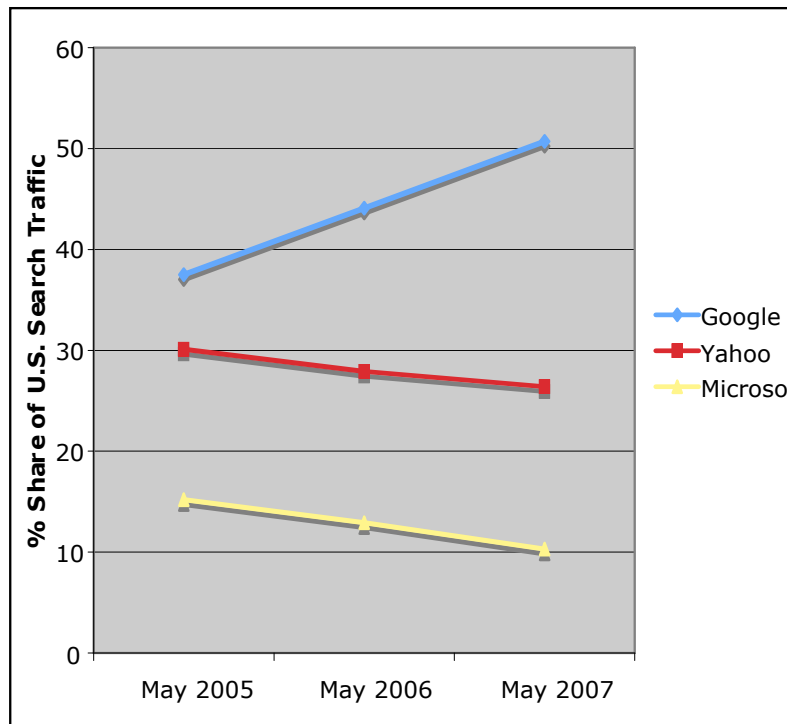
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Thomas Eisenmann

Harvard Business School

# Why is Google Gaining Share?

## Is Search a Winner-Take-All Category?



Note: Excludes share of search affiliates  
(e.g., AOL searches powered by Google)

Source: comScore

- Superior product?
  - *PC World* (4/07) and others rate search engines as rough equals
- Portal traffic erosion?  
2005-2007 unique visitor growth:
  - Yahoo = 9.6%
  - Microsoft = 3.1%
  - Internet overall = 7.3%
- Network effect?
  - Google had 2-3x more search advertisers than Yahoo in 2005
  - More ads = increased relevancy
  - 40% of searches commercially motivated
- Low switching, multi-homing costs
  - Forrester: 49% of searchers multi-home, 40% are loyal

# Attributes of Winner-Take-All Markets

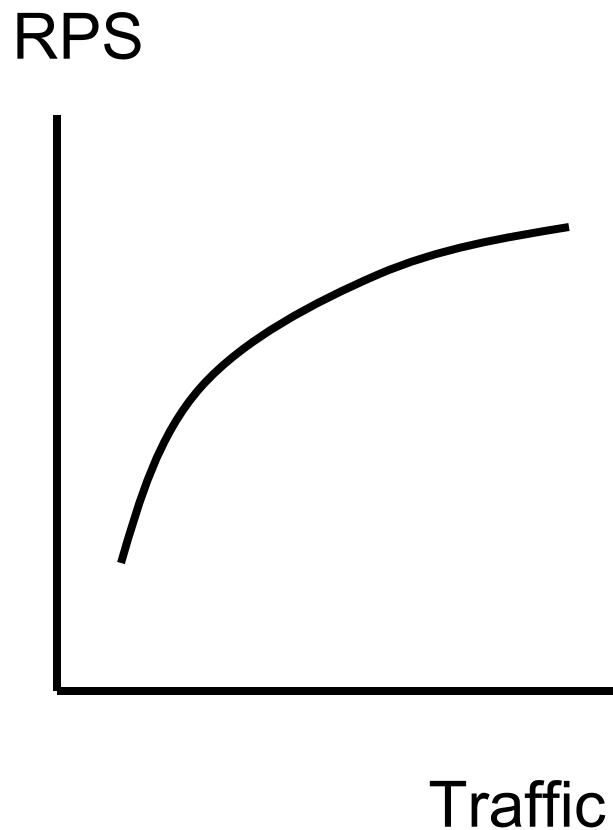
- **Natural Monopoly:**  
minimum efficient scale >  
mature market size

