

Celebrity Endorsement and Fan Economy in China: Warm Glow or Pure Altruism?

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Abstract: The use of a celebrity's stature or social standing to promote a product, service, or problem is known as celebrity endorsement. Is such consumption motivated by genuine compassion or a pleasant glow? In this paper, the researchers created an online experiment that distinguishes between two categories of fan consumption: those who worry seriously about their idols' wealth and wellbeing, and those who love contributing to their idols' income because it gives them a warm glow. Specifically, assessing the effect of reminders regarding celebrities' riches to differentiate between two potential channels: pure altruism toward the celebrity and warm glow. In conclusion, the data indicate negative treatment effects: reminders decrease the willingness to pay and reduce the inclination to spend, hence supporting the altruism channel rather than the pure warm glow channel.

Keywords: fan economy, celebrity endorsement, nudge theory

1. Introduction

Celebrity endorsement is a type of advertising or marketing technique that takes advantage of a celebrity's status or social standing to promote a good, service, or an issue. It connects the positive characteristics and the favorable image from the celebrity to the brand itself, aiming to target consumers to purchase the product (Atkin and Block). Many have conducted studies and confirmed the positive relationship between effectiveness of celebrity endorsements [1,2]. Through advisements in the forms of infomercial, branding, and design of the product, it creates a lot of economic profit for the celebrities themselves. In countries like China (examined in this paper), the rate of companies using celebrities as their brand image is at 70% [3].

Is the motive behind such consumption out of pure altruism or warm glow? In this paper, we design an online experiment that distinguishes two types of fans' consumption: they deeply care about their idols' income and welfare, or they enjoy contributing to their idols' income because of the warm glow. Specifically, testing the effect of reminders about celebrities' wealth to distinguish the two potential channels: pure altruism towards the celebrity, or warm glow. Our experiment is based on the behavioral economics models and explore the underlying mechanism of fan's impulse behavior towards the consumption of advertised products endorsed by male celebrities in China.

1.1. Research Methods

Our research can be classified into two research types. The primary research is an online experiment from the general public. The aim of primary research is to collect first-hand data on consumer reaction and their behavioral consequence resulting from their fascinated idols' endorsement. While the secondary research is selected from several authentic and trusted academic journals. The aim of secondary research is to gain multiple insights that reveals the underneath patterns and guiding principles of consumption driven by altruism, warm glow, and impulsion. The strength of primary research is that it targets the question at hand, and the data is used in the later part of this paper to demonstrate the connection between endorsement and fans' consumption behavior; the limitation of primary research is that the questions are limited and there are only certain categories that participants can choose and identify themselves with. The strength of the secondary research it provides many existing research regarding the topic of fan economy, however the limitation of these researches may be out- dated, topic-specific, or un-dynamic.

1.2. Literature Review

Behavioral economics is the foundation of a growing field of economics study that examines social preferences such as altruism, the warm glow, and signaling. The hypothesis of the anchoring effect and fan giving tendency. Previous research supported the existence of anchor effects as one of the factors contributing to behavioral psychology's choice bias [4]. The anchoring effect is the result of people depending heavily on prior knowledge and first impressions while deciding whether or not to donate to charities out of feelings of benevolence, pleasant glow, and impulsion. Following the anchoring effect, several regulated and uncontrolled elements may have an impact on the customer experience [5]. Given that rationality isn't always guaranteed and that factors like gender, mood, personality, competence, and cognitive demands may play a role in a consumer's decision to spend, the effect of consuming behavior can be extended to other people in a geometric pattern (Harnau et al.).

Next, the theory of affect heuristic and the desire of consumption endorsed by idols; Heuristics, which the brains employ as short cuts to speed up decision-making, frequently have an impact on buying decisions [6]. People often experience high cognitive load when thinking through a decision, eventually it leads to depletion. So, people often rely on their past memory to assist them in making the current decision, and the decisions that are made are more heuristic. Thus, it is important for a brand to create a positive image, leaving consumers a good impression, thereby affecting their decision-making process. When people follow the herd rather than relying on their own knowledge or making their own judgments, this phenomenon is known as the herding effect. Previous studies on herding effects focused on investing in the stock market [7], and herding behavior in online peer-to-peer lending [8].

More academic study is being done on the effects of celebrity marketing and the mechanisms through which celebrities influence marketing and the public's perception of businesses. Studies of the fan economy market from the supply side summarized three approaches in celebrity endorsement: source credibility, affect/image transfer, and image congruence [1]. The marketing literature also examines various levels of celebrity identification among fan segments [9,10]. The target markets for the advertisement are crucial because the celebrity they select to endorse their product will directly relate to the viewers of the advertisement and their products, such as those with relatively high incomes who enjoy adhering to trends and idols and who are empathetic and socially responsible. We offer a novel demand side perspective by examining the motivations behind fans' initial consumption.

