

Advertisement of Demerit Goods and Consumers' Spending Behaviour

Huanqi Wang

Hangzhou Foreign Language School, Hangzhou, Zhejiang, China

Abstract: Advertising has become increasingly commonplace in today's society, taking various forms and influencing the consumption habits of different demographic groups. The impact of advertisements on consumer behaviours, particularly regarding demerit goods, has been a topic of significant research in recent years. In this study, a survey was carried out to investigate the effects of alcohol advertisements on Chinese respondents by gathering their responses from a questionnaire mainly evaluating whether and to what extent alcohol consumption will be affected by advertisements on various demographic groups. The key results revealed that the consumer behaviour of the majority will not be influenced by the advertisements, and people are aware that demerit goods advertisements tend to understate the harm of the advertised product. The results indicate that there is a strong correlation between the increase in consumption as a result of demerit good advertisement and gender, income level, and purchasing intention, whereas the correlation between the increase in consumption as a result of demerit good advertisement and age group or occupation is not clearly displayed. Furthermore, it is demonstrated that various features represented in the advertisements and different forms of how the advertisements are represented are favoured differently by the audience. Meanwhile, demerit goods advertisements were found to have no effect on encouraging people to try new brands.

Keywords: Demerit Goods; Advertising; Consumer Behaviour; Health Awareness

1. Introduction

Advertisements are commonly seen in people's daily lives and are initially used to publicise information about particular products or events.

Advertisements play a crucial role in shaping consumers' perceptions and decisions, often influencing their choices in ways that may not align with their best interests. Nowadays, people often see advertisements about alcohol from various brands using similar slogans, showing that the brand has either paramount quality or a long-standing historical background. Demerit goods are those that harm people or society through consumption, and with information asymmetry, people tend to overconsume. However, based on the author's personal experience, despite the fact that the author has not reached the legal drinking age, the advertisements, even with exaggerated expressions, do not seem to spur anyone to try out the products. It is very important to investigate the relationship between demerit goods advertisements and people's consumption behaviour because the results can help consumers realise the demerit goods' true utility and avoid being skewed when making purchase decisions. In addition, this can provide the basis for policymakers when considering regulations regarding the advertisement and the demerit goods industries.

There are four parts in the paper. In the Literature Review, the current research, related analysis, and evidence published in professional journals about the issue are presented to reveal the importance of the issue and past learnings. In the Methodology section, the design of the questionnaire, data collection process, and data cleaning and integration measures are fully demonstrated. The Discussion and Data Analysis section covers the results of the survey as well as the conclusions of hypothesis testing. Lastly, the Conclusion and Practical Implication section summarises the findings and gives suggestions to both policymakers and advertisers aiming to improve consumption behaviour impacted by demerit goods.

2. Literature Review

2.1 Definitions

Advertising is defined as “a communicative activity of a motivating nature, which aims to draw attention to the object of advertising for mutual exchange” [1]. Advertisements worldwide influence the behaviour and attitude formation of consumers [2]. Wilkie defined consumer behaviour as “the mental, emotional, and physical activities that people engage in when selecting, purchasing and using the products and services so as to satisfy needs and desires.” To specify, the consumer behaviour not only focuses on how individuals’ emotions, attitudes, and preferences affect their own buying behaviour, but also regards the groups or organisations and all activities associated with the purchase and use of goods and services [3].

Such an impact on consumer behaviour can also be seen in the consumption of demerit goods. Demerit goods are defined as “a good or service whose consumption is considered unhealthy, degrading, or otherwise socially undesirable” [4]. The consumption of demerit goods generates a negative impact, usually not fully realised by consumers, and often leads to overconsumption. More specifically, since the consumption of demerit goods carries negative external benefits, the private marginal benefit is higher than the social marginal benefit, hence leading to a higher market equilibrium quantity if not regulated by the government [5].

