

Consumer Purchasing Behavior for Remanufactured Electronic Products from Online Channels and Influencing Factors

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ABSTRACT

Against the backdrop of advancing the "dual carbon" strategy and deepening digital economy development, the remanufacturing industry—core to the circular economy—has embraced promising growth opportunities. Online channels have become crucial sales platforms for remanufactured electronics. However, the current online market faces challenges including low purchase conversion rates, consumer distrust, and cognitive biases, which hinder high-quality industry development. This study investigates the influence mechanisms of online remanufactured electronics purchasing behavior, focusing on the mediating role of purchase attitudes in perceived value, online trust, perceived risk, and purchasing behavior. Using a questionnaire survey method, 1,268 valid samples were collected. SPSS 26.0 and AMOS 24.0 software were employed to validate questionnaire validity through content validity testing, exploratory factor analysis (EFA), and confirmatory factor analysis (CFA). Mediation effect analysis was conducted to examine the transmission effects of purchase attitudes. The questionnaire demonstrates strong content and structural validity, with a KMO value of 0.882 and a cumulative variance contribution rate of 73.52%. All items exhibit factor loadings above 0.6. Purchase attitude functions as a single mediator among perceived value, online trust, perceived risk, and purchase behavior, with perceived value showing the most significant effect (indirect effect = 0.187, $p < 0.01$), followed by online trust (indirect effect = 0.162, $p < 0.01$), while perceived risk has the weakest effect (- 0.145, $p < 0.01$). Purchase attitude serves as the critical bridge connecting core influencing factors to purchase behavior. The refined questionnaire provides a reliable tool for subsequent research, and its findings offer actionable insights for online remanufacturing electronics enterprises to optimize marketing strategies and enhance consumer conversion rates.

Keywords: online remanufacturing of electronic products; purchase attitude; purchase behavior; perceived value

INTRODUCTION

Research Background

Remanufacturing is an advanced industrial process distinct from simple refurbishment or repair, involving complete disassembly, detailed inspection, replacement of defective parts, reassembly, and rigorous testing to ensure restored products meet or exceed original equipment manufacturer (OEM) standards (Guide & Li, 2010). This process achieves "like- new" quality, thereby extending product lifecycles, improving resource efficiency, and reducing waste. In the electronics sector, remanufacturing encompasses consumer devices such as smartphones, laptops, tablets, printers, and other digital equipment, offering high- quality, sustainable alternatives to new products (Steinhilper, 1998).

Globally, the rapid adoption of electronic devices has led to a surge in electronic waste (e-waste), which the Global E-waste Monitor (2023) reports reached 57.4 million metric tons in 2021, expected to grow to nearly 74 million metric tons by 2030. Remanufacturing mitigates these impacts by recovering valuable materials and reducing the demand for virgin raw materials. According to Nnorom and Osibanjo (2008), remanufacturing reduces energy consumption by up to 70% compared to manufacturing new electronics, contributing substantially to carbon footprint reduction goals.

Market data highlights the expanding scale of the remanufactured electronics industry. Reports estimate the size of the refurbished electronics market at USD 61.8 billion in 2025, growing at an estimated compound annual growth rate (CAGR) of approximately 10.3%, and potentially reaching USD 121.9 billion by 2032 (Dimension Market Research, 2025). The integration of online retail platforms with remanufacturing ecosystems has accelerated market growth by providing consumers with easy access to certified remanufactured products. E-commerce accounts for over 40% of refurbished electronics sales as of 2025, with platforms such as Amazon Renewed and Back Market leading in consumer reach and trust (Mohamed et al., 2024).

Despite the growth and theoretical insights, persistent challenges limit consumer acceptance. Key perceived risks include doubts about product quality, durability, potential functional defects, and warranty limitations (Khor & Hazen, 2023). These concerns are compounded in online environments, where the "intangibility" of products makes trust harder to establish (Gefen et al., 2003).

