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Dan Tang

tangdan@sd.taylors.edu.my

Taylor's University

Ree Chan Ho

Taylor's University

Nurlida Ismail

Taylor's University

Teck-Chai Lau

Xi'an Jiaotong-Liverpool University (XJTLU)

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How Eco Label Credibility Social Norms and Price Premium Drive Circular Economy Product Adoption in Zhejiang China

Dan Tang*[1, 2], Ree Chan Ho[1], Nurlida Ismail[1], Teck-Chai Lau[3]

[1]Taylor's University, Subang Jaya, Malaysia
[2]Lishui Vocational and Technical College, Zhejiang, China
[3]Xi'an Jiaotong-Liverpool University (XJTLU), Suzhou, China

***Corresponding Author: Email: tangdan@sd.taylors.edu.my**

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Abstract

Circular economy products (CEPs) can extend the life of resources through reuse and recycling, thereby supporting more sustainable consumption. However, consumer adoption of CEPs in China remains relatively underexplored, particularly the roles of trust, social norms, and price-related concerns. This study surveyed 407 adults in Zhejiang Province who had prior experience with CEPs and used Partial Least Squares Structural Equation Modelling (PLS-SEM) to examine how eco-label credibility, social norms, environmental concern, product trust, and perceived green premium influence willingness to purchase and actual purchasing behaviour. The results show that product trust, eco-label credibility, social norms, and environmental concern positively influence willingness to purchase, with product trust emerging as the strongest predictor. In contrast, perceived green premium negatively affects willingness to purchase. Willingness to purchase also mediates these relationships and significantly influences actual purchasing behaviour. These findings highlight the importance of building consumer trust, strengthening the credibility and transparency of eco-labels, and addressing price concerns to encourage circular consumption. For marketers and policymakers, improving confidence in CEPs while making them more affordable may help bridge the gap between consumers' positive attitudes and their actual sustainable purchasing behaviour.

Keywords: Circular economy; eco-label credibility; product trust; social norms and purchase behaviour

Introduction

The worldwide transition to a circular economy (CE) has accelerated due to the need for solutions to depleting natural resources, climate change, and unsustainable production and consumption patterns (UNEP, 2023). Initiatives such as the EU Circular Economy Action Plan

and the UN Sustainable Development Goals (SDGs) suggest that CE can address waste and resource scarcity, including environmental protection (European Commission, 2020; UN, 2015). However, the problem is that the acceptance of consumers may have different variations for different communities and cultures (Geng et al., 2023), which is especially relevant for China due to its crucial role in global production and consumption and the intention to reach the dual-carbon goals, which suppose carbon emissions to be peaked by 2030 and carbon neutrality to be achieved by 2060 (State Council of China, 2021).

Zhejiang is a major base for evaluating customer use of circular economy products. The province is one of China's most economically and technologically developed provinces. It is regarded as a case where the province's economy is developing alongside environmental challenges (Wang et al., 2019). Circular economy products can improve resource efficiency and recycling; however, their consumption depends on several factors, including consumer perceptions of environmental claims, the degree of social need, and product prices. The literature provides some evidence on the significance of eco-labels' trustworthiness, social norms, and price perceptions (Wongsaichia et al., 2022). However, most evidence on these variables comes from Western countries and thus does not reflect specific contexts, including the role of collectivism (Zhang et al., 2021). Thus, it is reasonable to evaluate these variables in the context of Zhejiang Province to generate more insights into the specifics of circular economy product adoption in an industrialising economy (Zhang et al., 2022).

The literature has highlighted several psychological and social drivers of sustainable consumption, though the importance of such factors in the context of consumer eco-products (CEPs) is not entirely clear. According to the theory of planned behaviour (TPB), behavioural intentions result from attitudes, subjective norms (social pressure), and perceived behavioural control (Ajzen, 1991). Another driver of eco-consumption is environmental concern, which can lead to ecologically friendly decisions (Yadav & Pathak, 2016). Social influence is particularly important in collectivistic cultures, where social expectations shape people's behaviour (White et al., 2019; Zhang et al., 2021). Trust in CEPs also matters because it may be difficult to assess their ecological and functional characteristics. A credible eco-label helps reduce uncertainty about the environmental claims made about a product, and product trust reflects consumers' confidence in the product's quality, durability, safety, and operation. Furthermore, distinguishing between these two forms of consumer trust would provide more complete insights into the success of CEP adoption (Xu et al., 2025).

Price is another vital constraint. Consumers view the green premium—additional payment for environmentally friendly products—as an obstacle that prevents them from buying, since they do not see enough environmental benefits to justify the additional cost, especially in business environments where price is especially important to consumers (Liu et al., 2020). Moreover, willingness to buy does not necessarily translate into specific buying behaviour. The intention-behaviour gap means that willingness to buy does not necessarily lead to action because of pricing issues, product accessibility, and other environmental factors (Pittman & Sheehan, 2021). Hence, to understand the process of CEP adoption, one should distinguish between willingness to buy and buying behaviour. Although CE implementation is progressing, three gaps remain.

First, few studies have examined the credibility of eco-labels and trust in products in non-Western countries, where institutional trust, information asymmetry, and certification systems shape consumers' attitudes toward environmental claims (Yang et al., 2024; Zhang et al., 2021). Secondly, the role of social norms in collectivist countries like China needs to be explored

since social norms and interpersonal expectations can be crucial in such countries (Teng et al., 2025). Third, little is known about how consumers move from intending to buy CEPs to making the purchase, especially when price and access are major barriers to action (Tang et al., 2022). Knowledge is also limited on how consumers react to different CEPs (from textiles to electronic devices). To address these gaps, the present study develops a comprehensive model of CEP consumption in Zhejiang province, China, and tests it empirically. Specifically, the study examines the influence of such factors as eco-label credibility, social norms, ecological concerns, product trust, and perceived green premium on consumers' willingness to purchase CEPs. The research also investigates whether this intention translates into action. The study considers information-related, social, psychological, and economic factors and distinguishes between intentions and actions, providing a complete view of circular consumption in China. The conclusions are also important for the CE and sustainable consumption literature and for specialists in policy, marketing, and certification who aim to build consumer trust and improve understanding of the affordability of environmental information and the transition from intention to actual consumption.

2.0 Literature Review and Hypotheses Development

This research builds on established theories of consumer behaviour and circular economy adoption to develop a model explaining consumer willingness to purchase products associated with the circular economy (CEPs). The literature review covers the informational, social, psychological, and economic influences that can affect consumer choices. In particular, the study focuses on the impact of eco-label credibility and social norms and formulates hypotheses grounded in established theories and research. The proposed relations are tested with consumers in Zhejiang Province, China.

