From Single to Configurable: A Multidimensional Analysis of Drivers of Green Product Purchase Intention

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ABSTRACT

To investigate the drivers and mechanisms of consumers 'green product purchase intention, this study selects consequence awareness, environmental cognition, incentive policies, collective efficacy, and eco-centrism as independent variables. Using fuzzy set qualitative comparative analysis (fsQCA) and structural equation modeling (SEM), the theoretical model was validated. The results reveal four configurations influencing consumers' green product purchase intention: environment-cognition-driven (social responsibility-led), comprehensive-driven, eco-belief-driven (social responsibility-led), and consequence-awareness-driven collective. These configurations highlight the critical roles of different factors in promoting green product purchase intention, providing valuable insights for policy formulation and corporate marketing strategies.

INTRODUCTION

In contemporary society, environmental protection and sustainable development have become global priorities. As key participants in socio-economic activities, consumers 'willingness to purchase green products plays a vital role in promoting green consumption and the growth of eco-friendly industries. Therefore, in-depth exploration of the critical factors and their interconnections influencing customers' purchasing preferences for environmentally friendly goods holds significant value for advancing eco-conscious shopping behaviors and driving sustainable progress. This paper integrates two analytical techniques—Fuzzy Set Qualitative Comparative Analysis (fsQCA) and Structural Equation Modeling (SEM)—to comprehensively examine the primary determinants of consumers' environmental product procurement preferences. The study aims to clarify the configuration patterns, causal relationships, and path connections among these elements, providing a foundation for policy formulation and corporate promotion strategies. Building upon existing research, this paper constructs a theoretical framework incorporating factors such as consequence awareness, environmental cognition, incentive policies, collective efficacy, and

ecocentrism. By applying fsQCA and SEM methodologies, the research seeks to reveal the configurational relationships, causal connections, and path dynamics among these factors.

1.Literature Review

1.1.Green products

The definition of green products encompasses multiple dimensions, including fundamental elements such as technological advancement, environmental sustainability, and economic viability[1]. The core components of green products involve minimizing ecological impact throughout the entire lifecycle—from production to consumption and disposal — while ensuring high performance and technological sophistication alongside cost-effectiveness. These characteristics are reflected in several aspects: First, new product development fully considers eco-friendly attributes and a comprehensive product lifecycle concept (spanning the entire industrial chain). Second, there is deep exploration and integration of creative values to enhance overall quality[2]. In other words, "green" should not be confined to the R&D phase but permeate all business

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activities, emphasizing sustainable development and efficient use of natural resources. Additionally, green product design prioritizes innovation by adopting new technologies and materials to improve performance and efficiency, achieving dual goals of environmental protection and economic benefits. From a market and consumer perspective, introducing green products can enhance brand image and improve consumer attitudes toward the brand[3]. This indicates that green products serve not only as a corporate strategy to address environmental challenges but also as a key tool to boost competitiveness and attract consumers. However, the lack of a universally accepted definition of green products has led to inconsistent evaluation standards in both academia and practice [4]. This situation has prompted scholars to propose more comprehensive and dynamic definitions of green products to better guide their development and assessment.

The definition of green product is not only limited to the environmental protection attribute, but also includes the advanced technology, economy and the minimization of the environmental impact in the whole life cycle. The design and development of green product is a process of considering the environmental protection, technological innovation and market demand, aiming to achieve sustainable development and competitive advantage.

1.2. Consumers' willingness to make green purchases

The consumer green purchase intention is the intention of consumers to purchase products or services with less environmental impact[5].

