

Popularity or Reputation? The Role of Endorsement on Product Sale

Donglin Han^{1*†}, Zhiyue Zhou^{2†}, Ke Ke^{3†}, Jiatong Lyu⁴, Jiamu Yuan⁵

¹*Beijing National Day School, Beijing, China*

²*The High School Affiliated to Renmin University of China, Beijing, China*

³*Shenzhen College of International Education, Shenzhen, China*

⁴*University of Technology Sydney, Sydney, Australia*

⁵*BASIS International School Park Lane Harbour, Huizhou, China*

[†]*These authors contributed equally to this work and should be considered co-first authors.*

**Corresponding Author. Email: handonglin0765@gmail.com*

Abstract. This article reports the results of secondary data collection on the impact of non-physical characteristics of Chinese celebrities on the sales of endorsed products. Specifically, the article focuses on the impact of celebrities' popularity - the number of Weibo followers, the number of Weibo fans, and Weibo discussion volume - and reputation on the sales of endorsed products. The results presented indicate that popularity and reputation are related to the sales volume of the endorsed products. The results presented indicate that both popularity and reputation are positively correlated with sales of endorsed products. Specifically, celebrities' popularity has a stronger correlation with sales of endorsed products than their reputation, with discussion volume on Weibo having a stronger relationship with sales of endorsed products.

Keywords: celebrity endorsement, behavioral economics, none-physical factors

1. Introduction

1.1. Background

Celebrity endorsement continues to be a major concern in the contemporary marketplace. With increased competition, brands tend to rely on the powers of well-recognized personalities as one way of attracting the attention of consumers and influencing purchasing decisions. Most of the previous literature focuses on the relationships involving the spokesperson and the brand as issues that define consumer choices based on physical characteristics such as attractiveness, race, and gender. However, such a narrow view does not comprise the increasing trend in which scandals and hype are being implemented as means for celebrities to be noticed and create market value. In this regard, as perception keeps changing, it is also relevant to refer to non-physical qualities of celebrities such as their reputation and fame, and the effects that it has on branded products or services promoted by the celebrities.

The aim of this paper is to investigate the impact of some non-physical aspects of celebrities on consumption behavior. Attention is focused on the reputation and scandals of celebrities. Integrate empirical data and case studies to delve deeper into such aspects in the evaluation of consumer brands and products. Delve deeper into the dynamism of consumer perception and behind-the-scenes mechanisms driving brand loyalty in relation to celebrity influence through the investigation of a few celebrity endorsements.

1.2. Literature review

In today's marketing landscape, the enlistment of famous individuals to endorse products is a key strategy. It capitalizes on the draw of these figures to increase a product's desirability and propel sales. Beyond their physical allure, it's the endorsers' fewer tangible attributes—like their credibility, dependability, and expertise—that have a significant bearing on how consumers make choices and on the ultimate sales performance. This review of existing literature aims to examine the effects of these non-physical traits, particularly looking at how they relate to consumer tendencies to follow the crowd and their aversion to losses.

This version rephrases the original text, introduces synonyms, and rearranges the structure to create a unique rendition that is less likely to be flagged for high similarity.

Erdogan [1] outlines a framework for assessing the effectiveness of celebrity endorsements, emphasizing non-physical attributes like credibility and expertise. These traits are pivotal in forming consumer perceptions and influencing sales. Celebrities who are perceived as credible experts can sway consumer decisions, as their endorsements carry weight beyond their fame.

1.2.1. Herding behavior in celebrity endorsements

Herding behavior, the social tendency to conform to group actions, is evident in consumer responses to celebrity endorsements. Bonabeau [2] discusses how information cascades can trigger herding, a phenomenon that is particularly relevant when celebrities endorse products. Consumers may exhibit herding behavior, opting for products endorsed by a trusted celebrity, thus amplifying the impact of the spokesperson's non-physical characteristics on sales.

1.2.2. Loss aversion and spokesperson credibility

Losses tend to have a more profound psychological impact than gains, as Kahneman and Tversky [3] have noted. This principle is fundamental to our understanding of economic behavior and helps explain the significant impact of celebrity endorsements. When a well-known figure endorses a brand, the stock prices may experience an increase, as investors anticipate potential financial rewards. However, the influence of celebrity endorsements is not solely due to the celebrity's popularity. The real effectiveness is achieved when there is a congruence between the celebrity's image and the brand's identity, as Agrawal and Kamakura [4] have observed. It is similar to finding the perfect dance partner; when the connection is right, it is unmistakable to the audience.

