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Impact of thumb up sharing advertising in social media

Bao Lijiang Zhong Weijun Mei Shu'e

(School of Economics and Management, Southeast University, Nanjing 210096, China)

Abstract: "Thumb up advertising" is a new and effective way to spread shared advertising in social media. How the retailer adapts "thumb up advertising" in marketing with a game theory model is analyzed. The results show that when the retailer chooses to thumb up the advertising in Moments, a higher reward will increase the equilibrium price but hurt the retailer's expected profit; if the consumers can more easily reach the thumb up amount, the retailer will charge a higher price, and possibly gain more profit. When the retailer chooses thumb up at the end of the advertising context, a higher reward will increase the equilibrium price and the retailers' expected profit will increase/decrease. If the consumers are easier to reach the thumb up amount, the retailer will charge a higher price, and may get more profit. If a consumer's click cost of clicking the sharing advertising is higher, the retailer charges a lower price; and if the consumer's additional perceived value from the advertising is higher, the retailer charges a higher price and reaps more profit.

Key words: sharing advertising; social media; incentive mechanism; social marketing; social relationship

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Social media is an important field for marketing. People spend more time on social media, such as WeChat, WhatsApp, and Facebook, and post a few special moments or comments on Moments. Their friends or followers can read these and may share some special ones. This action is an attractive method to retailers. Retailers encourage potential consumers to share their advertising on social media moments. In practice, the retailers set up a series of reward mechanisms to maximize the advertising effectiveness; for example, in WeChat, consumers collect thumb up of their post advertising in their WeChat Moments to get a cashback or discount. Collecting thumbs up is an efficient way to ensure that viewers who see the sharing advertising can get the information of the advertised product or service. In other words, retailers usually do not need to develop or hire an advertising agency to set up an advertising channel; collecting thumbs up is highly time-efficient. There are several different forms of thumb up sharing advertising, such as thumb up advertising in Moments and thumb up at the end of advertising context. Indeed, to ensure the effectiveness of the advertising, the retailer usually creates a threshold of thumbs up.

Given the economic and practical importance of thumb up sharing advertising, the objective of this paper is to analyze how retailers adapt thumb up sharing advertising in social media. We analyze in depth the following questions: How to set the reward of the sharing advertising? How are equilibrium pricing and profits of the retailer influenced by thumb up sharing advertising? In extension, we examine another form of thumb up sharing advertising.

We developed a model whereby a monopoly retailer adapts thumb up sharing advertising with cashback to a portion of their potential consumers (seed consumers). The seed consumers may or may not reach the threshold, depending on their relationship with their followers. The followers who thumb up the shared advertising may also share the advertising, and some of them may purchase the advertised product.

We find that when the advertising is required to thumb up in Moments, a higher reward will raise the equilibrium price and expand the potential market but hurt the retailer's expected profit. On the other hand, given a greater probability that the consumer can thumb up the advertising, the retailer can charge a higher price, although their expected profit varies. We also analyzed when the advertising is required to thumb up at the end of the advertising context. A higher reward will raise the equilibrium price and expand the potential market size, although the retailer's expected profit varies. On the other hand, the greater the probability that the consumer can increase their thumb up advertising, the higher price the retailer can charge. Still, the retailer's expected profit varies. Considering the cost of the consumers' advertising clicks, with a higher cost per click, the retailer can charge a lower price, and the potential market size will be larger. With a higher additional perceived value, the retailer can charge a higher price, and the potential market size will be smaller, but the retailer's expected profit is greater.

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Biographies: Bao Lijiang (1983—) male, graduate; Zhong Weijun (corresponding author), male, doctor, professor, zhongweijun@seu.edu.cn.

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Currently, the existing research into this new advertising form is limited, but there are already numerous studies on social media marketing and advertising.

Advertising can be regarded as information flow through social media. Firms or retailers can advertise their products through exposure, attention, or perception, or by creating values or prompting opinions[1]. A series of studies found that social media advertising is more attractive and interesting because consumers can communicate in multiple dimensions, and find more credibility and affiliation through streamlined buying of peer-reviewed products[2-5]. The advertising source has a significant impact on consumers with its credibility, trustworthiness or the relationship[5-7].

