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Commentary

When Is Less More, and How Much More? Thoughts on the Psychological and Economic Implications of Online Targeting and Obtrusiveness

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In a very intriguing and groundbreaking study, Goldfarb and Tucker [Goldfarb, A., C. Tucker. 2011. Online display advertising: Targeting and obtrusiveness. *Marketing Sci.* 30(3) 389–404] show that online advertising targeting and obtrusiveness boost purchase intent independently, but not jointly. The authors rule out recall as an explanatory mechanism and provide preliminary evidence that the effect may be driven by privacy concerns. We comment on the substantive importance of this finding by discussing the psychological and economic implications of the effect.

Key words: online advertising; Internet targeting; pop-up ads; obtrusiveness; reactance; privacy

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Introduction

In a large and impressive field quasi-experiment spanning several product categories—close to 3,000 advertising campaigns and millions of observations—Goldfarb and Tucker (2011) show that a consumer's purchase intent will increase when a consumer is confronted with an online advertisement that matches the website's content (called "targeting") or an online advertisement that makes itself more visible (called "obtrusive," e.g., pop-ups, videos, floating ads). However, when the exposure is to an online advertisement that is *both* targeted and obtrusive (hereinafter referred to as TO, with due recognition of a football player with the same initials who some would perceive is also targeted and obtrusive), purchase intent actually goes down relative to no exposure at all. This has very interesting substantive implications for advertising and media strategy. We discuss the finding and add nuanced color to the importance of this effect in terms of its psychological and economic implications.

Less Is More: The Substitute Effect

The key finding of the Goldfarb and Tucker (2011) paper resides in column (1) of their Table 2: the *Exposed* × *Context Ad* × *High-Visibility Ad* three-way interaction. Its negative coefficient (−0.0124) implies

that online advertisement tactics of targeting and obtrusiveness are substitutes. It is easy at first glance for a skeptical reader to dismiss this finding because of such a large sample size (i.e., some 2.5 million observations generated from 13,000 respondents leads to every single effect in the model in column (1) being significant). Indeed, the knee-jerk response may be a salient question of the difference between statistical significance and practical importance. However, we must note that the effect is a conservative top box effect that apparently holds up to several robustness checks (presented in their Table 3). What is more interesting is that this main finding appears to be rather quirky and counterintuitive. Why would, in a sense, a "relevant" online advertisement (i.e., targeted) that grabs a consumer's attention (i.e., more visible) lead to a worse consumer outcome? The answer to this question should have important implications. It seems intuitive that the casual or indeed naïve observer would offer the opposite hypothesis, and indeed many managers making this resource allocation decision every day (and spending money to execute it) may be acting on "wrong" information. But the extent to which this finding should give pause to (or change) managerial action depends on the psychological and economic implications of the effect. We discuss both of these implications below.

“What’s New”: Substantive Insights Based on Psychological Implications

The Cognitive and Social Psychological View of Privacy Concerns

From a psychological point of view, Goldfarb and Tucker (2011) raise some very interesting insights regarding online advertising. Intuitively, fit should help. That is, creating congruence between the product, marketing appeal, and the consumer should be mutually beneficial, helping both the company and the consumer (Bhattacharjee et al. 2010, Aaker et al. 2001). Furthermore, the stronger the match between the content and the consumer’s self-relevant goals and identity (Reed 2004), the more favorable the expected response and the more difficult it is to counterpersuade (Bolton and Reed 2004). In this sense, Goldfarb and Tucker offer the loose idea of “privacy concerns” as the main mechanism that is driving this three-way interaction. For example, in their follow-up, the authors show that this effect is magnified when (a) blocked on people who did not freely report their income and (b) the analysis is conducted across product categories a priori deemed as more private consumption domains.