The purchase behavior of Chinese consumers towards green products is influenced by the relationship between individuals and nature, the degree of collectivism, ecological emotions, and ecological knowledge [6]. This indicates that consumers 'green purchase intention is not only constrained by their attitudes and knowledge levels regarding environmental protection but is also significantly influenced by their cultural background and psychological state. Additionally, the perceived value and perceived risk of green products in consumers' minds have a significant impact on their green purchase intention[7]. When consumers perceive green products as having high value, their trust and purchase intention increase; conversely, if they perceive higher risks, these intentions may decrease. Consumer

characteristics (such as external control and collectivist values) and social influencing factors (such as environmental visibility and subjective norms) also affect green purchase intention [8]. This means that consumers 'personal traits and the social environment they are in both influence their attitudes and behaviors towards green products. Government environmental policies can promote green technology development and help people form environmental awareness by improving CSR (corporate social responsibility) levels, thereby positively influencing green consumption behavior [9]. This suggests that policy incentives can, to some extent, indirectly influence consumers' green purchase intention. Ecological values and personal perception relevance are important factors affecting consumers 'green purchase intention[10]. This emphasizes the role of cultivating consumers' ecological values and enhancing their awareness of the importance of green products in promoting green purchase behavior. Environmental labels effectively enhance public willingness to purchase green products, with their functional, social, and natural attributes serving as crucial bridges[11]. This demonstrates that clearly presenting environmental data and obtaining certifications helps strengthen public trust and preference for green goods. Overall, public green shopping preferences represent a complex and multifaceted concept. This study selects five second-order factors—consequential awareness, environmental cognition, incentive policies, collective efficacy, and ecocentrism—to explore how these elements and their combinations influence the pathways of green consumption intentions.

1.3. The theory of planned behavior

The Theory of Planned Behavior posits that individual behavioral tendencies are shaped by three key elements: attitudes, subjective norms, and perceived behavioral control [12]. This framework comprises five core components[13]. Consumers 'environmental attitudes—specifically their perceptions and emotional responses toward environmental issues—significantly influence green consumption willingness. Positive environmental attitudes are typically associated with higher green consumption willingness [14]. Secondly, subjective norms, which represent societal expectations and pressures regarding individual behaviors, play a crucial role in shaping green consumption willingness. Research demonstrates that social norms positively impact

consumers' environmental purchasing intentions [15]. Additionally, individuals' confidence in their ability to perform specific behaviors serves as a critical factor influencing environmental purchasing intentions. When consumers perceive that green consumption is manageable, their willingness to engage in such behaviors tends to increase [16]. This study selects perceived behavioral control and subjective norms from the Theory of Planned Behavior as primary variables to examine their effects on green consumption willingness.

1.4.Value belief norm model theory

The Value-Belief-Norm Theory (VBN) is a theoretical framework that explains individual behavioral tendencies and decision-making processes, emphasizing the roles of values, beliefs, and norms in shaping and supporting behavioral choices [17]. This theory posits that individual behavior is influenced not only by internal values but also by beliefs about these values and societal expectations or demands regarding behavior. The core of VBN lies in the observation that individuals are more likely to adopt behaviors consistent with their values when these align with social norms. Furthermore, personal beliefs significantly impact behavioral decisions, as they determine how individuals perceive and interpret their actions and their consequences. Beliefs also influence behavioral choices by shaping how individuals understand and explain their actions and their outcomes [17]. For instance, in environmental protection movements, supporters who embrace fundamental environmental values, recognize the threat to the environment, and believe their efforts can help restore and protect it feel a sense of responsibility to take action . The application of VBN is extensive, not only explaining individual support for social movements but also studying low-carbon travel choices [18]. This study selects responsibility attribution as a primary variable, integrating Planned Behavior Theory and VBN to gain a more comprehensive understanding of the factors influencing individual behavioral choices.

2.Research Hypotheses

2.1.Level of responsibility attribution

The Value-Belief-Rule (VBN) model posits that individual actions are governed by personal values, beliefs, and rules. Within this framework, responsibility attribution stems from two key drivers: the perception of unintended consequences (result awareness) and the negative emotions arising from unfulfilled expectations[19]. This demonstrates that both consequence awareness and environmental cognition are pivotal in shaping an individual's sense of responsibility [19][20][21]. Accordingly, this study treats responsibility attribution as the primary variable, with consequence awareness and environmental cognition serving as secondary variables.

Consequence awareness refers to an individual's recognition and understanding of the potential impacts of their actions. This awareness fosters accountability, as people recognize how their behaviors may affect the environment and others. Research shows that the public's understanding of risks—particularly their consequences—can predict environmental behaviors to some extent [20].Environmental cognition refers to an individual's understanding and perception of environmental issues. A positive environmental cognition can help individuals develop a stronger sense of responsibility, as they become aware of their role and duty in environmental protection. Research shows that global values, such as altruism and ecocentrism, significantly influence personal norms, which in turn affect pro-environmental behaviors [21].