Collecting thumbs up from advertising can be regarded as viral advertising. Viral advertising is considered to be a two-way, 24-hour social media activity from anywhere[8-9]. Advertising credibility is an important factor, especially in social media advertising[10-11]. The relationships between consumers impact advertising credibility and trustworthiness[5, 12-13]. Indeed, consumers who use sharing advertising can be considered opinion leaders at that moment. Several reports[1, 8, 11, 14] have investigated consumers as original advertising sources and how they can enhance advertising effectiveness.

On the other hand, the initial promotion of "thumb up advertising" is a form of shared advertising. Several papers[15-16] have explained the mechanism of shared advertising in social media. They found that shared advertising can spread quickly, but it may disappear just as quickly. Meanwhile, it is difficult for the advertiser to control its progress.

The above-mentioned research explains certain mechanisms of social media advertising, and how relationships among consumers impact its effectiveness. However, few of those have investigated the "collection of thumb up, or shared, advertising," and none of them has explained how firms can adopt this new form.

1 Model Setup

We develop a market model with a monopoly retailer which can adapt thumb up sharing advertising in social media. The retailer sells its advertised product with price p; the cost of production is constant and assumed to be zero. The consumers have a different valuation v of the advertised product, which follows $v \sim U[0, 1]$. The consumers are then segmented into seed consumers and followers. The seed consumers are those who first share the retailer's advertising to their Moments, while the followers are those who are the social media friends of the seed consumers' who may thumb up the advertising. In this paper, we assume all of the consumers are rational; that is, they always try to pay less to buy the product, and if the utility of the product is less than zero, they will neither buy it nor share the advertising.

1.1 Basic model

The retailer creates a threshold m of the thumb up amount. When the consumers get a thumb up amount greater than m, they will receive a reward r. This encourages the potential consumers to share the advertising. Since they do not need to build up an advertising channel to deliver the advertising, we assume for the sake of the paper that the advertising cost is zero.

The followers thumb up the advertising depending on the relationship β between them and the seed consumer. We adopt a continuous function $f_i(\beta)$ to describe the possibility that the follower i with relationship β thumbs up the advertising, where $0 \leqslant f_i(\beta) \leqslant 1$. Usually, high relationship followers may thumb up the advertising, while low relationship followers may not thumb up the advertising. A click cost ε will occur if the followers thumb up the advertising. When the followers see the advertising, they may share it, regardless if they thumb up the advertising or not. It depends on the expected utility of the product. In this paper, we assume the relationship structure of all the follower friends/followers in their Moments are the same.

When seed consumers first see the advertising, they invariably want to buy the product at a discount. Individual seed consumers have k followers. They share the advertising to their Moments and ask their followers for thumbs up. If they reach the thumb up amount threshold, they will buy the product with a price $p - r$. Otherwise, they buy it with price p or give up buying it, depending on their expected utility $u = v - p + rf(m)$, where

$$f(m) = \begin{cases} 0 & \sum_{i=0}^{k} f_i(\beta, m) < m \\ 1 & \sum_{i=0}^{k} f_i(\beta, m) > m \end{cases}$$

1.2 Timing sequence

The timing sequence of the game (see Fig. 1) runs as follows. The retailer establishes the price of a product and the threshold of the thumb up amount. Then, the seed consumers choose to share the advertising to their Moments. The followers decide whether or not to thumb up. Then, they choose whether or not to share the advertising. Meanwhile, the seed consumers decide whether or not to buy the advertised product, depending on the thumb-up amount.

When the followers share the advertising, they will be the new seed consumers. As, in our paper, we assume that the consumer Moments structures are the same, we can limit our analysis to limited periods. To simplify the analysis, the sharing process will stop when the followers share the advertising.

