

Quantitative Marketing and the Internet

Hal R. Varian
UC Berkeley
13 Feb 2007

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Problems with advertising

- You've got to do it
- Nobody knows what works
 - Hard to reach potential customers
 - Hard to grab enough of their attention
 - Hard to tell whether your message got through
- Leads to a portfolio strategy
 - Choose "media mix" and hope for the best...
- My message: technology is changing this by providing new tools to measure ad effectiveness

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Broadcast radio

- Killer app: ship-to-shore
- Broadcast: a nuisance...
 - Could that bug become a feature? The Euphoria of 1922...like the euphoria of 1999
 - What's the best business model for broadcast?
 - Government provision (BBC)
 - Private contributions (public radio)
 - Hardware producers subsidize content (RCA)
 - Tax on vacuum tubes (Media tax)
 - Advertising – the least favorite alternative

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Advertising model

- First radio commercial
 - Apartment rentals in NYC
- Challenge to radio advertising
 - Could only survive in areas with dense enough population to support content creation
 - Need enough potential buyers to pay for content that people would want to listen to
 - Essentially only viable in big cities

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AT&T to the rescue

- Sent radio signals over copper in order to rebroadcast content nationwide
 - Built national networks
- Didn't have to make very much per person to cover cost of producing content since it was amortized over national market
 - National brand marketing
- TV took this model over in toto

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CPMs

- Advertising is, in general, very low-effectiveness business
- Scale is critical
- Cost per thousand impressions (CPM)
 - Broadcast TV:
 - Prime time show: \$10-\$15 CPM
 - Superbowl 30 second spot: \$25 CPM
 - Around 1 cent per impression
 - 10 minutes of ads in 1 hour ~ 20 ad impressions
 - Paying 15-20 cents an hour for your attention
 - Too cheap: DVDs, cable, pay per view, Internet video
 - Last year, value of paid content on cable exceeded adv-supported content

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Ad blindness

- Average city dweller exposed to
 - 5,000 ads per day
 - 2,000 ads 30 years ago
- Competition for attention is fierce
 - Despite information overload, ads still sell products
 - People still need to find things

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How to improve cost-effectiveness of advertising?

- Direct response advertising
 - Direct mail, shopping channel
 - Targeted: e.g., by demographics, general interests
 - Measurable response: e.g., mail, phone
 - Search-linked advertising
 - Highly targeted: to what you are interested in now
 - Highly measurable response: clicks and conversions
- Awareness (brand) advertising
 - “Drink more Coke”, “eat California raisins”
 - Measure response indirectly

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Measurability of search ads

- Huge advantage in measuring ad effectiveness
 - Measure clicks (adjust for position, TOD, etc.)
 - Conversion tracking and cost per acquisition
- Google ad ranking system
 - Show ads likely to get the most valuable clicks in the most prominent position
 - Ranks ads by $\text{bid} * \text{pCTR} = \text{expected revenue}$
 - Hence, “best ads get best exposure”
 - Creates a virtuous circle: individuals want to click because results are relevant, advertisers want prominent positions since they get the most clicks

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How to price personalized ads

- Highly differentiated ads: huge pricing problem due to scale
 - Google originally used impression-based pricing with sales force
 - But this didn't scale
 - Solution: use keyword auction
 - Difficulty: price depends on competition
 - Auctions with little competition can be great deal, since default cost per click is only 5 cents
 - Auctions with a lot of competition: prices get pushed to market value
 - But this defect was a virtue in disguise

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Advertiser choices

- Creative choice
 - Avoid question marks, exclamation points; “free” is good, repeating product name is good
 - E.g., plurals get more clicks and more conversions than singulars. “Diamonds” more valuable than “diamond”
- Keyword choice
 - Market efficiencies: high CTR words have high prices
 - Measure performance, look for bargain keywords,
 - What matters is the cost effectiveness
- Bid choices
 - Compare value of click to *incremental* cost per click

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New frontiers in direct response media

- Location-sensitive search
 - Google local ads
 - Cell phone ads; GPS systems
- Content-specific search
 - AdSense: tied to content+demographics
 - Tivo: show ads based on content + demographics + behavior

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Advertising models

- Direct response advertising
 - Click-based advertising works well
 - Natural to move to mobile, local, etc
- Awareness/brand based advertising?
 - How can we measure effectiveness
 - What is analog of “clicks”?

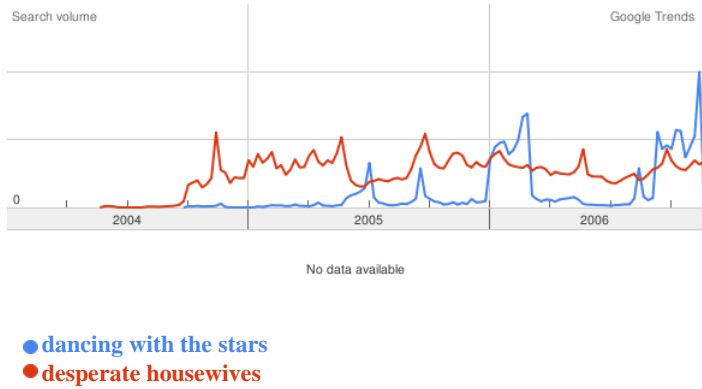
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“Database of intentions”

- Queries indicate interest
- Measure how queries respond to TV/radio/print campaigns
 - Estimate ad effectiveness
 - Channel
 - Time
 - Creative
 - Guide media spend
- Understand product associations by looking at query associations

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Guide media spend with Google Trends



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Product associations

- Keyword suggestion tool
- See expansions
 - Volume
 - Competition
- Dual use
 - Choose keywords
 - Product associations

Keywords	January Search Volume	Advertiser Competition
pontiac	<input type="checkbox"/>	<input type="checkbox"/>
pontiac gto	<input type="checkbox"/>	<input type="checkbox"/>
pontiac vibe	<input type="checkbox"/>	<input type="checkbox"/>
pontiac montana	<input type="checkbox"/>	<input type="checkbox"/>
pontiac firebird	<input type="checkbox"/>	<input type="checkbox"/>
pontiac sunfire	<input type="checkbox"/>	<input type="checkbox"/>
pontiac dealers	<input type="checkbox"/>	<input type="checkbox"/>
pontiac michigan	<input type="checkbox"/>	<input type="checkbox"/>
pontiac dealer	<input type="checkbox"/>	<input type="checkbox"/>
pontiac mi	<input type="checkbox"/>	<input type="checkbox"/>
pontiac gt	<input type="checkbox"/>	<input type="checkbox"/>
pontiac transport	<input type="checkbox"/>	<input type="checkbox"/>
used pontiac	<input type="checkbox"/>	<input type="checkbox"/>
pontiac gm	<input type="checkbox"/>	<input type="checkbox"/>
1966 pontiac	<input type="checkbox"/>	<input type="checkbox"/>

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What this means

- Finance: came of age in 1970s with rise of quants
 - Psychology -> rationality/quants -> psychology
- Next step: marketing quants
 - Psychology -> rationality -> psychology
- Pricing keywords, measuring effectiveness-> quantify marketing, make better decisions
 - Better match of buyers and sellers
 - Consulting firm story

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Summary

- Direct response advertising: the web changes everything
 - Next frontier: cell phones
- Awareness advertising: new tools to measure effectiveness
- Much, much better data. Enlarged possibilities for quantitative marketing.
- The quants are migrating from Wall Street to Madison Avenue.

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