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Can recyclable packaging enhance consumers' willingness to buy? The mediating role of corporate social responsibility perception

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I hereby declare that this dissertation is my original work and it has been written by me in its entirety.
I have duly acknowledged all the sources of information which have been used in this dissertation.

This dissertation has also not been submitted for any degree in any university previously.

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Abstract

The usage of recyclable packaging is a manifestation of corporate social responsibility and conforms to the trend of green and sustainable development. In recent years, with the rapid growth of the environmental awareness, consumers tend to choose more environmentally friendly and recyclable packaged products. Therefore, in order to better promote the usage of recyclable packaging, it is necessary to conduct in-depth research on why consumers choose recyclable packaging. Aiming to explore the impact of recyclable packaging on consumer behavior and its underlying mechanism, this study receives 314 questionnaire surveys all over the country, and adopts ANOVA and process model analyses to verify the main effects and the mediating role of consumers' perception of CSR between the recyclable packaging and consumer behavior (consumer purchase intention, consumer satisfaction and consumers' willingness to pay premium). Meanwhile, consumers' environmental attitudes play a significant moderating role between recyclable packaging and consumers' perception of CSR. Compared with the direct impact of recyclable packaging

on consumer behavior, the moderated mediation effect of consumers' perception of CSR is more significant, that is, when increasing consumers' perception of CSR, those who have higher environmental attitudes tend to have stronger consumer purchase intention on recyclable packaging; and when purchasing products with recyclable packaging, they tend to generate more consumer satisfaction and more willingness to pay premium.

Keywords: Recyclable Packaging, Consumer Behavior, Perception of Corporate Social Responsibility, Environmental Attitudes

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Acknowledgement

Writing in the late night, I am overwhelmed as I'm near the end of my 7-year's academic journey. Looking back, I have lived up to my initial aspirations, my youth, and been filled with gratitude and love.

Pursuing a PhD is like running a long marathon. The scenic views along the way have captivated me, making me eager to explore the unknown ahead. However, there are also moments of self-doubt during this journey. Fortunately, I've encountered those who love me, support me and encourage me, including supervisors, parents, spouse, and children. After countless reflections on how to begin this acknowledgment, I've decided to follow my feelings along the academic career and express my sincere thoughts.

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Chapter 1 Introduction

According to the China Packaging Federation, enterprises above designated size in China's packaging industry have reached a cumulative operating income of 1,229.334 billion yuan in 2022, accounting for more than 1% of GDP. However, the investment in packaging research in China is far behind the development of packaging economy, and China's packaging industry also encounters some issues, such as resource waste, heavy pollution, energy consumption, and high emissions. For example, according to "2021-2030 Green Packaging Carbon Emission Reduction Potential Report for China Express Delivery Industry" officially released by SINOPEC, in 2020, the total carbon emissions of China express delivery packaging solely in the production and waste treatment is 23.9584 million tons of carbon dioxide equivalent, if there is no recycling or replacement of disposable plastic bags generated by the express industry, the cumulative carbon emissions of disposable plastic bags in express delivery industry will reach 59.61 million tons in 2021-2030. Environmental damage caused by materials (such as the environmental impact of felling trees) and CO_2 emissions from packaging waste are not included in the published CO_2 emissions due to the lack of relevant data measured in the process. In fact, more than 50% Chinese products are over-packaged, and about 400 billion yuan is wasted every year. In addition, the recycling rate of packaging waste (such as paper, metal, glass, etc.) in China is 10%-30% lower than that in the developed countries, most resources become solid waste after being used once. Thus, green and low-carbon packaging urges to become a key component of China's green development (Wen Yan, 2023).

From the perspective of consumers, the "Citizen Environmental Protection Behavior Survey" led by the China Environmental Culture Promotion Association shows that the ecological civilization concepts such as "clear waters and green mountains are as good as mountains of gold and silver", simple and

moderate, green and low-carbon consumption are highly recognized and deeply rooted among the public. Environmental protection behavior is reflected in various aspects, including specific environmental practices such as waste reuse methods, reusing old items, and environmental protection labels. The volume of packaging continues to grow, and the problems of excessive resource consumption and environmental pollution are becoming increasingly prominent. Moreover, with the deep influence and widespread acceptance of sustainable development, economic development at the cost of over-exploitation of natural resources and pollution is no longer popular. As the largest developing country in the world, China faces pressure to achieve ecological balance and environmental protection. Since the packaging industry is closely related to environmental protection and sustainable development, green packaging has become a new pursuit of consumers to achieve a balance between economic growth and ecological development (Hao et al., 2019).

From the perspective of enterprises, a large number studies have shown that when expanding the business operating scale and pursuing shareholder interests maximization, enterprises may neglect social responsibilities such as environmental pollution, quality of products and services, and tax evasion (Zhang Zhaoguo et al., 2009), which not only affects the sustainable development of the enterprises but also increases huge social costs, resulting in seriously affecting the harmonious development of the entire social economy.

Financial success has long been the most important measure in determining the corporate value. Enterprises with higher financial margins usually receive higher rankings. Maximizing shareholder interests is the core goal of profit-driven enterprises. Therefore, corporate social responsibility (CSR) received little attention in the past. However, the public perception of CSR has changed dramatically over the past decade. Social contribution plays an increasingly important role in judging the corporate performance. CSR refers to an

organization’s obligation to society as a whole, not just to its shareholders or consumers.

One reason why enterprises pay more attention to CSR is that when facing fierce market competition, CSR affects consumer satisfaction and their purchasing decisions, resulting in continuous rise in consumer expectations. On one hand, enterprises with the traditional goal of profit-driven are hard to expand the market, so they have to adopt strategies of paying more attention to retain consumers. Because loyal consumers tend to purchase, consume and provide helpful advice, which benefit to the long-term development of enterprises. On the other hand, with the continuous improvement of living standards and the accumulation of environmental protection knowledge, environmental awareness has significantly increased. Therefore, consumers express some concerns for environmental protection in their daily purchase, for example, whether the materials used in products are environmentally friendly, whether the resource consumption is more economical, whether the production and usage of products produce toxic and harmful substances, or whether the products are recycled. Therefore, producing and using more environmentally friendly recyclable products benefit the corporate image and reflect its CSR, thereby increasing the consumer’s corporate identity, loyalty, and purchase intention. It is worthy of further investigation whether the usage of recyclable packaging directly increases consumer purchase intention, consumer satisfaction, and willingness to pay premium. In addition, consumers have different attitudes towards the environment, some are more keen on the environment protection, while some are less concerned about it, so, whether consumers’ perception of CSR mediates the relationship between recyclable packaging and consumer purchase intention, consumer satisfaction, and willingness to pay premium also needs to be further explored.

The usage of recyclable packaging, as a means of embodying CSR, has become an important measure for enterprises to comply with the general trend of green and sustainable development. As the public awareness of environmental protection has significantly increased in recent years, for product packaging, consumers tend to choose more environmentally friendly and recyclable packaging for the environmental protection. Therefore, it is necessary to conduct in-depth research on why consumers choose recyclable packaging, so as to better promote the usage of recyclable packaging.

Chapter 2 Literature Review

2.1 Recyclable Packaging

Recyclable packaging is a type of green packaging, and the concept of green packaging originated from green products, so we first systematically elaborate the related concepts of recyclable packaging in this section.

2.1.1 Overview of Green Products

Green products are generally referred as eco-products or environmentally friendly products. In a broader view, green products mean that producers have developed recycling strategies to reduce their impacts on the natural environment by consuming less energy, using fewer packaging materials or reducing the usage of toxic materials (Biswas & Roy, 2015). According to the OECD, green products or environmentally friendly products refer to the products that are produced without non-toxic chemicals, recyclable, reusable, biodegradable, or in environmentally friendly packaging, have a low harmful impact on the environment at all stages of the life cycle, and have the long-term goal of protecting the natural environment.

Green products do no harm the environment and have non-potentially harmful ingredients. Strictly speaking, there are no pure green products, and all products that consumers buy, own, use and dispose in their daily lives will have some negative impacts on the environment at some stage in the life cycle. However, products can be classified according to their impacts on the environment, and if products have low environmental impact, they can be regarded as green products (Wu Bo, 2014). Compared with ordinary products, green products tend to use non-toxic raw materials that can be degraded by microorganisms, or use recyclable packaging that consumes less energy, so the price of green products are 20%-25% higher than that of ordinary products. Green products are products

with recyclable packaging, energy-saving home appliances, degradable material products, organic food and so on.

Green products are defined as environmentally friendly products that can be recycled after usage. There are some characteristics of environmentally friendly products and services, including: 1) harmless to human or animal health; 2) no harm caused to the environment during the process of production, usage and disposal; 3) no excessive consumption of energy, resources during the process of production, usage and disposal; and 4) no waste caused by excessive packaging (Zeynalova & Namazova, 2022). According to Blair (1992), the characteristics of environmentally friendly products are, energy saving, no pollution, recyclable or recycled, production with minimum packaging or renewable resources, harmless to human body, no harmful ingredients.

2.1.2 Overview of Green Packaging

Concept of Green Packaging

Green packaging refers to packaging that is harmless to the ecologic environment and human health, reused and recyclable, and aligns with sustainable development (Yu Dali, 2011). The core element of green packaging is the environmentally friendly and resource-saving technology. During the entire life cycle of product design, R&D, manufacturing, usage, and recycling, green packaging minimizes or eliminates harm to the ecological environment and human health. The technologies required for energy saving and resource reduction meet the requirements of sustainable development (Hao et al., 2019).

Packaging is used to protect products, facilitate the storage, transportation and promotion of products. As a green packaging, it must first have the above three attributes. Secondly, green packaging also has the following three characteristics, namely, safety and health, environmental protection and resource saving. Safety and health refer to the usage of packaging materials

meets national safety and health standards and do not cause harm to human health. Different products have different requirements for the safety and health of packaging materials. For items such as food and drugs, safety and health standards are often very high. Environmental protection means that packaging materials do not harm the environment in the entire process, from raw material acquisition, production and processing, usage, to waste disposal. Resource saving means the efficient use of materials and energy. Packaging with the above characteristics is regarded as green packaging.

The principle of "3R1D" is a prerequisite for the development of green packaging. The so-called 3R refers to: 1) packaging Reduce, that is, minimize the packaging volume while still meeting the requirements of product protection, logistics convenience, and sale promotion; 2) easy to Reuse, means that packaging can be reused after simple treatment; and 3) easy to Recycle, means that packaging materials are easy to reuse through processing and recycling. 1D means that packaging waste is Degradable. To sum up, green packaging is to protect the environment as the core, to save resources as the goal, to protect the environment from the source, and conforms to the concept of sustainable development of a low-carbon economy.

Research on Green Packaging

Green packaging is a new type of environmentally friendly product that has contributed to all aspects of environmental protection (Grönman et al., 2013). To some extent, consumers tend to use green packaging and are willing to pay for it (Nordin & Selke, 2010). The research on green packaging is mainly divided into three categories.

The first category, from a micro perspective, focuses on the materials and manufacturing standards. For example, the principles of green packaging design are: reduce, simply, light, harmless, clean production (Hu et al., 2010). Starting

from material manufacturing, foreign scholars put forward a new idea of using organic low-cost crops as raw materials. According to recent research, traditional packaging manufacturing is related to the environmental waste. It is worth noting that bio-based packaging materials play an important role in sustainable development, and cassava has great potential (Tumwesigye et al., 2016). In addition, Hsieh et al. (2017) discuss the preparation and characterization of bio-based carbon-silicon materials extracted from rice husk agricultural waste, and demonstrate the usefulness in electronic packaging applications. These studies not only provide references for raw materials and manufacturing standards, but also provide technical support and scientific proof. However, these studies only focus on design and do not take consumers' feedback into account after launching the products.

The second category, from a macro perspective, is concluded that to build a complete and well-run packaging recyclable system, the joint efforts of governments at all levels, enterprises and consumers are needed for the development of green packaging. The carbon emissions are controlled strictly in the stage of design, manufacturing, transportation, consumption, disposal, recyclable and so on. It is necessary to improve laws and regulations, promote the popularization and usage of green packaging, and establish low-carbon awareness and environmentally friendly consumption habits. With these efforts, sustainable development can be achieved (Yu Dali, 2011). For example, designing and building a life cycle system for recyclable cans with zero pollution requires the participation of governments, enterprises and individuals (Niero et al., 2017). The popularity of online shopping has promoted the vigorous development of packaging consumption and packaging industry. Fan et al. (2017) estimate the environmental load of packaging consumption in China's express delivery industry, and indicate that the express delivery industry has become a serious burden on China's environment. These studies examine the packaging life cycle, mainly focusing on the theoretical level of

institutional construction and standard improvement, with limited on the category of green packaging.

The third category, from the perspective of consumer behavioral psychology and regional cultural differences, analyzes the relationship between consumers' characteristics and their preferences on green packaging. The analysis on the social impact of various packaging waste management systems shows that formal packaging waste collection systems have a positive impact on social safety and the public health. In addition, social security and public health also have an interaction with the packaging waste collection system. In view of the importance of recyclable and collection for green packaging, Wang et al. (2018) explore four typical Internet-based recycling models, and the most important is to develop the recycling habit. These studies emphasize the impact of green packaging on consumers, while ignoring the potential consumers' impact on green packaging.

2.2 Corporate Social Responsibility

In this section, the concept of corporate social responsibility, the stakeholder theory, and the extent research on the impact of CSR are introduced.

2.2.1 Overview of Corporate Social Responsibility

Concept of Corporate Social Responsibility

The term, Corporate Social Responsibility (CSR), was first put forward by British scholar Oliver Sheldon (1924) in his book "The Philosophy of Management". Research on CSR is traced back to Bowen' book, "Social Responsibilities of the Businessman", published in 1953, which gives a definition to the social responsibilities of the businessman, that is, businessmen have the obligation to formulate policies, make decisions or take certain actions in accordance with the goals and values expected by society (Bowen, 2013). This argument becomes the initial definition of CSR and elaborates a new field

research on CSR. Since the 1980s, as various social and environmental problems get more prominent, CSR has become a hot topic in academic research. However, research on CSR from the perspective of consumers is relatively weak (Xie Peihong & Zhou Zucheng, 2009).

The goal of CSR is to maximize corporate profits and shareholder value, meet social expectations, protect the interests of stakeholders (shareholders, employees, consumers, suppliers and communities), operate business according to law, and voluntarily undertake social responsibility (He & Lai, 2014). In addition, the concept of CSR has gradually expanded to include the responsibility of the entire enterprise. Maignan & Ferrell (2001) divide CSR into four aspects, namely, social obligation, stakeholder obligation, ethical drive and management process.

Porter & Kramer (2006) mention that CSR provides opportunities for enterprises to build competitive advantages and justify four arguments of CSR, namely, moral obligation, sustainability, license to operate, and reputation. Moral obligation argues that enterprises have the obligation to "do the right thing" and be a good example to community; Sustainability focuses on environmental and social stewardship; License to operate means that the business behavior is recognized by the government, community and other stakeholders; and Reputation is the evidence that enterprises have fulfilled its CSR, which can reduce the negative influence when enterprises face crisis.

Shareholders vs Stakeholders

In the research field of enterprise theory, two theories are gradually differentiated, "Shareholder Primacy Theory" and "Stakeholder Theory". The former believes that shareholders own the enterprises, while the latter believes that stakeholders own the enterprises. According to the stakeholder theory, CSR means that while making profits and being responsible for the interests of

shareholders, enterprises also assume social responsibilities to employees, consumers, communities and the environment, including complying with business ethics, production safety and occupational health, protecting the legitimate rights and interests of employees, protecting the environment, supporting charities, donating to social welfare, and protecting vulnerable groups, which is far beyond the previous scope of only being responsible to shareholders, and emphasizing social responsibility to various stakeholders, including shareholders, employees, consumers, communities, governments and other stakeholders.

Why enterprises assume social responsibility is a key issue in the study of CSR. It is related to whether the opponents of CSR can be theoretically convinced, whether the CSR theory can be elaborated, whether the CSR awareness can be practically improved, and whether enterprises can consciously assume social responsibility (Roman et al., 1999). At present, the academic research on this issue mainly focuses on empirical studies, and the major findings believe that CSR is beneficial to improving corporate financial performance (Chen & Metcalf, 1980; Cochran & Wood, 1984).

CSR is not only conducive to maintaining the interests of various stakeholders, reducing social costs, and promoting the harmonious development of the entire social economy, but also conducive to enhancing the corporate competitiveness, improving corporate performance, and promoting sustainable development of enterprises. Therefore, enterprises should improve their awareness of social responsibility and consciously assume social responsibility (Zhang Zhaoguo et al., 2012).

Carroll's CSR Pyramid

According to Carroll (1991), CSR is divided into four levels (from the bottom to the top), economic responsibilities, legal responsibilities, ethical responsibilities and philanthropic responsibilities, which is so-called as Carroll's CSR Pyramid (shown in Figure 2-1 below).

Figure 2-1 Carroll's CSR Pyramid

Economic responsibilities refer to the benefits and returns necessary for enterprises to operate in society, which is the basic requirement to ensure the survival of enterprises and the basis for enterprises to realize other social responsibilities.

Legal responsibilities ensure that enterprises follow the relevant laws and legal agreements, and their operation is within the scope of the law. The public tend to respect those enterprises complying with legal responsibilities, which is considered as the minimum social obligation of enterprises (Lin-Hi, 2010), and is believed that enterprises complying with laws and regulations are generally

trustworthy and provide high-quality products and services (McWilliams & Siegel, 2001).

Ethical responsibilities indicate that the activities conducted by enterprises are consistent with social norms, values and behavior (Eshra & Beshir, 2017). Consumers are more likely willing to show recognition and pay higher prices for enterprises that conduct business ethics in practice. According to Creyer (1997), compared to competitors' products, consumers prefer to purchase products or services with specific ethical labels (such as "no animal testing"). In addition, consumers consider ethical responsibilities to be the most important, or even superior to all other levels of CSR. Consumers are willing to give priority to products produced by ethical enterprises (Luo & Bhattacharya, 2006). In addition, ethical brands also have significant correlation to customer well-being (Ferrell et al., 2019).

Philanthropic responsibilities refer to the intentional or voluntary behavior and activities that are highly appreciated by stakeholders. Enterprises engaged in these activities gain a higher level of recognition and appreciation from consumers (Carroll 1991; Eshra & Beshir, 2017). Enterprises usually tend to confuse the philanthropic responsibilities and ethical responsibilities. The underlying difference is that ethical responsibilities suggest that it is important for enterprises to operate in an ethical manner due to the society demands on such behavior. The philanthropic responsibilities are the conscious desire of enterprises to gain appreciation through its benevolent behavior towards the society. In order to gain an edge in the competition, philanthropic activities are essential for enterprises. Furthermore, in order to gain social appreciation, enterprises use philanthropy as a key component of their strategy development (Figar & Figar, 2011). Similarly, Bezovan (2002) finds that granting scholarships or improving the living conditions are still the main ways of corporate's giving back to society.

Based on Carroll's CSR Pyramid, many scholars have developed scales to measure the perception of CSR. For example, Turker (2009) measures CSRs of stakeholders, employees, consumers and the government when examining the impact of perceived CSR on organizational commitment. In this study, I adopt his scale based on Carroll's CSR Pyramid to measure the consumer's perception of CSR.

The Impact of Consumers' Perception of CSR on Consumer Behavior

Consumers' perception of CSR is a key prerequisite for their positive response to these activities, and consumers show favorable attitudes towards enterprises engaging in CSR (Bhattacharya & Sen, 2004).

Empirical studies show that CSR promotes corporate reputation and consumer satisfaction (Galbreath, 2010). Enterprises with CSR orientation build strong relationships with stakeholders (Peloza & Shang, 2011). For multi-national companies, CSR efforts are made to demonstrate that sufficient resources are utilized to benefit society (Holt et al., 2004). CSR is critical to banks' image and brand reputation (Fatma & Rahman, 2014). Empirical studies also show that consumers perceive social responsibility when forming their impression on enterprises (Chen et al., 2015). Some studies reveal the impact of CSR motivation on consumers' attitudes towards enterprises and consumer purchase behavior (Sen et al., 2006; Grappe et al., 2013; Tian et al., 2011), and in return, consumers' impression on enterprises influences their beliefs and attitudes about the products they produce (Brown & Dacin, 1997).

From the perspective of consumers, some domestic and foreign scholars have studied the impact of CSR on customer purchase intention and customer loyalty. For example, according to Ross et al. (1992), 49% of the participants attribute the main reason of purchasing products for the enterprises' support to public

welfare undertakings, and 54% of the participants tend to try new products or new brands laundered by the enterprises due to their participation in public welfare undertakings in the future. However, Mohr et al. (2001) find that consumers sometimes do not make decision on the purchase simply based on whether or not enterprises fulfill their CSRs, but rather consider more on the price, quality and convenience of the products. Folkes & Kamins (1999) conduct an experimental study on consumer purchase intention when facing different levels of CSRs and different product quality and find that the motivation of enterprises to participate in social activities is that fulfilling social responsibility enhances corporate image and has a positive impact on consumer purchase intention. McWilliams & Siegel (2001) believe that it is essential for enterprises to link social responsibility with environmental protection to achieve the goal of sustainable development. Enterprises can not only increase consumer purchase intention by improving consumers' perception of products, but also achieve this goal by improving their self-image (Jin et al., 2017). When consumers perceive an enterprise's unethical behavior, even if the enterprise's products have good quality, consumers will not have a good evaluation of the enterprise and its brand (Li Haiqin & Zhang Zigang, 2010).