AND/OR

- **Strong network effects**
- **High multi-homing costs**

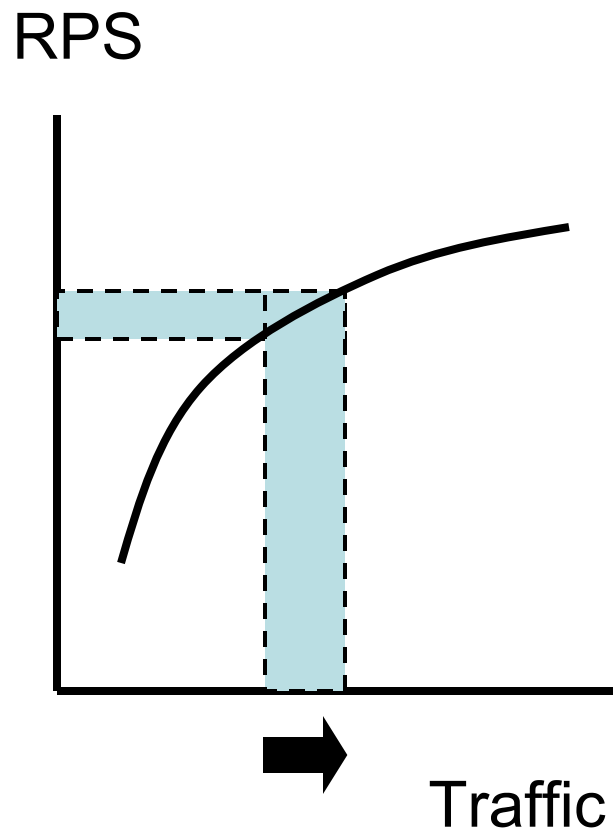
- Very rare!
- Google 2006 R&D = \$1.2B;  
MSN/Live R&D = \$819M
- 2006 global search ad market = \$16B;  
23% CAGR to 2011 (Piper Jaffray)
- Variable cost = 17% of revenue,  
assuming Cost of Revenue (excl. TAC)  
and Sales & Marketing are 100%  
variable
- Breakeven on \$1.0B in fixed costs =  
\$1.2B revenue = 7.5% of 2006 global  
search ad market
- Some network effects, but strong?
- Multi-homing costs
  - Low for **end-users**, but rising with search  
history, applications, etc.
  - Meaningful only for small **advertisers**
  - Multi-homing costly for **publishers**  
(coordination; TAC forfeiture)

# Revenue Per Search vs. Traffic Share



- Google RPS 38% > Yahoo in 2005 (HBS case, 2006)
- Google had more advertisers, since small advertisers pick biggest service due to *multi-homing costs*
- More advertisers = *better keyword coverage* and *higher bids*
- Scale also yields *data* for improving ad ranking algorithms
  - Google considers relevancy *and* bid

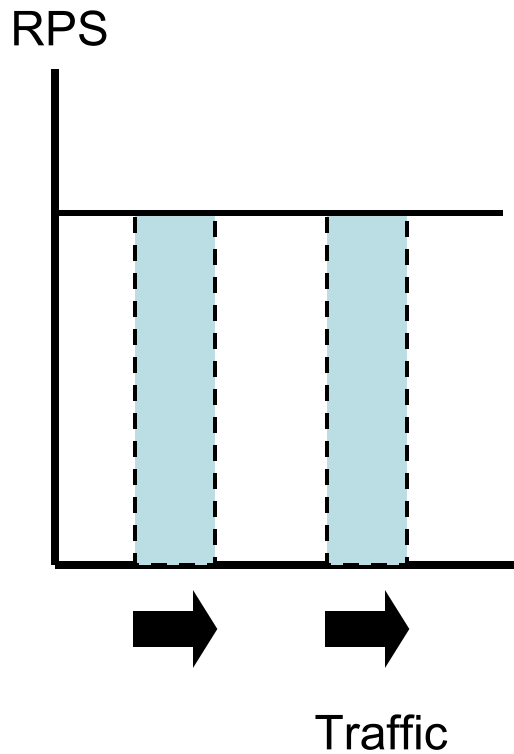
# Bidding for Network Traffic



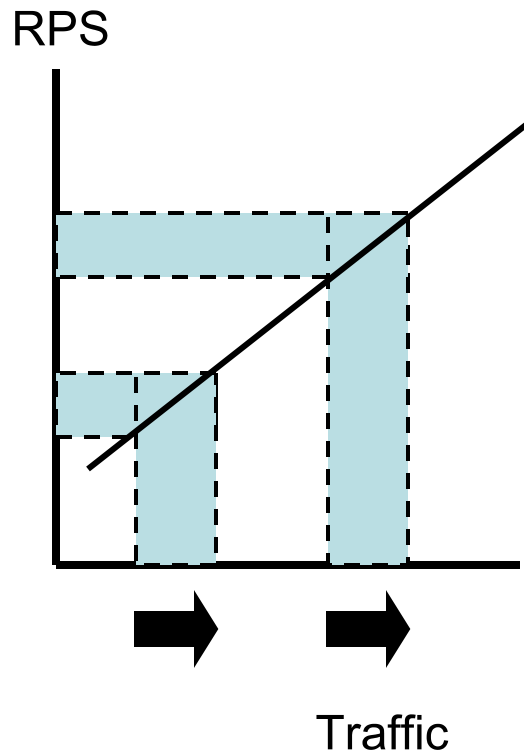
- Ignoring other variable costs, a paid search service could justify paying a 3rd-party publisher Traffic Acquisition Cost (TAC)  $>$  100% of search revenue from publisher's traffic
- Due to upward-sloping curve, *RPS increases for all other traffic*