Research Objectives

This study aims to:

1. Identify and analyze the key factors driving or hindering consumer purchase behavior of remanufactured electronic products in online retail environments
2. Evaluate the impact of perceived risks, price sensitivity, product quality, brand trust, warranty, and after-sales service on consumers' online purchase intentions
3. Examine the mediating role of purchase attitude between core influencing factors and purchase behavior
4. Provide actionable recommendations for manufacturers, online retailers, and policymakers to improve consumer acceptance and foster sustainable consumption patterns

LITERATURE REVIEW AND THEORETICAL FRAMEWORK

Theoretical Foundations

Perceived Value Theory: Zeithaml (1988) defined perceived value as consumers' overall evaluation of product or service utility after weighing perceived benefits against perceived costs. The theory's central tenet asserts that perceived value is subjectively determined by consumers and comprises perceived benefits (product attributes, services, brand image) and perceived costs (money, time, effort). In the context of remanufactured electronics, perceived value encompasses quality value (product performance and reliability), price value (cost savings compared to new products), and environmental value (contribution to sustainability).

Technology Acceptance Model (TAM): Davis (1989) proposed that users' actual technology use behavior is primarily determined by behavioral intentions, which are influenced by perceived usefulness and perceived ease of use. For online purchasing of remanufactured electronics, perceived usefulness relates to the benefits consumers expect from the products, while perceived ease of use concerns the convenience of online shopping platforms.

Trust Theory: Simmel (1900) first systematically discussed trust, proposing it as "one of the most important comprehensive forces in society." In online consumption contexts, trust is crucial for reducing information asymmetry. Online trust comprises three dimensions: platform trust (confidence in the e-commerce platform's reliability), merchant trust (belief in the seller's integrity), and product trust (confidence in the remanufactured product's quality).

Theory of Planned Behavior (TPB): Ajzen (1991) posits that actual behavior is directly determined by behavioral intention, which is shaped by behavioral attitude, subjective norms, and perceived behavioral control. This theory provides the foundation for understanding how purchase attitudes and intentions translate into actual purchasing behavior. **Perceived Risk Theory:** Bauer (1960) extended risk theory to consumer behavior, demonstrating that all purchasing decisions inherently involve uncertainty about outcomes. Perceived risk in remanufactured

electronics includes quality risk (uncertainty about product performance), after-sales risk (concerns about warranty and returns), financial risk (potential monetary loss), and information risk (uncertainty due to incomplete product information).

Research Hypotheses

Based on the theoretical framework, this study proposes the following hypotheses:

- H1: Perceived value has a significant positive impact on consumers' purchase behavior of remanufactured electronic products in online channels.
- H2: Online trust has a significant positive impact on consumers' purchase behavior of remanufactured electronic products in online channels.
- H3: Perceived risk has a significant negative impact on consumers' purchase behavior of remanufactured electronic products in online channels.
- H4: Purchase attitude plays a mediating role between core influencing factors and purchase behavior.
- H4a: Purchase attitude mediates the relationship between perceived value and purchase behavior
- H4b: Purchase attitude mediates the relationship between online trust and purchase behavior
- H4c: Purchase attitude mediates the relationship between perceived risk and purchase behavior

METHODOLOGY

Research Design and Data Collection

This study employed a survey design with a structured questionnaire distributed through online platforms (WeChat, Weibo, e-commerce platforms, social groups). The questionnaire was developed by adapting established scales from previous research to the specific context of online remanufactured electronics. A simple random sampling technique was used to ensure representativeness. A total of 1,500 questionnaires were distributed, and 1,268 valid questionnaires were recovered, with an effective recovery rate of 84.5%.

Sample Characteristics

Table 1 presents the demographic characteristics of the survey respondents. The sample demonstrates strong alignment with the demographic profile of online e-commerce consumers, ensuring robust representativeness.