1.3. Research Gap

The research we conducted are based on the assumption that altruism, warm glow, and impulsion can to certain extent affect the consumption outcome. However, the theoretical framework and pre-existing studies that aimed to examine the behavioral patterns of making consumption decisions and occasional donations are constrained on both timely manner and geographical and demographical basis.

Therefore, our theoretical foundation is constructed using quantitative methods to specifically analyze the underlying correlation between independent demographic, psychographic variables, and dependent fan's consumption outcome. In which, our research can be purposefully applied to give explanation on overall fan economy around idol endorsement.

2. Theoretical Framework

In this section, we use a simple theoretical framework to illustrate the different predictions of the pure altruism and warm glow models respectively.

Firstly, if consumers care about celebrities' utility out of pure altruism, we can write their utility function as $U = U_s + \alpha U_c$, where U_s is the consumer's own utility, U_c denotes the utility of the celebrity, and α is a parameter indicating the weight that consumer puts on the celebrity. Suppose that the consumer pays x for the product that the celebrity endorses, the consumer's utility is thus:

$$U = U_s(W_s - x) + \alpha U_c(W_c + \gamma x) \quad (1)$$

Taking first order condition with respect to x , we get $U_s'(W_s - x) = \alpha U_c'(W_c + \gamma x)$

This gives us the optimal amount of consumption x_s^* . The following comparative statics show the relationship between the consumer's optimal consumption level and his perception of the celebrity's wealth level.

$$\frac{\partial x_s^*}{\partial W_c} = -\frac{\alpha U_c''(W_c + \gamma x)}{U_s''(W_s - x) + \alpha U_c''(W_c + \gamma x)} < 0 \quad (2)$$

The main prediction is that x should be lower if we remind fans about the high W_c . Intuitively, if fans are reminded about the celebrity's high level of wealth, they will be aware that their consumption has little value added on the celebrity's utility. Therefore, in the pure altruism model where consumers attach weight on the celebrity's utility, we predict a decrease in consumption when we remind fans about the celebrity's high income.

In contrast, if fans make the consumption decision because of warm glow, their utility function can be written as:

$$U = U_s(W_s - x) + \delta V_s(x) \quad (3)$$

Which is independent of celebrity's wealth a reminder about will not have any effect on fans' consumption decision.

An economic theory called warm glow giving describes the altered state that comes from helping others. According to the James Andreoni's original warm-glow model [11]. People feel happy and satisfied after "doing their part" to assist others, this contentment, or "warm glow," is a metaphor for the egotistical pleasure one gets from "doing good," regardless of the results of their giving. Impure altruists, as opposed to "pure altruists" (sometimes known as "perfect altruists"), are motivated by the joy of giving as well as the desire to help a recipient, and it arises independent of the possibility

of financial reward. Warm glow giving is a useful economic framework to consider public good provision, collective action problems, charitable giving, and gifting behavior. Therefore, the warm glow phenomenon is distinct from reciprocal altruism, which may imply a direct financial incentive.

2.1. Hypothesis

Our hypothesis is that, if the reminders about the high utility level of recipients will crowd out the consumers' incentives to consume, then it can be categorized as altruism. If the reminders do not create the crowd out effect on the consumers, then it can be categorized to warm glow giving.

3. Experimental Design

To measure how fans' knowledge about the celebrity's utility/income affects their willingness to pay for the product that the celebrity endorses, we design an online experiment where the key exogenous variation is whether the celebrity's high-income level is revealed to participants. Participants are randomly assigned into two groups where they make consumption decisions about one yogurt product that the celebrity endorses. The treatment group sees an additional message about the celebrity's high income. The details of the online survey are described below.

3.1. Survey Structure

After receiving consent from the participants, we elicit demographic information and attitudes towards the celebrity in the baseline. The main outcome variable of interest is the willingness to pay for a yogurt product that the celebrity endorses. We elicit the willingness to pay with a simple BDM (Becker–DeGroot–Marschak) method where participants indicate whether they are willing to purchase at different price levels listed. The survey is available in Appendix A. The treatment and control groups are randomly assigned based on the last digit of participants' birth date, as the birth date is completely random, we assign those with odd dates to treatment groups and vice versa for the control group.