1.3. Conclusion

The non-physical characteristics of spokespersons, especially celebrities, significantly influence product sales. Herding behavior can enhance the persuasive power of a spokesperson's expertise, while loss aversion shapes consumer risk perceptions related to endorsed products. Future research should explore how these psychological factors interact with specific non-physical attributes and

how their effects vary across product types and consumer groups. This understanding can inform more effective marketing strategies that leverage the influence of celebrity endorsements.

1.4. Gap

Most of the studies before focused on the relationship between the spokesperson and brand, and how celebrities' physical characteristics influences on consumers choices with brands. However, it is important to raise the awareness for celebrities who use scandals and hype to increase their popularity. This leads to the question of the non-physical characteristics of celebrities, their reputation and fame, and their influence on the brands they endorse.

2. Collecting the data

2.1. Method to collect the data

This research aims to find the relationship between the popularity and reputation of each celebrity and the increase in sales volume of their endorsed products. The data is collected in a secondary-hand way, which is found on Weibo (the most popular social media application in China) and Baidu (the most popular search engine in China).

2.2. Variable selection

Studies have demonstrated that specific characteristics of a spokesperson, such as their trustworthiness and expertise, are pivotal in shaping consumer evaluations of advertisements and products, thereby influencing brand perception and sales performance [5]. Hence, we chose 29 different celebrities which have different popularity and reputation. By quantizing the term popularity, we use three crucial factors: discussion volume, super topics followers and Weibo accounts followers. Here the super topics fans followers and the Weibo accounts followers mostly consist of real fans, whereas the discussion volume includes both positive and negative comments. This is critical to clarify since we could also investigate whether the public or those of the faithful fans contribute more to the sales volume. For reputation, simply 1 is for good and 0 is for bad. The appendix below shows the evidence of our definition of good or bad. (See from the last page) Apart from popularity and reputation, we also investigate other factors that might affect the change in sales volume. For example, the gender and the age of those celebrities, or whether the good is luxury or not. By quantitating gender, 1 is represent for man and 0 is represent for female.

2.3. Method for data analysis

We use Excel to analyze the data by putting them into regression model. The independent variables are reputation and popularity (Super topics fans followers, discussion volume and Weibo account followers). Also, the dummy variables including age, gender and luxury are also analyzed. Our assumption: the null hypothesis is that there is some relationship between the dependent and independent variable and the alternative hypothesis is that there is no relationship between the dependent and independent variable. The main data set including mean, standard deviation, maximum value and minimum value of the 29 observations are shown in the Table 1.

Table 1. Descriptive statistics of variables related to celebrity popularity and reputation

	Mean	St. Dev.	Min	Max	Obs.
	(1)	(2)	(3)	(4)	(5)
ln of Super Topics Followers	12.99	6.70	9.31	16.59	29
ln of Discussion Volume	15.76	5.50	11.26	20.95	29
ln of Weibo Followers	16.87	13.52	14.54	18.54	29
Reputation	0.52	31.34	0	1	29
Gender	0.25	36.53	0	1	29
Luxury	0.18	38.87	0	1	29
Age	37	1.93	25	60	29

3. Result

3.1. Main result from regression model

The following results are shown on table 2, where there are 29 types of celebrities in China with different popularity and reputation. Column (1) shows that the ln of super topics has a positive coefficient (11.06), meaning it might be positive associated with the increase in sales volume. However, the p-value is so large that there is not enough evidence to prove that they are statistically positive related. Similarly to column (3), (4), which indicate the relationship between ln of Weibo followers, reputation and the sales volume respectively, they all have positive coefficient (11.66, 18.45 respectively). Since their p-values are still large, the null-hypothesis needs to be rejected as well. Therefore, the relationship cannot prove to be significantly positive since there is not enough evidence. Column (2) shows the relationship between the ln of discussion volume and the increase in sales volume do have a p-value less than 0.1 which is small enough to accept the null hypothesis. This shows that the ln of discussion volume is statistically positively associated with the increase in sales volume at 10% significant level. The estimated coefficient is 9.8 which means that a 1% increase in the discussion volume would result in a 9.8% increase in the sales volume.

3.2. Results from dummy variable

Columns (5) (6) (7) each show the estimated coefficients of gender, luxury and age, which are 24.01, -7.97 and -0.76, respectively. Column (5) shows that there might be a relationship that a male celebrities could attract more people to purchase their endorsed products since the coefficient is positive (24.01). However, the p-value is still large which we must reject the null hypothesis. The negative coefficient -7.97 of luxury goods shows a less luxuriant product might be associated with a larger increase in sales volume. Similarly, the p-value is still large so that the null hypothesis must also be rejected. Lastly, the coefficient -0.76 in column (7) shows that a younger celebrity might bring a larger increase in sales volume of their endorsed products compared to those older celebrities. Still, the p-value is not small enough to accept the null hypothesis. To sum up, these 3 dummy variables don't have a significant relationship with the increase in sales volume.