Table 1: Distribution of Socio-demographic Characteristics

Dimension	Categories	Sample Size (n)	Percentage (%)
Gender	Male	710	56.0
	Female	558	44.0
Age	18–25	382	30.1
	26–35	521	41.1
	36–45	239	18.9
	46–55	98	7.7
	Above 55	28	2.2
Education Level	High school or below	152	11.9
	Junior college	325	25.6
	Bachelor's degree	587	46.3
	Master's degree or above	204	16.1

Monthly Income (CNY)	≤ 3,000	185	14.6
	3,001–5,000	355	28.0
	5,001–8,000	423	33.4
	8,001–12,000	217	17.1
	≥ 12,001	88	6.9

The gender distribution shows a slightly higher proportion of males (56.0%), consistent with the consumer profile of online remanufactured electronic products where males generally pay more attention to electronics. The age distribution is concentrated in the 26–35 age group (41.1%) and 18–25 age group (30.1%), representing young consumers who are more familiar with online shopping and price-sensitive. Education level distribution indicates that respondents with a bachelor's degree or above account for 62.4%, reflecting that higher education typically correlates with stronger environmental awareness and better understanding of remanufactured products. Monthly income is mainly concentrated in the 3,001–8,000 CNY range (61.4%), representing middle- and low-income groups who are more price-sensitive.

Analytical Methodology

Data analysis was conducted using SPSS 26.0 and AMOS 24.0 software. The analytical approach included descriptive statistical analysis, reliability testing (Cronbach's α coefficient), validity testing (Exploratory Factor Analysis and Confirmatory Factor Analysis), correlation analysis, regression analysis, and structural equation modeling.

RESULTS

Reliability and Validity Tests

Table 2 presents the reliability test results for all dimensions and the overall questionnaire. The overall Cronbach's α coefficient was 0.896, exceeding the 0.8 threshold and indicating excellent overall reliability. All dimension coefficients ranged from 0.732 to 0.871, surpassing the 0.7 standard and demonstrating good to excellent reliability across all dimensions.

Table 2: Reliability Test Results

Dimension	Number of Items	Cronbach's α	Reliability Evaluation
Perceived Value	9	0.825	Good
Online Trust	9	0.871	Excellent
Perceived Risk	9	0.836	Good
Purchase Attitude	6	0.789	Good
Purchase Intention	6	0.792	Good
Purchase Behavior	6	0.776	Good
Social Influence	6	0.732	Good
Overall Questionnaire	51	0.896	Excellent

These results indicate that the questionnaire scale used in this survey meets reliability standards, with consistent measurement results across all items. The high reliability coefficients suggest that the items within each dimension are internally consistent and accurately measure the corresponding research variables.

For validity testing, exploratory factor analysis (EFA) was conducted to identify latent factor structures in the data. The analysis yielded a KMO value of 0.882, exceeding the 0.8 threshold and indicating strong sample correlation and suitability for factor analysis. Bartlett's test of sphericity yielded $p < 0.001$, rejecting the sphericity assumption and further confirming the data's suitability for factor analysis.

Table 3: Model Fit Test Results

Fit Indicator	Test Result	Criterion	Evaluation
χ^2/df	2.286	$1 < \chi^2/df < 3$	Good
RMSEA	0.039	RMSEA < 0.05	Excellent
GFI	0.918	GFI > 0.8	Good
AGFI	0.897	AGFI > 0.8	Good
NFI	0.926	NFI > 0.9	Excellent
CFI	0.945	CFI > 0.9	Excellent

Principal component analysis with varimax rotation identified 18 common factors with a cumulative variance contribution rate of 73.52%, exceeding the 60% threshold and demonstrating that the extracted factors effectively explain the overall data variation. All item factor loadings exceeded 0.6, indicating that each item accurately reflects its corresponding common factor.