2.2.The level of subjective norms

The Theory of Planned Behavior (TPB) model is widely used in social psychology to explain how individuals shape their intentions based on their perspectives, subjective criteria, and perceived behaviors, which profoundly influence their actions [22]. Within this framework, collective efficacy is viewed as an extension of self-efficacy in group settings, closely interacting with individual efficacy[23].

As a vital management function, incentive policies are designed to effectively motivate individuals[24]. In public institutions, well-crafted incentive strategies can optimize human resource utilization by aligning organizational goals with personal objectives, thereby enhancing operational efficiency [25]. The design and implementation of such incentive mechanisms inherently involve expectations and norms governing individual or collective behaviors, which aligns with the concept of subjective norms in TPB. Therefore, this study employs subjective norms as the primary variable, with collective efficacy and incentive

policies serving as secondary variables.

2.3. The level of perceptual and behavioral control

From the perspective of Theory of Planned Behavior (TPB), perceived behavioral control refers to an individual's assessment of the capabilities required to perform a specific behavior. Ecocentrism, however, emphasizes harmonious coexistence between humans and nature, with its core values and ethical pursuits focused on promoting the well-being of the entire ecosystem rather than merely human self-interest [26]. Therefore, ecocentrism can be seen as a manifestation of perceived behavioral control within TPB, as it involves individuals' cognition and evaluation of how to balance human activities with ecological conservation.

Ecocentrism is a holistic thinking theory that emphasizes the interdependence and interaction between humans and nature, as well as life and the environment. It originated from the profound reflection on the plundering of natural resources and environmental pollution during the industrialization process, aiming to address the ecological crisis faced by humanity[27].

Empirical studies reveal that consumers' green purchasing behaviors are influenced by multiple factors. For instance, exposure to energy-saving information significantly impacts their green consumption choices [28]. Consumer innovation also plays a role in shaping green purchasing behaviors[29]. Moreover, environmental guilt is a key factor affecting green purchasing decisions[30]. However, despite many consumers embracing eco-friendly concepts, only a minority consistently buy environmentally friendly products in practice, highlighting a notable discrepancy between their beliefs and actions[31].

In conclusion, green purchasing behavior constitutes a complex decision-making process influenced by multiple factors. While theoretical research provides frameworks for understanding and explaining this behavior, empirical studies reveal the specific factors affecting consumers 'green purchasing decisions. This research project therefore focuses on green consumption intention, employing fuzzy set qualitative comparative analysis to investigate how various elements influence consumers' behavioral patterns in selecting green products and their interactions with other factors, thereby promoting more widespread green shopping practices.

Therefore, the ontology proposes the following hypothesis

H1: The impact of a single factor on green consumption intention is not significant.

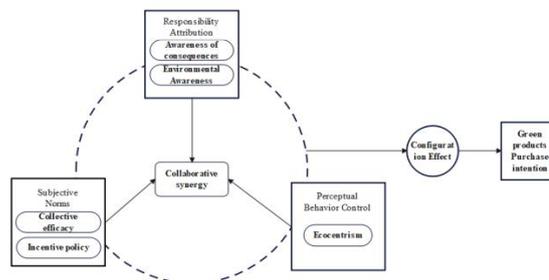H2: The combined effects of multiple factors can significantly influence green consumption willingness.

Fig.1. Conceptual model

3. Empirical analysis

The data foundation of this study comes from the 2021 China Comprehensive Social Survey, which was officially released by the China Academic Survey Database of Renmin University of China. As a comprehensive and in-depth sociological research project, the survey covers important issues across multiple fields. This study specifically focuses on one particular section—the environmental survey—aimed at gaining a deeper understanding of the public's awareness, attitudes, and behavioral patterns regarding environmental protection in China.