2.2 Definitions

Advertising can increase people’s awareness of the advertised product and thus increase or even create previously non-existent demand. A study using Spanish automobile data, incorporating a model simulating consumer decisions based on the information diffusion of the new product, illustrates that advertisement can increase consumers’ brand awareness, which can enhance purchase intention, leading to an increase in product sales [6]. Another study confirms the argument that, besides the enhancement of quality, advertising can also create brand awareness, which “assists the consumer to make purchase decisions” by using the data collected from a survey regarding a specific brand, “Bournvita” [7]. Both papers concur with the opinion that advertising will raise people’s brand awareness about the advertised product and increase its demand. For existing demand, on the other hand,

advertising can amplify the purchasing intention, leading consumers to demand more. This can be explained by a concept called brand capital, which refers to individuals’ collective positive brand associations. Brand capital can “increase the marginal utility of consumption” and thus boost demand [8]. To elaborate, the advertising can be regarded as a complement to the advertised good, with the brand capital offering “a favourable image about the advertised good,” which will boost the marginal return from the consumption of the advertised goods and then increase demand [9]. Besides, from the research of Martins et al. [10], the derived results have revealed that advertisements possess features such as informativeness, credibility, entertainment, and incentives, which will increase consumers’ purchasing intention.

Another way advertising can impact consumers’ behaviour is by boosting brand loyalty, which results in relatively inelastic price elasticity and an increase in demand. Advertising has indirect effects on brand loyalty by altering store image, perceived quality, and satisfaction [11]. By using the loyalty group segmentation (LGS) model, the research of Starr et al. [12] demonstrates that consumers with higher brand loyalty tend to contribute more to a brand’s sales revenue and are less price elastic. Besides, apart from the slight change in demand following a change in prices, loyal consumers are also less prone to change their brand choices when suffering a price increment. In other words, they are more likely to stick to their preferred brand regardless of price changes [13].

2.3 Demerit Goods Advertisements

Advertisements can impact the consumption of demerit goods through three channels. The first channel is that demerit good advertisements make people underestimate or even overlook the harm or exaggerate the benefits of the advertised product, in order to persuade people to consume more. This can be seen from cigarette advertising as an example: although it offers some health appeals to its audience, the appeals are not “informative” or instructive enough so that the underestimation of costs occurs for consumers [14].

Another observational approach for demerit good advertisers to confuse consumers is to suggest the positive aspects or beneficial effects of the products. Specifically, some cigarette

producers confuse consumers by using advertising to reassure smokers about the health aspects of smoking implicitly, while in fact, there are no substantial health-related aspects of smoking [15-18]. For example, some cigarette advertising will put doctors' images on it to eliminate consumers' health concerns toward cigarettes, as the doctor's image itself indicates a sense of health credibility, despite the absence of scientifically well-proven evidence, to degrade the health concerns and mislead consumers. In fact, the appearance frequency of health-related claims in cigarette advertisements increases with public concern about smoking [19], further illustrating how these advertisements work to confuse and reassure consumers by down-playing health risks.

In addition to the underestimation of the cost or the overvaluation of the benefits, some advertisements try to twist the perception of good and bad. An example is the Camel cigarette advertisement [20,21]. The Camel advertising campaign targeted the young audience with the themes of coolness, peer acceptance, and rebellion. While smoking is not a behaviour standing for virtues, the advertisement twisted the perception of these young adults, and Camel's campaign has brought the brand a significant increase in market share, especially among 12 to 18-year-olds.

2.4 Previous Advertising Campaigns

Empirical data have demonstrated that advertisements have a significant impact on consumption decisions. For example, through the retail, household, and advertising data, it has been shown that a 10% increase in e-cigarette advertising results in a notable 0.8% increase in e-cigarette sales relative to the mean quantity of e-cigarettes sold [22]. This illustrates the substantial impact of advertisements on consumer behaviour. The success of advertising in promoting demand for the product is also confirmed by the data from the advertisement campaign of Camel, which cost \$2.5 billion over 10 years: Camel's market share among 18 to 24-year-olds is augmented by 10.1%, which is enormous.

Furthermore, another study on the demerit goods from the MTF and the NLSY97 data again reveals that alcohol advertising can enhance the annual alcohol participation, monthly participation, and binge participation,

as the advertising elasticities for all three types of consumption are all positive, indicating the effectiveness of the advertisements.

3. Methodology

To explore the research topic thoroughly, an online questionnaire survey was chosen to collect the data needed to examine the hypotheses because of the low costs and convenience. The survey was written in Chinese and translated into English and is attached in the appendix. 19 multiple-choice questions were designed after three rounds of revision, targeting the accuracy of wording and the logic among questions to enable the convenience of result evaluation and avoid unintended meaningless responses. The questions can be divided into four parts. The first part (Question 1-9) collects demographic information; the second part (Question 10, 11, 13, 16, 17, and 18) investigates to what extent respondents' consumption behaviours are affected by demerit goods advertisements; the third part (Question 12, 14, and 19) are extended questions that provide extensive information, such as what characteristics consumers value in a demerit good advertisement. The survey was active from March 3rd to March 27th in 2025, and a total of 119 responses were collected.