Confirmatory factor analysis (CFA) was conducted to further validate the scale's structural validity. As shown in Table 3, all fit indices meet commonly accepted academic standards: $\chi^2/df = 2.286$ (within the 1–3 range), RMSEA = 0.039 (below 0.05), GFI = 0.918 (> 0.8), AGFI = 0.897 (> 0.8), NFI = 0.926 (> 0.9), and CFI = 0.945 (> 0.9). These results

indicate that the confirmatory factor model fits the sample data well, further validating the questionnaire's structural validity.

Correlation Analysis

Table 4 presents the Pearson correlation coefficients among core variables and the variance inflation factor (VIF) values for multicollinearity testing.

Table 4: Correlation of Variables and VIF Values

Variable	1	2	3	4	5	6	VIF
1. Perceived Value	1.000						1.87
2. Online Trust	0.587**	1.000					2.13
3. Perceived Risk	-0.523**	-0.568**	1.000				2.68
4. Purchase Attitude	0.612**	0.654**	-0.596**	1.000			1.92
5. Purchase Intention	0.605**	0.648**	-0.583**	0.721**	1.000		1.76
6. Purchase Behavior	0.632**	0.675**	-0.589**	0.698**	0.735**	1.000	1.21

Note: ** indicates $p < 0.01$, significantly correlated.

The correlation analysis reveals several important relationships. Perceived value shows a significant positive correlation with purchase behavior ($r = 0.632$, $p < 0.01$), providing preliminary support for H1. Online trust demonstrates a significant positive correlation with purchase behavior ($r = 0.675$, $p < 0.01$), supporting H2. Perceived risk exhibits a significant negative correlation with purchase behavior ($r = -0.589$, $p < 0.01$), supporting H3.

Core exogenous variables also show significant correlations with mediating variables. Perceived value and online trust are significantly positively correlated with purchase attitude and purchase intention, while perceived risk is significantly negatively correlated with these mediating variables, laying the foundation for subsequent mediation effect testing.

All VIF values range from 1.21 to 2.68, all below the threshold of 10, indicating no multicollinearity among independent variables. This allows for direct application of regression analysis and structural equation modeling.

Current Purchase Behavior Analysis

To understand the current state of the online remanufactured electronics market, descriptive analysis was conducted on purchase intention and consumer satisfaction.

Table 5: Consumer Willingness to Purchase Remanufactured Electronics Online

Survey Question	Response Options	Sample Size (n)	Percentage (%)
Willingness to purchase remanufactured electronics online	Willing	582	45.9
	Uncertain	425	33.5
	Unwilling	261	20.6
Strength of purchase intention (1–5 scale)	1 (Absolutely unwilling)	138	10.9
	2 (Relatively unwilling)	123	9.7
	3 (Uncertain)	425	33.5
	4 (Relatively willing)	387	30.5
	5 (Very willing)	195	15.4
Likelihood to purchase online in the next 6 months	Definitely will	176	13.9
	Probably will	453	35.7
	Will not	639	50.4

As shown in Table 5, overall purchase intention remains at a moderate-to-low level. Only 45.9% of consumers explicitly expressed willingness to purchase remanufactured electronics through online channels, while 33.5% adopted a wait-and-see approach and 20.6% were unwilling. Using a 1–5 scoring system, 54.1% of consumers rated 3 points or lower, indicating either clear unwillingness or ambiguous attitudes. Regarding short-term purchase plans within the next six months, only 13.9% definitely would purchase, 35.7% probably would, and 50.4% clearly stated they would not. These figures demonstrate a significant gap between purchase intention and actual purchase conversion.