2.3 Consumer Behavior

The consumer behavior described in this study specifically includes three aspects, namely, consumer purchase intention, consumer satisfaction and willingness to pay premium.

2.3.1 Consumer Purchase Intention

Concept of Consumer Purchase Intention

The research on "consumer purchase intention" is traced back to the 1970s. Fishbein & Ajzen (1972) first extend "willingness" from the field of psychology to the field of consumption, and define it as "the probability of consumers' subjective judgment of purchasing behavior is the result of the comprehensive

effect of consumer attitudes, evaluation and other factors, and purchase intention is the most critical factor to predict consumer behavior". Mullet & Karson (1985) and Han Rui & Tian Zhilong (2005) believe that consumer purchase intention is determined by their attitudes towards a product or brand and external environmental factors. Dodds et al. (1991) believe that purchase intention is the subjective probability or possibility of consumers to buy a certain product. To sum up, this paper defines consumer purchase intention as a combination of consumer subjective attitude and external factors.

Research on Consumer Purchase Intention

Wicks et al. (1994) put forward the stakeholder theory and believe that consumers are the main stakeholders of enterprises and are crucial to the development and profitability of enterprises. Therefore, consumer behavior has a profound impact on enterprises. Previous studies have shown that purchase intention and premium price (both represent customer behavioral willingness) are key factors in enterprises' performance and profitability, and positive outcomes of good business-consumer relationships contribute to increased cash flow and are positively correlated with financial performance and market capitalization (Bondesson, 2012; Yuen et al., 2016).

Consumers are the center to guide enterprises to carry out various business activities. Consumer purchase intention can predict consumer behavior and is the basis of purchasing behavior. Engel (1997) divides the consumer purchase decision into the following five stages: problem cognition, information search, program evaluation, purchase decision and purchase evaluation (shown in Figure 2-2). Purchase intention is in the stage of "purchase decision", in which consumers have gone through the first three stages, have a certain understanding of personal needs, search product information, evaluate the purchase plan, and produce purchase intention, and then produce purchase decision.

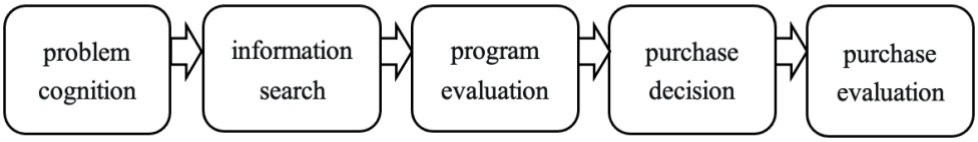

Figure 2-2 The Process of Consumer Purchase Decision

2.3.2 Consumer Satisfaction

Concept of Consumer Satisfaction

Consumer satisfaction was first proposed by Carsozo (1965). So far, there are many definitions of consumer satisfaction at home and abroad. Among them, Oliver (1980) proposes that "…consumer satisfaction is a perception generated by consumers after comparing their actual experience with their expectations in the process of consuming products or services, otherwise, I am not satisfied…". Consumer satisfaction refers to an individual's degree of satisfaction or disappointment (including under-satisfaction or over-satisfaction) with the product or service he/she purchased, and the result of the comparison between the actual performance of the product or service and the individual's initial expectations (Kotler & Keller, 2000). With the development of economy and society, consumer satisfaction has become one of the important indicators of enterprise performance (Yang Shaohua, 2015). In today's society, competition is increasingly fierce, how to improve consumer satisfaction has become a hot issue for enterprises to pay attention to.

Consumer satisfaction is the key for enterprises to survive in the fierce competition. Studies have shown that making consumers happy and retaining them is the most cost-effective. For example, Naumann & Giel (1995) suggest that it takes about five times as much time, money, and resources to attract new consumers as it does to retain existing ones. Therefore, it can be considered that improving consumer satisfaction and retaining consumers are effective survival strategies for enterprises. In addition, since consumer satisfaction is an

important criterion in determining product quality and service, it is regarded as a means of assessing the quality of products (Grigoroudis & Siskos, 2009). Therefore, consumer satisfaction is accepted in measuring enterprises' competitiveness (Morgan et al., 2005) and an influential performance indicator (Luo & Homburg, 2007).

Research on Consumer Satisfaction

Consumer satisfaction is an important indicator, which significantly affects customers' willingness to buy back (He & Song, 2009). Consumer satisfaction predicts repeat purchase and new customers (Barber et al., 2011; Huy Tuu & Ottar Olsen, 2009) and bring huge benefits to the enterprises (Brunner et al., 2008). For a decade, the topic of "consumer satisfaction" has dominated the marketing literature, and research on consumer satisfaction tends to be more theoretical than others (Oh & Kim, 2017).

Alhelalat et al. (2017) find that factors affecting consumer satisfaction can be divided into two aspects: personal satisfaction and functional satisfaction. The personal level includes agreeableness, polite, appearance and personal attitude. In terms of functional satisfaction, Baltas & Papastathopoulou (2003) show that product quality has a significant positive impact on consumer satisfaction, Hameed et al. (2021) also show that in the process of online shopping, in addition to product quality, convenience, value, product quality and risk are also positively correlated with consumer satisfaction. Similarly, Dam & Dam (2021) show that usefulness, ease of use, quality of website design and price positively affect consumer satisfaction in the online shopping.

Emphasis on consumer relationship has created a paradigm shift from transactional marketing to relationship marketing (Grönroos, 1994), many studies have taken satisfaction as a basic principle of consumer retention, and consumer satisfaction has become the key indicator of relationship marketing

(Al-Fawaeer et al., 2012). As consumers are the main stakeholders and the main source of business revenue, meeting consumer needs enables enterprises to increase consumers' trust, willingness to re-purchase, profitability and competitiveness. Therefore, consumer satisfaction is highly valued and regarded as a valuable form of customer feedback (Ranaweera & Prabhu, 2003), and willingness to recommend is a key measure of consumer satisfaction (Farris et al., 2010).

Research also find that consumer satisfaction is a key factor in the establishment of long-term relationship between enterprises and consumers (Anderson & Srinivasan, 2003; Gruca & Rego, 2005), and consumer satisfaction is positively correlated with the stock return and market value of the enterprises (Sorescu & Sorescu, 2016) and affects consumers' future purchase intention (Theng et al., 2011).

Measure of Consumer Satisfaction

When measuring consumer satisfaction, many scholars have developed Consumer Satisfaction Index suitable for their domestic consumers, which mostly relies on the Expectancy-Disconfirmation Model proposed by Oliver (1980). According to this model, consumer satisfaction is determined by the difference between pre-purchase expectation and performance of products, specifically, consumers are satisfied when performance exceeds expectations, consumers are dissatisfied when performance is not so good as expected, consumer satisfaction is neutral when performance is consistent with expectations. Swedish scholars develop the Swedish Consumer satisfaction Index (SCSB), which includes five dimensions: consumption expectation, perceived value, consumer satisfaction, consumer complaints and loyalty. Fornell et al. (1996) work in the National Quality Research Center, University of Michigan Business School and try to measure consumer satisfaction directly and objectively, they finally develop the American Consumer satisfaction Index

(ACSI), which is recognized as a new market-based index and is often used to measure the performance of enterprises, industries, economic sectors and national economy. Based on ACSI, Chinese scholars develop the China Index Model (CCSI) suitable for Chinese consumers.

The ASCI and CCSI models are widely used to measure consumer satisfaction in China. For example, Han Xiaoyun & Wang Chunxiao (2003) adopt the items of "Consumers' Overall Satisfaction with the Consumption Experience" to study the relationship between consumer satisfaction and consumer loyalty. Yang Wansu & Yang Shaohua (2015) construct three items, namely, "Overall Satisfaction", "Comparison between Reality and Expectation" and "Comparison between Reality and Ideal" based on ASCI model. Based on the previous research, this paper adopts the item of "Overall Satisfaction" to measure consumer satisfaction.

2.3.3 Consumers' Willingness to Pay Premium

Concept of Consumers' Willingness to Pay Premium

The word "premium" originates from the financial field and is explained as the part that is higher the standard price. "Willingness to pay" (WTP) includes two meanings, first, the highest price that consumers accept for a certain product or service, emphasizing on the highest price; second, the additional cost that consumers are willing to pay for a certain product or service, emphasizing on premium. This study focuses on whether consumers are willing to pay premium for recyclable packaging.

Regarding the definition of "willingness to pay premium", the extant research mainly defines it from the attributes of product brand. Blackston (1990) defines it as "the willingness of consumers to pay a higher price for a brand's product compared with the price of other brands' products with the same functional value". Aaker (1996) believes that the "willingness to pay premium" can be

regarded as “the extra cost that consumers are willing to pay for a particular brand compared with other similar brands”.

In addition, some scholars define “willingness to pay premium” from the perspectives of sales location of the products, the functional attributes of the products, and the consumer perceived value on the products.

Based on the sales location of the products, Chaudhuri & Ligas (2009) conduct a study on retail stores and find that consumers are willing to pay a higher price for the product at a particular store, even if the price of the same product is lower in other stores. Wu Sizong et al. (2011) focus on products or services in shopping malls and reflect “willingness to pay premium” as consumers’ higher payment for the same or similar products and services in a specific shopping mall.

Based on the functional attributes of the products, He Jiaxun (2000) believes that “willingness to pay premium” is that consumers are willing to pay more for the unique functions of a product by comparing the functions and quality of various products in the market.

Based on consumers’ perceived value on the products, Delvecchio & Smith (2005) point out that the so-called premium refers to the extra price difference that consumers are willing to pay for a product when they think that a product is more valuable to them after comparing products with the same or similar functions. Although the price of the products is close to or exceeds the bottom line of consumers, consumers are still willing to buy based on their loyalty. Aguilar & Vlosky (2007) point out that “willingness to pay premium” is the price consumers are willing to pay in order to obtain better benefits for themselves. Shi Xiaofeng & Wu Xiaoding (2011) believe that the “willingness to pay premium” refers to the willingness of consumers to pay a higher price for

a certain product when they choose a product with similar functions and attributes. Even when the price of the product is relatively higher, they will still purchase it.

Gaines et al. (2018) define "willingness to pay premium" from the perspective of the "green" attribute of the products and is considered to be the willingness of buyers to pay higher prices for green products than ordinary products. Zhang et al. (2018) examine factors influencing the consumers' purchase intention and willingness to pay a premium price for safe vegetables. The "willingness to pay premium" in this paper is similar to this definition, which is also based on the "green" attribute and is embodied in the recyclability of packaging, focusing on whether consumers are willing to pay premium for recyclable packaging.

Research on Consumers' Willingness to Pay Premium

Chaudhuri & Ligas (2009) develop two items to measure consumers' willingness to pay premium, namely, "I am willing to pay a higher price in this store than in other similar stores" and "I am willing to spend money in this store even if the price advertised by other stores is lower". Netemeyer et al. (2004) create four items, namely, "I will still choose this product even if the price rises a little", "I am willing to pay a higher price for this product than other products", "I am willing to pay more than 0%, 5%, 10%, 15%, 20%, 25%, 30% of the price for this product", and "I am willing to pay more for this product than other products". In the study of brand premium, Bravo et al. (2008) set three items to measure "willingness to pay premium", that is, "I am willing to pay a higher price for this brand than other brands", "I will not choose to change the brand if the price of this brand is much higher", and "I am willing to pay more for this brand". In the study of product premium, Lee et al. (2010) examine consumers' willingness to pay premium for green products through three items, that is, "it is acceptable to pay over for green products", "I am willing to pay more for green products", and "I am willing to pay more for the environmental

friendliness of green products". Further, Ge Wanda (2019) and Gleim & Lawson (2014) conduct in-depth research on the degree of premium and find that consumers' acceptance of green premium is limited, and 20% green premium is more popular and accepted by consumers, but Fu Lifang et al. (2014) find that there is a large gap between premium level and payment willingness. As this study intends to measure consumers' willingness to pay premium for recyclable packaging, not their willingness to pay premium for recyclable packaging products, therefore, the scale is a combination of Chaudhuri & Ligas (2009), Bravo (2008) and Lee et al. (2010).

Influencing Factors of Willingness to Pay Premium

At present, research on the factors affecting "willingness to pay premium" is mainly based on the ordinary products, green products, green food and brand.

In the study of ordinary products, product quality perception and product value perception significantly affect consumers' willingness to pay premium. Liu Guohua & Su Yong (2006) propose that product quality is the basis for consumers to pay a premium. Jiang Baichen et al. (2013) find that consumers' perception of product quality and safety is an important factor affecting consumers' premium payment. When considering food safety and quality, consumers are willing to pay a higher price for high-quality agricultural products. Consumers' willingness to pay premium for products is related to their cognition level. Previous studies have shown that customers' perceived value and brand personality have impacts on willingness to pay premium (Chaudhuri & Ligas, 2009).

In the study of green products, environmental responsibility significantly affects consumers' willingness to pay premium. Borin et al. (2013) find that consumers are more willing to choose environmentally friendly products for the purpose of environmental protection, and are willing to pay a higher price. Sheng

Guanghua et al. (2019) find that consumers are willing to pay more than their value when buying green products based on environmental protection.

In the study of green food, product cognition, health awareness and environmental attitudes significantly affect consumers' willingness to pay premium. Liu Yuxiang (2013) conducts an empirical analysis on organic food, and the results show that consumers' cognition of organic food, product reputation and brand affect consumers' willingness to pay premium. Sheng Jiping et al. (2021) use non-GMO food to explore consumers' willingness to pay premium and find that consumers with higher awareness of GMO food have lower willingness to pay a premium, and middle-aged and elderly people have higher willingness to pay a premium than young people. Konuk (2018) takes pregnant women in Turkey as sample and finds that consumers' health awareness has a positive impact on purchase intention and willingness to pay a premium for organic food. Xie Qiang (2016) points out that consumer perceived ecological value has a positive impact on the premium payment level of green agricultural products.

In the brand-based research, brand loyalty, brand symbolic value and brand marketing strategy significantly affect consumers' willingness to pay premium. Srinivasan et al. (2002) conclude that the higher the brand loyalty of consumers, the stronger the willingness to pay premium for the brand. Zhu Liye & Yuan Denghua (2013) find that brand symbolic value has a positive impact on consumers' willingness to pay premium. Lu Hongliang & Zhang Yan (2016) also examine the impact of brand social value cognition, brand emotional cognition and brand loyalty on consumers' willingness to pay premium. The main finding of Wu Yaxiong's (2019) research on marketing strategy and premium payment willingness also shows that brand marketing strategy has a positive impact on consumers' premium payment willingness. Factors such as product promotion strategy, product management strategy and brand entry time

are significantly correlated with consumers' willingness to pay premium (Guan Huiguo et al., 2018).

2.4 Environmental Attitudes

Concept of Environmental Attitudes

Ajzen (1991) proposes that "the personal views and positions towards a certain environmental behavior are environmental attitudes". Heberlein (2012) defines that environmental attitudes are the subjective views towards the environment as a whole or some specific environmental behavior based on individual's subjective experiences or objective knowledge, it also refers to the concerns for the environment and the motivation to engage in specific environmental behavior. Yu Jiali (2013) defines environmental attitudes as the direct reflection of an individual's understanding of environmental consciousness, positive and negative attitudes and tendencies towards environmental issues and activities, based on his/her learning experiences and personal experiences. It's a direct reflection of personal environmental protection beliefs and environmental values.

Environmental attitudes (EA), an important concept in environmental psychology, is a psychological tendency expressed through a certain degree of preference or aversion to the natural environment, which is specifically manifested as a preference for environmentally friendly products and an aversion to products that waste resources and cause pollution (Milfont & Duckitt, 2010). Some previous studies have shown that there is a positive correlation between environmental attitudes and environmental behavior (Kollmuss & Agyeman, 2002). Respondents with higher environmental attitudes or higher score in the New Environmental Paradigm (NEP) show more positive cognition of green products consumption or gain higher utility from green products consumption (Lin & Huang, 2012), and positive environmental

attitudes enable individuals to make environmentally conscious consumption decisions (Gadenne et al., 2011). The change of environmental attitudes is mainly influenced by social norms, consumer sensitivity to price and situational variables (Milfont, 2012). Consumers believe that the green products they purchase will have a positive impact on the environment, which has a strong influence on their voluntary purchase of green products (Samuelson & Biek,1991; Sguin et al.,1998).

Research on Environmental Attitudes

Foreign scholars have conducted a lot of research to explore the factors that affecting EA and the relationship between EA and environmental behavior (EB). The influencing factors of EA mainly include internal factors such as individual basic information and external factors such as objective situation and moral regulation. On the basis of empirical analysis, Guagnano et al. (1995) point out that external situational factors also have a significant impact on tourists' environmental behavior. When studying the relationship between EA and EB, most foreign scholars agree that "attitude has an impact on behavior". Bamberg & Möser (2007) summarize 57 empirical studies on environmental attitudes and behavior, and conclude that EA are the most stable variable among factors affecting responsible EB.

Domestic scholars mainly discuss the influencing factors of EA from the perspectives of sociological and psychological characteristics, such as the gender, educational level, environmental protection values and so on. Luo Yanju et al. (2009) point out that differences in environmental perception lead to different EA of individuals. Liu Hongbo et al. (2018) take scenic spots of Jiayuguan City as sample and empirically concluded through exploratory factor analysis that cultural heritage attitudes such as identity of heritage preservation and identity crisis significantly affect tourists' protection behavior of world cultural heritage. Peng Yuanchun (2020) explores the impact of environmental

identity and attitude on college students' environmental behavior by collecting relevant data on their environmental literacy and combining theoretical models such as environmental behavior. Martinho et al. (2015) show that a positive attitude towards green purchasing is a key factor that differentiate consumers.

Measure of Environmental Attitudes

An attitude is an underlying concept and hard to be directly observed, so, attitudes are not directly measured, but inferred from published responses (Himmelfarb, 1993). To measure attitudes, it is roughly divided into direct self-reported and implicit measure (Krosnick et al., 2018). The common method to measure EA is to use direct self-reported (e.g., interviews and questionnaires), and scales (e.g., Environmental Concern Scale and New Ecological Paradigm Scale) are used to measure EA. Environmental Concern Scale and NEP Scale have been revised and elaborated constantly, such as the Multi-dimensional Awareness of Consequence Scale proposed in the 1990s, the behavior-based attitude scale for adolescents proposed by Kaiser et al. (1999). Dunlap et al. (2000) develop "New Ecological Paradigm Scale" based on the structure and language of the NEP Scale, Xiao et al. (2013) localize the scale through the data of China General Social Survey and propose the Chinese version of the New Ecological Paradigm Scale (CNEP), which is used to measure the environmental attitudes of Chinese urban and rural residents. Among the above-mentioned scales, the New ecological paradigm scale and the Chinese version of the New ecological Paradigm Scale are more widely used by researchers.

In terms of the dimensions and measurements, scholars have different opinions. First, from the perspective of dimension, Fransson & Gärling (1999) agree that EA should include three aspects: environmental sensitivity, environmental belief and environmental value. Grob (1995) uses the empirical data and divides EA into three levels: environmental awareness, human philosophical values and environmental emotions. Secondly, in terms of the measure, the two "paradigm"

scales developed by Dunlap & VanLiere (1978) are exemplary. With the in-depth research, various types of EA scales have developed. Cottrell et al. (2004) construct an EA scale containing 26 indicators to study the relationship between tourists' environmental attitudes and their environmental behavior in water projects.

Domestic scholars also have different opinions on the dimension of EA. Wang Guomeng et al. (2010) believe that environmental attitude is the embodiment of an individual's overall values. Lee & Peng (2004) divide EA into three aspects: environmental cognition, environmental emotion and environmental behavior intention through visiting and investigating community residents. Taking natural heritage sites as sample, Qi Qiuyin et al. (2009) use exploratory factor analysis to subdivide EA into four dimensions: emotion, knowledge, responsibility and morality when constructing equation model to explore the relationship between tourists' environmental attitudes and their behavior. After many years of development, Chinese scholars have also made contributions to the measurement of environmental attitudes. Gao Jing et al. (2009) design a scale of tourists' environmental attitude with 16 indicators to explore the impact of social background factors on environmental attitudes.

Chapter 3 Hypothesis Development

3.1 The Direct Effect of Recyclable Packaging and Consumer Purchase Intention, Consumer Satisfaction and Consumers' Willingness to Pay Premium

Sales of products with environmentally friendly packaging have grown rapidly in the past few years.[1] Consumers are increasingly willing to pay for products that are "healthy for themselves and for society".[2] By 2021, US consumers are expected to spend approximately $150 billion on sustainable products.[3] Nowadays, consumers are highly concerned about the environment and products that have a beneficial impact on the market (Groening et al., 2018).

Green products have many key aspects that need to be considered, among which, packaging, as the product attribute that consumers first notice before purchasing, is one of these key aspects. The "green" concept arouses consumers to consider the impact on the environment when making purchase decisions (Barnet, 2007). Specifically, in the process of product selection, consumers may look for recyclable products, which have environmentally friendly labels, representing less resource and energy consumption (Do Paco et al., 2019), and consumers also pay a premium price for environmentally friendly products (Flores, 2018). Based on this, the following hypothesis is proposed,

Hypothesis 1: Compared with products with ordinary packaging, those with recyclable packaging can enhance more consumer purchase intention, more consumer satisfaction and more willingness to pay premium.