To ensure the breadth and representativeness of the study, we meticulously selected survey participants from 19 provincial-level administrative units across China. These units, with their diverse geographical distribution and varying levels of economic, cultural, and social development, provide a comprehensive reflection of regional differences and commonalities in public environmental protection awareness. Specifically, the study included 347 participants from diverse social groups, encompassing different age groups, genders, occupations, and educational backgrounds. This approach enhances the generalizability and persuasiveness of the research findings.

3.1. Reliability Analysis

The reliability assessment of the questionnaire was conducted using SPSS 26.0, with results presented in Table

1. The 26-item questionnaire achieved an overall Cronbach's αcoefficient of 0.803, exceeding the 0.7 threshold, indicating strong consistency and stability in the respondent data. All factors demonstrated Cronbach's α coefficients above 0.7, confirming the high consistency reliability of the tested variables.

dimension	Clonal Alpha	number of terms
consequence consciousness	0.755	6
environmental cognition	0.716	3
incentive policy	0.773	4
collective efficacy	0.849	5
ecocentrism	0.752	5
Consumer purchase intention	0.770	3
global scale	0.803	26

Table.1. Scale reliability analysis

3.2.Validity Analysis

Table 2 presents the model fit test results, demonstrating that the CMIN/DF ratio of 2.489 falls within the optimal range of 1 to 3. The RMSEA value of 0.066 also meets the standard of being below 0.08. Furthermore, all indicators including IFI, TLI, and CFI have achieved the required standards. In conclusion, the analysis results conclusively demonstrate that the CFA model for consumer purchase intention exhibits excellent fit.

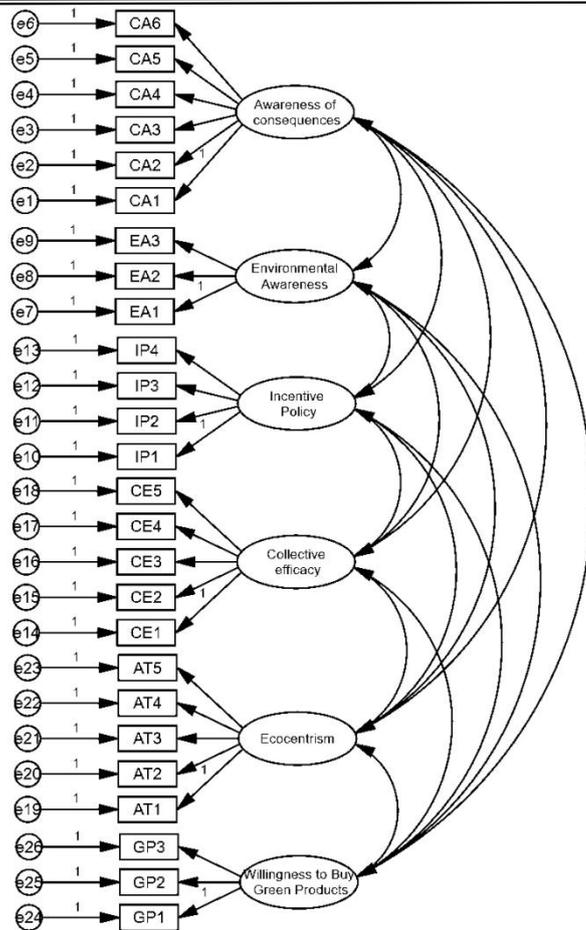| metric		measured result
CMIN/DF	1-3 is excellent, 3-5 is good	2.474
RMSEA	<0.05 is excellent, <0.08 is good	0.065
IFI	>0.9 is excellent,>0.8 is good	0.858
TLI	>0.9 is excellent,>0.8 is good	0.837
CFI	>0.9 is excellent,>0.8 is good	0.856

Table.2. Scale validity analysis

Fig.2. Confirmatory factor analysis of the green consumption willingness scale

3.3.Reliability Analysis

3.3.1.Validity Analysis

Table 2 presents thSEM is a statistical analysis tool that combines the advantages of factor analysis and path analysis, enabling the prediction of multiple correlations simultaneously.Structural equation modeling (SEM) provides a robust framework for testing complex hypotheses. In this study, we formulated a conceptual model regarding consumers' green consumption intentions and conducted an SEM analysis. The model was fitted and its goodness-of-fit was evaluated, which not only validated the hypotheses but also revealed the intricate relationships among the factors influencing green consumption intentions.