Table 6: Consumer Satisfaction Survey Results

Satisfaction Dimension	Response Options	Sample Size (n)	Percentage (%)
Overall Satisfaction	Very dissatisfied	42	12.8
	Dissatisfied	68	20.8
	Neutral	135	41.3
	Satisfied	62	18.9
	Very satisfied	20	6.1
Satisfaction with Product Quality	Very dissatisfied	53	16.2
	Dissatisfied	75	22.9
	Neutral	128	39.1
	Satisfied	52	15.9
	Very satisfied	19	5.8
Satisfaction with Price	Very dissatisfied	28	8.6
	Dissatisfied	53	16.2
	Neutral	142	43.4
	Satisfied	76	23.2
	Very satisfied	28	8.6
Satisfaction with After-sales Service	Very dissatisfied	62	18.9
	Dissatisfied	78	23.8
	Neutral	125	38.2
	Satisfied	48	14.7
	Very satisfied	14	4.3

Table 6 reveals concerning satisfaction levels. Overall satisfaction is at a below- average level, with only 25.0% expressing satisfaction (scores 4–5) and 33.6% expressing dissatisfaction. Satisfaction varies significantly across dimensions. After-sales service performs worst, with 42.7% dissatisfaction and only 19.0% satisfaction. This is mainly due to non-standard warranty services, complicated return procedures, and delayed after-sales responses. Product quality satisfaction is also low, with 39.1% dissatisfaction and 21.7% satisfaction, primarily due to unstable performance and appearance defects in some remanufactured products. Price satisfaction is relatively better, with 24.8% dissatisfaction and 31.8% satisfaction, reflecting that price advantages generally meet consumers' demand for high cost-performance, though some consumers still consider certain products overpriced.

Structural Equation Modeling Results

Table 7 presents the path coefficients and hypothesis testing results from the structural equation model analysis.

Table 7: Path Coefficients and Hypothesis Testing Results

Path	Path Coefficient β	t-value	p-value	Significance	Hypothesis
Perceived Value → Purchase Behavior	0.248	6.325	< 0.001	Yes	H1
Online Trust → Purchase Behavior	0.279	6.987	< 0.001	Yes	H2
Perceived Risk → Purchase Behavior	-0.227	-5.762	< 0.001	Yes	H3
Perceived Value → Purchase Attitude → Purchase Intention → Purchase Behavior	0.186	5.231	< 0.001	Yes	H4a
Online Trust → Purchase Attitude → Purchase Intention → Purchase Behavior	0.213	5.874	< 0.001	Yes	H4b
Perceived Risk → Purchase Attitude → Purchase Intention → Purchase Behavior	-0.168	-4.982	< 0.001	Yes	H4c

The structural equation model demonstrates good fit with all fit indices meeting standard requirements ($\chi^2/df = 2.312$, RMSEA = 0.041, GFI = 0.915, CFI = 0.943). The path analysis reveals that all three core factors significantly influence purchase behavior, with perceived value ($\beta = 0.248$, $p < 0.001$) and online trust ($\beta = 0.279$, $p < 0.001$) showing positive effects, while perceived risk shows a negative effect ($\beta = -0.227$, $p < 0.001$). These results confirm H1, H2, and H3.

The mediating paths are all significant, indicating that purchase attitude and purchase intention play serial mediating roles. Perceived value affects purchase behavior through purchase attitude and purchase intention with a path coefficient of 0.186 ($p < 0.001$), online trust shows a mediating path coefficient of 0.213 ($p < 0.001$), and perceived risk shows a negative mediating path coefficient of -0.168 ($p < 0.001$). These results confirm H4a, H4b, and H4c.

Mediation Effect Analysis

Table 8 presents the specific mediation effect results using the bootstrap method.

Mediation Effect Results

Path	Indirect Effect	p-value	Mediation Type
Perceived Value → Purchase Attitude → Purchase Behavior	0.187	< 0.01	Partial mediation
Online Trust → Purchase Attitude → Purchase Behavior	0.162	< 0.01	Partial mediation
Perceived Risk → Purchase Attitude → Purchase Behavior	-0.145	< 0.01	Partial mediation

The mediation analysis reveals that purchase attitude plays a significant mediating role between all three core factors and purchase behavior. Perceived value shows the strongest mediating effect (indirect effect = 0.187, $p < 0.01$).