To filter for valid responses, the questionnaire was test-answered to estimate the time to complete it, and used Google Forms to filter out the responses that took less than 40 seconds or more than 10 minutes. Second, the answers to Question 10 and Question 11 were checked. For people who denied being influenced by advertisements in Question 10 but indicated they would either increase the quantity purchased or frequency purchased influenced by advertisements in Question 11, their answers should be regarded as invalid, and vice versa. After cleaning the data, 101 responses of the questionnaires remain, including 53 responses from females and 48 responses from males, which can be judged as a good sample to analyse.

4. Discussion and Data Analysis

4.1 Hypothesis 1: Demerit Good Advertisements Will Increase People's Consumption of Demerit Goods

Alcohol companies devote millions of dollars to advertising every year, so it is reasonable to

predict that advertisements will bring significant benefits. However, as shown in Figure 1, only 34.6% of respondents thought advertising of alcohol would increase the consumption of alcohol, while the remaining majority did not think advertisements would increase their consumption. Those who thought advertisements would increase their consumption include 6.9% of respondents who believed advertisements would increase the quantity of alcohol they consumed every time, and 27.7% of respondents maintained that advertisements would increase the frequency. Based on the information represented above, it appears that Hypothesis 1 is incorrect, as there is no prominent evidence showing that demerit goods advertisements will increase people's consumption of the products: in Figure 1, it is clearly shown that more than half of the respondents' consumption behaviours were not affected by the advertisements.

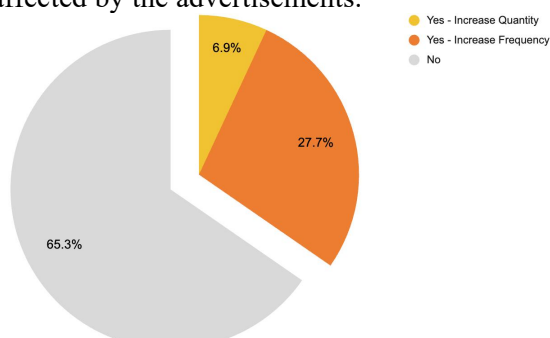


Figure 1. Will Advertisements Increase People's Consumption of Alcohol?

4.2 Hypothesis 2: Gender is Correlated with the Increase in Consumption as a Result of Demerit Good Advertisement

As mentioned in the literature review, demerit goods advertisements are very effective in boosting consumers' consumption in many cases. Why does the result of the survey contradict the hypothesis statement? After analysing the component of respondents, it was noticed that the numbers of female respondents (53) and male respondents (48) are approximately the same. The finding that demerit goods advertisements do not increase the majority's consumption may be due to the fact that female consumers, who are less influenced by demerit goods advertisements, made up about half of the participants in this study. As a result, the overall outcome may be skewed toward showing that advertisements have little to no effect on consumption

behaviours.

Based on personal observation, the advertisement of demerit goods tends to target the male audience more than it targets the female audience. For example, various Chinese marketing campaigns for alcohol products focused on wording such as "increase the masculinity" or "the male way," which flatter the male audience solely. Therefore, Hypothesis 2 assumes that gender is correlated to the consumption behaviour impacted by these advertisements. More specifically, it can be hypothesised that the male audience would be more heavily impacted by the demerit good advertisements.

In Figure 2, for the 53 female respondents, 71.7% respondents' consumer behaviours were not influenced by the advertisements, while for the 48 male respondents only 54.2% of them are not affected, showing that compared to the males' consumption behaviours recorded in the research, the females' consumption behaviours are less likely to be affected by the advertisements.

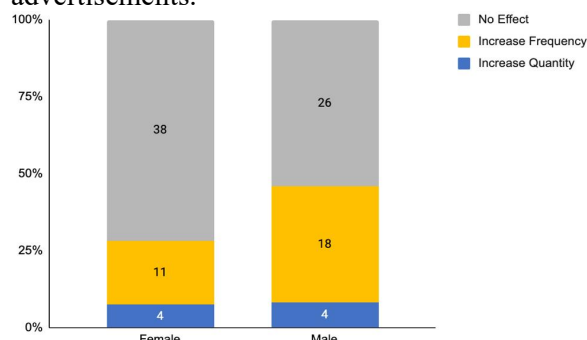


Figure 2. Change in Consumption Behaviour with Advertisement by Gender

To make conclusions about the significance of the difference, a two-sample Z proportion hypothesis test was conducted on the results. The null hypothesis is that there's no correlation between gender and demerit goods' on consumption behaviour, and the alternative hypothesis is that male is more heavily impacted by such advertisements.