[1] https://www.nielsen.com/zh/insights/2019/the-database-the-business-of-sustainability/

[2] https://www.nielsen.com/zh/insights/2018/what-sustainability-means-today/

[3] https://www.nielsen.com/zh/insights/2018/what-sustainability-means-today/

3.2 The Mediating Role of Consumer's Perception of CSR

According to Creyer & Rose (1997), consumers expect enterprises to realize social responsibility and take CSR into account when making purchasing decisions. They are willing to buy products at higher prices to encourage the fulfill of CSR; Luo & Bhattacharya (2006) and Wu et al. (2016) reveal another key factor that influences customers' purchasing behavior through CSR, consumer perceived value. Indeed, if enterprises not only produce the products or services with CSR embedded (such as green products or environmentally friendly products), but also take actions related to social welfare or environmental protection, then consumer perceived value is enhanced, which promotes consumer recognition and support for the CSR and increases their purchase intention and willingness to pay premium. Yuen et al. (2016) also verify that CSR affects consumer purchase intention and enterprise evaluation. When given the opportunity to choose from products with similar brands and similar prices, consumers prefer products or services provided by enterprises with CSR consensus, and the premium price of such products is also higher.

Behavior reflecting CSR can help enterprises establish relationships with different stakeholders (Lai et al., 2010), including consumers, the most critical stakeholder, because consumers act as both recipients and judges in the consumption process and evaluate whether or not enterprises have CSR (Mohr et al., 2001; Aksak et al., 2016). In fact, consumers are more likely to identify enterprises with CSR because it can improve their self-esteem and satisfaction (Chung et al., 2015).

Fulfilling social responsibilities is regarded as a symbolic behavior of enterprises in addition to pursuing the profit. Most studies have found that consumers' attitudes and behavior towards enterprises or brands are positively influenced by CSR (e.g., Klein & Dawar, 2004; Sen & Bhattacharya, 2001). The dissemination of CSR not only increases consumer purchase intention, but

also improves their evaluation on enterprises or brands (Sen & Bhattacharya, 2001). In addition, CSR prompts consumers to respond more favorably to company-initiated activities (Lichtenstein et al., 2004) and increases consumer loyalty and advocacy behavior (Du et al., 2007). It may even lead shareholders or the public to react less aggressively to crisis events when enterprises are involved (Klein & Dawar, 2004). Conversely, consumers tend to hold negative views of enterprises that are perceived as ignoring social issues, or focusing only on profit (Mullen, 1997).

3.2.1 Consumers' Perception of CSR and Consumer Purchase Intention

Consumers' perceptions on enterprises are composed of constructs such as corporate association, corporate image and corporate reputation, and exist in a series of interrelated corporate characteristics (such as culture, atmosphere, skills, values, competitive position, product offerings, and so on) or business models. The perception of CSR provides consumers with an opportunity to gain insight into the enterprise's "value system", "soul" or "characteristics". Therefore, more and more consumers are influenced by CSR and take the role of enterprises in society into account when making purchase decision. The perception of CSR has become an important factor in consumers' purchase decision-making.

Creyer (1997) shows that consumers consider the ethical or cheating behavior of enterprises when buying products. Previous literature has provided evidence that consumers' perception of CSR has a positive impact on purchase intention (Aksak et al., 2016). Ellen et al. (2006) find that CSR affects purchase intention. Consumer purchase intention depends on consumers' evaluation of enterprises (Brown & Dacin,1997), and depends on whether enterprises engage in basic social responsibilities such as economy and law, and fulfill extended social responsibilities such as morality and charity.

Consumers' perception of CSR affects their purchase intention. Mohr et al. (2001) show that the evaluation of products, enterprises and the purchase intention depends on the quantity and nature of CSR. Lee & Shin (2010) find a positive correlation between perceived CSR and purchase intention. Gatti et al. (2012) report that CSR, along with perceived quality, provides a competitive advantage when influencing consumer purchase intention, the positive impact of CSR on purchase intention through mediators such as attitude perceptions of corporate experience and values. Similarly, Lee & Lee (2015) argue that CSR beliefs positively influence purchase intention through consumers' ethics.

Various studies conducted worldwide have shown a positive relationship between enterprises' CSR and consumers' reactions to the enterprises and their products (Sen & Bhattacharya, 2001). Mullet & Karson (1985) believe that consumer purchase intention is jointly determined by consumers' attitude towards a product or brand and external environmental factors. Feng Jianying et al. (2006) believe that thinking and analysis is the necessary psychological activity process for consumers before purchasing products, and consumers have a preliminary choice or judgment of products or services, and eventually form the purchase intention. Therefore, consumer purchase intention is determined by consumers' attitude and external factors.

Customer's purchase intention is the key signal that precedes the actual purchase behavior. The stronger the intention, the more likely consumers are to purchase (Spears & Singh, 2004). Based on this, the following hypothesis is proposed,

Hypothesis 2a: Consumers' perception of CSR mediates the relationship between the recyclable packaging and consumer purchase intention.

3.2.2 Consumers' Perception of CSR and Consumer Satisfaction

The influence of social responsibility on consumer satisfaction can be explained by Social Identity Theory first proposed by Tajfel (1974). Social Identity Theory believes that people identify themselves according to the groups they belong to, and when these groups receive good reviews or achieve commendable achievements, they develop a sense of pride, self-distinction, and superiority, and individuals are therefore satisfied with their groups. Therefore, consumers tend to support and recognize those responsible enterprises that demonstrate concerns for and service to the public. Therefore, consumer satisfaction of such enterprises is more likely to be improved due to the positive impression and psychological affiliation of consumers to the enterprises (Luo & Bhattacharya, 2006; Martinez & Del Bosque, 2013; Marin et al., 2009). In addition, CSR affects consumers' perceptions on enterprises and their willingness to sponsor them (Walker & Kent, 2009). Undertaking CSR generates intangible benefits, namely, establishing a positive corporate image and improving consumer satisfaction (Basdeo et al., 2006; Ellen et al., 2006)

However, studies on the relationship between CSR and consumer satisfaction are analyzed based on economic criteria (Luo & Bhattacharya, 2006). CSR helps enterprises create a favorable environment and stimulate consumers to make more favorable judgments on service experience (Brown & Dacin, 1997), make consumers better understand the shortcomings of the enterprise service, so as to improve consumer satisfaction. Luo & Bhattacharya (2006) describe three reasons for what they call the "CSR - consumer satisfaction effect". First, as Maignan et al. (2005) show, consumers are potential stakeholders who care about not only the economic performance of the enterprises, but also the overall performance of the enterprises (including social performance). Therefore, if enterprises engage in CSR and show responsible behavior towards society,

consumers may be more satisfied (He & Li, 2011). Secondly, excellent CSR records help enterprises build favorable images and significantly improve consumers' evaluation and attitudes towards enterprises (Sen & Bhattacharya, 2001). In addition, CSR initiative is a key factor in consumer identification with enterprises, which makes consumers more likely to be satisfied with the products (Bhattacharya & Sen, 2004). Third, Mithas et al. (2005) empirically prove that perceived value is a key prerequisite for promoting consumer satisfaction. Customers are more likely to get better perceived value from products produced by responsible enterprises, resulting in higher satisfaction (Luo & Bhattacharya, 2006). Therefore, CSR has a positive impact on consumer satisfaction. Based on this, the following hypothesis is proposed,

Hypothesis 2b: Consumers' perception of CSR mediates the relationship between the recyclable packaging and consumer satisfaction.

3.2.3 Consumers' Perception of CSR and Consumers' Willingness to Pay Premium

Social Exchange Theory proposes that if an individual maintains a reciprocal relationship with a group, s/he gains benefits by providing intrinsic (such as support or positive feelings) or extrinsic (such as financial resources or investments) contributions to the group (Blau, 1964). When enterprises assume CSR to promote national economic growth or social welfare, consumers are more likely to recognize (indicating a solid corporate image) or gain higher perceived value to its products or services (indicating high consumer satisfaction) and respond well to the enterprises (such as showing a willingness to buy or paying a premium price), which creates a long-term, mutually beneficial relationship between consumers and enterprises.

Consumers pay a premium for food is determined by factors such as its social image Anselmsson et al. (2014). Zong Jichuan et al. (2014) find that consumers pay for environmentally friendly products is not entirely of personal consciousness, but more of social responsibilities, and the level of premium acceptance needs to be improved. Tang Zhe (2017) proves that consumers' responsibilities and environmental friendliness positively affect consumers' willingness to pay a premium. Xin Jie (2012) interviews 744 consumers and finds that CSR has a significant positive impact on consumer satisfaction, loyalty, pay a premium and so on. Sentimental and responsible companies are the essence needs of "responsible" consumers. Chang Yaping et al. (2008) find that Chinese consumers accept premiums from enterprises that fulfill basic or advanced levels of social responsibility, but the range is different. Consumers are willing to pay a higher price for their products to encourage responsible enterprises to assume their CSR. Based on this, the following hypothesis is proposed,

Hypothesis 2c: Consumers' perception of CSR mediates the relationship between the recyclable packaging products and consumers' willingness to pay premium.

3.3 The Moderating Role of Environmental Attitudes

Engaging in CSR means that enterprises not only consider profit acquisition but also pay attention to social benefits during the operation, including environmental protection, resource saving, poverty reduction and other undertakings that are conducive to the sustainable development.

Consumers' perceptions and behavior are often influenced by their attitudes and beliefs. Consumers who are highly engaged in a particular activity show a

higher level of interest in the relevant by-products, compared to other consumers.

Kassarjian (1971) points out that consumers' attitudes towards air pollution affect their purchasing behavior. Enterprises' active fulfillment of CSR forms a virtuous circle with consumers' reactions, and positive social responsibility images significantly and positively influence consumers' brand attitudes (Sen & Bhattacharya, 2001). Tanner & Wölfing (2003) and Wang Guomeng et al. (2010) find that environmental attitudes is one of the main factors affecting green purchase behavior. Lu Ning et al. (2014) explore the influencing factors of pro-environment behavior from the perspective of psychology, and propose that environmental attitudes affect pro-environment behavior. Consumers are more willing to purchase products from enterprises with high social responsibility that actively assuming CSR, support public welfare undertakings, protecting the environment and treating employees well, resulting in their willingness to pay premium (Habel et al., 2016). Yu Kangkang et al. (2018) propose that environmental attitudes can promote environmental behavior, and governments adopt intervention means such as education and publicity to cultivate the public environmental attitudes and encourage various environmental behavior. Based on the above analysis, the following hypothesis is proposed,

Hypothesis 3: Environment attitudes play a moderating role between recyclable packaging and consumers' CSR perception. That is, for consumers with high environmental attitudes, the relationship between recyclable packaging and consumers' perception is strengthened; for those with low environmental attitudes, the relationship is weakened or vanished.

To sum up, the research framework is shown in Figure 3-1 below.

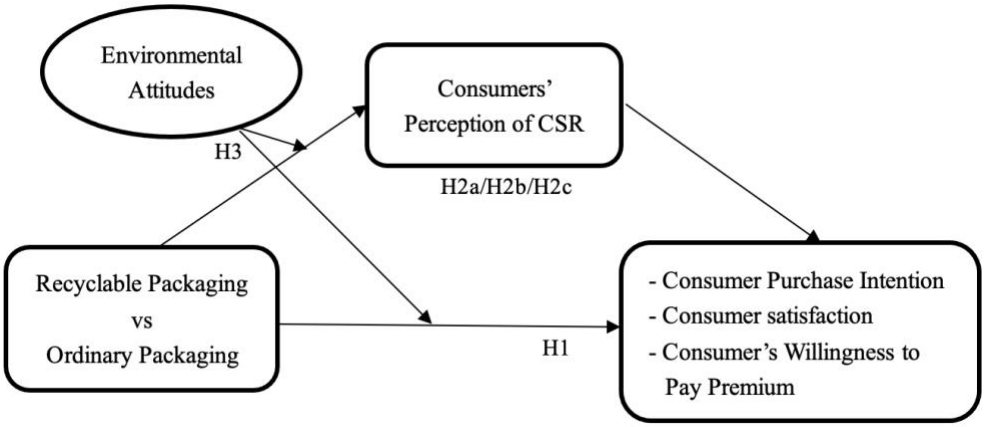

Figure 3-1 Research Framework

Chapter 4 Research Design

4.1 Sample and Data

In order to make sure that participants understand the meaning of recyclable mark, internal employees and consumers from partner companies and university students from all over the China are randomly invited through WeChat groups and Moments, and are randomly divided into two groups, treatment group and control group, to fill out an online questionnaire (Questionnaire A or Questionnaire B) via WJX.com. Questionnaire A is for treatment group and Questionnaire B is for control group, participants first see an experiment stimulus in the questionnaire, then proceed to rate the items in the questionnaire based on what they've seen.

It takes about 3 months to collect the questionnaires, and 314 valid questionnaires are used for data analysis, including 178 valid questionnaires from the treatment group and 136 valid questionnaires from the control group. The distribution of age, gender and educational background of 314 valid questionnaires is shown in Table 4-1 below.

Table 4-1 Demographic Description

Demographic variable	Category	Frequency	Percent
age	18-25	49	15.6
	26-30	46	14.6
	31-40	104	33.1
	41-50	70	22.3
	51-60	39	12.4
	60	6	1.9
gender	female	167	53.2
	male	147	46.8
edu	Junior high school and below	14	4.5
	High school or technical secondary school	29	9.2
	College degree	64	20.4
	Undergraduate degree	170	54.1
	Master degree and above	37	11.8
total		314	100

Through statistical analysis, the valid sample size obtained from the questionnaire is 314. From the gender distribution of the respondents, there are 147 males, accounting for 46.8% of the total sample; 167 females, accounting for 53.2% of the total sample. From the perspective of gender ratio, the number of men and women surveyed is roughly equal.

Judging from the distribution of age, 49 persons aged 18-25 years old, accounting for 15.6% of the total sample; 46 persons aged 26-30 years old, accounting for 14.6% of the total sample; 104 persons aged 31-40 years old, accounting for 33.1% of the total sample; 70 persons aged 41-50 years old, accounting for 22.3% of the total sample; 39 persons aged 51-60 years old, accounting for 12.4% of the total sample; and 6 persons are over 60 years old, accounting for 1.9% of the total sample.

Judging from the distribution of educational background, there are 14 persons with junior high school education or below, accounting for 4.5% of the total sample; 29 persons with high school or technical secondary school education, accounting for 9.2%; and 64 persons with college degree, accounting for 20.4%; 170 persons have bachelor degree, accounting for 54.1%; 37 persons have graduate degree, accounting for 11.8%. From the distribution of education background, it is consistent with the overall distribution of education, indicating that the there is no selective bias in the educational distribution.

4.2 Variables and Measure

4.2.1 Experimental Stimulus

A physical product packaging designed by Company X is used in this study (as shown in Figure 4-1). Company X is dedicated to the Chinese Tea, porcelain and products that nourish classics, traditions and soul. Company X has successfully developed a series of products popular among the consumers.

Company X mainly excavates the unique regional cultural characteristics of Quanzhou, both artistic and practical cultural and creative gifts (including tea gifts, tea ware, ceramic artworks, etc.).

The product meets the requirements of the experiment. Except the product name (Gaoshan Tea), there is no other packaging information, the only difference between treatment group and control group is whether there is a recycling mark printed on the experimental stimulus (participants in treatment group can see an ordinary packaging with clear recycling mark, while participants in control group can only see an ordinary packaging), so the experiment participants in two groups can fill out the questionnaires easily and will not be affected by the experimental stimulus due to their personal preference.

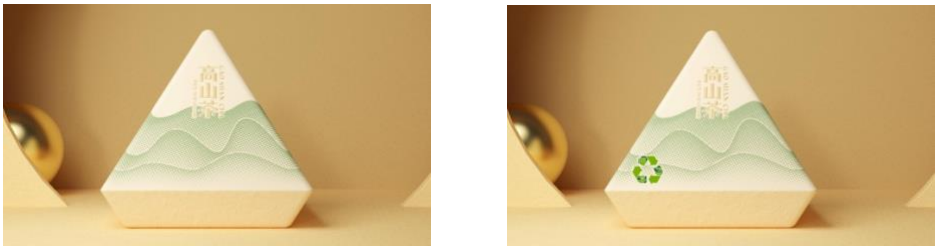

Figure 4-1 Experimental Stimulus for Control Group (Left) and Treatment Group (Right)

4.2.2 Variables

Consumers' Perception of CSR. Adopt the scale developed by Turker (2009). A sample item is "This company participates in the activities aimed to protect and improve the natural environment.".

Consumer Purchase Intention. Adopt the scale developed by Coyle & Thorson (2001) and Putreyu & Lord (1994). A sample item is "I am very likely to purchase products from this company.".

Consumer Satisfaction. Adopt an item developed by Martinez & Del Bosque (2013). A sample item is "My choice to purchase this product is a wise one.".

Consumers' Willingness to Pay Premium. Adopt an item developed by Zhang et al. (2018).

Environmental Attitudes. Adopt the scale developed by Martinho et al. (2015). A sample item is "The current population is approaching the limit that the earth can sustain.".

4.2.3 Questionnaire

The questionnaire mainly includes 4 dimensions to measure the consumers' perception, the first part (4 items) is used to measure the perception of packaging appearance, in which the experimental inspection content is used to determine whether the participants have observed the recycling mark when filling out the online questionnaire; the second part (10 items) is used to measure the consumers' perception of CSR; the third part is used to measure the consumer behavior, including consumer satisfaction (1 item), consumer purchase intention (3 items), and consumers' willingness to pay premium (1 item); the fourth part (27 items in total, 19 items for overall environmental attitudes and 8 items for packaging environmental attitudes) is used to measure the consumers' environmental attitudes. At the end of the questionnaire, participants need to provide some basic demographic information, including age, gender, education and residence.

Chapter 5 Data Analysis

5.1 Preliminary Data Processing

5.1.1 Sample Size

Adequate sample capacity is essential to ensure that sampled data can fully reflect the overall characteristics of the survey subjects. Most statistical methods, such as confirmatory factor analysis, hierarchical regression analysis, and non-parametric percentile bootstrap, have basic sample size requirements. This is a fundamental condition for statistical tests to obtain stable and effective conclusions and reduce sampling errors. However, determining the most appropriate sample size requires careful consideration. According to Sekaran & Bougie (2016), sample sizes greater than 30 and fewer than 500 are suitable for most surveys, and the sample size should not be less than ten times the number of variables under study, or even more.

Based on the above suggestions from scholars, the sample size for this study was determined to be in the range of 1:10 to 1:20 in proportion to the number of measurement items. Specifically, this survey questionnaire consists of 46 measurement items. Therefore, it can be calculated that the suitable sample size for this study should fall between 460 and 920 respondents. According to this criterion, 314 valid questionnaires fully meet the requirements for statistical analysis.

5.1.2 Common Method Bias Testing

Common method bias refers to the bias in sample caused by using the same survey method for collecting data on various research variables from common respondents, leading to potential distortions in the data due to factors like acquiescence effects that could impact the validity of research findings. The variables in this study, such as consumers' perception of corporate social responsibility, environmental attitudes, and consumer behavior, all rely on self-

reported data, thus raising the possibility of common method bias. To minimize this bias, the study follows the practices by implementing appropriate methods and designs at pre-survey, mid-survey, and post-survey stages to mitigate the influence of common method bias on research results. Specifically,

An explicit confidentiality statement is addressed prior to the survey, which helps release respondents' psychological concerns, reduce the impact of social desirability bias, and mitigate common method bias.

During the data collection, questionnaires are collected from the participants in 13 different provinces across the country, representing diversified occupations and educational backgrounds, which reduce the likelihood of questionnaire responses being influenced by similarities in individual characteristics.

5.1.3 Descriptive Statistics Analysis

Table 5-1 shows the result of descriptive statistics analysis of each variable.

Table 5-1 Descriptive Statistics Analysis

	Mean	Median	Mode	Std. Deviation	Minimum	Maximum
AP	5.412	5.25	7	1.152	2	7
CSR	5.43	5.3	7	1.081	1	7
CB	5	5	5	1.211	1	7
CBI	5.085	5	5	1.216	1	7
CS	5.08	5	5	1.269	1	7
CPW	4.67	5	4	1.473	1	7
EA	5.198	5	7	0.908	2	7
EA1	4.960	4.786	7	1.031	2	7
EA2	5.753	5.917	7	0.968	2	7
age	4.07	4	4	1.296	1	7
gender	1.53	2	2	0.5	1	2
edu	3.6	4	4	0.965	1	5

Among them,

group: a dummy variable (1 = treatment group; 0 = control group);

AP: the packaging appearance perception;

CSR: the perception of CSR;

CB: consumer behavior (including consumer purchase intention, consumer satisfaction and consumer premium payment willingness);

CBI: consumer purchase intention;

CS: consumer satisfaction;

CPW: consumers' willingness to pay premium;

EA: environmental attitudes (including overall environmental attitudes and packaging-related environmental attitudes);

EA1: environmental attitudes;

EA2: packaging-related environmental attitudes;

age: age of the participant (1 = under 18; 2 = aged 18-25; 3 = aged 26-30; 4 = aged 31-40; 5 = aged 41-50; 6 = aged 51-60; and 7 = over 60);

gender: gender of the participant (1 = male; 2 = female);

edu: education level of the participant (1 = junior high school or below; 2 = high school or technical secondary school; 3 = college and junior college; 4 = undergraduate; 5 = postgraduate and above)

5.2 The Reliability and Validity of Questionnaire

5.2.1 Reliability

The reliability coefficient reflects the consistency, stability, and reliability of measurement data, typically indicating the test reliability in terms of internal consistency. A higher reliability coefficient indicates higher consistency, stability, and reliability of the measurement results. In this study, the Cronbach's α coefficient in SPSS software is used to measure the reliability of the scale, with Cronbach's $\alpha > 0.7$ indicating acceptable internal consistency (as shown in Table 5-2).

