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Labovitz School of Business & Economics, University of Minnesota Duluth, 11 E. Superior Street, Suite 210, Duluth, MN 55802

Deal Or No Deal? the Effect Online Deals on Consumer Quality Perceptions and Competition

Jorge Mejia, University of Maryland, USA

Anand Gopal, University of Maryland, USA

Michael Trusov, University of Maryland, USA

We study the effect of online deals, such as Groupon on consumer quality expectations in online reviews. Through both empirical models using yelp.com's reviews and lab experiments, we find that the effect of online deals on online reviews is strongly moderated by the merchant characteristics and competition.

[to cite]:

Jorge Mejia, Anand Gopal, and Michael Trusov (2015) ,"Deal Or No Deal? the Effect Online Deals on Consumer Quality Perceptions and Competition", in NA - Advances in Consumer Research Volume 43, eds. Kristin Diehl and Carolyn Yoon, Duluth, MN : Association for Consumer Research, Pages: 635-637.

[url]:

<http://www.acrwebsite.org/volumes/1020043/volumes/v43/NA-43>

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Jorge Mejia, University of Maryland, USA

Anand Gopal, University of Maryland, USA

Michael Trusov, University of Maryland, USA

EXTENDED ABSTRACT

Introduction and Research Questions

Consumers today routinely use online reviews to inform their consumer decisions in both online and offline contexts. With the advent of Web 2.0 tools, the Internet has grown into a social tool where consumers interact with each other to provide and collect experience data (Coker 2012). The Local Consumer Reviews (LCR) Survey of 2013, for example, found that 95% of consumers use the Internet to find local merchants, 85% of consumers say they read online reviews for local businesses, and 65% of consumers are more likely to use a business that has positive reviews (BrightLocal 2013). Another similar survey found that 64% of consumers search for online reviews before spending on services and 85% of them are more likely to purchase services when they can find online recommendations for the same services (Cone 2011). The popularity of online review platforms has also grown considerably recently. Yelp.com, for example, contains over 71 million reviews of local merchants and was visited by approximately 120 million monthly unique visitors, or over a third of the U.S. population, in Q4 2013 (Yelp 2014). One of the most popular uses of online reviews is to choose a restaurant. In Yelp, for instance, restaurants account for the second largest category with over 20 million online reviews, and, according to the LCR Survey, 61% of consumers search for restaurant online reviews and 51% of consumers say that online reputation matters the most when choosing a restaurant (BrightLocal 2013). Marketing scholars, fittingly, have studied the impact of online reviews on firm-level outcomes and have found that online word of mouth can directly influence performance, often in the form of sales (Godes and Mayzlin 2004; Chevalier and Mayzlin 2006). More recently, Luca (2011) focused on restaurants and estimated that a one-star increase in Yelp rating leads to a 5-9 percent increase in revenue. Thus, it is well-established in our literature that online reviews are a key driver of a merchant's bottom line; understanding the dynamics of how online reviews are created therefore continues to be a topic of considerable interest for the marketing and management community.

Another popular, though less understood, online tool at the disposal of consumers and merchants are online daily deals (online deals), which are sites that offer promotions on specific retail products or services for a short period of time. Customers need to register with the deal site to receive information about available deals around them. Then they can purchase a deal and continue to receive new offers by email. Groupon, the market leader, has 44 million active consumers, over 200 million subscribers, and has sold over 400 million deals to date in the U.S and abroad. Despite their popularity, online deals have been a controversial subject. The popular press provides several articles detailing the failures of many merchants' that offer online deals (Clifford and Miller 2012; Agrawal 2013, Cohan 2012). In a recent survey of online deals merchants, Dholakia found that 55% of merchants made a profit while 26% lost money (2011). A Living Social survey finds similar results with only 54% of merchants actually making a profit (BusinessInsider 2011). Given that a restaurant offering a \$50 for \$25 Groupon deal, received on average \$12.50 approximately, it is a real possibility that a restaurant might sell these deals at a loss since a typical restaurant spends 28%-35%

of their revenue on food and ingredients (RestaurantReport 2012), more than the 25% that they often receive as a result of the deal. But this is only part of the story. There may be other, less directly measurable, effects beyond higher short-term revenue that might affect the merchants offering deals. For example, do online deals affect a merchant's online reputation and through them, gradually affect a merchant's market position? Further, what is the effect of these deals on the merchants offering the deals vis-a-vis their competitive landscape?

We offer two theoretical mechanisms by which online deals might affect quality perceptions as reflected by online reviews. First, online deals share many features with opt-in advertisement. For example, consumers are often required to provide their email address before they can even view available deals, and once they provide their email address, customers receive emails that contain many components of traditional ads, such as pictures and suggestive text. Grounded in the persuasion knowledge model, introduced by Friestad and Wright (1994), and in the empirical work of Kirmani and Wright (1989) and Kirmani (1990), online deals can arguably reflect a high advertisement effort, which in turn may indicate high marketing effort and therefore high confidence of the merchant in the product's quality. Alternatively, as Kirmani (1990) argues, high advertisement effort might under certain situations reflect a merchant's desperation. Second, online deals also share features with price promotions, which have been studied by extensively in the economics and marketing literature (Blattberg, Briesch and Fox 1995). In this literature, significantly decreasing the price of a product, as is the case with online deals, is likely to decrease quality perceptions through a decrease in the reference price of the product in consumers (Li and Hitt 2010, McGregor et al. 2007).