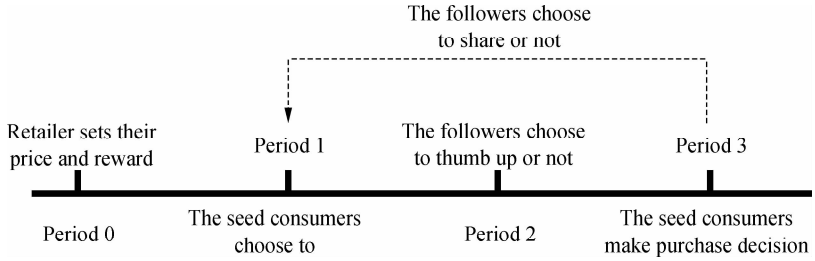

Fig. 1 Timing sequence of the game

2 Equilibrium Analysis Where the Followers "Thumb up" in Moments

We start our analysis when the followers thumb up the advertising in the seed consumer Moments. It describes a basic case that explains how advertising spreads out in Moments. As the followers only need to thumb up without clicking the advertising link, the click cost ε equals zero.

The income of the retailer consists of two parts, the seed consumer purchase and the follower purchases in the future. In this paper, since the seed consumers and their follower Moments structures are familiar, we focus our analysis on one seed consumer. Different consumers assess different perceived values of the product. In Period 1, the retailer does not know the consumer types. In Period 2, the followers choose to thumb up the advertising. The loyal seed consumer whose utility $u = v - p > 0$ always buys the product whether or not she gets enough thumbs up. Those consumers (incentive consumers) whose utility $u = v - p + r > 0$ meanwhile $u = v - p < 0$, buy the product only when they get enough thumbs up. The rest of the consumers, whose utility $u = v - p + r < 0$, will not buy the product. Hence, the profit she can expect from the seed consumers can be written as $\pi_s = (1 - p)\Pr(\beta, m)(p - r) + (1 - p)[1 - \Pr(\beta, m)]p + r\Pr(\beta, m)(p - r)$, where $\Pr(\beta, m) = \Pr\left(\sum_{i=0}^{k} f_i(\beta, m) > m\right)$.

In Period 3, the followers choose whether or not to share the advertising. Their decision depends solely on the expected utility of the product. The expected profit of the k followers is $\pi_f = k(1 - p)(\Pr(\beta, m)(p - r) + [1 - \Pr(\beta, m)]p) + kr(\Pr(\beta, m)(p - r))$. Thus, the expected profit of the retailer is $\pi = \pi_s + \pi_f = (1 + k)\pi_s$. If the process runs long enough, in period n, $n \in \{0, 1, 2, 3\}$, the expected profit of the retailer will be $\frac{k^n - 1}{k - 1}\pi_s$.

Based on the above analysis, we derive that the optimization solutions of the retailer are to maximize the expected profit from the seed consumer. With F. O. C, we can derive the following proposition.

Proposition 1 In equilibrium, the price of the product is $p^* = \frac{1 + 2r\Pr(\beta, m)}{2}$, and the expected profit of the retailer from the seed consumer is $\pi_s^* = \frac{1}{4} - r^2\Pr(\beta, m)(1 - \Pr(\beta, m))$. In period n, the retailer's expected profit is $\frac{(k^n - 1)}{k - 1}\left(\frac{1}{4} - r^2\Pr(\beta, m)(1 - \Pr(\beta, m))\right)$.

The retailer sets up its equilibrium price to maximize the expected profit. In Proposition 1, the reward from the retailer impacts differently on the equilibrium price and the expected profit. When the retailer adopts a higher reward, they will charge a higher price in equilibrium, though her expected profit will decline. Hence, we have the following corollary.

Corollary 1 When the retailer adopts thumb up sharing advertising, a higher reward will raise the equilibrium price and expand the potential market size but hurt the retailer's expected profit.

Understandably, the retailer usually pushes the cost of the reward onto the consumer. When she chooses a higher reward, the equilibrium price will rise. The segment of loyal consumers will narrow, but that of the incentive consumers will expand. In summary, the total potential market is $\frac{1 + 2r(1 - \Pr(\beta, m))}{2}$. If the seed consumers get enough thumbs up, the retailer gives them reward r. When the reward rises, the potential market rises correspondingly and the retailer cost rises too. The expected profit from consumers who pay p declines, as does the marginal profit from the consumers who pay $p - r$.

Corollary 1 is quite common in our daily lives. We can see that at the beginning of the expanded Meituan, a large reward is offered to encourage consumers to respond to its advertising. Now, because the goal is to attract more consumers and Meituan is in its maturity period, the goal is to maximize profits. Thus, the reward is smaller. It is helpful to the retail owners and managers; if their goals are to expand their potential markets, they can offer a large reward, but if they are in a maturity period, they should focus on the consumers who are willing to pay a higher price.