Table 5-2 Variable Cronbach's α

Variables	Cronbach's α	Number of items
AP	0.912	4
CSR	0.957	10
CB	0.955	5
CBI	0.948	3
EA	0.925	27
EA1	0.892	19
EA2	0.886	8
Total scale	0.959	46

Based on the reliability analysis results in Table 5-2, it is found that the Cronbach's α values of packaging appearance, perception of CSR, consumer behavior, environmental attitudes, and the overall scale are all greater than 0.8, indicating high internal consistency within each item, therefore, the scale is reliable for the further validity analysis.

5.2.2 Validity

There are two statistical methods for validating construct validity, exploratory factor analysis (EFA) and confirmatory factor analysis (CFA). EFA is conducted using SPSS software, while CFA is conducted using AMOS software. When dealing with known dimensions or established scales, it is necessary to use CFA to verify the correctness of the known dimensional divisions. On the other hand, for scales with unknown dimensions, EFA should be used to explore the dimensions. This allows for a scientific exploration of the scale's dimensional divisions while assessing the validity of each item.

Validity analysis assesses whether a research item effectively expresses the conceptual information of the research variables or dimensions. In simple terms, it examines whether the design of the research item is reasonable and whether the item adequately represents a specific variable. Validity, theoretically, refers to the extent to which a measurement tool or method accurately measures the

intended object. Validity is categorized into three types, content validity, criterion validity, and construct validity.

Content validity refers to whether the designed items can represent the content or subject matter intended for measurement. Content validity is typically evaluated using a combination of logical analysis (expert evaluation) and statistical analysis.

Criterion validity involves analyzing the relationship between questionnaire items and a predetermined criterion (benchmark) based on an established theory. If there is a significant correlation between the questionnaire items and the criterion or if the questionnaire items show significant differences in relation to the various values or characteristics of the criterion, they are considered effective items. Methods for evaluating criterion validity include correlation analysis or tests of significant differences. It is often challenging to select an appropriate criterion for validity analysis in survey questionnaires, thereby limiting the application of this method.

Construct validity refers to the degree of correspondence between the structure reflected in the measurement results and the underlying theoretical constructs. Factor analysis is the method used to analyze structural validity. Some scholars suggest that the ideal approach to validity analysis is to use factor analysis to assess the structural validity of the entire questionnaire or scale. Factor analysis identifies common factors from all variables in the scale (items), with each factor highly associated with a specific group of variables, representing the fundamental structure of the scale. Through factor analysis, one can examine whether the questionnaire can measure the assumed structure designed by the researcher.

Key indicators used to evaluate construct validity in factor analysis include cumulative contribution rate, communality, and factor loading. The cummulative contribution rate reflects the cummulative effectiveness of the common factors on the scale or questionnaire, communality indicates the extent to which the common factors explain the original variables, and factor loading reflects the degree of correlation between the original variables and a specific common factor.

Validity analysis employs various methods to assess different aspects of validity. Generally, content validity is crucial for subject tests, while construct validity holds more significance in psychological assessments.

1) Overall Results of Factor Analysis

First, present the overall results of the factor analysis, followed by the general results of the factor analysis for both the sub-dimension scales and the overall scale.

The overall results of the KMO and Bartlett's Test of Sphericity

Table 5-3 KMO Value and Bartlett's Test of Variables

Variables	Kaiser-Meyer-Olkin Measure of Sampling Adequacy.	Bartlett's Test of Sphericity		
		Approx. Chi-Square	df	Sig.
AP	0.822	1037.43	6	0.000
CSR	0.936	3466.667	45	0.000
CB	0.896	1810.569	10	0.000
CBI	0.927	6237.718	351	0.000
EA	0.907	3887.070	171	0.000
EA1	0.877	1555.888	28	0.000
EA2	0.937	13835.875	1035	0.000

From Table 5-3, it can be seen that the KMO measure for each dimension and the overall scale is greater than 0.8. The Bartlett's test of sphericity for each dimension and the overall scale yields approximate chi-square values and

degrees of freedom as shown in the table above, with p-values all being 0.000, less than 0.01, passing the significance test at a 1% level. Therefore, the packaging appearance scale is highly suitable for factor analysis.

Factor Extraction Results

Table 5-4 Variable Factor Extraction of Total Variance Interpretation

	Number of factors	Variance explained percent%
AP	1	80.478
CSR	1	73.631
CB	1	85.079
CBI	2	63.495
EA	2	66.083
EA1	1	70.202
Total scale	5	71.505

Table 5-4 shows the number of factors extracted and the percentage of variance explained for each sub-dimension scale and the overall scale. It is evident that the variance explained for the scales under each dimension and the overall scale is above 60%, indicating a good explanatory effect. This suggests that the extracted factors provide an ideal interpretation of the original data.

2) Factor Analysis Procedure

KMO and Bartlett's Test of Sphericity

In this study, the dimensions of the scale are unknown. EFA examines the adequacy of the KMO statistic and assesses significance through Bartlett's test of sphericity. Factor analysis requires items in the questionnaire to share common factors, with more being preferable. If there are no common factors or too few factors among the items, factor extraction is not appropriate. The KMO statistic reflects the degree of shared variance among variables, with KMO values above 0.9 indicating the best exploratory effect (Kaiser, 1974). Significance in Bartlett's test indicates by the chi-square distribution reaching a

certain level, suggesting the presence of shared factors among the correlation matrices of the population, thus allowing for factor analysis (Minglong, 2003).

Table 5-5 KMO Value and Bartlett's Test of Total Scale

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.	Bartlett's Test of Sphericity		
	Approx. Chi-Square	Df	Sig.
0.937	13835.875	1035	0.000

From Table 5-5, it can be seen that the KMO measure of sampling adequacy is 0.937, indicating good sampling adequacy. The Bartlett's test of sphericity yielded a p-value of 0.000, indicating statistical significance at a 1% significance level. Therefore, the total scale is highly suitable for factor analysis.

Principle Component Extraction

After completing the KMO value analysis and Bartlett's sphericity test, the next step involves identifying common factors that can represent the main information of the original variables through step-by-step dimension reduction. Common factors are extracted by analyzing the correlation matrix using the principal component analysis method, and common factors are selected based on the criterion of eigenvalues greater than 1. Subsequently, factor rotation is carried out using the maximum varimax method in the orthogonal rotation approach to ensure that each item loads relatively high on as few factors as possible. The questionnaire structure is refined to better align with theoretical design.

The specific selection process is as follows, 1) screening based on communalities. Items with communalities lower than 0.5 are removed to ensure close connections between each item and the extracted common factors; 2) screening based on item loadings. Items with high loadings indicate a close

relationship with the common factor. This study retains items with loadings greater than 0.5; 3) cross-loading values. Items with high loadings on two or more factors are challenging to assign to a single factor and should be eliminated; 4) each factor should consist of no less than three items; and 5) items that are misclassified or cannot be explained should also be removed. Each item removal necessitates a reanalysis of exploratory factor analysis following standard procedures, typically starting with the item with the lowest loading.

In this study, items 4.1, 4.3, 4.5, 4.11, 4.13, 4.22, and 4.27 are removed based on the above steps, completing the process of principal component extraction.

Table 5-6 Total Variance Explained of Total Scale

Component		1	2	3	4	5
Initial Eigenvalues	Total	15.797	5.098	3.624	1.858	1.51
	% of variance	40.505	13.072	9.292	4.765	3.872
	Cumulative %	40.505	53.576	62.868	67.633	71.505
Extraction Sums of Squared Loadings	Total	15.797	5.098	3.624	1.858	1.51
	% of variance	40.505	13.072	9.292	4.765	3.872
	Cumulative %	40.505	53.576	62.868	67.633	71.505
Rotation Sums of Squared Loadings	Total	7.666	7.628	5.747	3.592	3.254
	% of variance	19.656	19.56	14.735	9.21	8.344
	Cumulative %	19.656	39.216	53.951	63.161	71.505

Table 5-6 indicates that out of the 39 questionnaire items, there are 5 factors with initial eigenvalues greater than 1, accounting for cumulative explained variance of 76.362%, which suggests that the 5 factors extracted from the 39 items provide a good explanation of the original data. Factor 1 has an eigenvalue of 15.797, explaining 40.505% of the variance; Factor 2 has an eigenvalue of 5.098, explaining 13.072% of the variance; Factor 3 has an eigenvalue of 9.292, explaining 9.292% of the variance; Factor 4 has an eigenvalue of 4.765, explaining 4.765% of the variance; and Factor 5 has an eigenvalue of 3.872, explaining 2.519% of the variance.

Table 5-7 Rotated Component Matrix of Total Scale

Item	Component					Extraction
	1	2	3	4	5	
1.1 Do you like the color?					0.826	0.822
1.2 Do you like the triangular shape?					0.721	0.683
1.3 Do you like the design of the pattern?					0.797	0.796
1.4 In general speaking, what do you think of the design of the package?					0.847	0.9
2.1 This company participates in the activities aimed to protect and improve the natural environment.	0.77					0.688
2.2 This company has made investment to create a better life for the future.	0.806					0.8
2.3 This company implements special projects to minimize its negative impact on the natural environment.	0.852					0.841
2.4 This company targets a sustainable growth for the future.	0.807					0.794
2.5 This company supports non-governmental organizations that address the issues of environmental pollution and environment protection.	0.824					0.824
2.6 This company contributes to the campaigns and projects that promote the well-being of the society.	0.821					0.833
2.7 This company protects consumer rights beyond the legal requirements.	0.549					0.524
2.8 This company provides customers with complete and accurate product information.	0.778					0.796
2.9 Improving consumer satisfaction is very important to this company.	0.707					0.632
2.10 This company complies with legal regulations completely and promptly.	0.791					0.781
3.1 I am very likely to purchase products from this company.				0.728		0.837
3.2 I will purchase products from this company next time when I need tea or related product.				0.761		0.888
3.3 I will definitely try other products from this company.				0.775		0.886
3.4 I am generally very satisfied with this company's products.				0.73		0.853
3.5 If I buy this company's products, compared with products of other companies, I am willing to pay a higher price.				0.727		0.809
4.2 Human beings have the right to change the natural environment to meet their own needs.			0.734			0.601

4.4 Human ingenuity ensures that our planet does NOT become uninhabitable.		0.699	0.541
4.6 The earth has abundant natural resource, we just need to learn how to develop and utilize them.		0.806	0.667
4.7 Plants and animals have the same right to survive as human beings.	0.75		0.64
4.8 The balance of nature is strong enough to cope with impacts of modern industrial nations.		0.847	0.754
4.9 Despite the special abilities, human beings are still subject to the laws of nature.	0.751		0.581
4.10 The so-called “ecological crisis” that human beings are facing has been greatly exaggerated.		0.787	0.659
4.12 Human beings are destined to rule over the rest of nature.		0.877	0.798
4.14 Human beings will eventually learn enough about how nature works and how to control it.		0.813	0.691
4.15 If things (destroying the environment and wasting resources) continue to develop like this, we will soon experience a major ecological disaster.	0.725		0.592
4.16 I believe that the quality of the environment in the world we live in is closely related to my health and well-being.	0.781		0.699
4.17 The current environmental issue is of the highest importance compared to other problems that our society is facing.	0.692		0.587
4.18 Among all environmental problems, the quantity and destination of solid waste, for me, is one of the most important issues.	0.704		0.612
4.19 Solid waste may be a problem at present, but it will soon be solved due to the advances in science and technology.		0.622	0.587
4.20 Packaging waste is a major problem in the solid waste field due to the huge amount of packaging.	0.777		0.662
4.21 All packaging should be environmentally friendly, even if there is a small charge in the price.	0.754		0.608
4.23 Packaging must be recyclable because it allows the materials recycling and minimums the environmental impact.	0.793		0.686
4.24 Everyone should recycle packaging because it greatly reduces solid waste.	0.757		0.651
4.25 I feel that I am contributing to make a better environment each time when I put packaging for recycling (in the recycling bin).	0.734		0.624

4.26 I feel that it is my responsibility to sort waste and put it in the recycling bin.	0.782	0.66

Table 5-7 shows the rotated component matrix of the total scale, and it can be seen that the extracted 5-factor structure is clear, with factor loadings of all items exceeding 0.5. The 5 dimensions cumulative explained 76.362% of the total variance, meeting the standard in behavioral and social sciences where a combined explanation of 60% of the variance is retained after factor extraction.

5.3 Variable Correlation Analysis

Table 5-8 Variable Correlations

Variable	group	AP	CSR	CB	CBI	CS	CPW	EA	EA1	EA2
group	1									
AP	0.026	1								
CSR	.228***	.579***	1							
CB	.239***	.579***	.722***	1						
CBI	.245***	.591***	.718***	.977***	1					
CS	.210***	.530***	.695***	.937***	.882***	1				
CPW	.196***	.459***	.588***	.882***	.781***	.803***	1			
EA	.195***	.479***	.587***	.622***	.592***	.561***	.608***	1		
EA1	.185***	.465***	.548***	.601***	.564***	.537***	.610***	.962***	1	
EA2	.148***	.340***	.474***	.453***	.449***	.420***	.387***	.736***	.523***	1

*Note: *** indicates statistical significance at the 0.01 level (two-tailed).*

Table 5-8 presents the Pearson correlation coefficients and significance levels of the main variables. It is observed from the table that, except for the lack of a significant relationship between recyclable packaging (group) and consumer perception of visual appearance (AP), all other variables show significant ($p<0.01$) positive correlations with each other. This finding dispels doubts about the experimental design, indicating that consumers from different groups did not exhibit significant differences due to the sole difference in packaging appearance (presence of recyclable symbol).

Additionally, it can be noted from the table that recyclable packaging (group) exhibits significant positive correlations with consumers' perception of corporate social responsibility (CSR), consumer behavior intentions (CBI), as well as its sub-dimensions of consumer satisfaction (CS) and willingness to pay premium (CPW). Specifically, the correlation coefficient between group and CSR is positive ($r=0.228$, $p<0.01$), and similarly, the correlations between group and CBI ($r=0.239$, $p<0.01$), CS ($r=0.210$, $p<0.01$), and CPW ($r=0.196$, $p<0.01$) are also positive. These results provide initial evidence for the subsequent empirical analysis to test the direct impact of recyclable packaging on consumer behavior and the indirect mediating mechanism of recyclable packaging through CSR influencing consumer behavior.

Moreover, there exists a significant positive correlation between consumers' perception of corporate social responsibility (CSR) and environmental attitudes (EA) (including its sub-dimensions EA1 and EA2). More specifically, CSR perception is found to have clear positive correlations with environmental attitudes (EA, $r=0.587$, $p<0.01$), overall environmental attitudes (EA1, $r=0.548$, $p<0.01$), and packaging-specific environmental attitudes (EA2, $r=0.474$, $p<0.01$). This suggests that consumers with more positive environmental attitudes tend to have higher perceptions of corporate social responsibility, offering preliminary evidence for testing the moderating effect of environmental attitudes in the subsequent empirical analysis.

Chapter 6 Results

6.1 One-way ANOVA Analysis

Before testing the direct effects, the mediating effects and the moderated mediating effects, one-way ANOVA is used to pre-test whether the IV (recyclable packaging) and control variables (age, gender, education) has a significant impact on consumer behaviors.

Table 6-1 One-way ANOVA Results

Dependent Variable	Difference	Sum of Squares	df	Mean Square	F
CBI	Between Groups	27.705	1	27.705	19.855***
	Within Groups	435.363	312	1.395	
	Total	463.069	313		
CS	Between Groups	22.226	1	22.226	14.389***
	Within Groups	481.939	312	1.545	
	Total	504.166	313		
CPW	Between Groups	26.214	1	26.214	12.518***
	Within Groups	653.34	312	2.094	
	Total	679.554	313		

*Note: *** indicates statistical significance at the 0.01 level (two-tailed).*

According to Table 6-1, the consumer purchase intention ($F_{CBI}(1,312) = 19.855$, $p = 0.000$), consumer satisfaction ($F_{CS}(1,312) = 14.389$, $p = 0.000$) and consumers' willingness to pay premium ($F_{CPW}(1,312) = 12.518$, $p = 0.000$) betweenn the treatment group and the control group have significant difference. Specifically, compared with the control group, consumers in the treatment group show stronger purchase intention ($M_{control\ group} = 4.34$; $SD = 1.12$ vs. $M_{treatment\ group} = 4.92$; $SD = 1.23$), higher satisfaction ($M_{control\ group} = 4.77$; $SD = 1.17$ vs. $M_{treatment\ group} = 5.31$; $SD = 1.3$), and greater willingness to pay premium ($M_{control\ group} = 4.75$; $SD = 1.32$ vs. $M_{treatment\ group} = 5.34$; $SD = 1.53$), as shown respectively in Figure 6-1 to Figure 6-3.

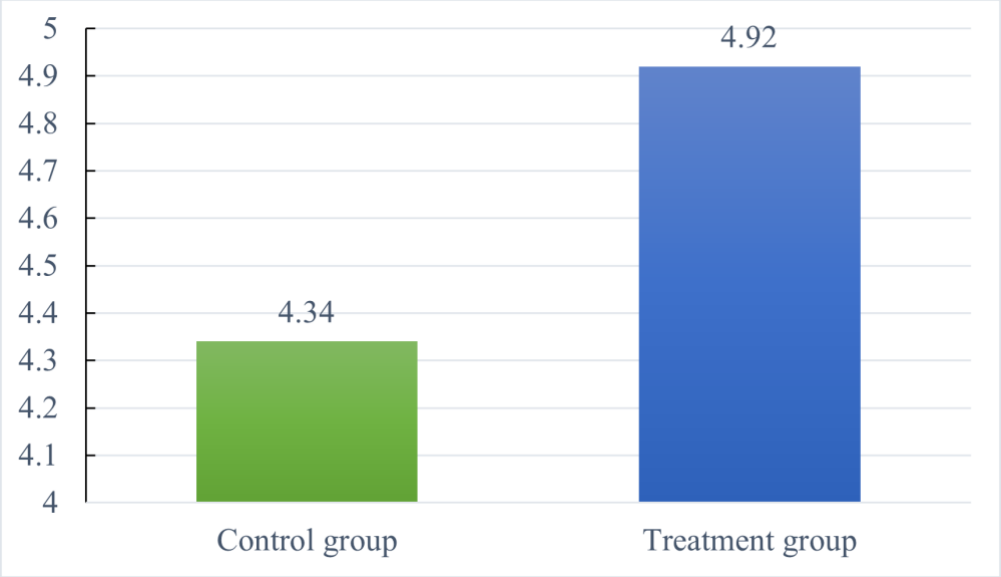

Figure 6-1 Difference of Consumer Purchase Intention between Control Group and Treatment Group

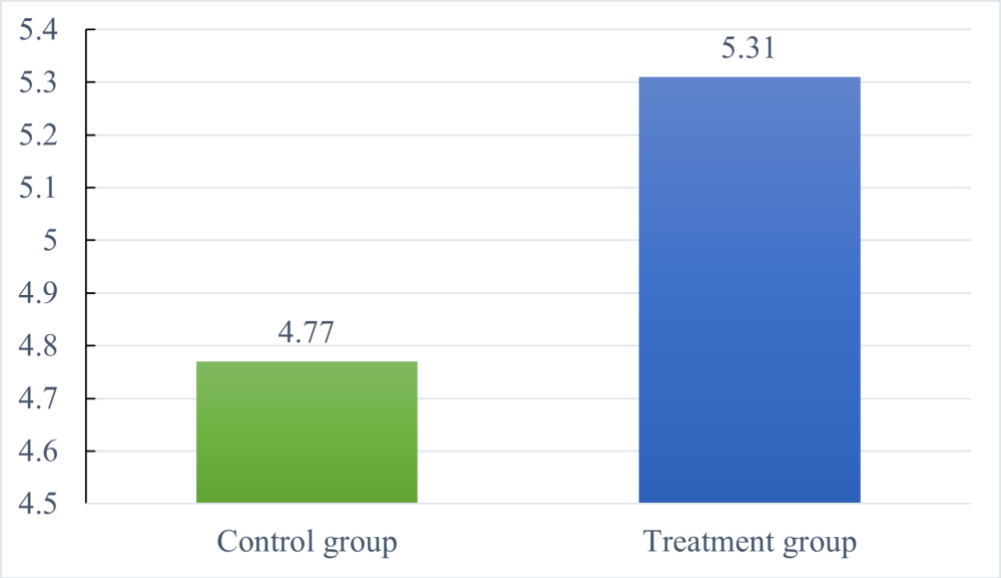

Figure 6-2 Difference of Consumer Satisfaction between Control Group and Treatment Group

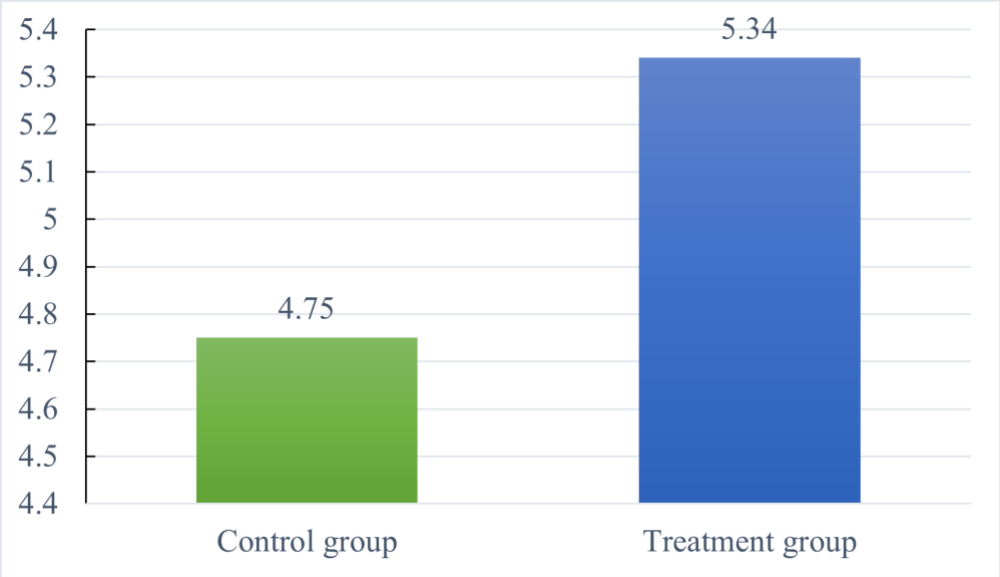

Figure 6-3 Difference of Willingness to Pay Premium between Control Group and Treatment Group

The results indicate that participants in the treatment group have significant differences, compared to those in the control group, in various consumer behavior, including consumer purchase intention, consumer satisfaction, and willingness to pay premium. In comparison to ordinary packaging, consumers demonstrate stronger purchase intention, higher consumer satisfaction, and greater willingness to pay premium for recyclable packaging.