2.1 Eco-Label Credibility and Willingness to Purchase CE Products

The concept of the circular economy (CE) promotes the reuse, repair, recycling, reconditioning, and remanufacturing of both goods and materials. Unlike the conventional linear take-make-dispose concept, eco-labelling allows consumers to access product details, including information about their eco-attributes. As a result, clear, reliable eco-labelling reduces information uncertainty and fosters trust in CE products. Studies have proven that reliable eco-labels build consumer intention to buy and pay for eco-products (Pathak et al., 2024; Keshavarz et al., 2025). In particular, the credibility of eco-labels, knowledge about environmental issues, and green trust strongly influence the intention to make green purchases (Patiño-Toro et al., 2024; Hossain et al., 2022). Research in China has shown how credible eco-labels can affect customers' intentions to purchase food and clothing (Picuno et al., 2021; Nguyen-Viet, 2022). Dependable eco-labels affect consumer perceptions of eco-label credibility (Park, 2024). Signalling Theory states that eco-labels convey crucial information to customers about a product's environmental status, which they can hardly verify before purchasing (Spence, 1978). Credible signals can reduce uncertainty, boost green trust, increase purchase intention, and reduce worries about greenwashing (Nguyen-Viet, 2022; Isac et al., 2024). The effectiveness of such signals may be attributed to cultural and institutional factors such as collectivism, uncertainty avoidance, institutional trust, and understanding of certification systems (Ghouse et al., 2025). These characteristics are especially important in a country like China, where consumer perception is influenced by social pressure and institutional credibility.

H1: Eco-label credibility positively influences consumers' willingness to purchase circular economy products.

2.2 Social Norms and Consumers' Willingness to Purchase CE Products

Norms are important social and psychological factors that influence pro-environmental consumption in collectivistic societies, where interpersonal relationships, group expectations, and social cohesion play a major role in decision-making (Wang & Zhang, 2020; Clark et al., 2019). Norms include descriptive norms that describe what people do and injunctive norms that refer to what people ought to do according to others' expectations (Jacobson et al., 2020; Bhanot, 2021), and both types of social influence affect consumers' attitudes and intentions toward sustainable products. This is especially true in China, where social relationships strongly influence buying decisions. People may adopt behaviours that conform to the expectations of their society and specific referent groups (Chin et al., 2020; Yang et al., 2022). As Li et al. (2029) show, social norms shape Chinese consumers' propensity toward eco-labelled goods. Social endorsement shapes consumers' perceptions of the social value of sustainable purchases and reduces perceived risk when using goods that are new to them (Maryam et al., 2022; Narwal & Nayak, 2019). This is essential for consuming circular products, since they can appear unusual and less convenient than regular goods. Positive members of the social group make consuming circular products more acceptable (Solovida et al., 2025; Wang & Walker, 2023). Evidence from East Asian countries supports this idea, where social factors affect the likelihood of purchasing green goods (Li et al., 2025; Hu X., & Hu J., 2025). In summary, consumers' acceptance of circular consumption is influenced by the groups of people important to their adoption of this type of consumption. Therefore, the statement can be provided:

H2: Social norms positively influence consumers' willingness to purchase circular economy products.

2.3 Perceived Green Premium and Willingness to Purchase CE Products

The green premium that shoppers associate with green economy products can hinder customers' acceptance of green products. Price-conscious consumers, particularly those in developing economies, may view sustainable products as too expensive, which can reduce their perceived value (Huang, 2023; Hong et al., 2024; Cai et al., 2017). This impact can be exacerbated by low consumer knowledge of the functional benefits of circular products (Shao, 2026; Helinski et al., 2025). Although consumers value products based on functional, social, and emotional factors, price still matters (Sharma, 2021). For some consumers, the environmental or moral aspect may justify a higher price, while for others, the advantages that justify the higher price are more important (Lin & Niu, 2018; Wang & Walker, 2023). Consumers are more likely to cope with the price increase, including people with high incomes and sufficient environmental knowledge. Moreover, trust in the sustainability claims plays a role in consumers' willingness to pay. If they find eco-labels and environmental statements trustworthy, they may find the extra financial cost acceptable when buying green products; otherwise, any price increase may seem unreasonable (Akturan, 2018; Fan et al., 2019). Therefore, a higher perceived ecological price premium increases the economic sacrifice associated with environmentally friendly items and lowers overall willingness to purchase.

H3: Perceived green premium negatively influences consumers' willingness to purchase circular economy products.

2.4 Environmental Concern and Consumers' Willingness to Purchase CE Products

Environmental concern is the degree to which people acknowledge environmental issues and regard them as important. It is a relevant psychological factor influencing pro-environmental consumption: those concerned about the environment are typically more aware of the environmental effects of their purchases and are likely to prefer energy-saving products (Bigliardi et al., 2022; Liang et al., 2022). Credible environmental messages can enhance this connection by increasing the visibility of products' environmental characteristics. If eco-labels and environmental claims are perceived as transparent, independent, and scientifically validated, they can encourage actual environmental engagement (Kovač et al., 2025; Alalei & Jan, 2023). In fact, credible environmental claims can also boost awareness of consumers' environmental responsibility and motivate them to make more sustainable consumption choices (Hossain et al., 2022; Zaiem et al., 2025). Consumers with environmental concerns are more inclined to turn their environmental values into purchases. Thus, CEPs can provide a viable way to demonstrate these values by saving resources, consuming fewer products, extending product life, and reusing and recycling goods. Thus, greater environmental concern should correlate with higher perceived relevancy of circular consumption and make it easier for consumers to acquire CEPs (Bigliardi et al., 2022; Liang et al., 2022).

H4: Environmental concern positively influences consumers' willingness to purchase circular economy products.

2.5 Product Trust and Consumers' Willingness to Purchase CE Products

Consumer product trust is defined as consumers' assurance that a product works as promised in fulfilling its functional, environmental, and ethical attributes. This concept is more vital in the case of participants in the circular economy (CEPs) because they raise concerns related to durability, quality, safety, reliability, and performance, as they involve recycling, reuse, remanufacturing, or restoration of materials (Al Mamun et al., 2025; Pop et al., 2020). Trust reduces uncertainty by increasing consumers' confidence in a product and its environmental claims. Eco-labels signal credibility for a product's eco-friendly claims when consumers trust them as true and verified, helping them avoid greenwashing (Nygaard & Silkoset, 2023; Akturan, 2018). With reference to Signalling Theory, extra signals appear beneficial for consumers because they clarify a product's qualities before purchase, which otherwise cannot be checked. More precisely, eco-label credibility is not the same as product trust. Eco-label credibility reflects trust in environmental information, while product trust reflects confidence in a product's quality and performance. Several studies show that environmental credibility positively affects product trust and, in turn, the intention to buy eco-friendly products (Kumar et al., 2021; Huang, 2023; Al Mamun et al., 2025). In a country like China, where customers may experience difficulty with certain types of new products, trust helps reduce perceived performance and social risks and facilitates decision-making (Li et al., 2021; Pop et al., 2020). Thus, instrumented product trust seems to reduce uncertainty and support correct decision-making.

H5: Product trust positively influences consumers' willingness to purchase circular economy products.