In our analysis, the probability that the consumer can get enough thumbs up in response to the advertising is endogenous; it impacts the retailer's equilibrium strategy.

Corollary 2 When the probability that the consumer can get enough thumbs up of the advertising rises, the re-

tailer charges a higher price. However, the retailer's expected profit varies with the threshold of $\Pr(\beta, m)$, i. e. when $\Pr(\beta, m) < 1/2$, the expected profit is less with a higher probability, and when $\Pr(\beta, m) > 1/2$, the expected profit is more with a higher probability.

Corollary 2 is also interesting. If the seed consumer can easily get enough thumbs up from the advertising, the retailer will raise the equilibrium price. With a higher $\Pr(\beta, m)$, the potential market size will be smaller, and the retailer should raise the equilibrium price to achieve more profit. Otherwise, they will suffer more losses. When $\Pr(\beta, m) < 1/2$, a higher $\Pr(\beta, m)$, results in a higher price, the segment of loyal consumers will be smaller, the declining profit from these consumers is greater than the incremental profit from the incentive consumers. When $\Pr(\beta, m) > 1/2$, the segment of incentive consumers does not change, but the price is higher, the retailer can get more from them with a higher $\Pr(\beta, m)$, and the incremental profit from the incentive consumers is greater than the loss of profit from the loyal consumers.

To understand Corollary 2 more easily, we use a numerical simulation with $k = 10$, $r = 0.5$, and $n = 2$. The simulated figure is shown in Fig. 2.

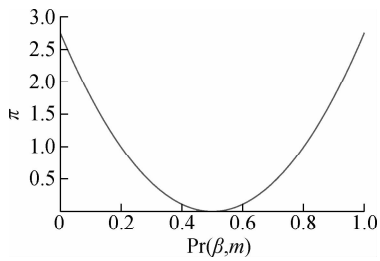

Fig. 2 The simulation of the firm's expected profit in period n

3 Equilibrium Analysis Where Followers "Thumb up" in Response to Advertising Content

Consider a different scenario where the followers need to click the advertising and read it. They only can thumb up the advertising after reviewing the sharing advertising. In this way, the followers need to make more effort to thumb up the advertising, though it may result in a lower thumb up probability or a decrease in the segment of followers who may click the advertising. But unlike the scenario where the followers thumb up the advertising in the seed consumers' Moments, followers who click the advertising will know more about the advertised product. In this paper, we assume these potential consumers who click the advertising can get an additional constant perceived value Δv. Hence, those who click the advertising, whether or not they thumb it up, their perceived value of the advertised product is $u = v - p + \Delta v - \varepsilon$. The seed consumer's utility does not change, because they do not need to click the advertising. Assuming that the seed consumer and their follower structure do not change, the expected profit of the retailer can be divided into two parts, one from the seed consumer and one from the seed consumer followers.

In Period 1, the retailer does not know the consumers' type. Then in Period 2, the followers choose to thumb up the advertising. The seed consumer (loyal consumer), whose utility $u = v - p > 0$ always buys the product no matter how many thumbs up they get, and those consumers (incentive consumer) whose utility $u = v - p + r > 0$ meanwhile $u = v - p < 0$ buys the product only when they get enough thumbs up, the rest of the consumers whose utility is $u = v - p + r < 0$ will not buy the product. Hence, the expected profit she can get from the seed consumer can be written as $\pi_s = (1 - p)\Pr(\beta, m, \varepsilon)(p - r) + (1 - p)[1 - \Pr(\beta, m, \varepsilon)]p + r\Pr(\beta, m, \varepsilon)(p - r)$, where $\Pr(\beta, m, \varepsilon) = \Pr\left(\sum_{i=0}^{k} f_i(\beta, m, \varepsilon) > m\right)$.

In Period 3, the followers choose whether or not to share the advertising. Their decision depends on the expected utility of the product. When the followers share the advertising, the followers whose utility $u = v - p + \Delta v - \varepsilon > 0$ always buy the advertised product whether or not they get enough thumbs up. Those consumers (incentive consumers) whose utility $u = v - p + \Delta v - \varepsilon + r > 0$ meanwhile $u = v - p + \Delta v - \varepsilon < 0$ buy the product only when they get enough thumbs up. The rest of the consumers whose utility $u = v - p + \Delta v - \varepsilon + r < 0$ will not buy the product at all.