There is in fact preliminary work suggesting that while Groupon deals are correlated with an average increase in the number of reviews, they are also correlated with a small decrease in the short-time online rating provided by users (Byers et al. 2012a). We build on these early findings and draw from the marketing and economics literature to investigate under which conditions daily deal promotions affect the consumer quality evaluations found in online reviews. Furthermore, we explore if deals offered by nearby competitors also affect the consumer quality evaluations in online reviews. To investigate these questions, we combine an empirical model using reviews from Yelp.com with a series of lab experiments to extend and validate our empirical model's findings.

Study 1: Hierarchical Bayesian Empirical Model Using Reviews from Yelp.com

Data

For our study, we have chosen to focus on online reviews and online deals for restaurants in a large U.S. metropolitan area, restaurants operating in Washington D.C. Prior literature (Mangold et al. 1999; Luca 2011; Gu et al. 2012) suggests that because of the intangible nature of restaurant services and high involvement nature of food, restaurants provide an ideal context to study the effectiveness of WOM. Our online reviews were collected from Yelp.com, the market leader in North American online reviews (Yelp 2014).

From Yelp.com, we collected data on over 2000 restaurants operating as going concerns in Washington, D.C. This figure is similar to the National Restaurant Association's estimate of the total number of restaurants in the city of 2,035 (2012). Each restaurant listing has general information on restaurants characteristics, such as the phone number, location, cuisine, price point, ambiance, and online reviews information, such as the average rating and the number of reviews. Furthermore, for each restaurant, we collected each individual review available, which resulted in 143,745 reviews collected between Yelp's initial release in 2004 and our data collection in 2012.

For the online deals data set, we used data provided by Yipit.com, a service provider that aggregates daily deals data for retailers across multiple deal platforms, for a six-month period from January to June 2012. We chose Yipit.com because it aggregates transaction data from over 95% of online deals sites (Yipit.com 2014), which allows us to look at a whole spectrum of online deal providers instead of focusing on a single one, such as Groupon. Each deal listing contains information about the restaurant, such as the phone number, name and location; deal characteristics, such as the price of deal, discount offered and duration; and deal performance metrics, such as the quantity sold and revenues. The two data sources – Yelp and Yipit, formed the core of our empirical data collection strategy. We created a panel data structure of deals and online reviews during the six-month deals period. We first defined two-week time intervals between January 1, 2012 and June 30, 2012, for a total of 15 two-week periods. We chose two-week periods since this represents the average deal duration period for restaurants (Dholakia 2012).

Measures

We computed the average rating across all reviews arriving during time period t for a given restaurant i . This is our dependent variable and is denoted as $Rating_{it}$ for restaurant i during time period t . Any effect of a deal is likely captured by the reviews provided during this period, as per extant literature (Byers et al. 2012a). For each time-period, we also created an indicator variable, $Deal_{it}$, for each restaurant i , equal to 1 if the restaurant offered a deal during time period t and 0 otherwise. Similarly, we measure competition through two variables. $RestInZip_{it}$ is a numerical count of the number of competitors in the same zip code. More importantly, $DealsInZip_{it}$ captures the number of competitors' deals in the same area. Additionally, we add numerous control variables, such as the price point of the restaurant, the baseline rating and number of reviews for each restaurant, calculated respectively as the average of all ratings received and the total number of reviews received before January 1, 2012, cuisines, geographical location in the city, and other characteristics (16 in total), such as methods of payment and parking options.

Model

We then proceed to model the $Rating_{it}$ with a longitudinal hierarchical Bayesian model (Allenby and Rossi 1998) with the following specification. We aim to capture the effect of offering a deal, potential deal interaction effects, and our controls on the longitudinal rating of the restaurant.

$$Rating_{it} = b_{i0} + \beta_0 + \beta_{11} Deal_{it} + \beta_2 pricepoint_i + \beta_3 BaseNumReviews_i + \beta_{4i} BaseRating_i + (\beta_5 Deal_{it} * pricepoint_i + \beta_6 Deal_{it} * BaseNumReviews_i + \beta_7 Deal_{it} * BaseRating_i) + \beta_8 Cuisines_i + \beta_9 OtherChars_i + \beta_{10} Location_i + \beta_{11} RestInZip_i + \beta_{12i} DealsInZip_i + \epsilon_{it}$$

First, we find that the main effect of the deal is negative and highly significant, which is consistent with prior work (Byers et al. 2012a and 2012b). However, and as a departure from previous work, we find strong moderators to the deal effect, such as a price-point and

the baseline rating score. That is, while there is a negative main effect of a deal, for restaurants with high price points and high ratings, the effect of a deal can actually be positive. Taken together, these results further validate Kirmani (1990) in that high-advertisement efforts, such as Groupons and daily deals can be perceived as high confidence or desperate attempts depending on the characteristics of the merchant. Surprisingly, we also find that even merchants who do not engage in deals are affected negatively by nearby deal competition. Moreover, we find that under certain conditions, merchants might be better off offering a deal as a response from strong deal competition.