Table 1. Hypothesis Testing Results for Hypothesis 2

	Participants	
	Female	Male
Sample Size	53	48
Sample Proportion	0.7170	0.5417
P value	0.033911	
Z value	1.826191	
Decision	Reject the null hypothesis	

At the 95% confidence level, summarised in

Table 1, since the P value is less than 0.05, we reject the null hypothesis and recognise that the alternative hypothesis holds. That is, gender is correlated to the difference in the consumption behaviour impacted by demerit good advertisements, and male tend to be more heavily impacted by these advertisements, increasing the frequency and quantity of their alcohol purchase.

4.3 Hypothesis 3: Age is Correlated with the Increase in Consumption as a Result of

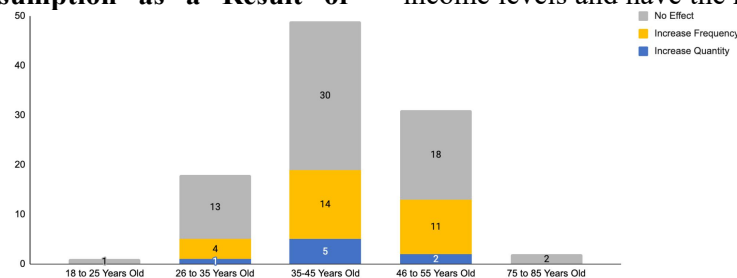


Figure 3. Change in Consumption Behaviour with Advertisement by Ages

In Figure 3, if we categorise people between 18 and 35 as one group and people between the ages of 35 and 55 as another group, only 26.3% of the first group's consumption was enhanced by advertisement. However, in the second group, the consumption of 32 out of 80 people was augmented (40%), way higher than the percentage among the first, young people group. To examine whether the result is meaningful from a statistical point of view, a hypothesis test is performed. At the 95% confidence level, summarised in Table 2, since the P value is higher than 0.05, the data does not integrate evidence that is strong enough to prove that the age group is correlated to the difference in the consumption behaviour impacted by demerit good advertisements. It could be the result that the sample size of each group has a non-negligible difference, as the group with the greater sample size could dominate the results, making it harder to detect real differences. It could also be the result of high variation within each group, which means that respondents within each age group may behave very differently, making the final result less significant.

Table 2. Hypothesis Testing Results for Hypothesis 3

	Participants	
	18 to 35 years old	35 to 55 years old
Sample Size	19	80
Sample Proportion	0.7368	0.6000

Demerit Good Advertisement

Consumption behaviours of middle-aged people are assumed to be more likely to be affected by the demerit good advertisement, as middle-aged people are more financially independent. They generally have the ability to buy what they desire and often have greater brand loyalty. Moreover, advertisers target the middle-aged group more than the teenagers, as middle-aged people are more likely to buy alcohol to represent their social hierarchy, have higher income levels and have the habit of drinking.

4.4 Hypothesis 4: Occupation is Correlated with the Increase in Consumption as a Result of Demerit Good Advertisement

Different occupations have different working pressures, different aspirations, and generally varying income levels. For example, people working in financial industries are more likely to be persuaded to consume more of a product if the product is advertised as a symbol of "success," while people working in construction industries may not be aware of, or they do not have the available income to pay for the additional meaning behind the product. Compared to the non-substantial meanings, they care more about the taste and the price of the products.

The survey corresponding to the relationship between the changes in consumption behaviour by advertisements and occupations is, however, not well conducted, shown in Figure 4. To elaborate, the respondents are too concentrated in the finance industry, and some occupations have only one or very few representatives, so the results derived are not accurate or persuasive. Despite not knowing the exact correlation between changes in consumption behaviour by advertisements and occupations, there might be a difference with regard to changes in consumption behaviour by

P value	0.267727
Z value	1.108313
Decision	Do not reject the null hypothesis

advertisements among different occupations.

4.5 Hypothesis 5: Income is Correlated with the Increase in Consumption as a Result of Demerit Good Advertisement

The consumption patterns of people with low incomes are unlikely to be affected by

advertisements, as they have little disposable income available to support the extra consumption. People with higher incomes are more likely to be affected and are usually the main target of the advertisers, as they have available income to support the additional consumption.

