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Measuring ROI on Sponsored Search Ads

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Online Marketing at Bazaar.com

Bob and Myra are senior members of the marketing analytics team at Bazaar (Bazaar.com), the leading online retailer in the United States. Bazaar uses both display advertising and search engine advertising, running paid search ads on the two major search engines, Google and Bing. Bazaar releases its ads in response to keywords used by online consumers; the marketing team classifies these keywords into two broad categories: branded and nonbranded. Branded keywords include keywords such as “Bazaar,” “Bazaar shoes,” and “Bazaar guitar” that contain the Bazaar brand name. (See Exhibit 1 to view a typical page of results on Google after a branded keyword search.) Nonbranded keywords include keywords such as “shoes” and “guitar” that do not contain the Bazaar brand name. The firm employs the same strategies for both Google and Bing for targeting ads, choosing keywords to advertise on, and ad copies used, and the mix of potential customers visiting the company’s website from both search engines is virtually identical; the only difference is that their Bing campaign is much smaller than their Google campaign.

Bob and Myra have agreed to meet to discuss the recent advertising reports relating to paid search efforts. Specifically, they want to take a deeper dive into ROI calculations on the sponsored search ads for branded keywords on Google. Also joining this meeting is Sunil, a newly hired data scientist.

The ROI Discussion

Bob (smiling broadly): Myra, I am very pleased with these numbers for sponsored search advertising for branded keywords on Google. (See Exhibit 2, Table 1.) As you know, we were

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This case is inspired by Section 2 of Thomas Blake, Chris Nosko, and Steven Tadelis “Consumer Heterogeneity and Paid Search Effectiveness: A Large-Scale Field Experiment,” Econometrica 83, no. 1 (January 2015): 155–174.

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This case is based on a real business scenario; the names, dates, and data have been altered for the purposes of the case.

planning to run our sponsored ad campaign for 12 weeks, but there was a technical glitch in our systems starting week 10, at which point we suspended our Google campaign. However, as you know, our Bing campaign was unaffected by this glitch. Taking this into account, my analysis ignored the Google numbers for weeks 10, 11, and 12, since no sponsored search advertising was going on at that time. So let's focus on the data from weeks 1 to 9. Sunil, you might recall that this data reflects weekly ad traffic numbers to Bazaar.com from consumers clicking on sponsored ad links as well as on organic links that appear on Google after a branded keyword is searched. This data reveals that we obtain about 20% of our traffic for these branded keywords through the sponsored ads that we show on Google.

Myra: So, just to clarify, if the consumer searches a keyword with our brand name in it, then they are shown a sponsored ad from us. Of course, since the search term includes our brand name, Google displays a link, or even multiple links, to our website in the organic results as well. The click-through numbers are for users who visit Bazaar.com by clicking on those two types of links, right?

Bob: Yes, that's exactly right. I just did an ROI analysis, and we are getting amazing ROI on this ad spend. Here is how it goes. (Drawing on whiteboard.) We know that the average cost per click for a sponsored click is \$0.60. Once consumers land on Bazaar.com, their average probability of making a purchase from our website is 12% and our average margin per conversion is \$21. So that leads to an average revenue per click of $0.12 \times \$21$, or \$2.52, which implies an ROI of $(\$2.52 - \$0.60) / (\$0.60)$, or 320.0%.

Myra: Wow, Bob! That's a really high ROI number. I don't think any of our other advertising channels have ROI numbers anything close to that. That actually makes me suspicious.

Bob: Come on, Myra! I just did the calculation in front of you. Numbers don't lie, do they?

Myra: Of course not, Bob. Our team is all about the analytics. But I think we need to be more careful in doing the analysis. My main concern is that these keyword searches include the name of our company. These people seem to be already aware of our website and actively looking for it. I wonder if we even need to show the sponsored ads to them.

Bob: What do you mean by that?

Myra: Suppose a consumer used the search term "Bazaar shoes" and clicked on our sponsored ad that came up in the results. If the ad weren't there, my guess is that this consumer would be very likely to simply click on our link in the organic list, and so we would get the same consumer for free. And we know that the conversion probability and margin per conversion numbers are the same for all consumers, irrespective of how they landed up at our website.