6.2 The Direct Effect of Recyclable Packaging on Consumer Behavior

The direct relationship between recyclable packaging and consumer behavior is a key focus of this study.

Table 6-2 Hierarchical Regression Analysis of IV (group) and Mediator (CSR)

Variable	Model1		Mdoel2		Model3	
	B	Std. Error	B	Std. Error	B	Std. Error
(Constant)	5.14***	0.414	4.765***	0.413	0.057***	0.037
age	0.012	0.053	-0.013	0.052	-0.049	0.096
gender	0.166	0.137	0.185	0.133	-0.052	0.049
edu	-0.124*	0.071	-0.089	0.07		
group			0.572***	0.136		
CSR					0.812***	0.044
R^2	0.015		0.068		0.527	
ΔR^2	0.015		0.053		0.512	
F	1.558		5.651***		86.058***	
ΔF	1.558		17.680		334.531	

Note:, ** and *** indicates statistical significance at the 0.1, 0.05 and 0.01 level respectively.*

In Table 6-2, it is evident that in Model 2, after controlling for variables such as gender, age, and education, recyclable packaging has a significant positive impact on consumer behavior (Model 2: b = .572***), which implies that under the same circumstances, compared to the control group, the treatment group with recyclable packaging illustrate stronger purchase intention, higher consumer satisfaction, and greater willingness to pay premium, thus **Hypothesis 1 is supported**.

In Model 3, consumers' perception of CSR significantly and positively influences consumer behavior (Model 3: b = .812***). Therefore, under similar conditions, compared to the control group, the treatment group with recyclable packaging shows a stronger perception of CSR. Furthermore, through comparing the regression coefficients of recyclable packaging and perception of CSR, it is obvious that consumers' perception of CSR has stronger impact on consumer behavior, thereby providing support to the mediator, consumers' perception of CSR, in this study.

6.3 The Mediating Role of Consumers' Perception of CSR

This study posits that consumers' perception of CSR plays a mediating role between recyclable packaging and consumer behavior. To examine whether consumers' perception of CSR mediates the relationship between recyclable packaging and consumer behavior, SPSS software along with the PROCESS plug-in is used to test the mediation in Model 4. Following previous research practices, the fit of the model and path coefficients is evaluated to determine the type and strength of the mediating effect. The full mediating effect model involves paths only from the independent variable (recyclable packaging) to the mediator (consumers' perception of CSR), and then to the dependent variables (consumer behavior, including consumer purchase intention, consumer satisfaction, and consumers' willingness to pay premium). In contrast, the partial mediating effect model includes a direct effect path from the independent variable to the dependent variable.

To further examine the mediating effect of consumers' perception of CSR between recyclable packaging and consumer behavior, this study adopts path analysis to test the mediating effect again. Specifically, the analysis uses Model 4 in the PROCESS plugin in SPSS. The analysis results are presented in Table 6-3 below.

6.3.1 Mediating Effect of CSR (DV: CBI)

Table 6-3 Process Procedure of Mediating Effect (DV: CSR)

Variable	coeff	se	t	p	LLCI	ULCI
(Constant)	0.5987	0.3706	1.6157	0.1072	-0.0127	1.2101
group	0.1842	0.1005	1.8322	0.0679	0.0183	0.35
CSR	0.7918	0.046	17.2046	0	0.7159	0.8677
age	0.0435	0.0374	1.1625	0.246	-0.0182	0.1052
gender	0.0313	0.0964	0.3247	0.7456	-0.1278	0.1904
edu	-0.0303	0.05	-0.6047	0.5458	-0.1128	0.0523

In this model where "group" (recyclable packaging) and "CSR" are IVs, "age", "gender", and "edu" are control variables, and "CBI" (consumer purchase intention) is DV, the path regression equation for "group" and "CSR" affecting CBI is shown (control variables omitted) as follows,

$$CBI = 0.5987 + 0.1842group + 0.7918CSR$$

The F-statistic value of the above equation is 68.2762, passing the significance test at the 1% level, indicating overall significance of the equation. The variable "group" ($p<0.1$) and CSR ($p<0.01$) are significant (as shown in Table 6-3), suggesting that there is direct effect of recyclable packaging on consumer purchase intention, and consumers' perception of CSR might have a partial mediating effect on this pathway.

Table 6-4 Process Procedure of Mediating Effect (DV: CBI)

Variable	coeff	se	t	p	LLCI	ULCI
(Constant)	5.7906	0.3183	18.1937	0	5.2655	6.3157
group	0.5166	0.1207	4.2798	0	0.3175	0.7158
age	-0.0775	0.046	-1.6848	0.093	-0.1534	-0.0016
gender	-0.2812	0.1181	-2.38	0.0179	-0.4761	-0.0863
edu	-0.0576	0.0618	-0.9319	0.3521	-0.1595	0.0444

In this model where "group" (recyclable packaging) is IV, "age", "gender", and "edu" are control variables, and "CSR" (perception of CSR) is DV, the path equation for "group" and "CSR" is shown (control variables omitted) as follows,

$$CSR = 5.7906 + 0.5166group$$

The regression results in Table 6-4 indicate that the F-statistic value of the equation is 6.6830, passing the significance test at the 1% level, confirming that perception of CSR may play as a mediator between recyclable packaging and consumer behaviors.

To determine whether the mediating effect in the model is a full or partial mediating effect, the analysis of the mediating role of perception of CSR between recyclable packaging and consumer behaviors is conducted using model 4 of the SPSS macro PROCESSv4.1. and the Bootstrap method of 5000 resamples and a default 90% confidence interval.

Table 6-5 Total, Direct and Indirect Effects of "group" on CBI

	Effect	se	t	p	LLCI	ULCI
Total effect	0.5932	0.1365	4.3448	0	0.368	0.8185
Direct effect	0.1842	0.1005	1.8322	0.0679	0.0183	0.35
	Effect	Boot SE			Boot LLCI	Boot ULCI
Indirect effect	0.4091	0.1056			0.2412	0.5880

Note:, ** and *** indicates statistical significance at the 0.1, 0.05 and 0.01 level respectively.*

Consumers' perception of CSR plays as a significant mediating role between recyclable packaging and consumer purchase intention (as shown in Table 6-5). The total effect of recyclable packaging on consumer purchase intention is .5932 (90% CI=[.368, .8185]), while the indirect effect is .4091 (90% CI=[.2412, .5880], with the confidence interval excluding 0, indicating the mediating effect between recyclable packaging and consumer purchase intention via perception of CSR. Introducing the mediator, perception of CSR, the direct effect of recyclable packaging on consumer purchase intention is .1842 (90% CI=[.0183, .35]), also with a confidence interval excluding 0, thus supporting partial mediation. Therefore, **Hypothesis 1 and Hypothesis 2a are supported**.

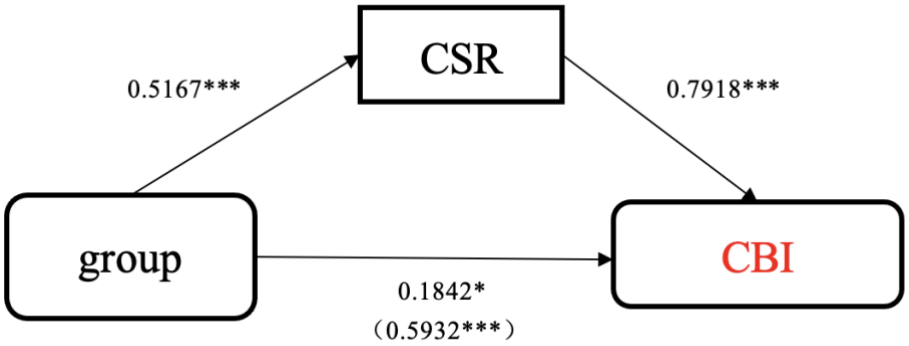

Figure 6-4 Mediating Effect of Consumers' Perception of CSR (DV: CBI)

Index of Moderated Mediation: b = .3363, 90% CI= [.2032, .4753]

Figure 6-4 shows that the recyclable packaging ("group") can not only directly affect consumer purchase intention (.1842*, 90% CI=[.0183, .35), but also indirectly affect consumer purchase intention via consumer perception of CSR (.4091, 90% CI=[.2032, .4753]). From the perspective of impact proportion, the indirect effect accounts for 69% of the total effect. In other words, the impact of recyclable packaging ("group") on consumer purchase intention (CBI) is mainly through the indirect effect.

6.3.2 Mediating Effect of CSR (DV: CS)

Table 6-6 Process Procedure of Mediating Effect (DV: CS)

Variable	coeff	se	t	p	LLCI	ULCI
(Constant)	0.9137	0.4014	2.2766	0.0235	0.2516	1.5759
group	0.1231	0.1089	1.1311	0.2589	-0.0565	0.3027
CSR	0.7962	0.0498	15.9731	0	0.714	0.8784
age	0.0108	0.0405	0.2673	0.7894	-0.056	0.0776
gender	-0.0498	0.1045	-0.4768	0.6338	-0.2222	0.1225
edu	-0.0698	0.0542	-1.2872	0.199	-0.1592	0.0197

In this model where "group" (recyclable packaging) and "CSR" are IVs, "age", "gender", and "edu" are control variables, and "CS" (consumer satisfaction) is

DV, the path regression equation for "group" and "CSR" affecting CS is shown (control variables omitted) as follows,

$$CS = 0.9137 + 0.1231group + 0.7962CSR$$

The F-statistic value of the above equation is 58.9397, passing the significance test at the 1% level, indicating overall significance of the equation. The variable "group" is not significant, whereas CSR ($p<0.01$) is significant (as shown in Table 6-6), suggesting that there is no significant direct effect of recyclable packaging on consumer behavior and CSR might have a full mediating effect in this pathway.

To determine whether the mediating effect in the model is a full or partial mediating effect, the analysis of the mediating role of perception of CSR between recyclable packaging and consumer behavior is conducted using model 4 of the SPSS macro PROCESSv4.1. and the Bootstrap method of 5000 resamples and a default 90% confidence interval.

Table 6-7 Total, Direct and Indirect Effects of "group" on CS

	Effect	se	t	p	LLCI	ULCI
Total effect	0.5345	0.1428	3.743	0.0002	0.2989	0.77
Direct effect	0.1231	0.1089	1.1311	0.2589	-0.0565	0.3027
	Effect	Boot SE			Boot LLCI	Boot ULCI
Indirect effect	0.4113	0.1044			0.2438	0.5876

Consumers' perception of CSR plays as a significant mediating role between recyclable packaging and consumer satisfaction (as shown in Table 6-7). The total effect of recyclable packaging on consumer satisfaction is .5345 (90% CI=[.2989, .77]), while the indirect effect is .4113 (90% CI=[.438, .5876]), with the confidence interval excluding 0, indicating the mediating effect between recyclable packaging and consumer satisfaction via perception of CSR. Introducing the mediator, perception of CSR, the direct effect of recyclable

packaging on consumer satisfaction is .1231 (90% CI=[-.0565, .3027]), with a confidence interval including 0, thus supporting full mediation. Therefore, **Hypothesis 2b is supported**.

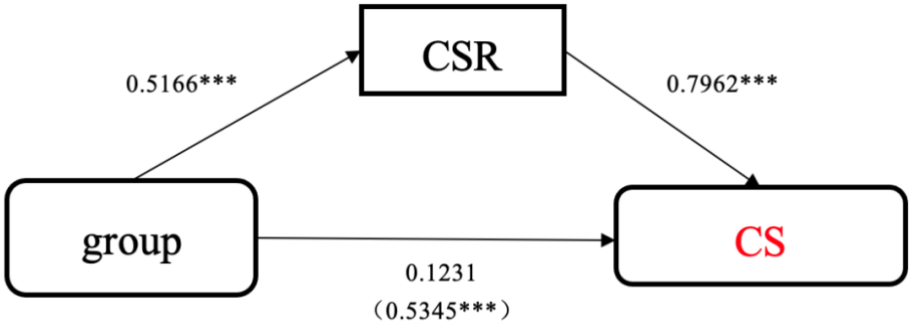

Figure 6-5 Mediating Effect of Consumers' Perception of CSR (DV: CS)

Index of Moderated Mediation: b = .3241, 90% CI = [.1960, .4569]

Figure 6-5 shows that there is no evidence that the recyclable packaging ("group") can directly affect consumer satisfaction (.1231, 90% CI=[-.0565, .3027]), however, it can indirectly affect consumer satisfaction via consumer perception of CSR (.4113, 90% CI=[.2438, .5876]). From the perspective of impact proportion, the indirect effect accounts for 77% of the total effect. In other words, the impact of recyclable packaging ("group") on consumer satisfaction (CS) is mainly through the indirect effect.

6.3.3 The Mediating Effect of Consumers' Perception of CSR (DV: CPW)

Table 6-8 Process Procedure of Mediating effect (CSR, CPW)

Variable	coeff	se	t	p	LLCI	ULCI
(Constant)	-0.0381	0.5203	-0.0732	0.9417	-1.062	0.9857
group	0.133	0.1411	0.9426	0.3466	-0.1447	0.4107
CSR	0.8003	0.0646	12.3846	0	0.6732	0.9275
age	0.1041	0.0525	1.9818	0.0484	0.0007	0.2074
gender	0.1496	0.1354	1.1046	0.2702	-0.1169	0.4161
edu	-0.0576	0.0703	-0.8197	0.413	-0.1959	0.0807

In this model where "group" (recyclable packaging) and "CSR" are IVs, "age", "gender", and "edu" are control variables, and "CPW" (consumers' willingness to pay premium) is DV, the path regression equation for "group" and "CSR" affecting CPW is shown (control variables omitted) as follows,

$$CPW = -0.0381 + 0.133group + 0.8003CSR$$

The F-statistic value of the above equation is 35.0698, passing the significance test at the 1% level, indicating overall significance of the equation. The variable "group" is not significant, whereas CSR ($p<0.01$) is significant (as shown in Table 6-8), suggesting that there is no significant direct effect of recyclable packaging on consumers' willingness to pay premium and CSR might have a full mediating effect in this pathway.

Table 6-9 Total, Direct and Indirect Effects of "group" on CPW

	Effect	se	t	p	LLCI	ULCI
Total effect	0.5465	0.1676	3.2615	0.0012	0.2701	0.8229
Direct effect	0.1330	0.1411	0.9426	0.3466	-0.0998	0.3659
	Effect	Boot SE			Boot LLCI	Boot ULCI
Indirect effect	0.4135	0.1061			0.1686	0.3964

Consumers' perception of CSR plays as a significant mediating role between recyclable packaging and consumers' willingness to pay premium (as shown in Table 6-9). The total effect of recyclable packaging on consumers' willingness to pay premium is .5465 (90% CI=[.2701, .8229]), while the indirect effect is .4135 (90% CI=[.1686, .3964]), with the confidence interval including 0, indicating the mediating effect between recyclable packaging and consumers' willingness to pay premium via perception of CSR. Introducing the mediator, perception of CSR, the direct effect of recyclable packaging on consumers' willingness to pay premium is .1330 (90% CI=[-.0998, .3659]),with a

confidence interval excluding 0, thus supporting full mediation. Therefore, **Hypothesis 2c is supported**.

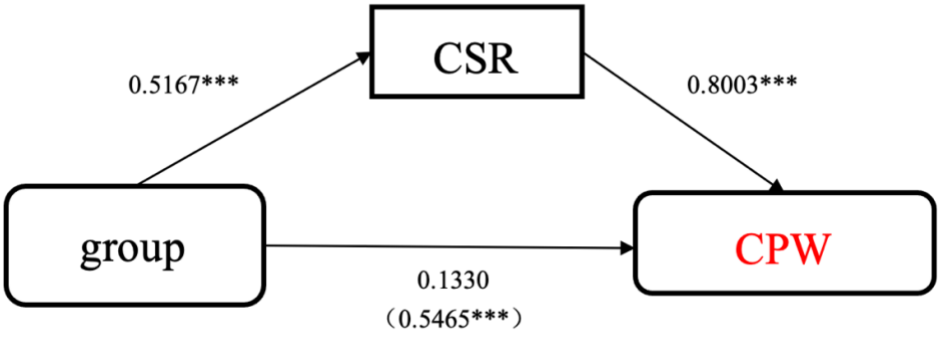

Figure 6-6 Mediating Effect of Consumers' Perception of CSR (DV: CPW)

Index of Moderated Mediation: b = .2806, 90% CI = [.1686, .3964]

Figure 6-6 shows that there is no evidence that the recyclable packaging ("group") can directly affect consumers' willingness to pay premium (.1330, 90% CI=[-.0998, .3659]), however, it can indirectly affect consumers' willingness to pay premium via consumer perception of CSR (.4135, 90% CI=[.1686, .3964]). From the perspective of impact proportion, the indirect effect accounts for 77% of the total effect. In other words, the impact of recyclable packaging ("group") on consumers' willingness to pay premium (CPW) is mainly through the indirect effect.

6.4 The Moderating Role of Environmental Attitudes

This study posits that environmental attitudes moderate the relationship between recyclable packaging and consumers' perceptions of CSR as well as the relationship between recyclable packaging and consumer behavior (including consumer purchase intention, consumer satisfaction and consumers' willingness to pay premium). In other words, individuals with different environmental attitudes lead to different perception of CSR and different

consumer behavior. Environmental attitudes (EA) including overall environmental attitudes (EA1) and environmental attitudes towards packaging (EA2).

6.4.1 The Moderating Role of Environmental Attitudes

To further investigate the role of environmental attitudes (EA) as a moderator between recyclable packaging and consumers' perception of CSR as well as the relationship between recyclable packaging and consumer behavior (including consumer purchase intention, consumer satisfaction and consumers' willingness to pay premium), this study conducts path analysis to examine the moderating effect. Following previous research protocols, the moderating effect is assessed by evaluating the model fit and path coefficients.

Table 6-10 Process Procedure of Moderating Effect (CSR, EA)

Variable	**coeff**	**se**	**t**	**p**	**LLCI**	**ULCI**
(Constant)	5.8864	0.2555	23.043	0	5.465	6.3079
group	0.3055	0.1014	3.0135	0.0028	0.1382	0.4727
EA	0.6451	0.0557	11.5882	0	0.5532	0.7369
group×EA	0.2083	0.1158	1.7992	0.073	0.0173	0.3993
age	-0.0792	0.0378	-2.0953	0.037	-0.1415	-0.0168
gender	-0.2107	0.0973	-2.1662	0.0311	-0.3712	-0.0502
edu	-0.0151	0.0509	-0.2975	0.7663	-0.099	0.0688

In this model where "group" (recyclable packaging), "EA" (environmental attitudes), and their interaction ("group"×EA) are IVs, "age", "gender", and "edu" as control variables, and "CSR" as DV, the path regression equation for "group", "EA", "group×EA" affecting "CSR" is as follows (control variables omitted),

$$CSR = 5.8864 + 0.3055group + 0.6451EA + 0.2083group \times EA$$

The F-statistic value of the above equation is 31.9246, passing the significance test at a 1% level, indicating overall significance of the equation. The results in Table 6-10 show a significant group×EA interaction (b = .2083, SE = .1158, t = 1.7992, p = .073) at the 10% significance level. The main effect of recyclable packaging ("group") (b = .3055, SE = .1014, t = 3.0135, p = .0028) and environmental attitudes (EA) (b = .6451, SE = .0557, t = 11.5882, p = .0000) are also significant.