One might argue, however, that the decrease in quality perceptions and rating from offering a deal is actually due to poor performance from deal merchants. But is there a decrease in consumer quality perceptions even before consumers purchase the product or services? Or in our restaurant context: is there a decrease in quality evaluations prior to visiting and reviewing the restaurant? To investigate this phenomenon further we conducted study 2 in a controlled setting.

Study 2: Deals and Perceived Quality in a Controlled Setting

Procedure

Study 2 examines whether the result that deals decrease consumer quality expectations is replicated in a controlled setting. Four hundred respondents from an online panel participated for pay. Respondents were randomly assigned to one of four 2 (deal offered: yes vs. no) x 2 (price point: low vs. high) between-subjects conditions.

We developed the stimuli by randomly selecting a restaurant's Yelp cover page (without individual reviews). The cover page contains information about the general characteristics of the restaurant, such as the price point, the number of reviews, the rating, the location, etc. To create the low price treatment, we changed the price point from \$\$\$\$ to \$ and to create the deal treatment, we added Yelp's proprietary message signaling that the restaurant is offering an online deal through Yelp. Participants first read the information on the cover page and then assess the perceived quality.

Measures

We measured perceived quality on a seven-point scale with two questions adapted from Kirmani and Wright (1989): "Given the information provided about this restaurant, please rate the likely overall quality of this restaurant" (1="very low" to 7="very high"). As a manipulation check, participants were asked to rate the restaurant in price-related scaled (1 = "low priced," and 7 = "high priced").

Results

Replicating our results from the empirical model, we find a significant deal x price point interaction ($F(1, 400) = 6.31, p < 0.01$). A first set of planned contrast show that for non-deal restaurants, a higher price point had no significant effect on perceived quality ($M_{non-deals-low} = 5.14$ Vs. $M_{non-deals-high} = 5.28; F(1, 400) = 2.12, p = 0.33$). For deal restaurants, however, having a higher price point significantly increased quality perceptions ($M_{deal-low} = 3.94$ Vs. $M_{deal-high} = 5.6; F(1,400) = 3.59, p < 0.05$). A different set of planned contrasts show that for already restaurants with a low price point, there is a significant decrease in perceived quality when a deal is offered ($M_{low-non-deal} = 5.14$ Vs. $M_{low-deal} = 3.94; F(1,400) = 4.11, p < 0.05$). However, this effect becomes "marginally significant" and positive for restaurants with a high price point restaurants ($M_{high-non-deal} = 5.28$ Vs. $M_{high-deal} = 5.6; F(1,400) = 3.71, p = 0.07$). The manipulation of review valence was also successful. Those in the deal condition indicated that the restaurant was lower priced.

Discussion

As in our empirical model, we observe that the price point of the restaurant moderates the negative effect of the deal. In other words, we replicated a part of Study 1's results in a lab setting that controls for selection and unobserved variable issues that may be present in our archival data. These results suggest that even before visiting the restaurant and experiencing the service provided, there is a decrease in perceived quality for certain merchants who offer online deals. Thus adding further evidence that certain merchants will be perceived as "desperate" (low-priced) whereas other merchants will be perceived as "confident" (high-priced) as suggested by Kirmani (1990).

General Discussion

The revenues from online deals are expected to climb to \$5.5 billion in 2016 according to industry analysts (BIA Kelsey 2014). Our study aims to shed light on how online deals are affecting the quality perceptions of customers through online reviews. We built a comprehensive dataset that combined online deals and online reviews for a major U.S. metropolitan area over a six-month period. Our results significantly expand previous work in online deals and unravel the effects of merchant characteristics. Surprisingly, we find that even merchants who do not offer online deals are affected by nearby online deals thus extending the eWOM literature into competitive dynamics.

We contribute to the WOM literature in marketing and management by understanding how a firm's marketing effort can affect back online reviews, which have been previously shown to affect firm performance. We also contribute to the advertising and price-promotions literatures in marketing and economics respectively by studying the effects of advertising expense and price promotions on consumer quality perceptions. Further, our results show that the Groupon effect, as discussed by Byers et al. (2012a) does exist but that the effect is strongly moderated by restaurant and environmental factors. Thus, the relationship between offering a deal and its resulting effect on customer traffic and reviews is more nuanced than expected from extant literature (Dholakia 2012; Byers et al. 2012a).

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