Bob: That's a good point, Myra. You always make me think! But if we don't put our own sponsored ad out there and competitors put theirs up, maybe we'll end up losing potential customers.

Myra: That's definitely possible. But someone who is looking for us specifically is quite likely to ignore the competitor's ad and simply go to the organic link for our website. After all, if people use "Bazaar" as a search term, that indicates that they want to come to our website.

Plus, quite often competitors do not even advertise on keywords that explicitly include the name of our website. That said, we run the risk of leakage to competitors if we stop doing sponsored search advertising.

Bob: These arguments certainly make sense. But ultimately, it is an empirical question.

Myra: I agree with that. You know what, I think we might be able to answer this question. What if we compare the data from the first nine weeks to the data from the last three weeks, when there was no sponsored advertising going on?

Bob: So that would help us understand what the impact of stopping sponsored search advertising for these keywords would be. That's brilliant! And since this interruption was caused by a technical glitch and not by any strategic decisions on our side, it would be safe to call this a natural experiment.

Myra: Yes, exactly, Bob! But there still may be one problem with this analysis. What if the first nine weeks were systematically different from the last three weeks? I wonder if we can detect that and control for it if needed.

Just then, Chung, the team's marketing intern, walks in.

Chung: Hi, Bob and Myra! The traffic data for our sponsored and organic traffic for branded keywords on Bing for weeks 1 to 12 just came in. Here it is. (See Exhibit 2, Table 2.) But before you take a look, the rep from our advertising agency just arrived and is waiting for you in the lobby.

Bob (getting up to meet the rep): Sunil, Myra and I need to step out for a bit. Myra made some good points about measuring ad spend ROI on Google. We'll be back in about 30 minutes. Please run this analysis in the meantime, and we'll discuss the results when we have finished up with the agency meeting.

Sunil: Certainly, Bob. This sounds very exciting!

The ROI Analysis

Sunil was on board with Bob and Myra's thinking but knew that he had to run the ROI analysis carefully. He was eager to impress his new colleagues. What analysis should he run?

Exhibit 1

Screenshots of Results for Some Typical Branded Keyword Searches on Google

Google bazaar shoes

Web Shopping Apps News Images More Search tools

About 104,000,000 results (0.34 seconds)

Sponsored Ads

Bazaar.com - Buy Shoes at Bazaar
www.bazaar.com/Shoes
 4.4 ★★★★★ rating for bazaar.com
 Huge Selection of Shoes Free Returns on Qualified Orders
 Cyber Monday Week Deals · Give The Gift of Prime · Kindle & Fire Gift Ideas

Women's Shoes at Zappos
www.zappos.com/
 4.8 ★★★★★ rating for zappos.com
 Huge Selection of Women's Shoes
 Free Shipping and Free Return!

Women's Shoes - NORDSTROM
www.nordstrom.com/
 4.6 ★★★★★ rating for nordstrom.com
 Shop top brands in womens shoes
 Free Shipping & Returns Every Day!
 60 E 14th St, New York, NY
 (212) 220-2080

Wholesale Shoes Online
www.goexw.com/shoes
 All Fashion Styles, Factory Price.
 Guaranteed Quality & Free Return.

\$11 Bazaar Women Shoes
www.sammydress.com/
 3.8 ★★★★★ rating for sammydress.com
 New Collection, Wholesale Shop
 Global Shipping, Shop The Chic

Cheap Brand Name Shoes
shop.housingworks.com/

Organic Results

Women's Shoes | Bazaar.com
www.bazaar.com/womens-shoes/b?node=679337011 Bazaar.com, Inc. ▾
 Results 1 - 48 of 431346 - Find a wide selection of styles and brands of women's shoes at Bazaar.com. Free shipping and returns on eligible items.
 Clarks · Steve Madden · Skechers · Women's Pumps | Bazaar.com