2.6 Willingness to Purchase CE Products and Purchase Behaviour

The shift towards a circular economy (CE) relies not only on the existence of sustainable products but also on consumers' readiness to use them. More specifically, willingness to buy refers to consumers' intention to purchase circular products and is a key part of developing

actual buying behaviours (Ajzen, 1991; Bigliardi et al., 2020). The Theory of Planned Behaviour states that behavioural intention should be a key predictor of actual behaviour. Empirical research shows that consumers willing to purchase products that have been refurbished or are circular are more likely to behave in a way that corresponds with their willingness (Wiederhold & Martinez, 2018; Vehmas et al., 2024). However, willingness does not always lead to actual behaviour. The gap between intention and behaviour is a well-known phenomenon in sustainable consumption (Nieto-García et al., 2024). Closing the gap may be possible through increased consumer awareness of environmental issues, as well as through better market and institutional setups that support such purchases (Chen et al., 2024). In the context of CE, willingness to purchase means that consumers are willing to support products that conserve resources, reduce waste, last longer, are reused, and are recycled (Geissdoerfer et al., 2017; Helinski et al., 2025). Although contextual limitations may reduce the likelihood of converting intention into action, stronger intention increases the likelihood of CEP purchases. Therefore, the following hypothesis is proposed:

H6: Willingness to purchase circular economy products positively influences consumers' purchase behaviour.

2.7 Willingness to Purchase as a Mediator

Willingness to buy is an important facilitator of how consumer perceptions, values, social effects, and economic evaluations translate into buying behaviours. In this study, willingness to buy helps connect eco-label credibility, product trust, environmental concern, perceived green premium, social influence, and purchasing behaviour. Eco-label credibility helps to reduce uncertainty and increase consumers' preparedness for CEPs, introducing willingness to buy and thus increasing actual purchasing (Testa et al., 2015). Product trust increases customers' positive perceptions of the reliability of circular products, leading to willingness and subsequent purchases (Chen, 2010; Amin & Tarun,2021). Environmental attitudes may work similarly, as environmentally aware consumers are more likely to buy eco-friendly products (Joshi & Rahman, 2019; Jin et al., 2020). In contrast, consumers who encounter the 'green premium' in their purchasing decisions may be unwilling to buy a product because of the higher costs involved in eco-friendly purchases (Thøgersen, 2017; Kumar et al., 2021). Lower willingness may result in lower purchasing actions. On the other hand, social norms may play a contrary role in influencing willingness to buy eco-friendly products: when consumers know that some reference groups approve and demand sustainable consumption, their inclination to purchase eco-friendly products may be even higher (Biswas & Roy, 2015; White et al., 2019). The proposed mediation relationships are therefore:

H7-H11: Willingness to purchase circular economy products mediates the relationship between eco-label credibility, product trust, environmental concern, perceived green premium and social norms and purchase behaviour.

3. Theoretical Framework

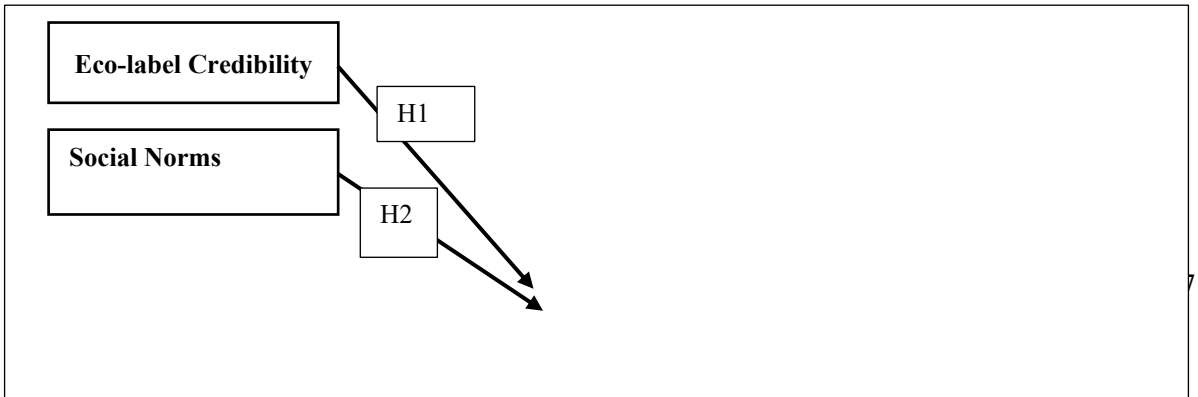
This research develops an integrated framework to explain consumers' willingness to pay for circular economy (CE) products. Research on eco-labelling, social norms and environmental issues, trust, and price has outpaced research on how these aspects interact as determinants of CEP purchase. Nevertheless, CEP products entail different consumer perceptions than regular green products (Kirchherr et al., 2017; Su et al., 2013). The framework comprises five antecedents that precede purchase intentions – eco-label credibility, perception of social norms,

perceived green premium, concern about the environment and trust in the product, while willingness to purchase is treated as a mediator between those and the final purchase behaviour. Four general theories endorsed within the framework include Theory of Planned Behaviour (TPB), Value-Belief-Norm (VBN) Theory, Signalling Theory and Price-Quality Inference Theory.

TPB establishes the underlying behavioural framework (Ajzen, 1991). According to this theory, the primary factors influencing the formation of behavioural intention are attitudes, subjective norms, and perceived behavioural control. Intention is considered a precursor to actual behaviour. In this research paper, social norms are interpreted as subjective norms, willingness to buy as behavioural intention, and actual buying behaviour as the behavioural outcome. Compared with the traditional use of TPB in research, this paper introduces eco-label trust and trust in the product to encompass information ambiguity and individual product-related uncertainties relevant to CEPs (Joshi & Rahman, 2015; Paul et al., 2016).

VBN theory interprets environmental concern as a driver of sustainable consumption (Stern et al., 1999). Consumers concerned about the environment are more likely to understand how consumption affects the environment and to promote sustainable alternatives (Biswas & Roy, 2015; Kumar et al., 2021). In the present framework, product trust complements environmental concern by recognising that environmental motivation may not translate into CEP adoption unless consumers are confident in the product's quality, reliability, and environmental performance.

Signalling Theory emphasises the significance of eco-label credibility and product ethics in consumer behaviour (Spence, 1978). Because consumers cannot assess attributes like recyclability, resource efficiency, and eco-friendliness before purchase, they rely on credible eco-labels to address information asymmetry (Delmas & Grant, 2014). In this case, trust in the signs leads to greater confidence and less uncertainty when customers purchase ecological products. Price Quality Inference Theory provides insights into how consumers respond to green premium prices (Zeithaml, 1988). While some consumers may see a product's high price as an indicator of quality and eco-friendliness, price-sensitive customers may view the premium as an economic burden. Together with TPB, which analyses the role of social factors in the transition from intention to behaviour, VBN highlights environmental issues, Signalling Theory examines the importance of trustworthy information in forming trust, and Price Quality Inference considers respondents' reactions to premium prices. As a result, the combined framework identifies the importance of eco-labels, social norms, green premium, environmental concerns, and trust in the product in the willingness to buy, which in turn affects purchase behaviour. Altogether, these perspectives offer a multidimensional interpretation of CEP dissemination by integrating social, environmental, informational, psychological, and economic aspects in the case of China.