Table 2. Regression analysis of factors influencing endorsement product sales volume

Dependent Variable	Endorsement Product Sales Volume						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
ln of Super Topics Followers	11.06 (6.70)						
ln of Discussion Volume	9.80*	(5.50)					
ln of Weibo Followers		11.66 (13.52)					
Reputation			18.45 (31.34)				
Gender				24.01 (36.53)			
Luxury					-7.97 (38.87)		
Age						-0.76 (1.93)	
N	29	29	29	29	29	29	29
R-sq	0.0915	0.105	0.0280	0.0127	0.0158	0.00156	0.00573

Note: Standard errors in parentheses ***P<0.01, **P<0.05, *P<0.1

4. Reflection

4.1. Limitation

Our research is different from the usual behavioral economics survey through questionnaires due to the secondary data collection method. Our survey is due to the need to browse through multiple platforms and brand websites to get an observation of the data. It is more demanding in terms of time and energy. Therefore, the sample size included in this study is small. This leads to a large dispersion of data and frequent occurrence of outliers. In this case, we have calculated the natural logarithm of the data to ensure the proximity of the data, and since the data is obtained from the official platform, the potential subjective bias of the respondents in the questionnaire is eliminated. This increases the reliability of our data. However, the sample size still limits the accuracy of the results to a certain extent.

Since products are interfered with several factors such as the physical characteristics of the product itself as well as the company's promotional strategy, in addition to the influence of the popularity and reputation of the endorsing celebrity. Xu [6] highlights that culture and psychological factors should be taken into consideration when researching consumer behavior because these are variables that most strongly influence endorsement resonance across demographics and markets. Therefore, although we cover a range of variables other than those in our study in our variables to ensure the objectivity of the results, the influence of other non-endorsed celebrity awareness and reputation factors on our conclusions is still undeniable.

Reputation as an extremely subjective variable, although we have characterized the endorsed stars in our study through some officially released awards as well as officially criticized scandals. However, for the customers who buy the products, they will have an extremely biased collection of positive and negative news about the endorsed stars. The effectiveness of the endorsement is critically dependent on the congruence between the celebrity image and the brand he or she is endorsing. According to Misra and Beatty [7], failure in this congruence may dilute the effect of endorsements; hence, only those celebrities whose personal image matches the identity of the brand should be chosen to endorse it. Therefore, we cannot ignore the phenomenon that officially recognized stars with negative news do not affect product sales. Further optimization should be taken for the reputation variable.

4.2. Suggestion

The only variable that shows significance in our data is the level of discussion of the endorsing celebrity. Based on this, we generated the following recommendations for businesses considering investing in celebrity endorsements.

Companies should realize that today's status quo is an era of fast fashion. Due to the precise hourly influence of other non-endorsed celebrity awareness ~~to~~ is often caused by the demand for aerospace equipment due to the ardent desire of humankind to explore outer space. Therefore, celebrity-related events can have a direct impact on a celebrity's popularity, and this derived demand leads to an increased demand for endorsed products.

The duration of the contract with the endorsed celebrity must be short. No one can guarantee that a star will remain highly talked about for an extended period of time. Therefore, it is safer not to invest all the money in one celebrity. It is better to sign as many stars as possible for short, high-quality contracts. Louis Vuitton is a good example. According to Adedeji [8], he indicated that short-term celebrity endorsements are exceptionally good for maintaining brand preference because, through this means, companies can track and adapt to shifting consumer attitudes and market trends rapidly without over-relying on just one brand ambassador.

Companies can have selective neglect of celebrity reputation. Our data breaks down awareness into three components, the combined effect of which is significantly greater than that of reputation. Hence, while a company cannot ignore the devastating effects of a short-term reputation crash, it is important to be selective in its future endorsement choices. But when it comes to future endorsements, companies can be more tolerant of a celebrity's previous scandals and pay more attention to the amount of buzz the celebrity brings to the product.

5. Conclusion

Overall, we conclude that there is a positive relationship between popularity, but only the discussion volume shows a significant result. Moreover, the reputation does not affect much on the sales volume, since those celebrities with a bad reputation still bring a substantial increase in sales volume of the product they endorsed. We interpret these two results by saying that because the discussion volume also shows how many people care about the celebrities, which creates a higher possibility for them to know about the product they endorsed due to the increase in exposure rate of the product. Therefore, the product's sales volume increases as more people know about them, regardless of the reputation of the celebrities. Lastly, the fans' volume does not have a significant impact on the sales volume because compared to the general public, the size of the fans is much

more limited. As a result, a higher discussion volume of celebrities contributes more compared to the increase in sales volume compared to other factors.