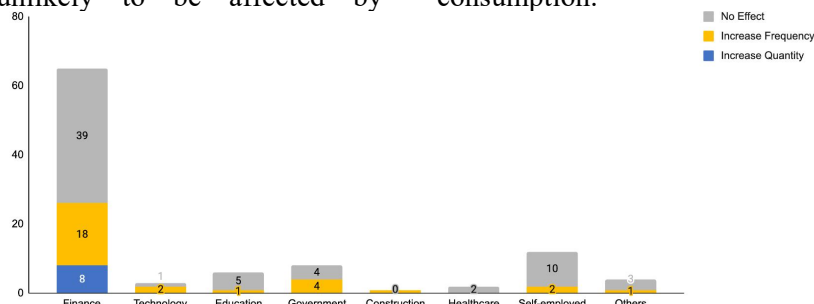


Figure 4. Change in Consumption Behaviour with Advertisement by Occupations

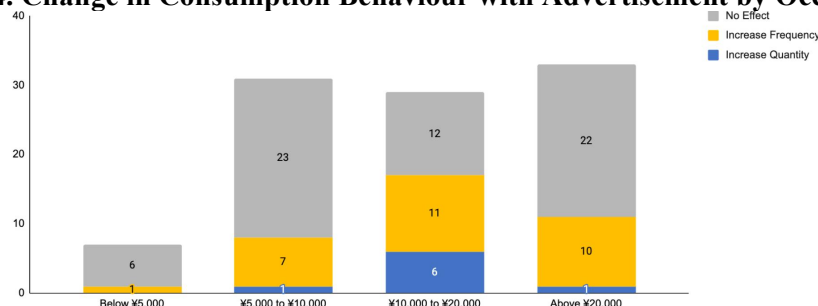


Figure 5. Change in Consumption Behaviour with Advertisement by Monthly Income

In Figure 5, for people with a monthly income below ¥5,000, only one out of six, which is 16.7%, will increase their consumption they consume due to demerit good advertisements. For people with income from ¥5,000 to ¥10,000, 25.8% of people will increase their consumption due to advertisements. For people with income from ¥10,000 to ¥20,000, 58.6% of people will increase their consumption because of advertisements. For people with an income above ¥20,000, 33.3% will increase their consumption of alcohol influenced by advertisements.

The percentage of respondents who will increase their consumption of alcohol due to advertisements initially rises with income, but then declines when it rises to ¥20,000. It could

be the result that rich people have a constant consumption pattern and are not easily influenced by advertisements.

4.6 Hypothesis 6: Purchasing Intention is Correlated with the Increase in Consumption as a Result of Demerit Good Advertisement

People with different purchasing intentions may react differently when seeing demerit good advertisements. For example, compared to people who consume alcohol for gifting, meeting, or self-use, the authentic collectors are less likely to be affected by the advertisements that impose a sense of “success” on the alcohol, as they value the intrinsic quality of alcohol more.

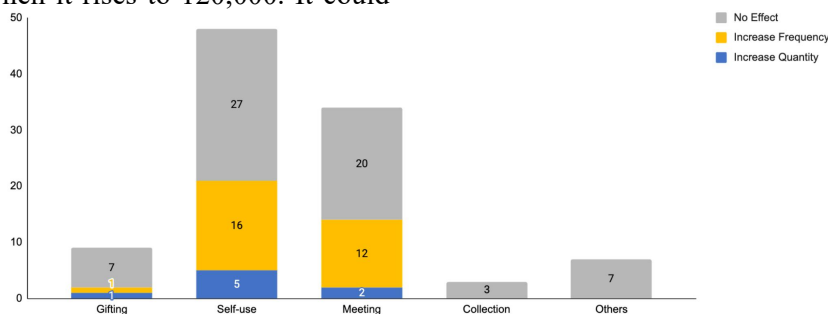


Figure 6. Change in Consumption Behaviour with Advertisement by Purchasing Intention

In Figure 6, it is shown that for both collection intention and others, none of the respondents will increase their consumption due to advertisements. Regarding the gifting option, only 22.2% of respondents said they would increase their consumption due to advertisements. However, for self-use and meeting intentions, 43.8% and 41.2% of the respondents, respectively, indicated they increased their consumption due to advertisements. The results have shown that for different intentions, consumers are affected differently by demerit good advertisements, where consumption for self-use and meeting intentions is most affected, and consumption for collection and others is least affected.