3.2. Demographics

Demographic information questions consist of gender, birth date, and age group (<18, 19-25, 26-35, 35-45, >55). These questions help to understand the population that responded. The information is crucial as it could be a factor affecting the results. For example, younger people are more likely to be avid fans. We add those demographics as control variables in the analysis described in the next section.

3.3. Advertisement

The advertisement used are found online, and they were actual advertisements placed by companies of the yoghurt brand to advertise their products. The advertisements can be found in Appendix A.

3.4. Baseline Attitudes

Willingness to pay for a yogurt for baseline attitude is chosen as the main outcome variable of interest because the price of yogurt is well-known. Consumption of the products endorsed by celebrities is heavily influenced by consumers' baseline attitudes towards celebrities. Therefore, we also elicit attitudes towards the celebrity in the baseline and include them as control variables in the analysis. Below are details about these questions:

Table 1: Summary of questions.

Example Questions
What is your current attitude toward this celebrity? (rating from 1 to 5)
Have you followed the celebrity's Chao Hua on Weibo? (Y/N question)
Have you previously purchased products that this celebrity has endorsed? (Y/N question)

3.5. Willingness to Pay

A relevant dependent variable question was asked. The questions and variables were:

Table 2: Summary of questions and variables.

Question	Variable
4 th -level heading Are you willing to buy the yogurt at the following price? (1,3,5,7,9,15 RMB)	Interest to purchase celebrity-endorsed products

The exact price of the product is 5 RMB per bottle, and participants make 7 consumption decisions for 7 different prices, which are 1, 3, 5, 7, 9, and 15 RMB per bottle respectively.

The goal of such dependent variable questions was to compare the responses to the nudge variations, not to establish that nudge X boosts interest in buying product Y by a certain amount.

3.6. Treatment Groups

The participants were randomly divided up into two groups, the control and the treatment group. Both groups are presented with the photo of the celebrity endorsing the product, however, an additional reminder is presented to the treatment group on top of the photo. The additional descriptions include 1) the number of fans the celebrity has, the percentage of fans purchasing the celebrity-endorsed product, 2) the percentage of fans spending over a certain amount of money, 3) how much the celebrity earns per year, and 4) "Purchases made by fans has been transformed into the commercial value of the celebrity". The treatment is expected to inform participants about the celebrity's high income, earned partially from their advertisements. If fans consume products because they are altruistic and care about the utility of the celebrity they like, the treatment should reduce such incentive by reminding them that their slight contribution won't add much to the celebrity's income which is already extremely high. Our hypothesis is that the treatment will lower the willingness to pay if the foundation of the fan economy is fans' altruism towards celebrities.

4. Results and Analysis

4.1. Descriptive Statistics

Our sample is composed of 287 participants recruited online via a platform called Wenjuanxing. The table below summarizes demographics and basic attitudes towards celebrities for both the control and the treatment group. 62% of our participants are female, the most frequent age range is 25-35 (54.4%). We find no significant differences across all baseline variables between the control and the treatment group, suggesting that our randomization is balanced.

Table 3: Summary of Results.

	Total (N = 287)		Control (N = 152)		Treat (N = 135)		t test
	Mean	Std	Mean	Std	Mean	Std	p-value
Female	0.64	0.03	0.66	0.04	0.62	0.04	0.23
Age	27.68	0.40	27.58	0.54	27.79	0.60	0.60
Baseline Fan	3.50	0.05	3.51	0.07	3.50	0.07	0.37
Purchase history	1.68	0.03	1.65	0.04	1.71	0.04	0.86

4.2. Experimental Results

Most consumers are willing to pay around 5-7 RMB for the yogurt, and in general, we find that the distribution of willingness to pay shifts to the left if we remind participants about Yibo's high income, indicated by blue bar, the willingness to pay for the control group while the red bar indicates the treatment group.

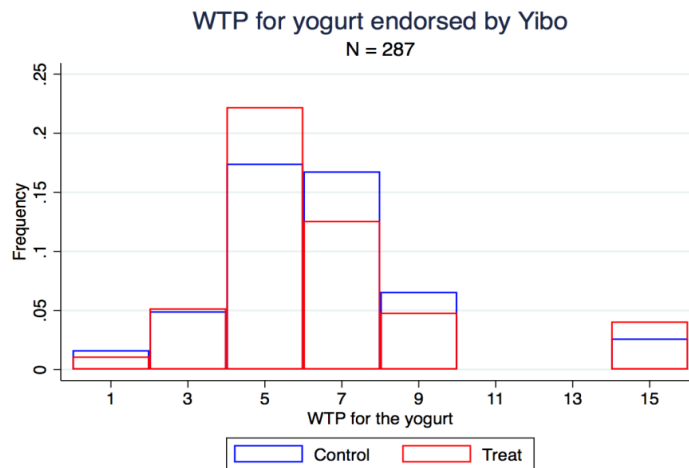


Figure 1: WTP for yogurt endorsed by Yibo.