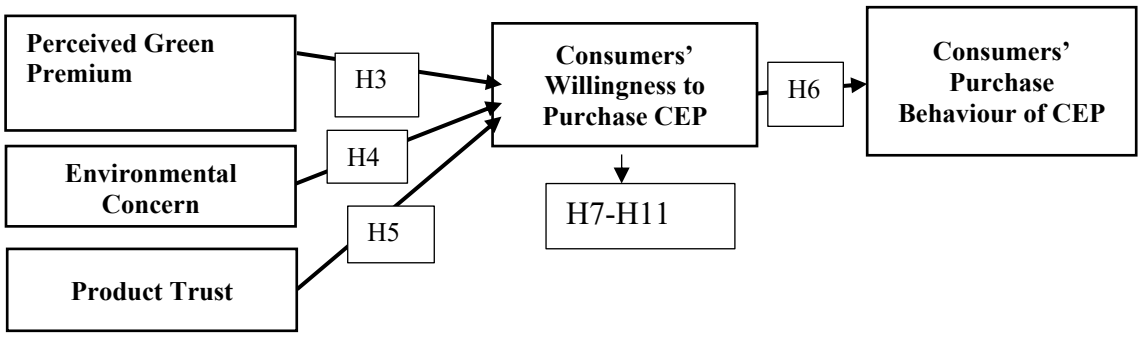


Figure 1. Conceptual Framework

4.0 Research Methods

4.1 Population, Sampling and Data Collection

This research analyses consumer behaviour in Zhejiang Province, China, one of the most developed and economically advanced provinces, with a population of 66.7 million (Zhejiang Statistical Yearbook, 2023). It was chosen because of its developed digital communication infrastructure, growing shopping markets, and greater concern about environmental problems. The sample consisted of respondents aged 18 and above who purchased circular economy goods, such as refurbished gadgets, clothes made of recycled materials, or eco-friendly packaging and were willing to continue buying them.

The sample was somewhat particular; therefore, the study used convenience sampling (Etikan et al., 2016; Saunders et al., 2007). The respondents were recruited via various online platforms such as WeChat, TikTok, and Weibo, as well as offline sources, including campuses, environmental fairs, and recycling centres (Gong et al., 2021; Sun et al., 2019). The questionnaires were designed to verify that participants were over 18 years old and had bought at least one circular economy product in the previous 12 months.

G*Power 3.1 was used to calculate the size of the sample with a power of 0.80 and α of 0.05. It was determined that at least 300 respondents were required to support adequate analysis and to calculate the medium effect size of the model used. This confirms the SEM approach to sample size calculation, which accounts for model complexity and required power (Mueller & Hancock, 2019; Wolf et al., 2013). Thus, the study aimed to collect 400 responses, with 407 valid responses obtained.

The data were gathered using a structured self-administered questionnaire in Mandarin Chinese and English. Before launching the survey, it was tested with 30 respondents to check the clarity of the instructions and the correctness of the questionnaire's wording and structure. After several minor adjustments, the survey was launched for 4 weeks, with constant monitoring of the responses. The process required respondents to have sufficient experience with CE purchasing, while screening and piloting helped improve data validity and reliability.

4.2 Instrument Design

The survey's fixed-answer questions used a 5-point Likert scale (1 = "strongly disagree" to 5 = "strongly agree"). In developing the items, the researchers referred to established scales and previous measures of the constructs of interest. For instance, eco-label credibility refers to Atkinson & Rosenthal (2014), social norm to Ajzen (1991), environmental concern to Dunlap et al. (2000), product trust to Chen & Chang (2013), and perceived green premium to Gleim et al. (2013). We verified translation accuracy and original meaning by employing back-translation (Brislin, 1970). We conducted a pilot test of the questionnaire with 30 participants to identify possible reliability, clarity, and flow issues in the items. Based on the pilot test results, feedback, and Cronbach's alpha coefficient (>0.7), we revised the questionnaire items.

5. EMPIRICAL ANALYSIS

Given the proposed relationships in this study, Partial Least Squares Structural Equation Modelling (PLS-SEM) was selected as the analytical method. PLS-SEM becomes crucial when the study aims to be predictive/formative in nature rather than descriptively explaining any formal theory, when the model is notably complex since it comprises multiple constructs, and finally, when the sample size would be expected to be small/medium (Hair et al., 2017; Sarstedt et al., 2021). Besides, due to the nature of this research being exploratory, it is justified to use the PLS-SEM test of causality. The reflective measurement model and structural model have been considered. Reliability has been determined based on Cronbach's alpha and composite reliability (all values exceeding the recommended value of 0.70), while the convergent validity has been confirmed by the Average Variance Extracted (AVE) being higher than the acceptable limit of 0.50 (Fornell & Larcker, 1981). Fornell's discriminant validity–Larcker criterion and heterotrait–monotrait (HTMT) were also used (Henseler et al., 2015). Collinearity in the structural model was assessed using variance inflation factors (VIFs), all of which were below the critical limit of 5, indicating that multicollinearity is not an issue. The path coefficients, including t-values and R^2 values, were analysed to assess the significance and strength of the relationships. Effect size (f^2) was additionally calculated to achieve a comprehensive analysis of the model (Hair et al., 2017).

5.1 Ethical Considerations

This study followed ethical principles for research involving human subjects. Participation was voluntary, and respondents were informed of their rights to participate before completing the questionnaire. Subjects were informed of the study's purpose and their right to participate freely. All data collected were anonymised, and no personally identifiable information was collected. The study also complied with ethical guidelines for human subjects research (Sekaran & Bougie, 2010).

5.2 Demographic Profile of the Respondents

After analysis, 407 individuals from Zhejiang Province, China, were included. The sex distribution was nearly equal, with 51.1% female and 48.6% male. This was likely due to rounding or some respondents not stating their gender. Next, most respondents were young people, with 62% in the 18-30 age group. Regarding income, 52.3% of respondents earn 3,001 to 10,000 yuan a month. Moreover, 32.9% earn more than 10,000 yuan a month. In terms of education, 56.2% of respondents had at least an undergraduate degree or its equivalent. Only 10.8% had completed high school. Overall, the demographic profile shows that most respondents were young and well educated. Thus, findings based on these characteristics could provide useful information for behaviour studies. However, the population composition should

be taken into account, as a young and educated sample may not allow the results to be generalised to the population of respondents in Zhejiang province.

Table 1. Demographic profile of the respondents

Demographics	Item	Frequency	Percentage
Gender	Male	198	48.6
	Female	208	51.1
Age	18-25	150	36.9
	26-30	102	25.1
	31-35	78	19.2
	36-40	45	11.1
	45+	32	7.9
Education	High School	44	10.8
	College	134	32.9
	Undergraduate	134	32.9
	Graduate	62	15.2
Awareness of Circular Economy Products	Yes	187	46.0
	No	220	54.0

5.3 Reflective Measurement Model

The reliability of the constructs was examined by assessing item loadings on their respective constructs. As noted by Chin (1998), standardised loadings should exceed the threshold value of 0.707. The results in Table 2 indicate that all outer loadings surpass this benchmark, providing evidence of adequate convergent validity and item distinctiveness.