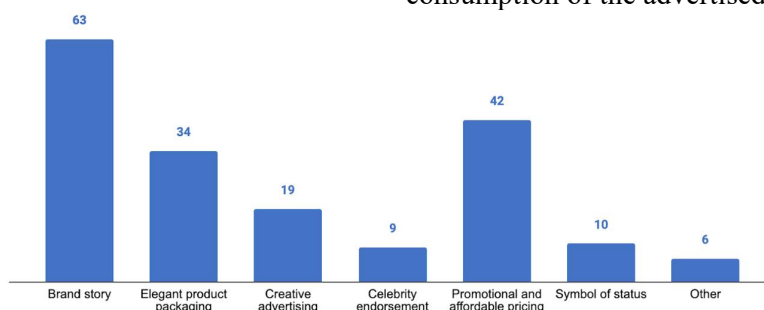


Figure 7. Features People Believe are Most Attractive in Demerit Goods Advertisements

In Figure 7, for the question of what features respondents believe are the most attractive in demerit goods advertisements, it is revealed that brand story is the most popular option, which has taken up 34.4%. Promotional and affordable pricing is the second most popular option, which has taken up 23%. It is astonishing that the symbol of success is not a commonly agreed-upon attractive feature in advertisements, as it has only taken up 5.46%.

4.8 Hypothesis 8: Most People are Unaware that Demerit Goods Advertisements Tend to Understate the Harm of the Product and May then be Overreliant on the Demerit Goods

It is assumed that advertisements will increase the information asymmetry by underestimating the harm of the demerit good product. Consumers are usually not aware of that, so they might overconsume the product and become overreliant on the product, as demerit goods are usually addictive. That is the main logic behind the ban of any demerit good advertisements in many countries.

From the data collected, however, it appeared that most people were aware of the overlook of

4.7 Hypothesis 7: People are Most Likely to be Attracted by the Brand Story of the Products, among Other Features in Advertisements

It is commonly seen in many demerit goods advertisements that the advertising brand has a deep historical background. In this way, additional value is imposed on the product. People's urge for success and showing off is partially converted into an increase in demand for the advertised product. Apart from the brand story appearing in the advertisements, other features like elegant product packaging, creative advertising, celebrity endorsement, promotional and affordable pricing, and so on may also give rise to the increase in consumption of the advertised product.

harm in demerit good advertisements as shown in Figure 8. Over half (55.4%) of the respondents chose yes when answering whether they have realised that demerit goods advertisements tend to overlook the harms in demerit goods advertisements. This could be the result of the increasingly accessible information online, and the respondents in the survey were well-educated.

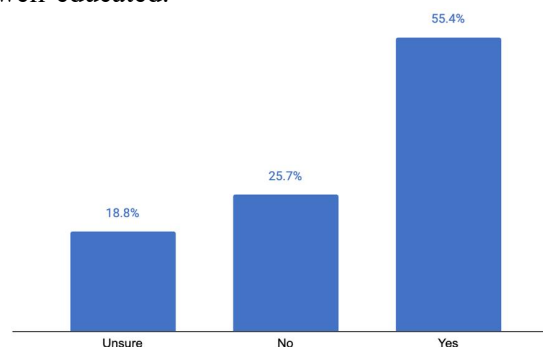


Figure 8. Are People Aware of the Overlooked Harms in Demerit Good Advertisements?

As shown in Figure 9, given that more than half of the people participating in the survey have already realised that demerit goods advertisements tend to overlook the harms in demerit goods advertisements, it is not

surprising that more than 90% of people's consumption is not affected by the advertisements. This reveals that the majority of the respondents have already realised that demerit goods advertisements tend to understate the harm of the product and will not overconsume alcohol or increase their reliance on alcohol due to advertisements.

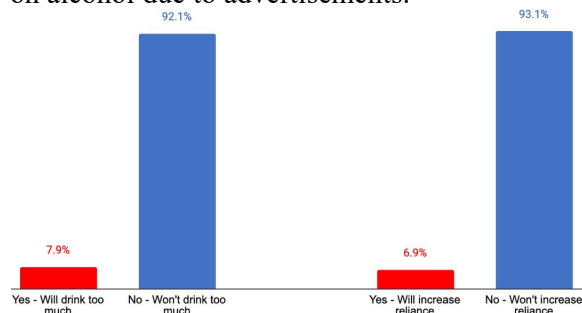


Figure 9. Whether Demerit Goods Advertisements Increase People's Consumption or Reliance
4.9 Hypothesis 9: Demerit Goods Advertisements Will Encourage People to try New Brands

Advertisements will increase brand awareness among consumers and encourage them to try different brands by offering the benefits of the new brands, like those described in the literature review. It is widely assumed that advertising will incentivise consumers to try new brands, which is an important reason for many demerit goods production companies to put out expensive advertisements every year.