The regression on Stata is:

$$Y_i = \beta_0 + \beta_1 \text{treat}_i + X_i \quad (4)$$

Table 4: OLS: Willingness to Pay.

	Whole Sample	Whole Sample	Like	Dislike
Treat	-0.346* (0.188)	-0.315* (0.184)	-0.549* (0.291)	-0.134 (0.227)
Individual Controls	No	Yes	No	No
Mean	6.307	6.307	6.720	5.952
SD	1.434	1.434	1.516	1.261
IDs	231	231	107	124

Standard errors in parentheses *p<0.1

y_i is the main outcome of interest: individual i 's willingness to pay for the product that the celebrity endorses, treat_i is a dummy variable that equals to one if individual i is in the treatment

group where they see a reminder about the celebrity's high-income level, and X_i is a vector of individual-level control variables, including gender, age, baseline attitudes toward celebrities etc.

Column (1) and (2) report results for the whole sample. A reminder about Yibo's high income level significantly reduces the willingness to pay for the yogurt product that he endorses. Holding other things constant, the reminder lowers the willingness to pay by approximately 0.3 rmb, which is equivalent to a 5% decrease compared to the baseline wtp (6.3 rmb).

Column (3) and (4) look at those who like or dislike Yibo in the baseline survey respectively. The coefficient of treat is significantly negative for those who like Yibo, but not for those who dislike him or are indifferent. As shown in column (3), the reminder lowers the willingness to pay for Yibo's fans by 0.55 rmb, but the effect is not significant for those who are not his fans (in column (4)). The difference in coefficients of treat in Column (3) and (4) are significant. The chart below visualizes the heterogeneous treatment effect on those who like/dislike Yibo.

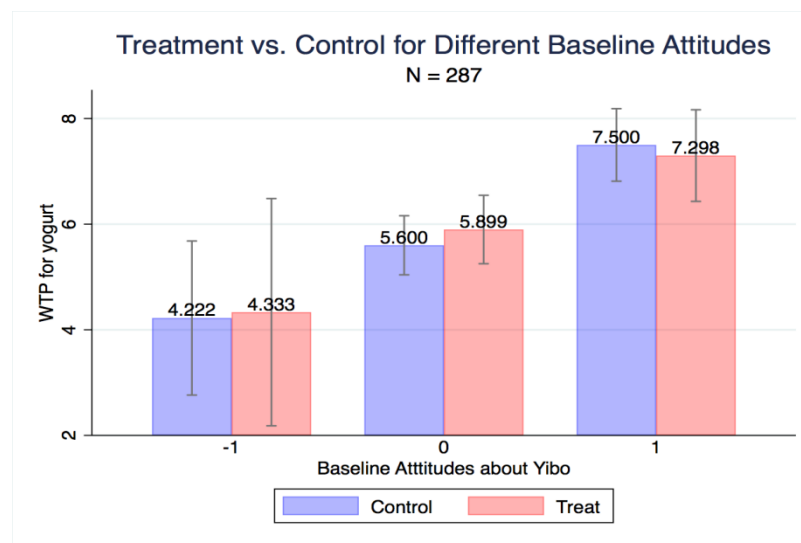


Figure 2: OLS: Treatment vs. Control for Different Baseline Attitudes.

Figure 2 visualizes the heterogeneous treatment effect in baseline attitudes toward the celebrities. The blue bar shows the willingness to pay for the control group, and the red bar for the treatment group, where information about the celebrity's earnings is provided. The negative treatment effect on WTP mainly comes from those who have a positive baseline attitude about the celebrity. For those who are indifferent or have a negative baseline attitude, the treatment effect is not statistically significant.

5. Conclusion and Discussion

In conclusion, the results suggest negative treatment effects: reminders lower willingness to pay and crowd out propensity to consume, supporting the altruism channel instead of the pure warm glow. We also observe heterogeneity in the baseline attitudes and find stronger treatment effect for those who have positive attitudes towards the celebrity in the baseline. However, we cannot rule out the possibility that fans have both the altruistic preferences and the warm glow incentives, future studies could try to elicit willingness to pay at a finer level and do a structural estimation to quantify the impact of those two channels separately.

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