This narrative is important and needs to be fleshed out in future research before we can fully understand what to do with this new effect. One may conceptualize the three-way interaction as potentially arising from a psychological continuum of conscious awareness and reactance. On the one hand, it may just be that each tactic in isolation is enough not to disrupt the “flow” of online activity or experiences evidencing implicit persuasion processes (Williams et al. 2004). Recent work in consumer decision making has shown that under certain conditions, persuasion may operate below the radar and may occur outside of cognitive conscious awareness or identity reinforcement (Forehand et al. 2002). This explanation would be consistent with the Goldfarb and Tucker finding that differences in advertisement recall fail to explain the three-way interaction. On the other hand, a more extreme form of this cognitive effect would be a social psychological phenomenon of pure “reactance” (Bhattacharjee et al. 2010), whereby being obtrusively targeted by an ad that is matched to the website creates a “Big Brother” inference that is irritating enough to create a sense of “manipulation” and lower the intent to purchase, *ceteris paribus*. The authors speculate that this could be at play, but the recall evidence does not support such an explanation (unless people are “blocking out” memory of those advertisements) nor does the post hoc nature of the variables used to test this effect (blocking on income and exploring private product categories). Hence, at the moment, although probably anecdotally plausible, it is too soon to definitively argue for such an explanation.

Don’t Throw Out the TO Tactic with the Bath Water

There are several implications that arise from these psychological nuances if we presume that the effect of the three-way interaction reported relates to some mechanism of psychological explanation that falls in between the aforementioned extremes. The first has to do with the fact that we believe that drawing attention to relevant consumption information *has to help* under some conditions. This is an important point because it emphasizes the need not to simply go forth and assume that this TO substitutability effect holds in all cases. The severity of this effect as a reason to adjust managerial strategy depends on what the reader believes this effect means. Is it reactance to privacy concerns? Maybe...but maybe not! For example, what may be going on is that when the online advertisement is both TO, then perhaps it crosses the just-noticeable difference and reminds consumers that indeed this is a targeting effort and that this must mean that there are more product options to consider than just the one being advertised in the online TO advertisement. Such an inference may lead to lower *initial purchase intent* for the focal product. However, it could be that longitudinally, the effect could reverse because the attention and targeted combination changes the underlying expansiveness of the consideration set more generally as the consumer is gathering more information that can be used to direct purchase behavior. Stated a different way, in the long run, the TO effect may help a very good product at the point of choice and actual behavior. Such a mechanism could be directly tested with behavioral and consideration set formation data, but as it stands, the TO effect is an unexplored explanation that has more to do with consumer practicality than perceived marketer manipulation. This illustrates merely one possible mechanism of interest that would suggest not necessarily jumping the gun and deeming it always a bad idea to use TO tactics.

From a managerial point of view, the aforementioned logic implies the importance of paying careful attention to the “goals” (Laran 2010) being made salient by the website. If what we know about targeting is true, then it would seem that websites that are “smart” enough to introduce such TO advertisements when clicking behavioral patterns reveal that the consumer is closer to being ready to make a purchase would not fall prey to the substitute effect. It is hard to believe that (higher) purchase involvement (whether it be identity or otherwise) would not moderate the three-way interaction reported in the Goldfarb and Tucker paper. The second implication of this logic has to do with creating “obtrusion” that is not obtrusive. It may be possible to construct

and pretest visible advertisements that are “entertaining” enough to have a positive effect. In other words, intrusion without highly relevant content for a specific salient consumer goal may be the culprit leading to the observed three-way interaction here. A better designed and more entertaining advertisement can grab attention not by the fact that it is force-fed to the consumer but rather in its ability to create positive affect *within the targeted context of the tailored website*. This type of ad has three benefits: first, it may mitigate the substitute TO effect evidenced in the authors’ paper; second, because of its entertainment value, it may continue the flow of online activity/experience in a way that bridges the gap between consumer events occurring online on that website; and third, it may communicate to the consumer that the website/company emphasizes the positive quality of the experience over simply putting overt “sell-you-stuff” messages front and center.

“So What”: Substantive Insights Based on Economic Implications

Don’t Understate the Back of Your Envelope

In addition to the aforementioned psychological nuances and implications, we think that the Goldfarb and Tucker (2011) discussion and estimates of the economic value of this research (assuming consideration of cases in which the three-way interaction does indeed hold) do not state the case in a way that demonstrates to practitioners how important these results can and should be. We also cannot follow exactly how the authors made some of their estimates. They describe their procedure for estimating how much would be saved by substituting the targeted and obtrusive ads with plain banner ads as follows:

To conduct this calculation, we require estimates of (a) the total size of online display advertising spending, (b) the percentage of these campaigns that are both targeted and obtrusive, (c) the cost of the targeted and obtrusive ads relative to plain banner ads, and (d) the effectiveness of targeted and obtrusive ads relative to plain banner ads. (Goldfarb and Tucker 2011, p. 397)