3.3.1.1. SEM model fit test of the factors influencing green consumption intention

As shown in Table 3, the model fit test results indicate that

the CMIN/DF ratio (chi-square to degrees of freedom) is 2.489, falling within the 1-3 range. The RMSEA (root mean square error) is 0.065, below the 0.08 threshold. Additionally, all indicators including IFI, TLI, and CFI meet the established criteria. In conclusion, the SEM (structural equation model) for consumer purchase intention demonstrates excellent fit.

metric		measured result
CMIN/DF	1-3 is excellent, 3-5 is good	2.489
RMSEA	<0.05 is excellent, <0.08 is good	0.066
IFI	>0.9 is excellent,>0.8 is good	0.858
TLI	>0.9 is excellent,>0.8 is good	0.837
CFI	>0.9 is excellent,>0.8 is good	0.857

Table.3. Model fit test

3.3.1.2. Results of path relationship hypothesis test of SEM model

As shown in Table 4, the SEM path coefficients indicate that only collective efficacy significantly influences green product purchase intention, while other factors are not statistically significant. This confirms Hypothesis H1.

The aforementioned discussion highlights that consumers 'green consumption willingness constitutes a multifaceted phenomenon influenced by multiple factors. For instance, research demonstrates that eco-labels positively influence purchasing decisions by conveying functional, social, and environmental values, thereby enhancing consumers' willingness to purchase green products. This indicates that when evaluating green products, consumers consider various factors rather than relying solely on a single eco-label. Studies also reveal a gap between consumers 'green purchasing behavior and their actual green consumption willingness [33]. This discrepancy further demonstrates that no single factor can fully explain consumers' green consumption intentions. In actual purchasing decisions, consumers may be influenced by other unconsidered factors such as situational factors and habitual tendencies. Consequently, no single factor can adequately explain or predict consumers' green consumption willingness[32][33].

	path relationship		Estimate	S.E.	C.R.	P
incentive policy	<---	consequence consciousness	0.74	0.193	7.366	***
collective efficacy	<---	consequence consciousness	0.298	0.122	3.719	***
ecocentrism	<---	consequence consciousness	0.089	0.695	0.183	0.855
ecocentrism	<---	environmental cognition	0.263	0.123	2.926	0.003
Intention to purchase green products	<---	ecocentrism	0.047	0.06	0.709	0.478
Intention to purchase green products	<---	incentive policy	0.192	0.083	1.517	0.129
Intention to purchase green products	<---	collective efficacy	0.425	0.065	5.473	***
Intention to purchase green products	<---	consequence consciousness	-0.101	0.155	-0.829	0.407
Intention to purchase green products	<---	environmental cognition	-0.075	0.08	-1.134	0.257
incentive policy	<---	ecocentrism	0.175	0.279	0.846	0.398
incentive policy	<---	collective efficacy	0.101	0.128	0.993	0.321
ecocentrism	<---	incentive policy	-0.176	0.475	-0.274	0.784

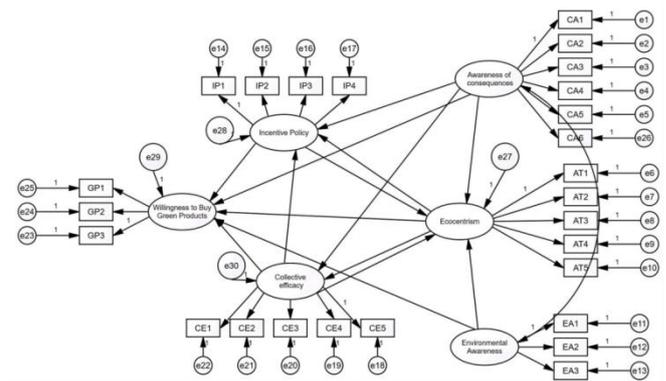**Table.4.** Results of Path Coefficient Analysis for the SEM Model