The expected profit of the k followers is $\pi_f = (1 - p + \Delta v - \varepsilon)k\Pr(\beta, m, \varepsilon)(p - r) + (1 - p + \Delta v - \varepsilon)k[1 - \Pr(\beta, m, \varepsilon)]p + rk\Pr(\beta, m, \varepsilon)(p - r)$. Different from the basic case, the followers who do not get enough thumbs up may share the advertising to their Moments. The expected profit of the retailer is $\pi = \pi_s + \pi_f = (1 + k)\pi_s + (\Delta v - \varepsilon)k(p - \Pr(\beta, m, \varepsilon)r)$. If the process is long enough, in period n, the expected profit of the retailer is $\frac{(k^{n-1} - 1)}{k - 1}\pi_f + \pi_s$.

The retailer maximizes its expected profit by choosing the price. With F. O. C, we can derive the retailer's equilibrium price and expected profit.

Proposition 2 In equilibrium, in period n, the retailer will charge a price $p^* = \frac{1 + \Delta v - \varepsilon + \left(2 + \frac{k - 1}{(k^{n-1} - 1)k}\right)\Pr(\beta, m, \varepsilon)r}{2}$, the expected profit of the retailer is

$$\pi^* = \frac{\Pr(\beta, m, \varepsilon)}{4}\left[1 + \Delta v - \varepsilon + \left(2 + \frac{k - 1}{(k^{n-1} - 1)k}\right)\Pr(\beta, m, \varepsilon)r\right]\left[1 - \Delta v + \varepsilon + 4r - \left(2 + \frac{k - 1}{(k^{n-1} - 1)k}\right)\Pr(\beta, m, \varepsilon)r\right] + \frac{(k^{n-1} - 1)}{k - 1}\left\{\frac{1}{4}k\left[(1 + \Delta v - \varepsilon)^2 -\right.\right.$$

$$\left(\left(2+\frac{k-1}{(k^{n-1}-1)k}\right)\Pr(\beta,m,\varepsilon)r\right)^2\Big]+$$
$$\Pr(\beta,m,\varepsilon)kr^2\left[\left(2+\frac{k-1}{(k^{n-1}-1)k}\right)\Pr(\beta,m,\varepsilon)^2r-1\right]\Big\}$$

The retailer maximizes its profit by setting the product price. When the consumers get enough thumbs up, they will get a constant reward r. But consumers who share the advertising may not get enough thumbs up. They, too, let their followers in the Moments see the advertising, and those followers may buy the product or share the advertising. Since the structures of the followers are the same, we can derive the expected demand in period n, and the expected profit of the retailer.

Corollary 3 When the retailer adapts "thumb up at the end of the context" sharing advertising, a higher reward will raise the equilibrium price and expand the potential market size, but the retailer's expected profit varies with $\left(2+\frac{k-1}{(k^{n-1}-1)k}\right)\Pr(\beta,m,\varepsilon)$ and r.

Just as in the explanation of Corollary 1, the retailer transfers the reward cost to the consumers and raises its price when the reward is greater. Meanwhile, a greater reward builds consumer incentive and sharing the advertising, expanding the market size.

The relationship between the retailer's expected profits varies with $\left(2+\frac{k-1}{(k^{n-1}-1)k}\right)\Pr(\beta,m,\varepsilon)$ & r as follows.

When $\left(2+\frac{k-1}{(k^{n-1}-1)k}\right)\Pr(\beta,m,\varepsilon)>1$, $r>r^*$, the retailer can draw more profit with a greater reward r, $r<r^*$, the retailer gets less profit with a greater reward r. When $\left(2+\frac{k-1}{(k^{n-1}-1)k}\right)\Pr(\beta,m,\varepsilon)<1$, $r<r^*$, the retailer can get more profit with a greater reward r, $r>r^*$, the retailer gets less profit with a greater reward r.