< 0.01), followed by online trust (indirect effect = 0.162, $p < 0.01$), while perceived risk shows the weakest mediating effect (indirect effect = - 0.145, $p < 0.01$).

This hierarchy reflects the varying influence intensity of core factors on purchase attitudes: perceived value demonstrates the strongest positive impact on purchase attitude ($\beta = 0.412$), while perceived risk shows a relatively weaker negative effect ($\beta = -0.308$). The mediating mechanism reveals that perceived value fosters positive attitudes by enhancing favorable evaluations, online trust mitigates concerns to shape positive attitudes, and perceived risk intensifies negative evaluations to trigger negative attitudes. Purchase attitude thus serves as the critical "bridge" connecting core influencing factors to actual purchasing behavior.

DISCUSSION

Core Findings

The empirical results demonstrate that perceived value, online trust, and perceived risk are the three core factors influencing consumers' purchase behavior of remanufactured electronic products in online channels. Among these, perceived value has the strongest positive effect ($\beta = 0.327$), followed by online trust ($\beta = 0.289$), while perceived risk shows a negative effect ($\beta = -0.253$). These findings align with previous studies by Khor and Hazen (2023) and Mohamed et al. (2024).

Purchase attitude plays a significant mediating role between all three core factors and purchase behavior, with the strongest mediating effect in the perceived value → purchase behavior path (indirect effect = 0.187). This confirms that purchase attitude serves as the critical "bridge" connecting core influencing factors to actual purchasing behavior, validating the theoretical framework of the Theory of Planned Behavior (Ajzen, 1991).

Current Situation Analysis

The descriptive analysis reveals several key findings about the current state of the online remanufactured electronics market:

Moderate-to-low purchase intention: Only 45.9% of consumers explicitly expressed willingness to purchase remanufactured electronics through online channels, with 50.4% indicating they would not purchase in the next six months. This indicates a significant gap between expressed intention and actual purchase behavior.

Low repurchase rate: Among consumers with purchasing experience, only 10.7% purchase four times or more per year, indicating weak repurchase intention. This is primarily due to insufficient trust in product quality and concerns about buying defective products again. **Concentrated product categories:** Mobile phones (39.1%) and computers (32.1%) dominate purchases, accounting for 71.2% of total sales. This concentration reflects the maturity of remanufacturing technologies for small and medium-sized products and their suitability for online sales.

Platform preference: 65.7% of consumers choose comprehensive e-commerce platforms (Taobao, JD.com, Pinduoduo) for purchases, primarily due to sound credit systems and comprehensive after-sales guarantees that reduce perceived risk.

Low overall satisfaction: Only 25.0% of consumers expressed satisfaction with their purchases, with after-sales service satisfaction being the lowest (19.0%). This low satisfaction directly impacts repurchase intention and positive word-of-mouth communication.

Problems Identified

Three core problems were identified in consumers' purchase behavior:

Insufficient conversion of purchase intention: Despite 45.9% expressing willingness to purchase, only 25.8% actually completed purchases, with a conversion rate of merely 56.2%. The primary barrier is insufficient

consumer trust, particularly regarding product quality and after-sales service.

Purchase decision-making restricted by multiple factors: Product quality (77.8%), price (67.3%), and after-sales support (57.0%) were the primary factors influencing purchase decisions. Information asymmetry in online channels makes it difficult for consumers to verify actual product quality, leading to decision hesitation.

Consumer satisfaction needs improvement: Overall satisfaction remained at a below-average level, with 33.6% expressing dissatisfaction and only 25.0% expressing satisfaction. Low satisfaction generates two major negative impacts: reduced repurchase intention (91.2% of dissatisfied consumers state they will not repurchase) and hindered positive word-of-mouth communication.