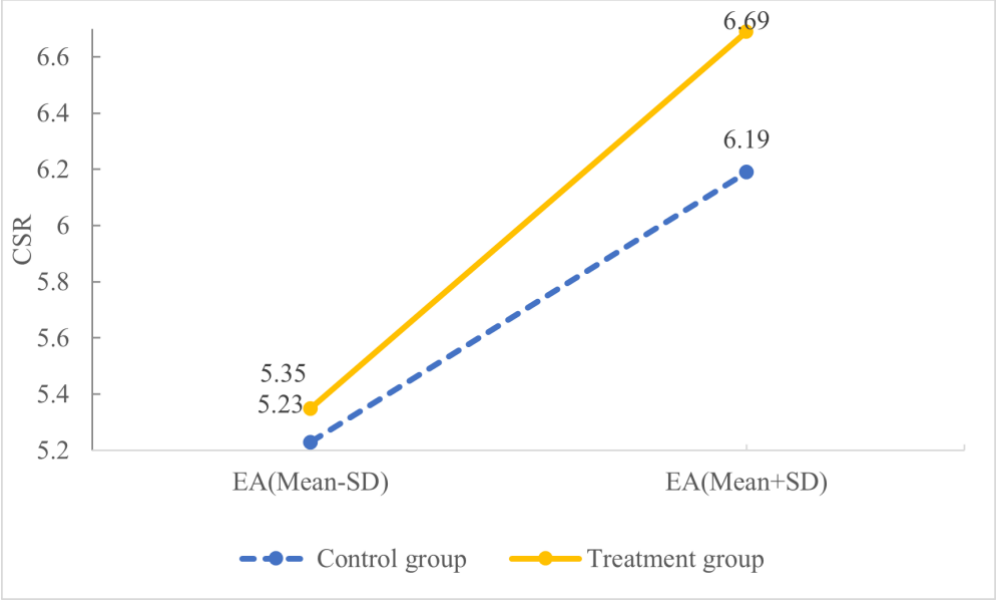

Figure 6-7 The Level of Consumers' Perception of CSR in Control Group and Treatment Group

It's clearly seen from Figure 6-7 that compared with low level of environmental attitudes (Mean−SD), under the high level of environmental attitudes (Mean+SD), consumers' perception of CSR in the treatment group and the control group shows great difference. To understand such interaction, we conduct spotlight analysis at ±1 SD from the mean of the environmental attitudes (EA) score. Consistent with our prediction, participants with a moderating variable (+1 SD) indicate more positive consumers' perception of CSR (b = .4945, SE = .1532, t = 3.2269, p = .0014). For those with a moderating

variable (−1 SD), there is no such difference (b = .1146, SE = .1384, t = .8412, p = .4009).

1) The Moderating Role of EA (DV: CBI)

Table 6-11 Process Procedure of Moderating Effect (EA, CBI)

Variable	**coeff**	**se**	**t**	**p**	**LLCI**	**ULCI**
(Constant)	1.6653	0.3919	4.2488	0	1.0187	2.312
group	0.1911	0.0955	2.0009	0.0463	0.0335	0.3487
CSR	0.6107	0.053	11.5215	0	0.5232	0.6981
EA	0.3108	0.062	5.0138	0	0.2085	0.413
group×EA	0.3699	0.1081	3.4229	0.0007	0.1916	0.5482
age	0.0254	0.0353	0.7176	0.4735	-0.0329	0.0837
gender	0.0317	0.091	0.3479	0.7281	-0.1185	0.1819
edu	-0.0129	0.0472	-0.2733	0.7848	-0.0908	0.065

In this model where “group” (recyclable packaging), “CSR”, “EA” (environmental attitudes), and their interaction (“group”×EA) are IVs, “age”, “gender”, and “edu” as control variables, and “CBI” (consumer purchase intention) is DV, the path regression equation for “group”, “CSR”,“EA”, “group×EA” affecting “CBI” is as follows (control variables omitted),

$$CBI = 1.6653 + 0.1911group + 0.6107CSR + 0.3108EA + 0.3699group \times EA$$

The results in Table 6-11 show a significant group×EA interaction (b = .3699, SE = .1081, t = 3.4229, p = .0007) at 1% significance level. The main effect of recyclable packaging (“group”) (b = .1911, SE = .0955, t = 2.0009, p = .0463) and environmental attitudes (EA) (b = .3108, SE = .062, t = 5.0138, p = .0000) are also significant.

Table 6-12 Significance Test of Moderating Effect (EA, CBI)

	Index	Boot SE	Boot LLCI	Boot ULCI
EA	0.1272	0.0802	0.0026	0.2658

The results in Table 6-12 show a significant impact of moderated mediation, indicated by the Bootstrap 90% confidence interval (0.0026,0.2658) that does not include 0.

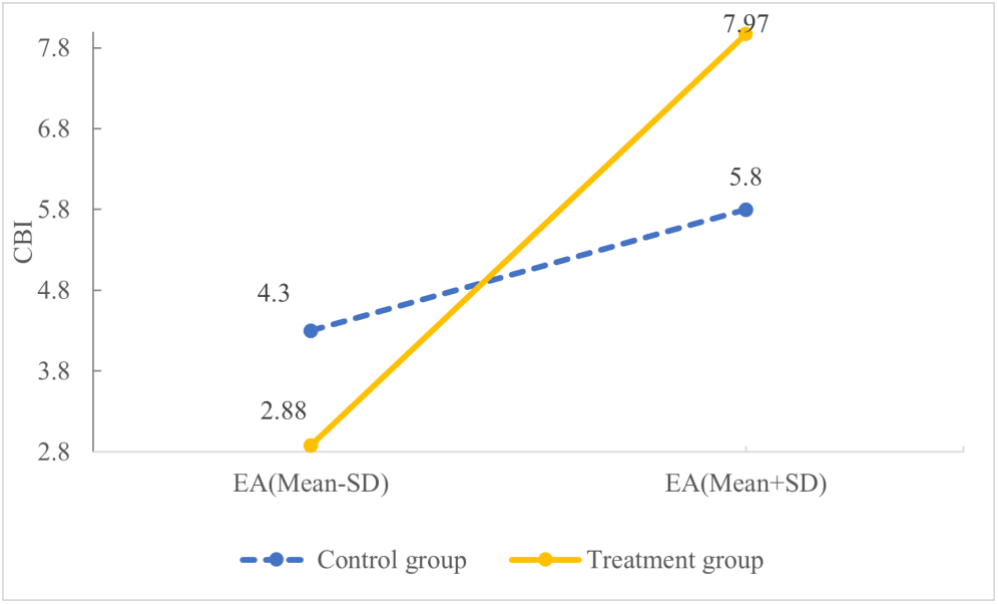

Figure 6-8 The Level of CBI in Control Group and Treatment Group

It's clearly seen from Figure 6-8 that compared with low level of environmental attitudes (Mean−SD), under the high level of environmental attitudes (Mean+SD), consumer purchase intention (CBI) in the treatment group and the control group shows great difference. To understand such interaction, we conduct spotlight analysis at ±1 SD from the mean of the environmental attitudes (EA) score. Consistent with our prediction, participants with a moderating variable (+1 SD) indicate more positive consumer purchase intention (b = .5269, SE = .1447, t = 3.641, p = .0003). For those with a moderating variable (−1 SD), there is no such difference (b = -.1447, SE =.1287, t = -1.1244, p = .2617).

Table 6-13 Mediating Effects at Different Levels of Moderator (EA, CBI)

The levels of moderating variable	**EA**	**Effect**	**Boot SE**	**Boot LLCI**	**Boot ULCI**
Mean-SD	-0.9077	0.0711	0.0986	-0.0877	0.2348
Mean	0	0.1865	0.073	0.0749	0.3153
Mean+SD	0.9077	0.302	0.1073	0.1412	0.4959

Table 6-13 shows the influence coefficient and significance of the indirect effect at different level of moderating variables. At a low level of moderating variable EA(Mean−SD), the moderating effect is insignificant (90% CI=[-.0877, .2348]). At a high level of moderating variable EA(Mean) (90% CI=[.0749, .3153]) and EA(Mean+SD) (90% CI=[.1412, .4959]), the moderating effect is significant, indicating that the higher level of moderating variable, the stronger the indirect effect is.

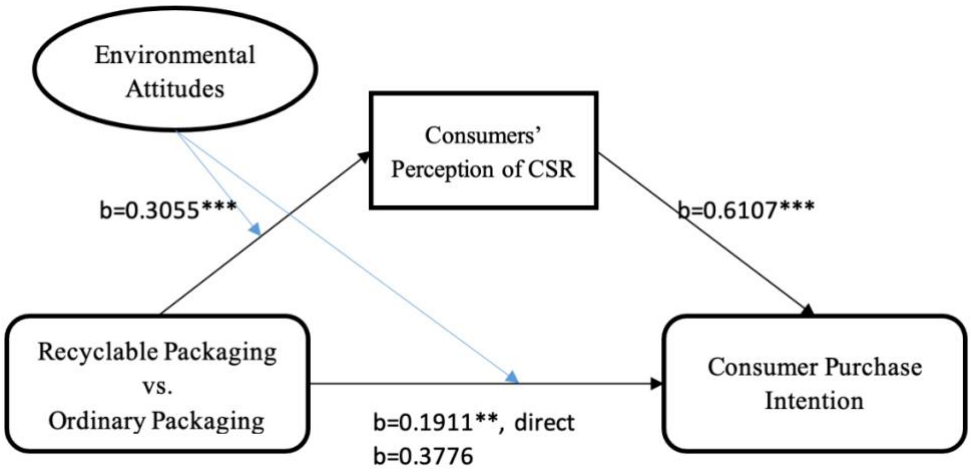

Figure 6-9 The Overall Moderated Mediation Effect of EA on CBI

Index of Moderated Mediation: b = .1272, 90% CI = [.0038, .2676]

Figure 6-9 is the overall moderated mediation effect of EA (moderator) on CBI (dependent variable). The independent variable ("group"), recyclable packaging, can directly affect consumer purchase intention (b =.1911, 90%

CI=[.0335, .3487]), and also can indirectly affect consumer purchase intention via their perception of CSR (b =.1865, 90% CI=[.0749, .3110]). From the perspective of impact proportion, the indirect effect accounts for 49% of the total effect.

2) The Moderating Role of EA (DV: CS)

Table 6-14 Process Procedure of Moderating Effect (DV: CS)

Variable	**coeff**	**se**	**t**	**p**	**LLCI**	**ULCI**
(Constant)	1.9306	0.4231	4.5631	0	1.2325	2.6286
group	0.1477	0.1031	1.4322	0.1531	-0.0224	0.3178
CSR	0.6143	0.0572	10.7369	0	0.5199	0.7087
EA	0.2865	0.0669	4.2817	0	0.1761	0.3968
group×EA	0.5266	0.1167	4.5143	0	0.3342	0.7191
age	-0.0093	0.0381	-0.2432	0.808	-0.0722	0.0537
gender	-0.0417	0.0983	-0.4247	0.6713	-0.2039	0.1204
edu	-0.0496	0.051	-0.9725	0.3316	-0.1337	0.0345

In this model where "group" (recyclable packaging), "CSR","EA" (environmental attitudes), and their interaction ("group"×EA) are IVs, "age", "gender", and "edu" are control variables, and "CS" (consumer satisfaction) is DV, the path regression equation for "group", "CSR", "EA", "group×EA" affecting "CS" is as follows (control variables omitted),

$$CS = 1.9306 + 0.1477group + 0.6143CSR + 0.2865EA + 0.5266group \times EA$$

The results in Table 6-14 show a significant group×EA interaction (b = .5266, SE = .1167, t = 4.5143, p = .0000) at 1% significance level. The effect of environmental attitudes (EA) (b = .2865, SE = .0669, t = 4.2817, p = .0000) is significant, while the main effect of recyclable packaging ("group") (b = .1477, SE = .1031, t = 1.4322, p = .1531) is not significant.

Table 6-15 Significance Test of Moderating Effect (EA, CS)

	Index	Boot SE	Boot LLCI	Boot ULCI
EA	0.1279	0.0815	0.0015	0.2724

The results in Table 6-15 show a significant impact of moderated mediation, indicated by the Bootstrap 90% confidence interval [.0015, .2724] that does not include 0.

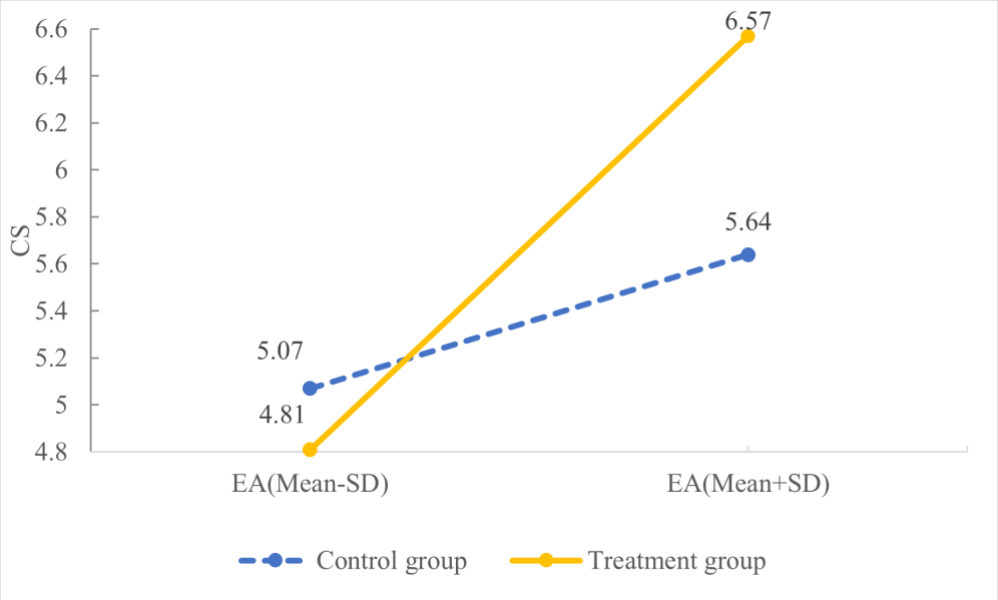

Figure 6-10 The Level of CS in Control Group and Treatment Group

It's clearly seen from Figure 6-10 that compared with low level of environmental attitudes (Mean−SD), under the high level of environmental attitudes (Mean+SD), consumer satisfaction (CS) in the treatment group and the control group shows great difference. To understand such interaction, we conduct spotlight analysis at ±1 SD from the mean of the environmental attitudes (EA) score. Consistent with our prediction, participants with a moderating variable (Mean+SD) indicate a more positive consumer satisfaction (b = .6257, SE = .1562, t = 4.0055, p = .0001). For those with a moderating variable (Mean−SD) indicate a more negative consumer satisfaction (b = -.3304, SE = .1389, t = -2.3788, p = .0180). This may be because when the level of

environmental attitude is low, the recyclable packaging with recycling mark does not make participants in the treatment group have stronger consumer satisfaction. Compared with the participants in the control group, the recycling mark in the treatment group may affect the overall appearance of the recyclable packaging, making the participants in the treatment group feel less satisfied. For those with a moderating variable (Mean), there is no such difference (b = .1477, SE = .1031, t = 1.4322, p = .1531).

Table 6-16 Mediating Effects at Different Levels of Moderator (EA, CS)

The levels of moderating variable	**EA**	**Effect**	**Boot SE**	**Boot LLCI**	**Boot ULCI**
Mean-SD	-0.9077	0.0715	0.0965	-0.0897	0.2287
Mean	0	0.1876	0.0697	0.0766	0.3032
Mean+SD	0.9077	0.3038	0.1066	0.1422	0.491

Table 6-16 shows the influence coefficient and significance of the indirect effect at different level of moderating variables. At a low level of moderating variable EA(Mean−SD), the moderating effect is not significant (90% CI=[-.0897, .2287]). At a high level of moderating variable EA(Mean) (90% CI=[.0766, .3023]) and EA(Mean+SD) (90% CI=[.1422, .491]), the moderating effect is significant, indicating that the higher level of moderating variable, the stronger the indirect effect is.

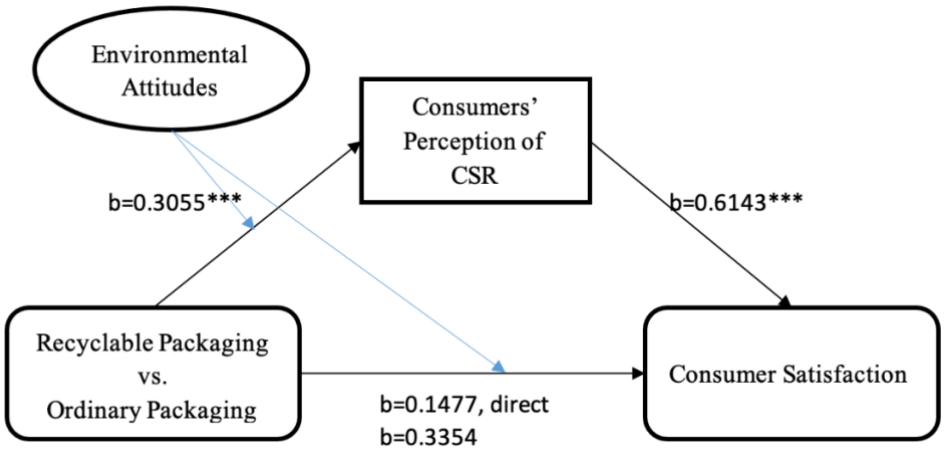

Figure 6-11 The Overall Moderated Mediation Effect of EA on CS

Index of Moderated Mediation: b = .1279, 90% CI = [.0046, .2738]

Figure 6-11 is the overall moderated mediation effect of EA (moderator) on CS (dependent variable). The independent variable ("group"), recyclable packaging, can indirectly affect consumer satisfaction via their perception of CSR (b = .1876, 90% CI=[.0763, .3108]), but its direct effect on consumer satisfaction is insignificant (b = .1477, 90% CI=[-.0224, .3178]). From the perspective of impact proportion, the indirect effect accounts for 56% of the total effect.

3) The Moderating Role of EA (DV: CPW)

Table 6-17 Process Procedure of Moderating Effect (EA, CPW)

Variable	**coeff**	**se**	**t**	**p**	**LLCI**	**ULCI**
(Constant)	1.8311	0.5278	3.4692	0.0006	0.9603	2.7019
group	0.129	0.1286	1.0032	0.3165	-0.0832	0.3413
CSR	0.4661	0.0714	6.5305	0	0.3484	0.5839
EA	0.5979	0.0835	7.1637	0	0.4602	0.7356
group×EA	0.5339	0.1455	3.6683	0.0003	0.2938	0.774
age	0.0725	0.0476	1.5231	0.1288	-0.006	0.151
gender	0.1428	0.1226	1.1652	0.2448	-0.0594	0.3451
edu	-0.0282	0.0636	-0.4438	0.6575	-0.1332	0.0767

In this model where “group” (recyclable packaging), “CSR”, “EA” (environmental attitudes), and their interaction (“group”×EA) are IVs, “age”, “gender”, and “edu” are control variables, and “CPW” (consumers’ willingness to pay premium) is DV, the path regression equation for “group”, “CSR”, “EA”, “group×EA” affecting “CPW” is as follows (control variables omitted),

$$CPW = 1.8311 + 0.129group + 0.4661CSR + 0.5979EA + 0.5339group \times EA$$

The results in Table 6-17 show a significant group×EA interaction (b = .5339, SE = .1455, t = 3.6683, p = .0000) at 1% significance level. The effect of environmental attitudes (EA) (b = .5979, SE = .0835, t = 7.1637, p = .0000) is significant, while the main effect of recyclable packaging (“group”) (b = .129, SE = .1286, t = 1.0032, p = .3165) is not significant.

Table 6-18 Significance Test of Moderating Effect (EA, CPW)

	Index	**Boot SE**	**Boot LLCI**	**Boot ULCI**
EA	0.0971	0.0633	0.0054	0.2106

The results in Table 6-18 show a significant impact of moderated mediation, indicated by the Bootstrap 90% confidence interval [.0054, .2106] that does not include 0.