Table 2. Outer loadings of the measurement model

Variables and Items	Outer Loadings
Circular Product Purchase Behaviour (CPPB)	

CPPB1	I buy goods with packaging made with recycled material.	0.850
CPPB2	I choose products made from recyclable materials.	0.855
CPPB3	When buying a product, I check the recyclability information on the package to make sure that it is easily recyclable.	0.842
CPPB4	When I buy food products, I try to choose those with reusable packaging.	0.841
CPPB5	I feel more comfortable purchasing circular products than regular ones.	0.868
	Environmental Concern (EC)	
EC1	The balance of nature is very delicate and can be easily upset.	0.841
EC2	When humans interfere with nature, it often produces disastrous consequences.	0.821
EC3	Humans must live in harmony with nature to survive.	0.848
EC4	Humanity is severely abusing the environment.	0.834
EC5	Humanity was created to rule over the rest of nature.	0.8
	Eco-Label Credibility (ELC)	
ELC1	I have a more favourable opinion of products that feature an eco-label.	0.848
ELC2	Eco-labels influence my buying habits.	0.85
ELC3	My attitude towards products is more positive when those products feature an eco-label.	0.849
ELC4	When I look at eco-labels, I think about why I will buy environmentally friendly products.	0.805
ELC5	I trust that the information provided on labels is relevant and important, and that it is true.	0.816
	Perceived Green Premium (PGP)	
PGP1	I would purchase circular products when they are priced similarly.	0.830
PGP2	When circular products cost significantly more than regular products, I tend to buy the regular product.	0.833
PGP3	Price is the biggest factor when choosing a product.	0.805
PGP4	Circular products are usually more expensive.	0.857
PGP5	Although green products are good for the environment, they are somewhat expensive for the average income.	0.822
	Product Trust (PT)	
PT1	You feel that the circular product's environmental reputation is generally reliable.	0.829
PT2	You feel that the circular product's environmental performance is generally dependable.	0.832
PT3	You feel that the circular product's environmental claims are generally trustworthy.	0.837
PT4	The circular product's environmental concern meets your expectations.	0.787
PT5	The circular product keeps promises and commitments for environmental protection.	0.856
	Social Norms (SN)	
SN1	My friends, family and peers encourage me to buy circular goods.	0.831
SN2	My friends and family suggest that I buy circular goods.	0.819
SN3	My friends and family's encouraging views influence me to buy circular goods.	0.822
SN4	Most people who are important to me would think I should purchase circular products for personal use.	0.817
SN5	Most people who are important to me would want me to purchase circular products for personal use.	0.819
	Willingness to Purchase Circular Economy Products (WTPCEP)	
WTPCEP1	I am willing to buy circular products.	0.823
WTPCEP2	I want to buy circular products.	0.812
WTPCEP3	I will take the initiative to find circular products in the future.	0.796
WTPCEP4	I will consider switching from standard products to circular products.	0.828
WTPCEP5	I plan to recommend that my peers purchase circular products on their next purchase.	0.817

Convergent validity refers to the extent to which indicators of a construct share a high proportion of variance in common, thereby measuring the intended concept consistently (Urbach & Ahlemann, 2010). Following Hair et al. (2010), this study assessed convergent validity using Composite Reliability (CR) and Average Variance Extracted (AVE). According to Table 3, both CR and AVE values exceed the typical thresholds of 0.70 and 0.50. This proves that the constructs are both reliable and valid.

Table 3. Construct reliability and validity

Variables	Cronbach's alpha	Composite reliability (rho_a)	Composite reliability (rho_c)	Average variance extracted (AVE)
Eco Label Credibility	0.891	0.895	0.919	0.696
Environmental Concern	0.886	0.889	0.917	0.687
Perceived Green Premium	0.887	0.888	0.917	0.688
Product Trust	0.886	0.889	0.916	0.687
Purchase Behaviour	0.905	0.906	0.929	0.725
Social Norm	0.88	0.885	0.912	0.675
Willingness to Purchase	0.874	0.875	0.908	0.665

Discriminant validity was evaluated using three approaches. The first approach, developed by Fornell and Larcker (1981), states that the average variance extracted (AVE) for a construct ought to be higher than the variance shared with other constructs. As seen in Table 4, the square root of the AVE (the values on the diagonal) is bigger than the values of inter-construct correlations (off-diagonal numbers), which confirms that every construct has met the requirements for discriminant validity according to Fornell and Larcker's (1981) standards.

Table 4. Discriminant validity employing the Fornell-Larcker criterion

	Eco Level	Environmental Concern	Perceived Green Premium	Product Trust	Purchase behaviour	Social norm	Willingness to Purchase
Eco Level	0.834						
Environmental Concern	0.438	0.829					
Perceived Green Premium	-0.465	-0.402	0.83				
Product Trust	0.45	0.488	-0.424	0.829			
Purchase behaviour	0.492	0.435	-0.481	0.528	0.851		
Social norm	0.327	0.367	-0.297	0.409	0.413	0.822	
Willingness to Purchase	0.51	0.477	-0.509	0.547	0.569	0.412	0.815

The second technique for determining discriminant validity was to compare the cross-loadings for each item, and the loading of each item was analysed with respect to how much it loaded on its intended construct compared with the other constructs (see Table 5). For an item to be included in the final sample, it must load higher on its own construct than on any of the other constructs. The results show that all items meet this requirement and thus confirm discriminant validity as indicated by the cross-loadings.