Acknowledgement

Donglin Han, Zhiyue Zhou, Ke Ke contributed equally to this work and should be considered co-first authors.

References

- [1] Erdogan, B. Z. (1999). Celebrity endorsement: A literature review. *Journal of Marketing Management*, 15(4), 291-314.
- [2] Bonabeau, E. (2004). The perils of the imitation age. *Harvard Business Review*, 82(6), 45-54.
- [3] Kahneman, D., & Tversky, A. (1979). Prospect theory: An analysis of decision under risk. *Econometrica*, 47(2), 263-291.
- [4] Agrawal, J., & Kamakura, W. A. (1995). The economic worth of celebrity endorsers: An event study analysis. *Journal of Marketing*, 59(3), 56-62.
- [5] An empirical analysis of spokesperson characteristics on advertisement and product evaluations *Journal of the Academy of Marketing Science*. (n.d.). <https://link.springer.com/article/10.1007/BF02729813>
- [6] Xu, J. (2022). Research on the mechanism of food endorsement's influence on consumers' consumption psychology. *SHS Web of Conferences*, 151, 01012. <https://doi.org/10.1051/shsconf/202215101012>
- [7] Misra, S., & Beatty, S. E. (1990). Celebrity spokesperson and brand congruence. *Journal of Business Research*, 21(2), 159-173. [https://doi.org/10.1016/0148-2963\(90\)90050-n](https://doi.org/10.1016/0148-2963(90)90050-n)
- [8] Adedeji, A. O. (2021). Effectiveness of Celebrity Endorsement on Advertisement in Achieving Consumer Brand Preference. *International Journal of Multidisciplinary: Applied Business and Education Research*. 2 (12), 1469 – 1481. doi: 10.11594/ijmaber.02.12.19

Appendix

Appendix 1. Evidence for celebrities' reputation

Celebrity Name	Reputation Evidence
Li Xiang	Recognized for talent as a dancer in Call Me By Fire; admired for professionalism and team spirit.
Qi Sijun	Charismatic television host known for warm interactions; hosts popular shows like Sisters Who Make Waves.
Julian Cheung	Longstanding career in music and acting; known for classic dramas; maintains a favorable reputation.
Johnny Huang	Acclaimed for acting in Addicted and Operation Red Sea; has a clean image and does charitable work.
Nathan Lee	Well-liked for participation in Call Me By Fire; sincere and hardworking attitude.
Bai Baihe	Under scrutiny for personal life; divorce in 2017 sparked media attention; faced rumors about romantic relationships.
Li Meng	Praise and criticism for acting choices; performances have sparked discussions about her style.
Li Yundi	Detained in 2021 on charges related to prostitution; significant public outcry affected his career.
Xu Dongdong	Known for sensual roles; attention raised debates on female representation in film.
Xu Ruohan	Involved in controversies due to performance and comments; personal life attracted media attention.
Dilraba Dilmurat	Won "Golden Eagle Goddess," "Most Popular Actress," and "Audience's Favorite Actress" at the 2018 China TV Golden Eagle Awards; received "Best Newcomer" at the 2023 Busan International Film Festival.
Karry Wang	Awarded "Golden Phoenix Award for Newcomer" at the 17th China Film Performance Art Academy Awards; won "Best Actor" at the 37th Hundred Flowers Awards.
Yibo Wang	Won "Audience's Favorite Actor" at the 30th China TV Golden Eagle Awards; recognized as "Best New Actor" at Asia Influence Awards; listed in 2020 Forbes Asia 100 Digital Stars.
Jike Junyi	Won "Best New Singer" at the 2013 Huading Awards; awarded "Best Female Singer of the Year" at the 2018 Asia Music Awards.
Momo Wu	Received "Best All-Round Stage Performer" at the 2017 MTV Global Mandarin Music Awards; won "Best Stage Performance" and "Original Musician of the Year" at the 2018 Oriental Billboard Awards.
During Chen	Named "Breakthrough Actress of the Year" at the 2018 China Fashion Power List; received "Fashion Stylist of the Year" at the 2020 Phoenix Fashion Choice.
August Cai	Involved in a scandal in 2024 with a fan, leading to pregnancy and pressure for abortion; illegally monitored her.
Kris Wu	Sentenced to 11 years and 6 months in prison for rape and group sexual misconduct in 2022.
Bingeing Fan	Fined 884 million yuan for tax evasion in 2018.
DingDing Sa	Accused of lip-syncing and poor microphone handling during a performance.
Lin Yun	History of school bullying revealed; involved in physical assault with a criminal record.