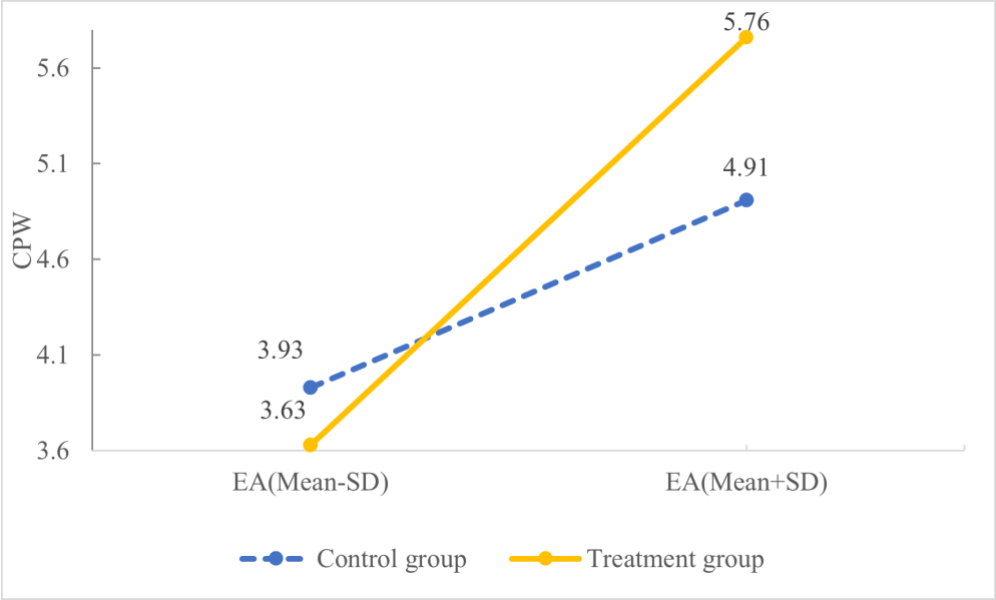

Figure 6-12 The Level of CPW in Control Group and Treatment Group

It's clearly seen from Figure 6-12 that compared with low level of environmental attitudes (Mean−SD), under the high level of environmental attitudes (Mean+SD), consumers' willingness to pay premium (CPW) in the treatment group and the control group shows great difference. To understand such interaction, we conduct spotlight analysis at ±1 SD from the mean of the environmental attitudes (EA) score. Consistent with our prediction, participants with a moderating variable (Mean+SD) indicate more positive consumers' willingness to pay premium (b = .6136, SE = .1949, t = 3.1489, p = .0018). For those with a moderating variable (Mean−SD) indicate more negative consumers' willingness to pay premium (b = -.3556, SE = .1773, t = -2.0522, p = .0410). This may be because when the level of environmental attitude is low, the recyclable packaging with recycling mark does not make participants in the treatment group have greater willingness to pay premium. Compared with the participants in the control group, the recycling mark in the treatment group may affect the overall appearance of the recyclable packaging, making the participants in the treatment group feel lower willingness to pay premium. For

those with a moderating variable (Mean), there is no such difference (b = .1290, SE = .1286, t = 1.0032, p = .3165).

Table 6-19 Mediating Effects at Different Levels of Moderator (EA, CPW)

The levels of moderating variable	**EA**	**Effect**	**Boot SE**	**Boot LLCI**	**Boot ULCI**
Mean-SD	-0.9077	0.0543	0.074	-0.0666	0.1752
Mean	0	0.1424	0.0591	0.0518	0.2484
Mean+SD	0.9077	0.2305	0.0901	0.0973	0.3902

Table 6-19 shows the influence coefficient and significance of the indirect effect at different level of moderating variables. At a low level of moderating variable EA(Mean−SD), the moderating effect is insignificant (90% CI=[-.0666, .1752]). At a high level of moderating variable EA(Mean) (90% CI=[.0518, .2484]) and EA(Mean+SD) (90% CI=[.0973, .3902]), the moderating effect is significant, indicating that the higher level of moderating variable, the stronger the indirect effect is.

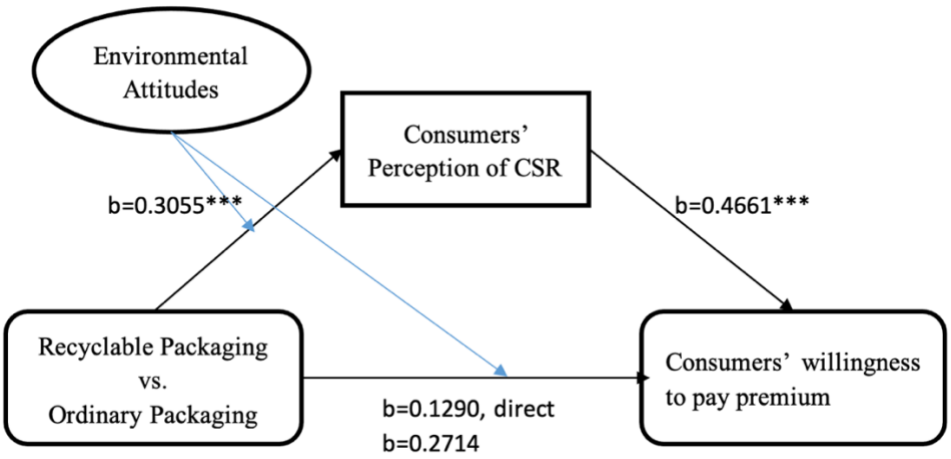

Figure 6-13 The Overall Moderated Mediation Effect of EA on CPW

Index of Moderated Mediation: b = .0971, 90% CI = [.0015, .2132]

Figure 6-13 is the overall moderated mediation effect of EA (moderator) on CPW (dependent variable). The independent variable ("group"), recyclable packaging, can indirectly affect consumers' willingness to pay premium via their perception of CSR (b = .1424, 90% CI=[.0524, .2455]), but its direct effect on consumers' willingness to pay premium is insignificant (b = .1290, 90% CI=[-.0832, .3413]). From the perspective of impact proportion, the indirect effect accounts for 52.5% of the total effect.

6.4.2 The Moderating Role of Overall Environmental Attitudes (EA1)

To further investigate the role of overall environmental attitudes (EA1) as a moderator between recyclable packaging and consumers' perception of CSR as well as the relationship between recyclable packaging and consumer behavior (including consumer purchase intention, consumer satisfaction and consumers' willingness to pay premium), this study conducts path analysis to examine the moderating process. Following previous research protocols, the moderating effect is assessed by evaluating the model fit and path coefficients.

Table 6-20 Significance Test of Moderating Effect (EA1)

DV	**Index**	**Boot SE**	**Boot LLCI**	**Boot ULCI**
CBI	0.0691	0.0686	-0.0404	0.186
CS	0.0694	0.069	-0.0382	0.1875
CPW	0.0531	0.0547	-0.029	0.149

Table 6-20 shows the influence coefficient and significance of the indirect effect on CBI, CS and CPW at different level of moderating variables (EA1). The corresponding EA1(Mean−SD) (90% CI=[-.0404, .186]) , EA1(Mean) (90% CI=[-.0382, .1875]) and EA1(Mean+SD) (90% CI=[-.029, .149]) is insignificant respectively.

6.4.3 The Moderating Role of Environmental Attitudes Towards Packaging (EA2)

To further investigate the role of environmental attitudes toward packaging (EA2) as a moderator between recyclable packaging and consumers' perception of CSR as well as the relationship between recyclable packaging and consumer behavior (including consumer purchase intention, consumer satisfaction and consumers' willingness to pay premium), this study conducts path analysis to test the moderating effect. Following previous research protocols, the moderating effect is assessed by evaluating the model fit and path coefficients.

Table 6-21 Process Procedure of Moderating Effect (EA2, CSR)

Variable	**coeff**	**se**	**t**	**p**	**LLCI**	**ULCI**
(Constant)	6.0637	0.2719	22.3029	0	5.6151	6.5122
group	0.3872	0.1069	3.6214	0.0003	0.2108	0.5636
EA2	0.4919	0.0545	9.033	0	0.4021	0.5817
group×EA2	0.3994	0.1099	3.6356	0.0003	0.2182	0.5807
age	-0.0903	0.0403	-2.2408	0.0258	-0.1567	-0.0238
gender	-0.1261	0.1046	-1.206	0.2287	-0.2987	0.0464
edu	-0.0657	0.0541	-1.2148	0.2254	-0.1549	0.0235

In this model where "group" (recyclable packaging), "EA2" (environmental attitudes towards packaging), and their interaction (group×EA2) are IVs, "age", "gender", and "edu" are control variables, and "CSR" is DV, the path regression equation for "group", "EA2", "group×EA2" affecting "CSR" is as follows (control variables omitted),

$$CSR = 6.0637 + 0.3872group + 0.4919EA2 + 0.3994group \times EA2$$

The F-statistic value of the above equation is 21.9440, passing the significance test at a 1% level, indicating overall significance of the equation. The results in Table 6-21 show a significant group×EA2 interaction (b = .3994, SE = .1099, t = 3.6356, p = .0003) at 10% significance level. The main effect of recyclable

packaging ("group") (b = .3872, SE = .1069, t = 3.6214, p = .0003) and environmental attitudes towards packaging (EA2) (b = .4919, SE = .0545, t = 9.033, p = .0000) are also significant.

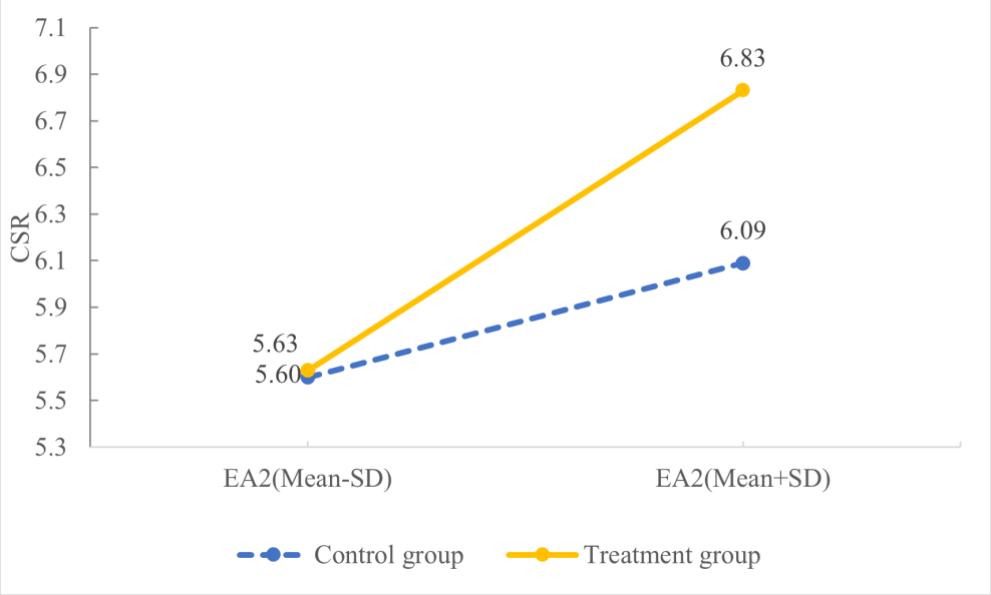

Figure 6-14 The Level of Consumers' Perception of CSR in Control Group and Treatment Group (EA2)

It's clearly seen from Figure 6-14 that compared with low level of environmental attitudes towards packaging (Mean−SD), under the high level of environmental attitudes towards packaging (Mean+SD), consumers' perception of CSR in the treatment group and the control group shows great difference. To understand such interaction, we conduct spotlight analysis at ±1 SD from the mean of the environmental attitudes towards packaging (EA2) score. Consistent with our prediction, participants with a moderating variable (+1 SD) indicate more positive consumers' perception of CSR (b = .7737, SE = .1540, t = 5.0236, p = .0000). For those with a moderating variable (−1 SD), there is no such difference (b = .0006, SE = .1475, t = .0044, p= .9965).

1) The Moderating Role of EA2 (DV: CBI)

Table 6-22 Process Procedure of Moderating Effect (EA2, CBI)

Variable	**coeff**	**se**	**t**	**p**	**LLCI**	**ULCI**
(Constant)	1.2368	0.4002	3.0905	0.0022	0.5765	1.8971
group	0.1846	0.0993	1.8595	0.0639	0.0208	0.3484
CSR	0.7022	0.0519	13.5298	0	0.6166	0.7878
EA2	0.1786	0.0557	3.2058	0.0015	0.0867	0.2705
group×EA2	0.175	0.102	1.7149	0.0874	0.0066	0.3433
age	0.0319	0.0369	0.864	0.3883	-0.029	0.0928
gender	0.0648	0.0953	0.6799	0.4971	-0.0925	0.2221
edu	-0.0381	0.0493	-0.7725	0.4404	-0.1194	0.0432

In this model where "group" (recyclable packaging), "EA2" (environmental attitudes towards packaging), and their interaction ("group"×EA2) are IVs, "age", "gender", and "edu" are control variables, and "CBI" (consumer purchase intention) is DV, the path regression equation for "group", "EA2", "group×EA2" affecting "CBI" is as follows (control variables omitted),

$$CBI = 1.2368 + 0.1846group + 0.7022CSR + 0.1786EA2 + 0.175group \times EA2$$

The F-statistic value of the above equation is 52.2237, passing the significance test at a 1% level, indicating overall significance of the equation. The results in Table 6-22 show a significant group×EA2 interaction (b = .175, SE = .102, t = 1.7149, p = .0874) at 10% significance level. The main effect of recyclable packaging ("group") (b = .1846, SE = .0993, t = 1.8595, p= .0639) and environmental attitudes towards packaging (EA2) (b = .1786, SE = .0557, t = 3.2058, p = .0015) are also significant.

Table 6-23 Significance Test of Moderating Effect (EA2, CBI)

	Index	**Boot SE**	**Boot LLCI**	**Boot ULCI**
EA	0.2805	0.0949	0.1323	0.4462

The results in Table 6-23 show a significant impact of moderated mediation, indicated by the Bootstrap 90% confidence interval [.1323, .4462] that does not include 0.

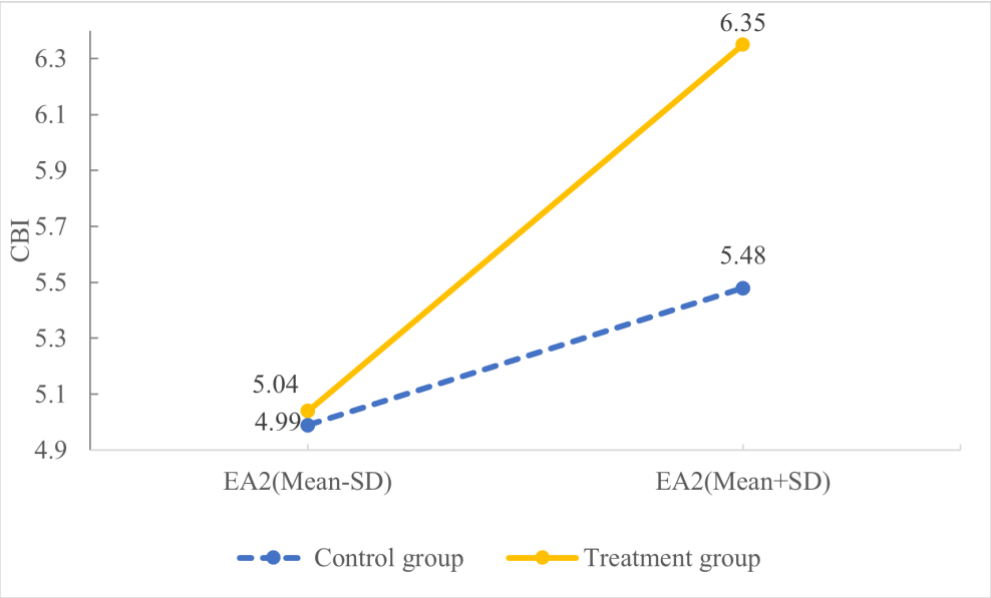

Figure 6-15 The Level of CBI in Control Group and Treatment Group (EA2)

It's clearly seen from Figure 6-15 that compared with low level of environmental attitudes towards packaging EA2(Mean−SD), under the high level of environmental attitudes towards packaging EA2(Mean+SD), consumer purchase intention in the treatment group and the control group shows great difference. To understand such interaction, we conduct spotlight analysis at ±1 SD from the mean of the environmental attitudes towards packaging (EA2) score. Consistent with our prediction, participants with a moderating variable (Mean+SD) indicate a more positive consumer purchase intention (b = .3539, SE = .1457, t = 2.4292, p = .0157). For those with a moderating variable (Mean-SD), there is no such difference (b = .0153, SE = .1341, t = .1139, p = .9094).

Table 6-24 Mediating Effects at Different Levels of Moderator (EA2)

The levels of moderating variable	**EA2**	**Effect**	**Boot SE**	**Boot LLCI**	**Boot ULCI**
Mean-SD	-0.9677	0.0005	0.1154	-0.1895	0.189
Mean	0	0.2719	0.0846	0.1391	0.4158
Mean+SD	0.9677	0.5433	0.1336	0.3427	0.7778

Table 6-24 shows the influence coefficient and significance of the indirect effect at different level of moderating variables. At a low level of moderating variable EA2(Mean−SD), the moderating effect is insignificant (90% CI=[-.1895, .189]). At a high level of moderating variable EA2(Mean) (90% CI=[.1391, .4158]) and EA2(Mean+SD) (90% CI=[.3427, .7778]), the moderating effect is significant, indicating that the higher level of moderating variable, the stronger the indirect effect is.

2) The Moderating Role of EA2 (DV:CS)

Table 6-25 Process Procedure of Moderating Effect (EA2, CS)

Variable	**coeff**	**se**	**t**	**p**	**LLCI**	**ULCI**
(Constant)	1.4646	0.4361	3.3587	0.0009	0.7452	2.184
group	0.1248	0.1082	1.1539	0.2495	-0.0537	0.3033
CSR	0.7151	0.0565	12.645	0	0.6218	0.8084
EA2	0.159	0.0607	2.6187	0.0093	0.0588	0.2591
group×EA2	0.1712	0.1112	1.5404	0.1245	-0.0122	0.3547
age	0.0004	0.0402	0.0106	0.9915	-0.066	0.0668
gender	-0.0191	0.1039	-0.1842	0.854	-0.1905	0.1522
edu	-0.0767	0.0537	-1.4272	0.1545	-0.1653	0.012

In this model where “group” (recyclable packaging), “CSR”, “EA2” (environmental attitudes towards packaging), and their interaction (“group”×EA2) are IVs, “age”, “gender”, and “edu” are control variables, and “CS” (consumer satisfaction) is DV, the path regression equation for “group”, “CSR”, “EA”, “group×EA2” affecting “CS” is as follows (control variables omitted),

$$CS = 1.4646 + 0.1248group + 0.7151CSR + 0.159EA2 + 0.1712group \times EA2$$

The F-statistic value of the above equation is 44.2634, passing the significance test at a 1% level, indicating overall significance of the equation. The results in Table 6-25 show an insignificant group×EA2 interaction (b = .1712, SE = .1112, t = 1.5404, p = .1245) at 10% significance level. The environmental attitudes towards packaging (EA2) (b = .159, SE = .0607, t = 2.6187, p = .0093) is significant, but the main effect of recyclable packaging ("group") (b = .1248, SE = .1082, t = 1.1539, p = .2495) is insignificant.

Table 6-26 Significance Test of Moderating Effect (EA2, CS)

	Index	**Boot SE**	**Boot LLCI**	**Boot ULCI**
EA2	0.2856	0.0954	0.1382	0.45

The results in Table 6-26 show a significant impact of moderated mediation, indicated by the Bootstrap 90% confidence interval [0.1382,0.456] that does not include 0.

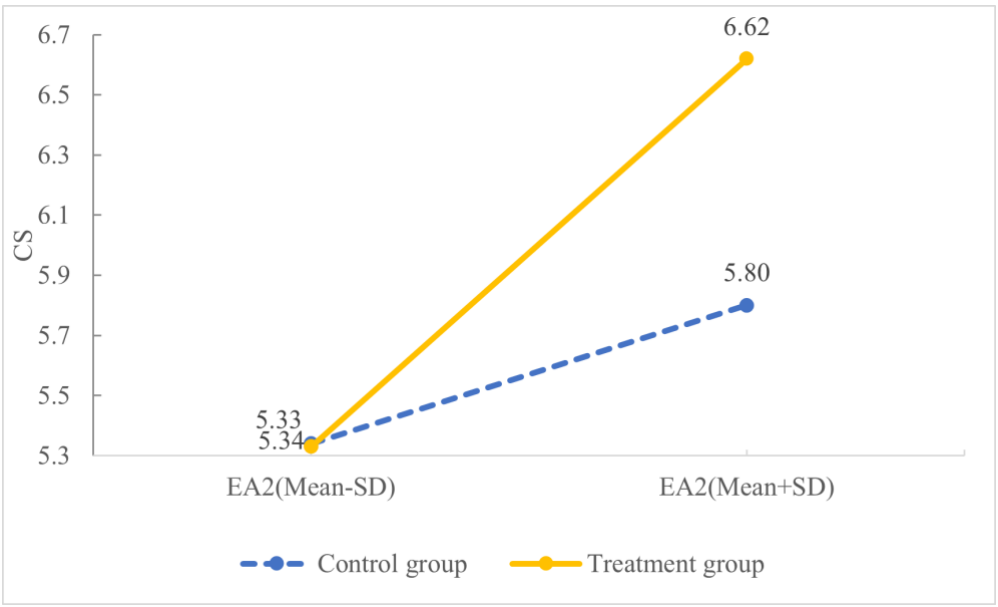

Figure 6-16 The Level of CS in Control Group and Treatment Group (EA2)

It's clearly seen from Figure 6-16 that compared with low level of environmental attitudes towards packaging EA2(Mean−SD), under the high level of environmental attitudes towards packaging EA2(Mean+SD), consumer satisfaction in treatment group and control group shows great difference. To understand such interaction, we conduct spotlight analysis at ±1 SD from the mean of the environmental attitudes towards packaging (EA2) score. Consistent with our prediction, participants with a moderating variable (Mean+SD) indicate more positive consumer satisfaction (b = .2905, SE = .1587, t = 1.8302, p = .0682). For those with a moderating variable (Mean-SD), there is no such difference (b = -.0409, SE = .1461, t = -.2799, p = .7797).