Table 5. Discriminant validity employing cross-loadings

	Eco Label	Environmental Concern	Perceived Green Premium	Product Trust	Purchase behaviour	Social norm	Willingness to Purchase
CPPB1	0.45	0.347	-0.411	0.434	**0.85**	0.359	0.454
CPPB2	0.433	0.427	-0.396	0.467	**0.855**	0.338	0.498
CPPB3	0.409	0.37	-0.417	0.442	**0.842**	0.398	0.478
CPPB4	0.375	0.382	-0.431	0.477	**0.841**	0.344	0.502
CPPB5	0.431	0.323	-0.392	0.425	**0.868**	0.32	0.489
EC1	0.393	**0.841**	-0.278	0.419	0.337	0.332	0.404
EC2	0.357	**0.821**	-0.383	0.388	0.382	0.314	0.396
EC3	0.402	**0.848**	-0.356	0.406	0.339	0.288	0.422
EC4	0.352	**0.834**	-0.342	0.416	0.381	0.293	0.398
EC5	0.303	**0.8**	-0.306	0.396	0.37	0.295	0.352
ELC1	**0.848**	0.346	-0.348	0.375	0.383	0.266	0.428
ELC2	**0.85**	0.44	-0.404	0.397	0.471	0.279	0.459
ELC3	**0.849**	0.374	-0.421	0.38	0.443	0.293	0.463
ELC4	**0.805**	0.328	-0.387	0.361	0.375	0.279	0.368
ELC5	**0.816**	0.328	-0.376	0.36	0.37	0.244	0.397
PGP1	-0.375	-0.318	**0.83**	-0.318	-0.38	-0.223	-0.411
PGP2	-0.374	-0.331	**0.833**	-0.335	-0.386	-0.231	-0.404
PGP3	-0.416	-0.338	**0.805**	-0.355	-0.373	-0.263	-0.408
PGP4	-0.385	-0.358	**0.857**	-0.382	-0.462	-0.253	-0.451
PGP5	-0.378	-0.322	**0.822**	-0.367	-0.388	-0.262	-0.434
PT1	0.38	0.389	-0.345	**0.829**	0.45	0.345	0.485
PT2	0.369	0.381	-0.349	**0.832**	0.415	0.323	0.432
PT3	0.395	0.434	-0.368	**0.837**	0.462	0.334	0.463
PT4	0.367	0.409	-0.381	**0.787**	0.429	0.316	0.407
PT5	0.353	0.412	-0.32	**0.856**	0.43	0.374	0.473
SN1	0.29	0.287	-0.293	0.37	0.378	**0.831**	0.378
SN2	0.247	0.291	-0.246	0.315	0.342	**0.819**	0.358
SN3	0.266	0.284	-0.218	0.356	0.334	**0.822**	0.285
SN4	0.273	0.311	-0.224	0.305	0.32	**0.817**	0.311
SN5	0.266	0.335	-0.229	0.333	0.316	**0.819**	0.345
WTPCEP1	0.453	0.413	-0.417	0.443	0.464	0.373	**0.823**
WTPCEP2	0.447	0.353	-0.45	0.415	0.501	0.342	**0.812**
WTPCEP3	0.367	0.36	-0.418	0.44	0.42	0.294	**0.796**
WTPCEP4	0.381	0.409	-0.376	0.44	0.47	0.337	**0.828**

WTPCEP5	0.425	0.408	-0.411	0.493	0.462	0.33	**0.817**

The third approach to assessing discriminant validity was the Heterotrait–Monotrait Ratio (HTMT) of correlations proposed by Henseler et al. (2015). According to this criterion, discriminant validity is established when all HTMT values are below the 0.90 threshold (Gold et al., 2001; Henseler et al., 2015). As shown in Table 6, all constructs met this requirement. Furthermore, the confidence intervals for the HTMT values did not include 1 (Kline, 2015), providing additional support for discriminant validity.

Table 6. Discriminant validity employing HTMT

	Eco Label	Environmental Concern	Perceived Green Premium	Product Trust	Purchase behaviour	Social norm	Willingness to Purchase
Eco Label							
Environmental Concern	0.488						
Perceived Green Premium	0.523	0.453					
Product Trust	0.506	0.552	0.48				
Purchase behaviour	0.546	0.486	0.535	0.589			
Social norm	0.368	0.416	0.333	0.462	0.461		
Willingness to Purchase	0.573	0.54	0.577	0.62	0.638	0.464	

5.4 Assessment of the Structural Model Results

The structural model presents various significant determinants of consumers' willingness to buy circular economy products (CEPs) and their ensuing purchasing actions in Zhejiang Province, China. According to Table 7 and Figure 2, eco-label credibility, environmental concern, product trust, and social norms have a positive and significant effect on willingness to purchase. Among these variables, product trust has the strongest positive effect ($\beta = 0.246$), eco-label credibility has a positive effect ($\beta = 0.195$), environmental concern has a positive effect ($\beta = 0.134$), and social norms have a positive effect ($\beta = 0.133$). This outcome suggests that consumers' trust in the quality and functionality of CEPs is important in determining their willingness to purchase.

On the other hand, the perceived green premium has a considerably negative influence on the willingness to buy ($\beta = -0.220$). Based on this finding, consumers are unwilling to buy CEPs if the premium price is considerably higher than the price of conventional alternatives. This highlights the need to address price when implementing circular products, suggesting that a positive attitude toward the environment is not enough to overcome price concerns. Willingness to buy is strongly correlated with actual buying behaviour ($\beta = 0.569$), meaning consumers willing to buy CEPs are more likely to report their actual buying behaviour. The model accounts for 32.4% of actual buying behaviour, meaning the five variables can explain 46.5% of the variance in willingness to buy. This indicates that the model is effective for

assessing willingness and buying behaviour. All hypotheses were significant ($p < 0.01$), supporting H1-H6. The variance inflation factor (VIF) scores range from 1.896 to 2.627, which is below the widely accepted threshold for multicollinearity. The data analysed show no signs of multicollinearity. The analysis results suggest that several factors influence CEPS adoption, including informational, psychological, social, and economic factors. Of all the factors influencing willingness to buy, product trust is the strongest, while an economic factor such as perceived green premium is the strongest constraint. The strong correlation between willingness and action indicates that this factor can support wider implementation of circular economy concepts. In practical terms, it is vital to establish product trust through effective certification and product information.