Interestingly, when $\left(2+\frac{k-1}{(k^{n-1}-1)k}\right)\Pr(\beta,m,\varepsilon)>1$, the reward may benefit the retailer when it is greater than r^*, because the cost of the reward rises more slowly than the expected profit from the sharing advertising. When the reward is less than r^*, a greater reward represents a less marginal profit, narrowing down the loyal consumer segment. But when $\left(2+\frac{k-1}{(k^{n-1}-1)k}\right)\Pr(\beta,m,\varepsilon)<1$, it becomes harder for consumers to get the reward. When the reward is greater than r^*, the retailer gets less profit with a greater reward, because the marginal profit from each consumer is less, while the loyal consumers are fewer. When the reward is less than r^*, a greater reward will increase the price and the marginal profit, although the loyal consumers segment is smaller, even if the expanded incentive consumer segment makes more profit.

Corollary 4 When the probability is that the consumer can get higher thumb up of the advertising, the retailer charges a higher price. But the retailer's expected profit varies with $\frac{6k^2r^2(k^{n-1}-1)^2}{2k(k^{n-1}-1)(k-1)+(k-1)^2}$ and $\Pr(\beta,m,\varepsilon)$.

Corollary 4 offers insight into the relationship between the retailer's expected profit and $\Pr(\beta,m,\varepsilon)$. $\Pr(\beta,m,\varepsilon)$ is the probability that the followers thumb up the advertising. When $\frac{6k^2r^2(k^{n-1}-1)^2}{2k(k^{n-1}-1)(k-1)+(k-1)^2}>1$, there is a probability $\Pr(\beta,m,\varepsilon)^*$, if $\Pr(\beta,m,\varepsilon)>\Pr(\beta,m,\varepsilon)^*$, the retailer can earn more profit with a higher $\Pr(\beta,m,\varepsilon)$; if $\Pr(\beta,m,\varepsilon)<\Pr(\beta,m,\varepsilon)^*$, the retailer will earn less with a higher $\Pr(\beta,m,\varepsilon)$. When $\frac{6k^2r^2(k^{n-1}-1)^2}{2k(k^{n-1}-1)(k-1)+(k-1)^2}<1$, there is a probability $\Pr(\beta,m,\varepsilon)^*$, if $\Pr(\beta,m,\varepsilon)>\Pr(\beta,m,\varepsilon)^*$, the retailer can earn less profit with a higher $\Pr(\beta,m,\varepsilon)$; if $\Pr(\beta,m,\varepsilon)<\Pr(\beta,m,\varepsilon)^*$, the retailer will earn more with a higher $\Pr(\beta,m,\varepsilon)$.

When $\frac{6k^2r^2(k^{n-1}-1)^2}{2k(k^{n-1}-1)(k-1)+(k-1)^2}>1$, it indicates that the number of seed consumer's followers is greater than a given threshold. When $\Pr(\beta,m,\varepsilon)>\Pr(\beta,m,\varepsilon)^*$, with a higher $\Pr(\beta,m,\varepsilon)$, the retailer can get enough potential consumers. Since the marginal profit from the consumers is greater than zero, the retailer can earn more profit. When $\Pr(\beta,m,\varepsilon)<\Pr(\beta,m,\varepsilon)^*$, with a higher $\Pr(\beta,m,\varepsilon)$, the consumers can more easily get the reward, though the marginal profit is less. On the other hand, the potential market is less, so the retailer earns less with a higher $\Pr(\beta,m,\varepsilon)$.

When $\frac{6k^2r^2(k^{n-1}-1)^2}{2k(k^{n-1}-1)(k-1)+(k-1)^2}<1$, it indicates that the number of seed consumer followers is less than a given threshold, meaning that the consumers do not have enough followers. When $\Pr(\beta,m,\varepsilon)>\Pr(\beta,m,\varepsilon)^*$, the marginal profit is less and the potential market is less, so the retailer earns less. When $\Pr(\beta,m,\varepsilon)<\Pr(\beta,m,\varepsilon)^*$, the consumers are less likely to gain the reward, the retailer pays less in rewarding the consumers, and the marginal profit is greater.

Corollary 4 is meaningful in practice. When the retailers adapt thumbs up at the end of the advertising context, they should first estimate the number of potential consumer followers. If the number is insufficient, they choose a harder probability to reach the threshold of the number of thumbs up. If the number of followers is sufficient, they can choose an easier probability to reach the threshold number of thumbs up.