Table 6-27 Mediating Effects at Different Levels of Moderator (EA2, CS)

The levels of moderating variable	**EA2**	**Effect**	**Boot SE**	**Boot LLCI**	**Boot ULCI**
Mean-SD	-0.9677	0.0005	0.1166	-0.193	0.1879
Mean	0	0.2769	0.0842	0.1446	0.4208
Mean+SD	0.9677	0.5533	0.1328	0.3465	0.7806

Table 6-27 shows the influence coefficient and significance of the indirect effect at different level of moderating variables. At a low level of moderating variable EA2(Mean−SD), the moderating effect is insignificant (90% CI=[-.193, .1879]). At a high level of moderating variable (EA2(Mean) (90% CI=[.1446, .4208]) and EA2(Mean+SD) (90% CI=[.3465, .7806]), the moderating effect is significant, indicating that the higher level of moderating variable, the stronger the indirect effect is.

3) The Moderating Role of EA2(DV: CPW)

Table 6-28 Process Procedure of Moderating Effect (EA2, CPW)

Variable	**coeff**	**se**	**t**	**p**	**LLCI**	**ULCI**
(Constant)	0.6901	0.5646	1.2223	0.2226	-0.2414	1.6216
group	0.1347	0.1401	0.9621	0.3368	-0.0963	0.3658
CSR	0.6904	0.0732	9.4289	0	0.5696	0.8112
EA2	0.2166	0.0786	2.7558	0.0062	0.0869	0.3463
group×EA2	0.2264	0.1439	1.5729	0.1168	-0.0111	0.4639
age	0.0899	0.0521	1.7264	0.0853	0.004	0.1759
gender	0.191	0.1345	1.4202	0.1566	-0.0309	0.4129
edu	-0.067	0.0695	-0.9636	0.336	-0.1817	0.0477

In this model where “group” (recyclable packaging), “CSR, “EA2” (environmental attitudes towards packaging), and their interaction (“group”×EA2) are IVs, “age”, “gender”, and “edu” are control variables, and “CPW” (consumers’ willingness to pay premium) is DV, the path regression equation for “group”, “CSR”, “EA2”, “group×EA2” affecting “CPW” is as follows (control variables omitted),

$$CPW = 0.6901 + 0.1347group + 0.6904CSR + 0.2166EA + 0.2264group \times EA2$$

The results in Table 6-28 show an insignificant group×EA2 interaction (b = .2264, SE = .1439, t = 1.5729, p = .1168) at 10% significance level. The environmental attitudes towards packaging (EA2) (b = .2166, SE = .0786, t = 2.7558, p = .0062) is significant but the main effect of recyclable packaging ("group") (b = .1347, SE = .1401, t = 1.9621, p = .3368) is not significant.

Table 6-29 Significance Test of Moderating Effect (EA2, CPW)

	Index	**Boot SE**	**Boot LLCI**	**Boot ULCI**
EA	0.2757	0.0949	0.1317	0.4435

The results in Table 6-29 show a significant impact of moderated mediation, indicated by the Bootstrap 90% confidence interval [0.1317,0.4435] that does not include 0.

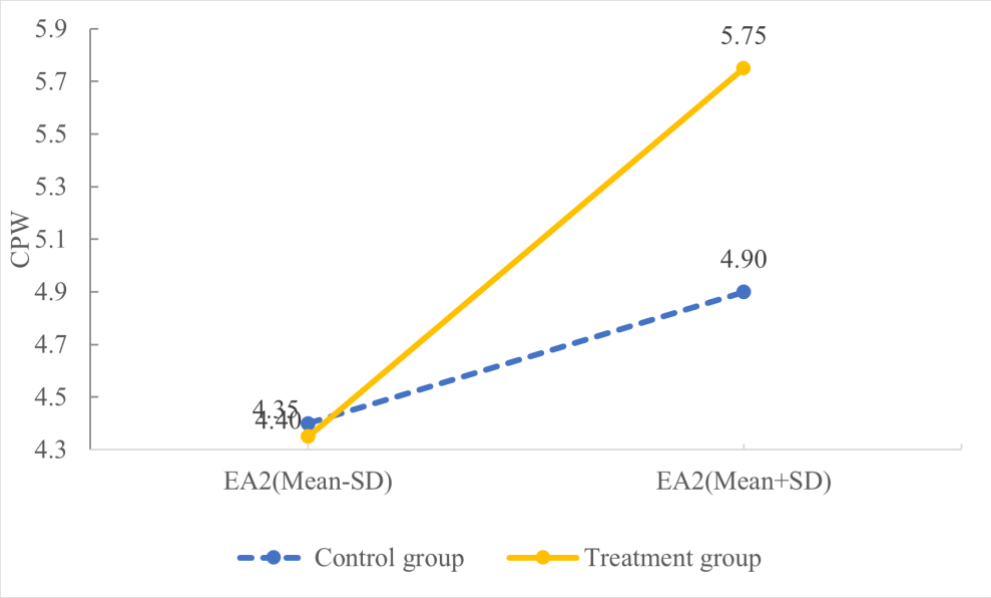

Figure 6-17 The Level of CPW in Control Group and Treatment Group (EA2)

It's clearly seen from Figure 6-17 that compared with low level of environmental attitudes towards packaging EA2(Mean−SD), under the high level of environmental attitudes towards packaging EA2(Mean+SD), consumers' willingness to pay premium in treatment group and control group shows great difference. To understand such interaction, we conduct spotlight analysis at ±1 SD from the mean of the environmental attitudes towards packaging (EA2) score. Consistent with our prediction, participants with a moderating variable (Mean+SD) indicate more positive consumers' willingness to pay premium (b = .3539, SE = .2055, t = 1.7215, p = .0862). For those with a moderating variable (Mean-SD), there is no such difference (b = -.0844, SE = .1892, t = -.4459, p =.6560).

Table 6-30 Mediating Effects at Different Levels of Moderator (EA2, CPW)

The levels of moderating variable	**EA2**	**Effect**	**Boot SE**	**Boot LLCI**	**Boot ULCI**
Mean-SD	-0.9677	0.0004	0.1139	-0.1949	0.1787
Mean	0	0.2673	0.0822	0.135	0.4051
Mean+SD	0.9677	0.5341	0.1337	0.3317	0.7727

Table 6-30 shows the influence coefficient and significance of the indirect effect at different level of moderating variables. At a low level of moderating variable EA2(Mean−SD), the moderating effect is not significant (90% CI=[-.1949, .1787]). At a high level of moderating variable EA2(Mean) (90% CI=[.135, .4051]) and EA2(Mean+SD) (90% CI=[.3317, .7727]), the moderating effect is significant, indicating that the higher level of moderating variable, the stronger the indirect effect is.

Chapter 7 Discussion

In order to study the impact of recyclable packaging on consumer behavior, this paper examines the mediating role of consumers' perceptions of CSR and the moderating role of environmental attitudes. The SPSS software and Process plug-in are used to do data analysis on 314 valid questionnaires collected through the WJX.com. One-way ANOVA analysis, hierarchical regression analysis and path analysis are adopted to draw the following conclusions,

1) Based on the experiment results, compared with the products with ordinary packing, consumers express stronger purchase intention, higher consumer satisfaction and more willingness to pay premium price for those with recyclable packaging.
2) Regarding consumers' perception of CSR, it plays a full mediation role and has a significant mediating effect on consumer behavior, including consumer purchase intention, consumer satisfaction, and consumers' willingness to pay premium. That is, the recyclable packaging will not directly cause changes in consumer behavior, but will cause changes in consumers' perceptions of CSR, and changes in consumers' perceptions of CSR will further cause changes in consumer behavior.
3) Regarding the environmental attitudes, it moderates the relationship between recyclable packaging and the perception of CSR, that is, the higher the environmental attitudes, the stronger relationship between recyclable packaging and perception of CSR.

7.1 Theoretical Contribution

First, the extant studies discuss the direct impact of CSR on enterprises, including the impact on finance, corporate image, and purchase intention (Oberseder et al., 2014; Wu et al., 2016), rather than the relationship between CSR and consumer behavior (e.g., consumer purchase intention, consumer satisfaction and willingness to pay premium). This study supplements the

research on the impact of consumers' perception of CSR on consumer purchasing behavior. Consumers are more willing to pay premium for products with perceived CSR. Secondly, based on the characteristics of consumers, the moderator of consumers' environmental attitudes is added to further examine the impact of recyclable packaging on consumer behavior. Lastly, in the experimental design, a real experimental object is used in the study.

7.2 Managerial Implication

Similar to previous studies, this study adopts the experimental results to prove that participation in CSR brings intangible benefits to enterprises, such as improving corporate image, increasing consumer satisfaction, and strengthening purchase intention (Luo & Bhattacharya, 2006; Marin et al., 2009; Martinez & Del Bosque, 2013; Oberseder et al., 2014; Wu et al., 2016; Yuen et al., 2016). Therefore, enterprises should participate in CSR activities such as charitable donations and environmental protection in a planned manner, use the media for publicity, and establish a responsible corporate image. As public's awareness of environmental protection continues to increase, enterprises with stronger CSR perception can achieve better performance.

7.3 Limitations

In this study, there are certain limitations as follows,

1) Like all research endeavors, this study has limitations related to the sample. This study uses consumer samples from provinces across the country in order to ensure the operability of the experiment. We also consider the country limitations of the sample, only samples from China are used. As environmental protection is a global topic, if more sample from different countries and regions are included, we may get different results.
2) As this study is conducted online, the virtual pictures are used to stimulate participants who are unable to physically interact with the product. If

participants can access to physical products with the packaging (recyclable vs ordinary), they may have better interaction, which might lead to a better experimental result.

3) There is a lack in emotional measure of perception of CSR, which means the impact perception of CSR on emotion is not captured. Perception is regarded as a dual construct (cognitive and affective). Since this study focuses on the measure of cognitive dimension, the future research could more focus on affective component when measuring perception of CSR.

7.4 Future Research

Based on the limitations of this study, the future research may start from the following aspects,

1) *Expand the samples to other countries and regions around the world.* As described in the limitations, there are differences in consumer culture, life and other aspects in different countries and regions, which may lead to different concepts and practices on environmental protection issues.
2) *Combined with real purchasing scenarios.* This study is conducted online and the respondents are exposed to pictures of related products only, which is quite different from the real sales scenario and may lead to different purchase decision made by consumers in real purchasing scenes. Therefore, in order to better explore the impact of recyclable packaging on consumer behavior, future research can consider setting the experiments in real purchasing scenarios.
3) *In-depth research at the product level.* The current study only focuses on packaging rather than products, therefore, future research can link various products with recyclable packaging to understand consumers' pro-environmental behavior and the relationship between products and packaging in the context of consumer purchase. In terms of the products, the tea packaging is used in this experiment which may affect the experimental

results. The future research can enrich the type of products and expand it to the packaging of other products.

4) *Explore the consistency between respondents' self-reported behavior and actual behavior.* Whether it is an online questionnaire or an on-site interview, consumers may untruthfully report their relevant behavior for certain purposes, which may lead to some differences between self-reported behavior and actual behavior. The future research can adopt the field experiment to observe the actual behavior of the respondents, thereby improving the accuracy of the experimental results.

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APPENDIX

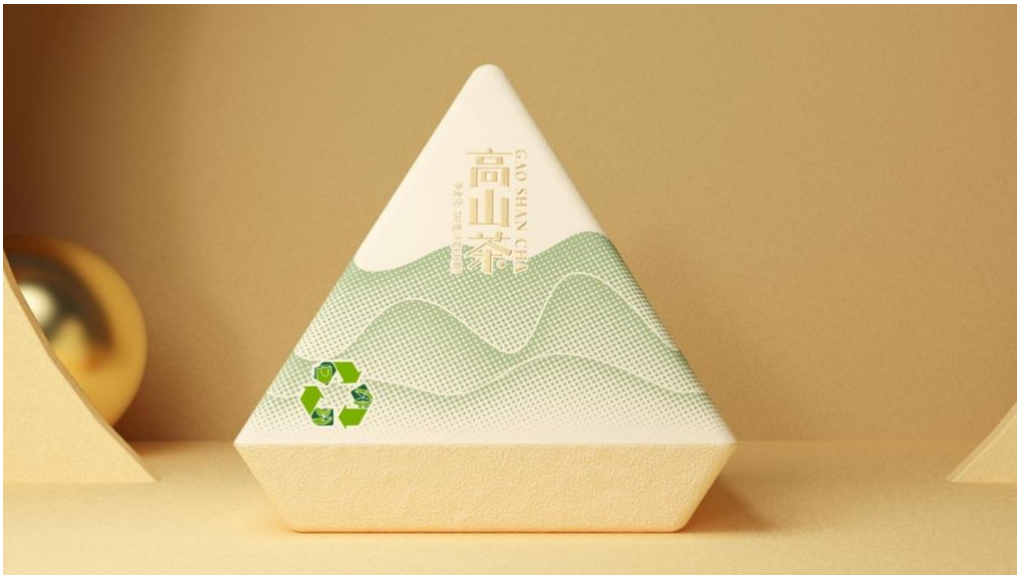
Questionnaire A (Treatment Group)

Hello!

Thank you very much for taking the time to participate in this survey. All the information collected in this survey is only for academic research purposes. We will properly protect the privacy of participants.

The experiment is related to the perception of packaging. You need to answer the questions in the questionnaire according to your subjective feelings. In the experiment, you will see a picture of the package and need to fill out the questionnaire below the picture.

The package is from Company X, who is dedicated to the development of tea, chinaware and products that nourish classics, traditions and soul. Company X mainly excavates the unique regional cultural characteristics of Quanzhou, both artistic and practical cultural and creative gifts (including tea gifts, tea ware, ceramic artworks, and so on).



I. The following questions are about the appearance of product package, you need to rate the degree how much you like it (1 = Very Dislike, 7 = Very Like).

1. Do you like the color? ( )
2. Do you like the triangular shape? ( )
3. Do you like the design of the pattern? ( )
4. In general speaking, what do you think of the design of the package? ( )
5. Please indicate whether the package you just saw has the following sign. ( )

A 

B 

C 

D No Sign

II. The following questions are related to your perception of Company X, based on the product package you just saw, you need to rate the degree about the statements below (1 = Very Unlikely, 7 = Very Likely).

1. This company participates in the activities aimed to protect and improve the natural environment. ( )
2. This company has made investment to create a better life for the future. ( )
3. This company implements special projects to minimize its negative impact on the natural environment. ( )
4. This company targets a sustainable growth for the future. ( )
5. This company supports non-governmental organizations that address the issues of environmental pollution and environment protection. ( )
6. This company contributes to the campaigns and projects that promote the well-being of the society. ( )
7. This company protects consumer rights beyond the legal requirements. ( )
8. This company provides customers with complete and accurate product information. ( )
9. Improving consumer satisfaction is very important to this company. ( )
10. This company complies with legal regulations completely and promptly. ( )

III. You need to rate the following behavior and status description to indicate the likelihood that you will do the behavior or agree with a certain status description (1 = Very Unlikely, 7 = Very Likely).

1. I am very likely to purchase products from this company. ( )
2. I will purchase products from this company next time when I need tea or related product. ( )
3. I will definitely try other products from this company. ( )
4. I am generally very satisfied with this company's products. ( )

5. If I buy this company's products, compared with products of other companies, I am willing to pay a higher price. ( )

IV. You need to rate the followings based on the degree how much you agree with (1 = Very Disagree, 7 = Very Agree).

1. The current population is approaching the limit that the earth can sustain. ( )
2. Human beings have the right to change the natural environment to meet their own needs. ( )
3. Human intervention in the environment often has disastrous consequences. ( )
4. Human ingenuity ensures that our planet does NOT become uninhabitable. ( )
5. Human beings are severely damaging the environment. ( )
6. The earth has abundant natural resources, we just need to learn how to develop and utilize them. ( )
7. Plants and animals have the same right to survive as human beings. ( )
8. The balance of nature is strong enough to cope with impacts of modern industrial nations. ( )
9. Despite the special abilities, human beings are still subject to the laws of nature. ( )
10. The so-called "ecological crisis" that human beings are facing has been greatly exaggerated. ( )
11. The earth is like a spaceship with very limited space and resources. ( )
12. Human beings are destined to rule over the rest of nature. ( )
13. The balance of nature is very fragile and is easily to be destroyed. ( )
14. Human beings will eventually learn enough about how nature works and how to control it. ( )
15. If things (destroying the environment and wasting resources) continue to develop like this, we will soon experience a major ecological disaster. ( )

16. I believe that the quality of the environment in the world we live in is closely related to my health and well-being. ( )
17. The current environmental issue is of the highest importance compared to other problems that our society is facing. ( )
18. Among all environmental problems, the quantity and destination of solid waste, for me, is one of the most important issues. ( )
19. Solid waste may be a problem at present, but it will soon be solved due to the advances in science and technology. ( )
20. Packaging waste is a major problem in the solid waste field due to the huge amount of packaging. ( )
21. All packaging should be environmentally friendly, even if there is a small charge in the price. ( )
22. Whether the packaging is recyclable or not does NOT affect the decision to purchase a product, the most important influencing factor is price. ( )
23. Packaging must be recyclable because it allows the materials recycling and minimums the environmental impact. ( )
24. Everyone should recycle packaging because it greatly reduces solid waste. ( )
25. I feel that I am contributing to make a better environment each time when I put packaging for recycling (in the recycling bin). ( )
26. I feel that it is my responsibility to sort waste and put it in the recycling bin. ( )
27. Packaging should be recycled, mainly because it has a market value. ( )

V. Please choose a correct meaning of the following sign. ( )

A. Healthy products B. Organic products

C. Recyclable packaging D. Ordinary packaging

VI. Personal Information

1.Age: _____

2.Gender: Male ____ Female ____

3.Education:

Junior high school and below ____

Senior high school, Technical secondary school ____

Junior college ____ Undergraduate ____ Graduate and above ____

4. Address:

_____

Questionnaire B (Control group)

Hello!

Thank you very much for taking the time to participate in this survey. All the information collected in this survey is only for academic research purposes. We will properly protect the privacy of participants.

The experiment is related to the perception of packaging. You need to answer the questions in the questionnaire according to your subjective feelings. In the experiment, you will see a picture of the package and need to fill out the questionnaire below the picture.

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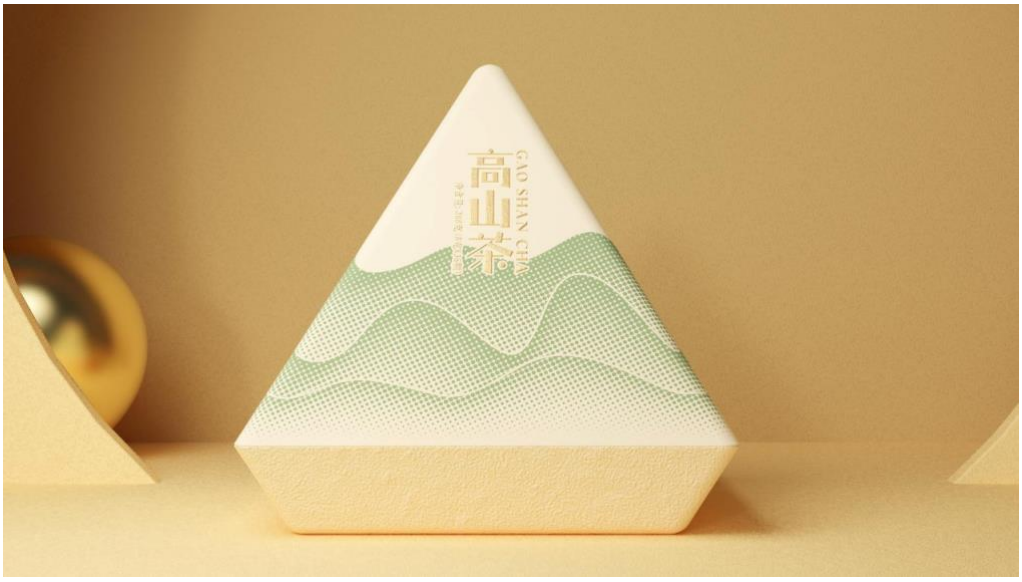

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3. Do you like the design of the pattern? ( )
4. In general speaking, what do you think of the design of the package? ( )
5. Please indicate whether the package you just saw has the following sign. ( )

A 

B 

C 

D No Sign

II. The following questions are related to your perception of Company X, based on the product package you just saw, you need to rate the degree about the statements below (1 = Very Unlikely, 7 = Very Likely).

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5. This company supports non-governmental organizations that address the issues of environmental pollution and environment protection. ( )
6. This company contributes to the campaigns and projects that promote the well-being of the society. ( )
7. This company protects consumer rights beyond the legal requirements. ( )
8. This company provides customers with complete and accurate product information. ( )
9. Improving consumer satisfaction is very important to this company. ( )
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4. Address:

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