# Shape of RPS Curve Matters!

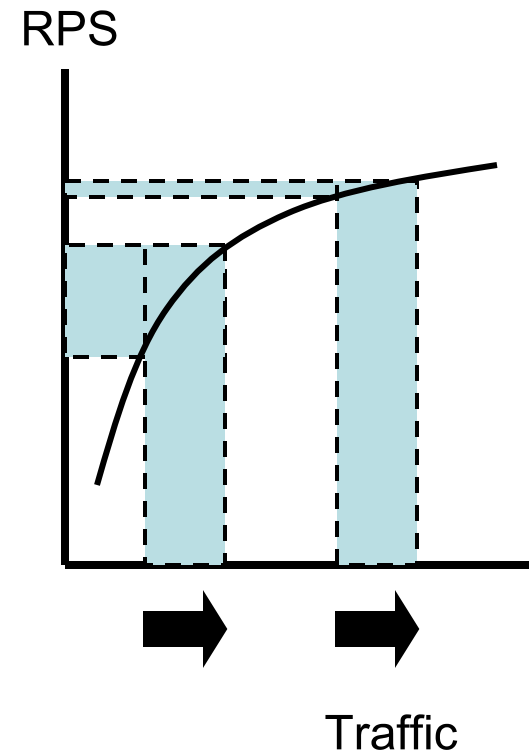
Small Firm Can Match  
Large Firm's Bid



Large Firm Can  
Outbid Small Firm



Small Firm Can Match  
Large Firm's Bid



# Thought Experiment: Consequences of Winner-Take-All Outcome in Search

- Limited impact on advertisers?
  - Prices set by auction, a *very* efficient mechanism for extracting rent
- Reduced TAC for publishers
  - Google network (AdSense) = 39% of 2006 revenue
  - TAC = 80% of network revenue
  - If other variable costs (for servers, bandwidth, sales, customer service) = 17% of revenue, Google is now barely breaking even on network revenue
  - However, network traffic boosts RPS for Google.com searches

# Relevance for DoubleClick Merger?

- Do display ad networks exhibit upward-sloping “revenue per eyeball” (RPE) curve, akin to RPS curve?
  - If so, dominant display network could enjoy increasing returns to scale and offer publishers more TAC
  - Issue: Is slope of RPE curve great enough to yield WTA outcome?
- Assumption: display and text ad markets are largely distinct today, but merging
  - 40+ display ad networks do not now sell text ads, but search-based networks increasingly sell both text and display ads
  - From publishers’ perspective, “white space” is suited for both formats
  - 500,000 text advertisers vs. 5,000 display advertisers (many of whom also buy text ads)
  - Typical targeting method differs, but each method is viable for each format): display = demographic or behavioral profiling; text = contextual
  - Formats are sometimes substitutes, often complements (text = direct marketing; display = brand building)
  - In firms that buy both formats, decision maker is often different

# RPE Curve Is Probably Flatter Than RPS Curve

Search/Text Ad Networks	Display Ad Networks
<ul style="list-style-type: none"> <li>•500,000 Advertisers</li> </ul>	<ul style="list-style-type: none"> <li>•5,000 Advertisers</li> </ul>
<ul style="list-style-type: none"> <li>•Ad production inexpensive; many small firms self-manage placement</li> <li>•Implication: multi-homing costs salient for small advertisers, so they <b>avoid small networks</b></li> </ul>	<ul style="list-style-type: none"> <li>•Ad production &amp; placement require more skill, so firms rely on agencies</li> <li>•Implication: multi-homing costs less salient, so advertisers <b>less likely to avoid small networks</b></li> </ul>
<ul style="list-style-type: none"> <li>•More advertisers implies <b>increased coverage</b> and more <b>aggressive bidding</b> for keywords</li> </ul>	<ul style="list-style-type: none"> <li>•With demographic targeting, networks must offer similar prices, regardless of number of advertisers</li> <li>•Behavioral profiling should increase slope of RPE curve</li> </ul>
<ul style="list-style-type: none"> <li>•Scale yields <b>data for better ad ranking algorithms</b>, and hence increased RPS</li> </ul>	<ul style="list-style-type: none"> <li>•Scale yields <b>data for better behavioral profiling</b>, and hence increased RPE</li> </ul>