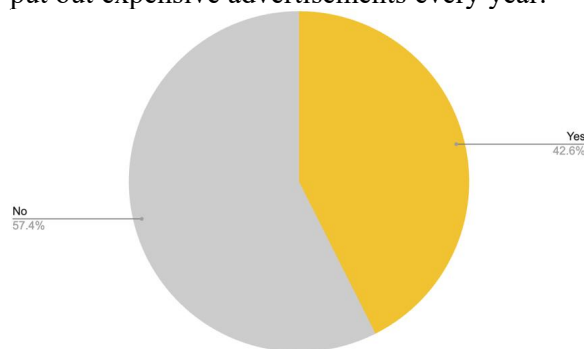


Figure 10. Whether People Tried New Alcohol Brands Influenced by Advertisements

The straightforward result from Figure 10 is that advertisements do not have the effect of encouraging consumers to try new brands, as 57.4% of consumers never try out new brands influenced by advertisements.

4.10 Hypothesis 10: Different Advertisement Campaign Forms Have Different Effects on the Consumption Behaviour of Consumers

In people's lives, the main forms of

advertisements include advertisements that are heavy in graphics, descriptions, offline campaigns, and videos. Advertisements heavy in graphics give the audience a strong visual impact, descriptions like posts give people space to consider and imagine. For offline campaigns, the acoustic and visual impacts are imposed on the audience simultaneously, which is similar to advertisements heavy in videos.

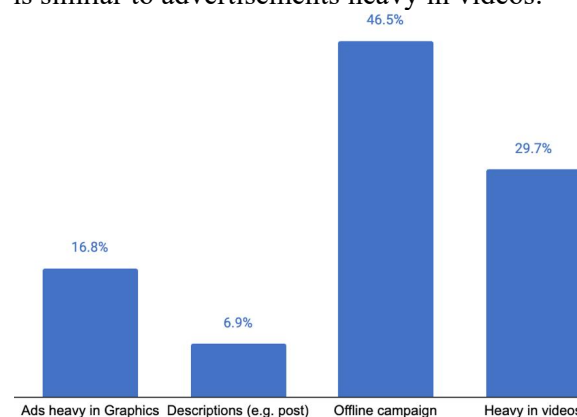


Figure 11. The Best Form of Advertisements in Encouraging Consumption

From Figure 11, it is shown that different advertisement campaign forms do have varying effects on the consumption behaviour of the consumers, and the offline campaign is the most effective one from the consumers' perspective, whereas the description one is the least effective among the four listed.

5. Conclusion and Practical Implication

Demerit good advertising has become increasingly prevalent in today's society, where it comes in different forms and impacts various demographic groups' consumption behaviour. In this study, a survey was conducted to investigate the impact of alcohol advertisements on Chinese respondents by collecting their opinions on their alcohol consumption and how the advertisements impact their choices. In brief, advertisements for demerit goods do not affect spending behaviour much. The female is less influenced than the male. Most people know that demerit goods advertisements will understate problems and do not consume more because of them. For factors that differentiate the changes of consumption induced by demerit goods advertisements, the roles of age and job are insignificant, while the roles of income and purchasing intention are significant. In addition, different forms and features of advertisements work differently in encouraging the consumption of the product. Lastly, demerit

goods advertisements do not make people try new brands.

There are several limitations to this research: First of all, the inherent drawback of using questionnaires to conduct the investigation is that it suffers from inaccurate responses. Second, the sample size, although big enough to draw meaningful conclusions, could be expanded for a better generalisation of the results. While respondents were concentrated in the cities of Hangzhou and Ningbo and mostly in the financial sector, the sample could be expanded to other cities and other industries so that the variation in consumption behaviour across cities and fields could be captured. Lastly, the study used alcohol advertisements specifically to analyse the impact of demerit good advertising, but this could generate limited implications for other demerit goods such as unhealthy snacks, cigarettes, and gambling. Future studies should focus on including a larger sample to avoid being concentrated in a specific sector, and the study should be conducted on other types of demerit goods that might be available in other countries.