Fig.3.   Structure equation fitting

3.3.2. Multivariate Analysis of Configuration

As previously noted, consumers 'purchase intention for green products constitutes a complex decision-making process involving multiple interacting factors, where no single element can independently determine this intention. To address this, our study employs the advanced fuzzy set qualitative comparative analysis (fsQCA) method. This approach aims to systematically examine how various factors interact in combination to influence consumers' green product purchase decisions, while revealing the underlying pathways and conditional combinations of their impact. Through this research methodology, we seek to gain a more comprehensive understanding of the intricate psychological and behavioral mechanisms driving consumers' choices

when selecting green products.

fsQCA is a non-parametric statistical method designed for analyzing complex causal relationships, particularly when traditional SEM approaches are impractical due to limited sample sizes or model complexity [34]. This method effectively reveals how different factor combinations influence outcomes, even when individual factors may not show significant effects [35].

3.3.2.1. Data calibration

When applying the Fuzzy Set Qualitative Comparative Analysis (fsQCA), converting data from conditional factors and outcome indicators into 0-1 range fuzzy values constitutes a critical step known as "variable calibration". This phase involves transforming variables into set representations, a process requiring both theoretical understanding and practical experience. The study adopted the three calibration benchmarks (95%,50%, and 5%) proposed by Larkin (2008) to ensure all calibrated sets fall within the 0-1 interval[36]. Typically, data calibration can be implemented through intuitive methods or indirect approaches. While intuitive methods are simpler, indirect methods require specialists to establish appropriate fuzzy value distribution rules based on relevant principles. The indirect method demands explicit specification of set membership allocation, which proves highly complex. Therefore, we utilized the software's built-in calibration function to convert pre-existing factor and outcome scores into fuzzy ratings [37].

Based on the calibration values calculated by SPSS, Table 5 presents the numerical values of all variables. These values are processed in the fsQCA software, where they are uniformly converted into 0-1 fuzzy values through function processing. The software is then standardized according to the principles of qualitative comparative analysis, ultimately generating a truth table.

variable	complete membership value	Intersection point	completely non-membership value
CA	4.33	3.67	2.67
EA	3.33	2.67	1.33
IP	4.75	3.50	2.50
CE	5.00	4.00	2.60
AT	4.00	2.80	1.60
GP	4.00	3.00	2.00

Table.5. Data Calibration Anchor

3.3.2.2. Single factor necessary condition analysis

Based on existing FSQCA research findings, we conducted necessary tests to verify the rationality of the conditions. As shown in Table 6, all consistency correlations are below 0.9, indicating that the associations between these conditions and the target are not sufficiently strong to justify their existence—individual influencing factors cannot effectively impact the final outcome. Therefore, we conclude that the key drivers of customers' choice of eco-friendly products are not determined by one or a few factors alone, thus confirming Hypothesis 2 (H2).

condition variable	GP		~GP	
	Consistency	Coverage	Consistency	Coverage
CA	0.676741	0.659079	0.646508	0.557967
~CA	0.546122	0.635485	0.604981	0.623846
EA	0.571615	0.631591	0.633872	0.620660
~EA	0.656683	0.669309	0.623751	0.563380
IP	0.647063	0.685597	0.570877	0.536025
~IP	0.562103	0.596471	0.665154	0.625483
CE	0.661304	0.755419	0.524874	0.531326
~CE	0.589716	0.583437	0.758388	0.664909
AT	0.611132	0.671907	0.592407	0.577183
~AT	0.615427	0.630156	0.663253	0.601825

Table.6. Necessity analysis of purchase intention for green products

3.3.2.3. Configuration analysis

Through qualitative comparative analysis using fuzzy set theory (fsQCA), we identified three solution types: simplified, transitional, and complex. A condition is deemed a key factor when it appears in both simplified and transitional solutions, while a boundary factor[38] exists exclusively in transitional solutions. Following Lakin's (2008) research, we set the initial consistency threshold at 0.8 [36]. As shown in Table 8, the QCA analysis revealed five configurations (M1, M2, M3a, M3b, M4) influencing consumers' green product purchase intention, with consistency values of 0.84,0.84,0.84,0.86, and 0.82 respectively. The overall consistency of 0.81 exceeds the 0.80 threshold, confirming these configurations as sufficient determinants. Notably, M3a and M3b form equivalent configurations with identical core conditions [39]. The following sections will examine each configuration's specific impacts on consumers' green product purchase intention.