From what we can tell, (a), (b), and (c) are evidently to be used to estimate how much is actually being spent on the targeted and obtrusive campaigns. All we know from (b) is the fraction of the campaigns that are targeted and obtrusive. What we need to estimate is how much money was spent on these campaigns. We need to estimate the average cost per ad of a TO campaign versus the average cost per ad of the average non-TO campaign in relation to the cost of a banner advertisement. It is not clear to us how the authors took (a) = \$8.3 billion, (b) = 6.4%, and

(c) = 74% more and got the number of 8% of \$8.3 billion, or \$664 million, as the amount spent on TO ads. If we solve the equation where we use a regular banner ad as a base,

$$(6.4\% \times 1.74)/(93.6\% \times y + 6.4\% \times 1.74) = 8\%,$$

where y is the relative average price of a non-TO ad to a banner advertisement, then $y = 1.3675$.

The numerator in the equation is the relative amount of total ad spending spent on TO ads, and the denominator is the total amount spent on all ads. The authors’ estimate that 8% of ad dollars was spent on TO ads implies that the average non-TO ad was 36.7% more expensive than a plain banner advertisement. This seems plausible to us given that many ads that we are exposed to on the Internet are either targeted or obtrusive. The authors should have documented the data that led to that estimate. They would need to estimate how many non-TO ads were either targeted or obtrusive, but not both, and a cost for them relative to plain banner ads. Those data should have been available from the same survey source that was used to estimate the fraction of TO ads.

Regardless of our concern for transparency in the calculations, we agree with the authors that their estimate of 8% for Internet banner ad spending (or \$664 million) used on TO ads is very conservative. Our experience corroborates the footnotes in their article that document how many sites charge 10 or 15 times the rate for banner ads for targeting and obtrusiveness.

We next do our own calculation for the economic benefit that ends up close to that of Goldfarb and Tucker. They somehow get from the \$664 million spent on TO ads that

Because these ads are no more effective than standard banners, if advertisers replaced redundantly targeted and visible ads with cheaper, standard banner ads, they could cut ad spending by 5.3% (95% confidence interval, 3.5% to 7.4%) without affecting ad performance. (Goldfarb and Tucker 2011, pp. 397–398)

We performed the following calculation to get our estimate of how much money is wasted on TO ads instead of used for buying plain banner ads. From column (1) in Table 2, a plain banner ad gets 0.00473 in incremental purchase intent. The sum of the first four coefficients in column (1) estimates the incremental effect for a TO ad, which is 0.00248. Therefore a plain banner ad is 1.907 times as productive as a TO ad ($0.00473/0.00248$). The other factor to consider is that the authors very conservatively assume that the TO ads cost 74% more than plain banner ads per advertisement. So substituting plain banner ads for the TO ads would generate an improvement of $1.74 \times 1.907 = 3.318$ times as much response for the same dollars

spent. Therefore the TO ad spending is only 30.14% (1/3.318) as effective as an equivalent amount spent on TO ads. This implies that 69.86% (100 – 30.14) of the \$664 million, or \$464 million, is wasted on the TO ads, which is 5.6% of the \$8.3 billion total banner ad spending.

Our calculation of 5.6% is somewhat higher than the authors' estimate of 5% of banner ad spending that is wasted. We would be curious what assumptions the authors used to get their estimate. More importantly, the significant number is not the 5% or the 5.6% that is wasted. The important number is \$464 million! That absolute number is not mentioned by the authors in either the abstract or introduction to their article. They do themselves and the Internet advertising community a disservice by not emphasizing the absolute amount of savings. We can't think of very many marketing science applications that point to potential savings of this magnitude. Especially given that the authors' cost assumptions are so conservative, it is not out of bounds to estimate that the savings from eliminating TO ads could approach \$1 billion.

Conclusion

This article has uncovered a phenomenon that has an immense amount of practical value. There is much work to do to understand the psychological implications of the substitution effect and its underlying economic implications. In addition to follow-ups that delve into the psychological mechanisms and explore

when TO will be likely to actually boost consumer response, Goldfarb and Tucker should go a bit farther in trumpeting the potential savings associated with TO tactics when they behave as substitutes. Moreover, they should not shy away from promoting the practical application of these observations and estimates to those in the Internet advertising community.

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