References

- [1] Shkil L L. (2021). Substantive approach to the definition of "advertising": Philosophical and communicative aspect.
- [2] Javed T, Mahmoud A B, co-authors. (2024). Green branding in fast fashion: Examining the impact of social sustainability claims on Chinese consumer behaviour and brand perception. *Corporate Communications: An International Journal*, 29(2), 350–368. <https://doi.org/10.1108/CCIJ-12-2023-0169>
- [3] Wikipedia. (2025). Consumer behaviour. Wikipedia: The Free Encyclopedia. https://en.wikipedia.org/wiki/Consumer_behaviour
- [4] Walsh C. (1987). Individual irrationality and public policy: In search of merit/demerit policies. *Journal of Public Policy*, 7(2), 103–134. Cambridge University Press. <https://www.jstor.org/stable/4007267>
- [5] Ver Eecke W, Nowacki M. (2023). Integrating the economic concept of a "merit good" used to justify the teaching of ethics across the university curriculum: Revisiting Musgrave's perspective. In *New Approaches to Business, Management and Economics* (Vol. 9, Chapter 2). <https://doi.org/10.9734/bpi/nabme/v9/5777>
- [6] Barroso A. (2008). Advertising and consumer awareness of a new product. *Centre for Economic Policy Research Paper*, 3, 1–30.
- [7] Ayanwale A B, Alimi T, Ayanbimipe M A. (2005). The influence of advertising on consumer brand preference. *Journal of Social Sciences*, 10(1), 9–16.
- [8] Giesbrecht N, Reisdorfer E, Shield K. (2024). The impacts of alcohol marketing and advertising, and the alcohol industry's views on marketing regulations: Systematic reviews of systematic reviews. *Drug and Alcohol Review*, 43(6), 1250–1268. <https://doi.org/10.1111/dar.13881>
- [9] Becker G S, Murphy K M. (1993). A simple theory of advertising as a good or bad. *The Quarterly Journal of Economics*, 108(4), 941–964.
- [10] Martins J, Costa C, Oliveira T, Gonçalves, R., & Branco, F. (2019). How smartphone advertising influences consumers' purchase intention. *Journal of Business Research*, 94, 378–387.
- [11] Ha H Y, John J, Janda S. (2011). The effects of advertising spending on brand loyalty in services. *European Journal of Marketing*, 45(4), 673–691.
- [12] Starr M K, Rubinson J R. (1978). A loyalty group segmentation model for brand purchasing simulation. *Journal of Marketing Research*, 15(3), 378–383.
- [13] Krishnamurthi L, Sethuraman P R. (1991). An empirical analysis of the relationship between brand loyalty and consumer price elasticity. *Marketing Science*, 10(2), 172–183.
- [14] Pollay R W. (1989). Filters, flavors flim-flam, too! On "health information" and policy implications in cigarette advertising. *Journal of Public Policy & Marketing*, 8(1), 30–39.
- [15] Lim C W, Sun T, Vu G, Chan G C K, Leung J. (2024). The underbelly of E-cigarette advertising: Regulating online markets on social media platforms. *Harm Reduction Journal*, 21(105), 1–10. <https://doi.org/10.1186/s12954-024-01027-5>
- [16] Warner K E. (1985). Tobacco industry response to public health concern: A

- content analysis of cigarette ads. *Health Education Quarterly*, 12(1), 115–127.
- [17] Pollay R W. (1987). Marketing at odds: Health information in cigarette advertising. *Journal of Public Policy & Marketing*, 6, 29–43.
- [18] Tye J B, Warner K E, Glantz S A. (1987). Tobacco advertising and consumption: Evidence of a causal relationship. *Journal of Public Health Policy*, 8, 492–508.
- [19] Ringold D J, Calfee J E. (1989). The informational content of cigarette advertising: 1926–1986. *Journal of Public Policy & Marketing*, 8(1), 1–23.
- [20] Calfee J E. (2000). The historical significance of Joe Camel. *Journal of Public Policy & Marketing*, 19(2), 168–182.
- [21] Cohen J B. (2000). Playing to win: Marketing and public policy at odds over Joe Camel. *Journal of Public Policy & Marketing*, 19(2), 155–167.
- [22] Tuchman A E. (2019). Advertising and demand for addictive goods: The effects of e-cigarette advertising. *Marketing Science*, 38(6), 994–1022