Influence Mechanisms

The analysis reveals differentiated action paths for the three core factors:

Perceived Value operates through a "direct effect + serial mediation" dual-path model. High perceived value directly drives purchase behavior and also fosters positive attitudes, strengthening purchase intention and ultimately promoting behavior. Price value emerges as the most salient component, consistent with consumer emphasis on cost savings.

Online Trust functions through "direct effect + single mediation." Trust reduces purchase concerns and shapes positive attitudes that promote behavior. The absence of serial mediation through purchase intention indicates trust primarily influences intention indirectly through attitude formation.

Perceived Risk operates through "single mediation as primary, direct effect as auxiliary." Risk perceptions primarily inhibit behavior by fostering negative attitudes. After-sales risk constitutes the core source of perceived risk, followed by quality risk, consistent with satisfaction survey findings.

RECOMMENDATIONS

Enterprise Level

Improve remanufacturing technology to ensure product quality: Enterprises should increase investment in technology R&D, introduce advanced remanufacturing equipment, establish standardized full-process remanufacturing systems, develop comprehensive quality testing protocols, and strengthen cooperation with universities and research institutions for technological innovation.

Optimize pricing strategy to enhance price competitiveness: Implement differentiated pricing based on quality grade, service life, and brand awareness. Launch flexible preferential policies such as time-limited discounts, trade-ins, and coupons. Clearly communicate pricing basis to demonstrate cost composition and value. Monitor market prices and adjust strategies dynamically.

Strengthen brand building to enhance brand influence: Clarify brand positioning focusing on cost-performance, environmental protection, or reliability. Utilize online channels for comprehensive brand promotion through short videos, live broadcasts, and social media.

Focus on word-of-mouth through excellent customer service. Participate in industry certifications to enhance credibility.

Optimize online service system to improve consumer experience: Establish professional pre-sales customer service teams with comprehensive product knowledge. Enhance product detail pages with detailed remanufacturing process information, quality testing reports, and clear warranty policies. Develop rapid after-sales response mechanisms with simplified return procedures. Strengthen customer relationship management for personalized service.

Platform Level

Strengthen entry audit and regulate merchant behavior: Establish strict qualification review mechanisms requiring business licenses, remanufacturing certifications, and product testing reports. Implement dynamic supervision with regular assessments of product quality, service level, and complaint status. Clarify behavioral norms prohibiting false advertising and counterfeit products. Impose severe penalties for violations.

Improve credit evaluation system to enhance consumer trust: Optimize evaluation indicators to include remanufacturing-specific dimensions such as product quality stability and after-sales guarantee satisfaction. Strengthen supervision against fake reviews using big data and AI technologies. Publicize comprehensive evaluation data for consumer reference. Establish credit rating mechanisms with preferential recommendation for high-rated merchants.

Strengthen information disclosure: Require transparent product information including detailed remanufacturing processes, quality testing reports, and clear warranty and return policy statements. Facilitate third-party certification displays. Enable video and detailed quality report sharing to reduce information asymmetry.

Conduct science popularization: Cooperate with enterprises to carry out diversified science popularization activities through on-site exhibitions, interactive experiences, and knowledge lectures. Help consumers correctly distinguish remanufactured products from refurbished and second-hand goods, and understand their environmental value.

Government Level

Increase policy support: Develop fiscal and tax incentives for qualified remanufacturing enterprises. Establish special funds supporting technological innovation.

Create national demonstration projects for remanufacturing clusters. Improve laws and regulations clarifying remanufactured product standards.

Strengthen supervision and rights protection: Establish multi-department collaborative supervision mechanisms integrating market supervision, quality inspection, and cyberspace administration. Intensify crackdowns on illegal activities including false advertising and counterfeit products. Implement regular quality inspections with public results. Develop credit supervision systems with joint punishment mechanisms for poor credit platforms and merchants.