The social responsibility is the driving force of

environmental cognition.

The M1 model demonstrates that high incentive policies, strong collective efficacy, and elevated environmental awareness serve as core conditions, while high consequence awareness acts as a moderating factor in enhancing consumers 'willingness to purchase green products. In the planned behavior theory framework, subjective norms (as primary variables) are influenced by incentive policies and collective efficacy (as secondary variables). Subjective norm strength refers to an individual's perception of others 'attitudes toward their behavior and the importance they attribute to these attitudes. Consequently, individuals with high subjective norm strength are more susceptible to social expectations and norms, often aligning their actions with societal expectations. This implies that in contexts with strong social responsibility, consumers are more likely to adopt socially expected behaviors, such as purchasing green products. Similarly, environmental awareness and understanding are recognized as critical determinants of green product purchase intention. Therefore, when social responsibility, incentive policies, collective efficacy, and environmental awareness are all elevated, consumers' willingness to purchase green products shows significant improvement.

Integrated drive mode.

M2 indicates that consequence awareness, environmental cognition, collective efficacy, and ecocentrism serve as moderating factors that enhance consumers' willingness to purchase green products. The preceding analysis employs responsibility attribution as the primary variable, with environmental cognition and collective efficacy as secondary variables. Subjective norms are treated as the primary variable, with collective efficacy as its secondary variable. Perceived behavioral control is used as the primary variable, with ecocentrism as its secondary variable.

Consequence awareness reflects consumers 'recognition of environmental issues' severity, which motivates their willingness to adopt eco-friendly behaviors. Environmental cognition refers to individuals' understanding and perception of environmental challenges, influencing their acceptance and purchase intention for green products. Collective efficacy denotes the belief that collective action can yield positive outcomes; when consumers perceive such actions as capable of environmental improvement, they are more likely to purchase green products. Ecocentrism, a value system emphasizing harmonious coexistence between humans and

nature, leads consumers who embrace this philosophy to pay greater attention to environmental issues and engage in eco-conscious behaviors.

Social responsibility leads to the driving force of ecological belief.

M3a and M3b constitute an equivalent configuration, indicating that high incentive policy, high collective efficacy, high eco-centrism as core conditions and consequence awareness or environmental cognition as marginal conditions can promote consumers' purchase intention of green products.

This demonstrates that when consumers hold strong eco-centric beliefs and are influenced by high incentive policies and collective efficacy, their willingness to purchase green products significantly increases under the impetus of social responsibility. Moreover, environmental awareness or consequence consciousness, as a marginal condition, further amplifies this willingness. This highlights the crucial role of social responsibility and eco-centrism in promoting environmentally conscious consumer behavior, while high incentive policies and collective efficacy provide the necessary motivation and support for action.

Consequence awareness reflects consumers 'recognition of environmental issues' severity, which can motivate their willingness to adopt eco-friendly behaviors. Environmental cognition, representing individuals' understanding and perception of environmental challenges, influences their acceptance and purchase intention for green products. When consumers recognize the severity of environmental issues and comprehend the positive impact of green products on the environment, they are more likely to purchase such products.

Ecocentrism is a more profound environmental value that emphasizes the harmonious coexistence between humans and nature. When consumers embrace this value, they are more likely to genuinely care about environmental issues and take proactive eco-friendly actions, such as purchasing green products.

Consequence awareness drives collective type.

M4 indicates that high consequence awareness, high collective efficacy and non-high incentive policy are the core conditions, while non-high environmental cognition and non-high eco-centrism are the marginal conditions that can promote consumers' purchase intention of green products.

The findings demonstrate that consumers with strong

environmental awareness and a sense of collective action can still develop willingness to purchase green products, even without aggressive incentive policies. Meanwhile, the presence of low environmental consciousness and ecocentrism as marginal factors suggests that in this context, consumers' green product purchase decisions may not be solely driven by deep environmental understanding or ecological values, but rather more influenced by consequence awareness and collective efficacy.