Men's Shoes | Bazaar.com
www.bazaar.com/shoes-mens-sneakers.../b?ie... Bazaar.com, Inc. ▾
 Results 1 - 48 of 204389 - Shop a wide selection of men's shoes at Bazaar.com. Free shipping and returns on eligible items.
 Oxfords · Fashion Sneakers · Mens Sandals | Bazaar.com · Slippers

Bazaar.com: Athletic Shoes
www.bazaar.com/Athletic-Shoes/b?ie=UTF8... Bazaar.com, Inc. ▾
 Results 1 - 48 of 88023 - Top brands at low prices in Women's Shoes--New Balance, Mizuno, Sperry Top-sider, Converse, Salomon, Niki, Adides, Merrell, Puma, ...

Bazaar Best Sellers: Shoes - Bazaar.com
www.bazaar.com/best-sellers-shoes/zgbs/shoes Bazaar.com, Inc. ▾
 Find the best shoes in Bazaar Best Sellers. Browse a list of the most popular shoes, including women's shoes, men's shoes, girls' shoes and boys' shoes.

Google bazaar guitar

Web Shopping Videos Images News More Search tools

About 40,700,000 results (0.32 seconds)

Sponsored Ad

Bazaar.com - Guitar Bazaar at Bazaar
www.bazaar.com/instruments
 4.4 ★★★★★ rating for bazaar.com
 Sound Values on Instruments & Gear Over 10,000 Instruments
 Cyber Monday Week Deals · Kindle & Fire Gift Ideas · Give The Gift of Prime

Organic Results

Bazaar.com: Guitars: Musical Instruments: Electric Guitars ...
www.bazaar.com/Guitars-Basses-Stringed.../b?ie... Bazaar.com, Inc. ▾
 Online shopping for Musical Instruments from a great selection of Electric Guitars, Acoustic Guitars, Acoustic-Electric Guitars, Classical & Nylon-String Guitars ...

<p>Acoustic Guitars Online shopping for Musical Instruments from a great ...</p> <p>Electric Guitars #1 Best Seller in Hollow & Semi-Hollow Electric Guitars. More results from bazaar.com »</p>	<p>Instrument Accessories Guitar and Bass Accessories ... Instrument Accessories from ...</p> <p>25 to \$50 ... Guitars : \$25 to \$50 25% Off or More (405) · 50% ...</p>
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Bazaar Best Sellers: Best Acoustic Guitars - Bazaar.com
www.bazaar.com/Best-Sellers...Guitars/.../11971251 Bazaar.com, Inc. ▾
 Discover the best Acoustic Guitars in Best Sellers. Find the top 100 most popular items in Bazaar Musical Instruments Best Sellers.

Bazaar.com: Acoustic-Electric Guitars: Musical Instruments
www.bazaar.com/Musical-Instruments/Guitars Bazaar.com, Inc. ▾
 Results 1 - 24 of 3811 - Online shopping for Acoustic-Electric Guitars from a great selection at Musical Instruments Store.

Bazaar.com: Bass Guitars: Musical Instruments: Electric ...
www.bazaar.com/Bass-Guitars-Products/b?ie=UTF8... Bazaar.com, Inc. ▾

Exhibit 2

Weekly Traffic from Bing and Google

Table 1: Weekly traffic from Google by origin of click (for branded keywords searches only)

Week	1	2	3	4	5	6	7	8	9	10	11	12
Sponsored	32,269	31,951	32,143	31,417	31,194	31,576	30,951	30,611	30,401	0	0	0
Organic	127,876	128,169	125,717	126,264	123,871	124,053	126,105	123,064	121,637	150,188	148,658	146,584

Table 2: Weekly traffic from Bing by origin of click (for branded keywords searches only)

Week	1	2	3	4	5	6	7	8	9	10	11	12
Sponsored	3,965	3,984	3,960	3,952	3,874	3,932	3,890	3,883	3,843	3,815	3,754	3,754
Organic	15,805	15,964	15,815	15,810	15,633	15,797	15,462	15,309	15,499	15,185	15,159	15,036

Note: Tables 1 and 2 are available as a separate Excel file.