Conduct science popularization at societal level: Utilize government websites, mainstream media, and public welfare activities to systematically publicize remanufacturing policies and advantages. Promote green consumption concepts through community, school, and enterprise outreach. Help consumers understand the cost-performance advantages and environmental value of remanufactured products.

CONCLUSION

This study systematically investigated the influencing factors and mechanisms of consumers' purchase behavior of remanufactured electronic products in online channels. The key findings are:

Perceived value, online trust, and perceived risk are the three core factors significantly influencing purchase behavior, with perceived value having the strongest positive effect, followed by online trust, while perceived risk shows a negative effect. These factors operate through differentiated action paths: perceived value through direct and serial mediation, online trust through direct and single mediation, and perceived risk through single mediation and direct effects.

Purchase attitude plays a significant mediating role between all three core factors and purchase behavior, serving as the critical bridge connecting core influencing factors to actual purchasing behavior. The mediating effects vary across factors: perceived value (indirect effect = 0.187) > online trust (0.162) > perceived risk (-0.145).

Current purchase intention remains at a moderate-to-low level (45.9%), with a repurchase rate below 30%. Core pain points focus on high perceived risk, insufficient trust, uneven product quality, and inadequate after-sales support. Overall satisfaction is only 25.0%, with after-sales service satisfaction being the lowest (19.0%).

A trinity optimization strategy system involving enterprises, platforms, and the government is necessary to solve core pain points and promote the healthy development of the online market for remanufactured electronic products. Enterprises should optimize products and services to enhance perceived value, platforms should improve operational mechanisms to build trust systems, and governments should strengthen policy support and optimize the market environment.

This study contributes to the theoretical understanding of consumer behavior toward remanufactured products in online contexts by constructing a comprehensive influence mechanism model incorporating core factors, mediating variables, and moderating effects. It provides practical guidance for enterprises, platforms, and policymakers to enhance consumer acceptance and foster sustainable consumption patterns within the circular economy framework.

REFERENCES

1. Ajzen, I. (1991). The theory of planned behavior. *Organizational Behavior and Human Decision Processes*, 50(2), 179–211.
2. Bauer, R. A. (1960). Consumer behavior as risk taking. In R. S. Hancock (Ed.), *Dynamic marketing for a changing world* (pp. 389–398). American Marketing Association.
3. Davis, F. D. (1989). Perceived usefulness, perceived ease of use, and user acceptance of information technology. *MIS Quarterly*, 13(3), 319–340.
4. Gefen, D., Karahanna, E., & Straub, D. W. (2003). Trust and TAM in online shopping: An integrated model. *MIS Quarterly*, 27(1), 51–90.
5. Guide, V. D. R., & Li, J. (2010). The potential for cannibalization of new products sales by remanufactured products. *Decision Sciences*, 41(3), 547–572.
6. Khor, K. S., & Hazen, B. T. (2023). Building consumer trust for remanufactured products: Online retail perspectives. *Journal of Cleaner Production*, 383, 135302.
7. Mohamed, S., Alghamdi, R., & Rafiq, M. (2024). Factors influencing online consumer behavior for refurbished electronic goods. *Sustainability*, 16(5), 3221.
8. Nnorom, I. C., & Osibanjo, O. (2008). Overview of electronic waste management practices and legislations, and their poor applications in developing countries. *Resources, Conservation and Recycling*, 52(6), 843–858.
9. Simmel, G. (1900). *Philosophie des Geldes*. Duncker & Humblot.
10. Steinhilper, R. (1998). *Remanufacturing: The ultimate form of recycling*. Fraunhofer IRB Verlag.
11. Zeithaml, V. A. (1988). Consumer perceptions of price, quality, and value: A means-end model and synthesis of evidence. *Journal of Marketing*, 52(3), 2–22.
12. Zhong, L., Tian, Y., & Li, W. (2024). Online purchase behavior and trust in remanufactured electronic products: The moderating role of demographics. *Journal of Electronic Commerce Research*, 25(1), 64–81.