To understanding Corollary 4 easily, we stipulate that $k=10$, $r=1$, $\Delta v=0.3$, $\varepsilon=0.8$, $n=3$, and the relationship between $\Pr(\beta,m,\varepsilon)$ and π_r^* is shown in Fig. 3.

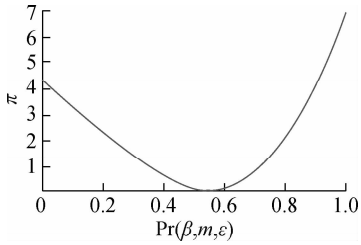

Fig. 3 The simulation of a firm's expected profit in period n

Corollary 5 Assuming $\frac{\partial \Pr(\beta, m, \varepsilon)}{\partial \varepsilon} < 0$, with a higher price per click for advertising ε, the retailer will charge a lower price, and the potential market size will be bigger.

The price per click for advertising ε is an important factor that impacts the retailer. With a greater ε, the followers do not intend to click the advertising and share it. To attract more consumers to buy or share the advertising, the retailers choose a lower price. A lower price can attract more consumers, so the potential market is bigger. Since the relationship between $\Pr(\beta, m, \varepsilon)$ and ε is not clear, it is hard to analyze the relationship between them.

Corollary 6 With a higher additional perceived value Δv, the retailer will charge a higher price, and the potential market size will be smaller, but the retailer's expected profit is greater.

When consumers click the advertising, they can get an additional perceived value because they can know more about the product, or the information from the advertising can help them more. For that, they will typically pay more to buy the product. On the other hand, a higher price will narrow the loyal consumers because the consumer is sensitive to the price. Although the market size is smaller, the marginal profit is greater and the profit from the existing consumers is greater than that from the consumers who are price-sensitive and willing to give up buying the product. Thus, the retailer can earn more profit.

4 Conclusions

Collecting thumbs up from advertising in the consumer Moments to get rewards is a creative and effective marketing tool that allows retailers to adopt social media to encourage consumers to buy their products. In this paper, we have analyzed how collecting thumbs up from advertising influences retailer pricing strategies under two different thumbs up forms. We find that, firstly, when a retailer chooses the form that seed consumer followers give a thumbs up to advertising in Moments, a higher reward will raise the equilibrium price and expand the potential market size, but hurt the retailer's expected profit. Secondly, when the retailers choose the form that the consumers' followers give thumbs up at the end of the advertising context, the higher reward will raise the equilibrium price and expand the potential market size. Thirdly, with a higher per click cost of the followers, the retailers will charge a lower price, and the potential market size will be bigger. Finally, with a higher additional perceived value, the retailer will charge a higher price, and the potential market size will be smaller, but the retailer's expected profit will be greater.

Still, there exist several limitations. Firstly, we consider that the probability that consumers can reach the thumb up amount and that the reward is exogenous; it would be interesting and practical to analyze them when they are endogenous. Secondly, while we assume that the total market size is infinite, it is worthwhile analyzing how retailers set their pricing strategies with a limited market size.

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社交媒体"点赞"式分享广告的影响

鲍立江　仲伟俊　梅姝娥

(东南大学经济管理学院, 南京 210096)

摘要:点赞式广告是社交媒体中新兴的一种能够快速传播的分享广告模式,利用博弈模型研究了零售商如何应用点赞式广告进行市场营销.研究结果表明,零售商选择在朋友圈给广告点赞模式时,当其提供更高的奖励时,会制定更高的产品价格,但是企业并不能获得更多收益;而当消费者更容易达到点赞数时,零售商会制定更高的价格,并获取更多的收益.零售商选择在朋友圈广告文末点赞的模式时,当其提供更高的奖励时,会制定更高的产品价格,但企业的收益可能增加或减少;而当消费者更容易达到点赞数时,零售商会收取更高价格并获得更多的收益;当消费者点击广告的成本提升时,零售商会降低产品价格;当消费者从广告中获得的额外感知价值更高时,零售商会提高产品零售价格,从而获得更多的利润.

关键词:分享广告;社交媒体;激励机制;社交营销;社交关系

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