Notably, the M4 model does not emphasize the importance of environmental awareness or eco-centrism. This may be because, under this framework, consumers 'willingness to purchase green products is more influenced by consequence awareness and collective efficacy than by a deep understanding of environmental issues or ecological values. This also reflects how different driving models may lead to varying factors affecting consumers' green product purchase intentions.

condition variable	M1	M2	M3a	M3b	M4
consequence awareness	●	●	●		⬤
environmental awareness	⬤	●		●	⊗
incentive policy （IP）	⬤		⬤	⬤	⊗
collective efficacy	⬤	●	⬤	⬤	●
ecocentrism		●	⬤	⬤	⊗
Raw consistency	0.324509	0.300211	0.353481	0.302603	0.244333
Unique coverage	0.0330488	0.0147306	0.0631625	0.0293526	0.0463663
consistency	0.836837	0.841407	0.840506	0.856461	0.821454
Solution coverage			0.50742		
Solution consistency:			0.80655		

Table.7. Consumer's purchase intention for green products
Note that if the core condition exists, the edge condition exists in it; if the core condition is missing, the edge condition is missing in it.

In China's eastern coastal regions, the social responsibility-driven environmental awareness model proves particularly effective in shaping consumers' green product purchasing behavior. These economically developed areas boast strong consumer purchasing power and robust demand for eco-friendly products. With ample government funding, authorities actively promote environmental awareness campaigns and green product initiatives. Consumers demonstrate heightened environmental consciousness, readily recognize the value of sustainable products, and exhibit strong purchasing intent. Collective efficacy also plays a crucial role, as people firmly believe that collaborative efforts can effectively improve environmental conditions.

The integrated driving model is well-suited for China's northeastern region, where consumers' willingness to purchase green products is shaped by multiple factors. As a key industrial base, the region has seen growing consumer interest in eco-friendly products in recent years as it seeks to balance economic development with environmental protection. Factors such as environmental awareness, ecological consciousness, collective efficacy, and eco-centrism collectively drive this trend. Consumers not only recognize the severity of environmental issues but also develop a deeper understanding and sensitivity to them. Moreover, their belief in the power of collective action to bring about positive environmental change motivates them to actively participate in conservation efforts.

In central China, the pattern where social responsibility drives ecological beliefs shapes consumers' green product purchase intentions is particularly pronounced. With stable economic development, consumers in this region have grown increasingly environmentally conscious and demonstrate strong commitment to social responsibility. Under this framework, their green product purchasing decisions are primarily influenced by eco-centric beliefs. They firmly believe in the harmonious coexistence of humanity and nature, viewing environmental protection as both a duty and obligation. Meanwhile, high-incentive policies and collective efficacy have played a positive role in promoting green consumption. Government agencies have implemented incentive measures to encourage eco-friendly product purchases. Additionally, consumers are convinced that collective action can improve the environment, which motivates them to actively participate in green consumption practices.

The consequence-driven collective model demonstrates remarkable applicability in China's western regions. Given the vast territory and diverse natural environments, consumers in these areas develop direct awareness of environmental issues. When consumers fully recognize the severity of environmental problems and feel the power of collective action, their willingness to purchase green products significantly increases. High consequence awareness and strong collective efficacy, as core conditions, effectively motivate consumers' environmental behavior and drive them to take concrete actions for environmental

protection.

Conclusion

In summary, consumers' willingness to purchase green products is influenced by multiple factors across different regions, resulting in diverse driving patterns. In the eastern coastal areas, consumers with strong purchasing power and high environmental awareness exhibit an environmental cognition-driven pattern. In the northeastern regions, consumers are influenced by a combination of consequence awareness and environmental cognition, forming a comprehensive driving pattern. In the central regions, consumers place greater emphasis on ecological centrism beliefs, with social responsibility-driven ecological belief patterns being prominent. In the western regions, consumers are influenced by consequence awareness and collective efficacy, leading to a consequence awareness-driven collective pattern. These regional differences suggest that promoting green consumption requires considering geographical, cultural, and consumer-specific characteristics to adopt targeted strategies.

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