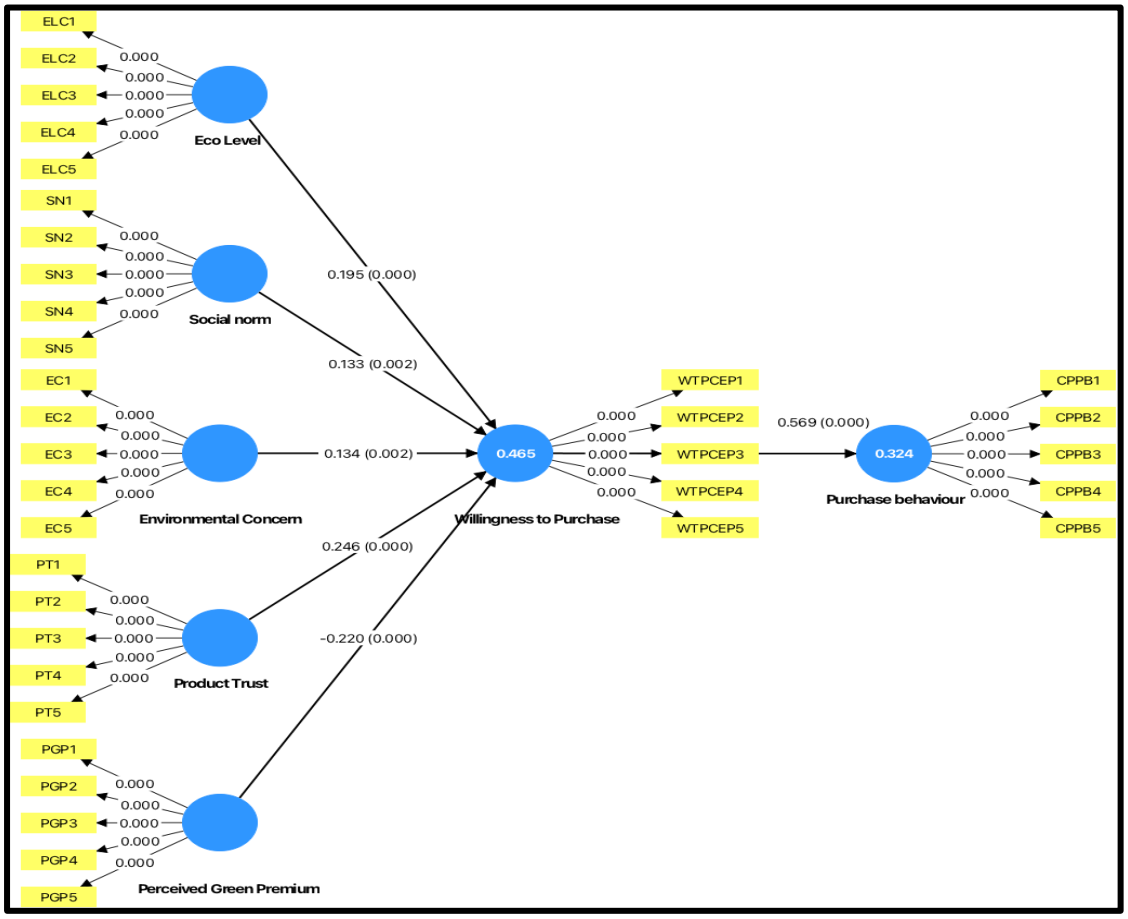


Figure: Structural Model of Purchase Behaviour of Circular Products

Table 7. The results of the structural model

Hypotheses	β-Coefficient	STD Error	T statistics	R^2	f^2	Decision
Eco Label -> Willingness to Purchase	0.195	0.044	4.392***	0.465	0.047	Supported
Environmental Concern -> Willingness to Purchase	0.134	0.044	3.044***		0.022	Supported
Perceived Green Premium -> Willingness to Purchase	-0.220	0.042	5.227***		0.064	Supported

Product Trust -> Willingness to Purchase	0.246	0.045	5.467***		0.071	Supported
Social norm -> Willingness to Purchase	0.133	0.043	3.082***		0.026	Supported
Willingness to Purchase -> Purchase behaviour	0.569	0.032	17.656***	0.324		Supported

*=10% level, **= 5% level and ***=1% level significant.

5.5 The Mediating Role of Willingness to Purchase

According to Table 8, consumers' intention to buy (ITB) circular economy products significantly affects the relationship between the previous variables and actual purchase behaviour. In other words, all indirect influences are statistically significant at the $p < 0.01$ level, indicating that intention to buy is an important psychological mechanism that links consumers' attitudes, environmental motives, social factors, and price considerations to purchase behaviour. Eco-label credibility also positively influences purchase behaviour through the mediation of purchase intention ($\beta = 0.111$, $p < 0.001$). This confirms that reliable eco-labels can enhance consumers' purchase behaviour by fostering their intention to buy. If consumers trust environmental labels and consider them reliable and credible, they are more likely to trust the product and make a positive purchase decision.

The environment is an important indirect factor which brings about considerable positive consequences ($\beta = 0.076$, $p = 0.003$). This implies that environmentally aware consumers are more inclined to buy CE products because their environmental attitude enhances their readiness to do so. Moreover, social norms are the second indirect factor that also positively influences consumers' willingness to purchase ($\beta = 0.076$, $p = 0.002$). Hence, social norms seem to favour circular consumption by helping consumers buy CE products. Product trust is the most influential indirect factor affecting consumers' willingness to purchase ($\beta = 0.140$, $p < 0.001$). This further highlights the importance of consumer trust in product quality, performance, and environmental impact.

On the other hand, understanding green price was found to have indirect detrimental effects on buying behaviour through willingness to buy ($\beta = -0.125$, $p < 0.001$). The result shows that when consumers perceive CEPs as relatively costly, willingness to buy is low and, therefore, actual buying behaviour is reduced. In addition, this suggests that affordability is a key constraining factor in circular consumption, even when consumers have positive environmental attitudes.

The mediation results show that willingness to buy represents a significant psychological link between consumers' evaluations of CEPs and their actual buying. While environmental attitude, eco-certification trust, green labelling credibility, and social norms stimulate buying behaviour by increasing willingness to buy, perceived green price has the opposite effect. The findings support the developed concept that having psychological and economic implications should be considered when converting positive consumer evaluations of traditional consumption.

Table 8. The mediating effect of Consumers' Willingness to Purchase CEPs

	β-Coefficient	STD Error	T statistics	P values
Ecolabel-> Willingness -> Purchase behaviour	0.111	0.027	4.158	0.000
Environmental Concern -> Willingness -> Purchase behaviour	0.076	0.026	2.964	0.003
Perceived Green Premium -> Willingness -> Purchase behaviour	-0.125	0.025	5.003	0.000
Product Trust -> Willingness -> Purchase behaviour	0.14	0.028	5.006	0.000
Social norm -> Willingness -> Purchase behaviour	0.076	0.025	3.025	0.002

6. Discussion of Findings

The results imply that eco-label legitimacy, along with ecological awareness, product reliability, societal norms and assumed eco-surcharges, plays a prominent role in shaping the consumers' intention to buy circular economy products (CEPs), with the magnitude of effects differing from one another. Intention to buy was found to be a strong determinant of actual purchasing behaviour, indicating that introducing CEPs into the market involves informational, psychological, social, and economic elements. The positive impact of eco-label legitimacy aligns with previous studies claiming that trustworthy environmental information reduces consumer distrust and improves product credibility (Chen & Chang, 2013). Standardised eco-labels also increase purchase intention by providing trustworthy information about environmental characteristics (Cheng et al., 2024). The results in this paper support these conclusions in Zhejiang Province, where consumers' attitudes may be influenced by changing patterns of environmental regulation and certification (Ren et al., 2018; Li et al., 2019). Thus, the effectiveness of eco-labels depends not only on their existence but also on whether consumers regard them as credible and verifiable.

While environmental concern seems to affect consumers' purchase intentions positively, the effect appears weak, as Yadav and Pathak (2016) found: consumers' attitudes toward the environment influence their intent to make green purchases. However, those attitudes can be outweighed by other factors, such as the practicality of buying environmentally friendly items in terms of price and convenience. The low effect size ($f^2 = 0.022$) suggests that environmental concern alone is not enough to support the successful implementation of CEP. In China, environmental values may be reinforced by social relations and community expectations rather than perceived only as personal incentives (Li et al., 2019). The negative effect of the green premium reflects the importance of affordability in environmentally friendly consumption. According to Liu et al. (2020), consumers may be aware of the environmental benefits of CEPs but still do not want to pay for green products because they do not see these benefits as justification for the expenses involved. This finding corroborates studies on the intention-behaviour gap, which argue that attitudes do not necessarily translate into purchase decisions despite financial and practical constraints faced by consumers (Carrington et al., 2014). Therefore, merely environmental attractiveness is not enough if CEPs are considered poor value for money.

Product trust was identified as the most important factor predicting willingness to buy. This means that consumers' confidence in the quality, reliability, and efficiency of circular economy products plays a significant role. Based on evidence from Xiao et al. (2022), this factor is especially important for products made from recycled, reused, refurbished, and remanufactured materials because such products may raise concerns about durability and efficiency. As the

effect size ($f^2 = 0.071$) shows, product trust may be a more important determinant than environmental motivation. Consequently, improving product information, certification, and communication on quality and environmental performance should be a focus in our efforts to develop the circular economy business.

Social norms were shown to positively influence willingness to buy; thus, the evidence suggests that consumers in collectivistic cultures respond to the expectations of peers and society (Zhang et al., 2021). Nevertheless, the small effect size ($f^2 = 0.026$) indicates that social influence is more likely to enhance rather than prevail over other factors. This influence may occur mainly through immediate reference groups, such as relatives, friends, colleagues, and community (Wang et al., 2026). Thus, promoting circular consumption as an established norm may enhance its effect.

The significant correlation between willingness to buy and actual buying behaviour ($\beta = 0.569$) supports the Theory of Planned Behaviour (Ajzen, 1991). However, the R^2 of 32.4% means that willingness does not completely account for actual behaviour. Moreover, other elements such as product availability, convenience of purchasing, easy access, consumers' purchasing habits, income level, and their particular context play an important role in the process of following buying intention. The results confirm the general intention–behaviour gap in sustainable consumption (White et al., 2019). The mediation findings reveal that willingness to buy is a significant mechanism through which eco-label credibility, product trust, environmental concern, social norms, and perceived green premium affect actual buying behaviour. The evidence of indirect influence shows that positive attitudes do not translate into market behaviour because they do not lead to sufficient willingness to buy. The analysis particularly emphasises the important role of product trust in the process. Conversely, the negative indirect effect of perceived green premium shows that affordability concerns can weaken actual purchasing behaviour by reducing willingness to purchase, even when consumers recognise the environmental benefits of CEPs (Vermeir & Verbeke, 2006; White et al., 2019).

7. Theoretical Implications

This research adds value to the existing literature on sustainable consumption and circular economy (CE) adoption in several ways. One contribution is that it augments the Theory of Planned Behaviour (TPB) by showing that willingness to purchase is an intermediary variable in the process by which consumer perceptions and motivations influence observed behaviour (Ajzen, 1991). Indeed, the findings show that willingness is strongly related to behaviour, further supported by the significant impact of eco-label credibility and product trust. This indicates that the models for analysing behaviour in relation to CEPs should consider product-specific trust in addition to the implications of information-related processes.

Second, the negative impact of perceived green premium ($\beta = -0.220$) indicates the need to account for economic limitations in sustainable consumption models. Indeed, it remains unclear if environmental motivation is enough to counteract consumer concerns about additional expenses. This illustrates that sustainable consumption reflects both psychological and practical motives (Carrington et al., 2014). Hence, in the context of CEP, affordability plays an important role in consumer decisions.

Third, the study findings are essential for situating behavioural theories in a non-Western framework. While social norms positively affect willingness to purchase ($\beta = 0.133$), their

influence is weaker than that of product trust and green premium appeal. This means that while social norms do play a role, they do not dominate consumers' decisions in China. To conclude, applying behavioural theories requires considering different cultural, institutional, and market factors.

Fourth, this paper advances CEP research by identifying product trust and green attractiveness as critical elements driving willingness to purchase. Specifically, product trust highlights the importance of trust in product quality, reliability, and environmental claims, and the negative impact of the perceived green premium indicates that sustainability concern does not guarantee adoption. Therefore, CEP models need to account for psychological factors alongside product and economic context.

Finally, the significant mediation effects imply that willingness to purchase acts as an important mechanism connecting informative, psychological, social and economic factors with actual purchasing decisions. This further illustrates the need to separate pre-purchase judgment, willingness, and actual purchase behaviour, rather than treating them as equivalent constructs.

8. Limitations and Future Research Directions

Several limitations should be considered. First, the study took place only in Zhejiang Province, China. This may restrict the generalizability of the findings to other regions with diverse economic systems, institutions, and cultures. Therefore, subsequent research should reproduce the model in other provinces and countries. In addition, actual purchase behaviour was self-reported, so memory or social desirability bias may distort the results. To avoid this concern, future research can use objective measures, such as transaction data. Moreover, while the model included five determinants, other variables, such as product availability, convenience, perceived quality, environmental knowledge, perceived behavioural control, government regulations, and recycling facilities, may also have an impact on CEP adoption. Therefore, future research should also include these variables. Another limitation of the study is its cross-sectional nature, which precluded establishing causal relations. Future research can involve longitudinal and experimental designs. Although the study did not categorise CEP, consumers may have different attitudes toward refurbished electronics, recycled clothes, and reusable packaging. Future research can address this by conducting product-specific or multi-group analyses. Lastly, future research can consider several consumer segmentation variables to identify consumer segments and develop effective circular consumption strategies.

9. Conclusion and Policy Implications

This research article explored consumers' willingness to buy circular economy products (CEPs) and how this willingness transforms into behaviour in Zhejiang Province, China. The results indicate that product trust, eco-label credibility, environmental concern, and social norms positively affect willingness to act, while the perceived green premium has negative implications. Product trust has emerged as the strongest predictor in this study, showing the importance of trust in the quality, reliability, and environmental performance of CEPs. The willingness to act is also a strong predictor of actual behaviour and mediates the influence of the proposed antecedents. The findings indicate various recommendations for policymakers. First, authorities must ensure the credibility of eco-labels by adopting standardised rules, ensuring transparency in the certification process, conducting monitoring activities, and selecting reliable third-party auditors. Furthermore, if needed, strengthening the current certification system will improve consistency and reduce greenwashing concerns. Second,

addressing affordability is fundamental, as it is one of the obstacles preventing CEPs from being used. To optimise public funding, interventions should be linked to specific eco-friendly outcomes. In addition, consumer education should focus on the sustainability and practical benefits of CEPS, including durability, longevity, efficiency, and cost savings. Social campaigns can be paired with information technologies to encourage people to adopt environmentally friendly behaviours. Moreover, it is important to ensure that CEPS are accessible to everyone so that they can translate their plans into actions. Retailers and e-commerce companies should increase the visibility of eco-oriented products by developing appropriate criteria and labelling processes and providing clients with relevant product information. Public-private partnerships can help create shared infrastructure for repair and reuse activities.

Declarations

Author Contributions: D.T drafted the original manuscript; D.T and R.C.H worked on the methodology and analysis part. Finally, all authors reviewed and edited the manuscript.

Use of Artificial Intelligence (AI) Disclosure:

Artificial intelligence tools were used solely for language editing and clarity enhancement during the preparation of this manuscript. The authors critically reviewed, revised, and validated all content and take full responsibility for the accuracy, originality, and integrity of the work.

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Conflict of Interest Statement

The authors declare that there is no conflict of interest regarding the publication of this article.

Data Availability Statement:

The datasets generated and/or analyzed during the current study are available from the corresponding author upon reasonable request.

Ethical Approval and accordance

This study received ethical approval from the Taylor’ s University Ethics Committee (Ref. No. HEC 2026/169) on 13th April 2026. This approval complies with the Declaration of Helsinki, and the study was conducted in full accordance with it.

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