

The Impact of Rural E-commerce Fresh Product Sales Strategies in Developing Countries on Consumers' Psychology: The Story of an Apple

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Abstract. This study examines the impact of rural e-commerce sales strategies in developing countries on consumer psychology, and takes the apple industry in Zhaotong, China as the research object. This study employs a hybrid approach that combines investigation, interview, field observation, and secondary data analysis and also investigates how pricing, trust building and channel strategies shape the concepts and behaviors of rural consumers. The research results show that tiered pricing significantly enhances the purchasing intention of price-sensitive groups, while transparency measures, such as on-site orchard videos and recognition from local institutions, effectively reduce anxiety related to quality. In addition, the implementation of localized cold chain pick-up points and assisted ordering services for less digitally literate consumers has significantly enhanced convenience and encouraged repeat purchases. The study concluded that a tailor-made multi-dimensional strategy is crucial for overcoming the psychological barriers to adopting e-commerce in rural areas. These insights are of practical significance for policymakers and enterprises seeking to promote inclusive digital market participation in similar socio-economic contexts.

Keywords: Rural e-commerce, pricing strategies, trust mechanisms, cold chain logistics, Zhaotong apples.

1. Introduction

In recent years, rural e-commerce has emerged as a dynamic force driving development in developing countries. Especially in the agricultural sector, e-commerce platforms enable small-scale farmers to reach a broader consumer base, thereby increasing their income and reducing their reliance on traditional market channels. However, the success of these measures largely depends on the understanding and handling of the psychological factors that influence the behavior of rural consumers. This article explores how specific sales strategies—namely pricing, trust building, and channel optimization—influence the purchasing psychology of rural consumers in developing regions, offering evidence-based insights for sustainable rural development. This study takes apple sales in Zhaotong, China as an example to illustrate the complex interaction between strategy and consumer perception, providing insights that can be applied to similar situations globally.

The significance of this research lies in its practical implications. As digital infrastructure expands to rural areas, it becomes crucial to adjust e-commerce methods in accordance with the psychological and economic conditions of local residents. Consumers in these regions typically exhibit a high degree of price sensitivity, strong risk aversion and a preference for convenience, all of which are factors that must be taken into account when designing a business model. By studying the story of an Apple, this article provides a more valuable case study, emphasizing how to overcome obstacles in a targeted manner and is conducive to developing long-term customers.

2. Introduction to the Research Subject

2.1. Conceptual Introduction

Rural e-commerce in developing countries usually involves selling locally produced goods, such as specialty agricultural products, both domestically and internationally online. E-commerce

platforms have opened up broader sales channels for these products, not only domestically but also in international markets that were originally inaccessible. This study focuses precisely on such specialty agricultural products, with a specific focus on apples from Zhaotong County, Yunnan Province, China. The "ugly apples" in this region are distinctive, named for their often naturally occurring spots on the skin and irregular fruit shape, and are highly recognizable in the market.

Although the appearance of Zhaotong ugly apples is not as bright and attractive as those of mainstream apple varieties like Red Fuji, they have a sweet and crisp taste, rich fruit aroma, and good storage and transportation properties. These characteristics have earned them a lot of reputation among consumers. However, like most fresh agricultural products, the transportation process of Zhaotong ugly apples requires high logistics standards. They need a reliable cold chain logistics system to support them, ensuring that the apples remain fresh and have a good taste from the time they are picked from the farm to when they reach the consumers' hands, avoiding quality deterioration due to temperature fluctuations during transportation. As Han et al. emphasize, maintaining Cold Chain Logistics (CCL) integrity is crucial to reduce food loss and waste, requiring coordinated development of various links in the cold chain and data sharing between enterprises and stakeholders [1].

The business strategies implemented in this context all aim to align with the actual social and economic conditions of rural consumers. This paper mainly explores the following three core strategies: First of all, the pricing strategy includes direct procurement from farmers and differentiated pricing to meet the needs of consumers with different income levels. The second point is about the strategy for building trust. For example, live broadcasts of orchard conditions, and quality guarantees endorsed by local cooperatives or village committees. As for channel strategy, this includes setting up local pickup points equipped with refrigeration facilities and logistics support to ensure product quality and convenience for consumers.

In this case, consumer psychology encompasses several key dimensions: cost sensitivity, risk aversion and perceived convenience. Due to limited disposable income and culturally ingrained frugality, consumers tend to focus more on whether the price is reasonable rather than the brand or appear. Concerns about product quality, freshness, and authenticity are also significant factors that prevent consumers from making online purchases. The ease of placing an order, making payment, and receiving the goods plays a crucial role in consumers' acceptance of online purchases and their tendency to make repeat purchases.

These factors include consumer preferences, platform experience, external social recommendations, etc. They do not act independently but influence each other. In other words, they jointly determine the entire purchasing process of consumers from deciding to purchase to focusing on purchasing a certain product. At the same time, they also directly determine the effectiveness of e-commerce intervention. If the intervention measures are in line with the combined influence of these factors, they are more likely to drive conversion; otherwise, the effect may be poor.

2.2. Relationships between Research Subjects

Existing literature indicates that the adoption of e-commerce in rural areas of developing countries is comprehensively influenced by economic, social and psychological factors. Research shows that trust and cost are the main determinants of initial user stickiness, while convenience and reliability affect whether they will establish long-term connections [2]. For instance, in 2023, the e-commerce sales of apples in Zhaotong accounted for 35% of the total output. The e-commerce channel has become an important support for the local apple sales. However, at the same time, the industry still faces some challenges: the rate of first-time purchases by consumers is relatively low, and the repeat purchase rate of existing users fluctuates greatly, which has impacts on the stable growth of the market.

Previous studies have also emphasized the role of local institutions, such as village committees and cooperatives. They will serve as a bridge to build trust between remote consumers and digital platforms [3]. Furthermore, pricing strategies that leverage economies of scale and reduce intermediate links have been proven effective in attracting price-sensitive consumers [4]. However,

there is still a gap in understanding how these strategies interact and evolve in specific rural settings, especially in relation to psychological triggers and barriers.

3. Research Methods

3.1. Overview

This study adopts a comprehensive mixed-methods approach, combining quantitative and qualitative techniques to capture the multifaceted nature of consumer behavior in rural e-commerce contexts. The integration of these complementary methodologies ensures both statistical rigor and contextual depth, which is particularly important in capturing the nuanced behavior of rural consumers, providing measurable insights into purchasing patterns while exploring the underlying motivations and cultural factors that influence decision-making. The research was conducted in a carefully selected representative village in Zhaotong County, Yunnan Province, where apple e-commerce has been actively promoted through government support programs and private sector initiatives over recent years. This village was chosen for its typical rural characteristics, including demographic composition, economic conditions, and digital infrastructure development, making it an ideal setting to examine how various sales strategies impact consumer psychology in real-world conditions.

3.2. Measurement Methods

This study employed a comprehensive mix of research methods to obtain a full and nuanced picture of how people in rural areas behave when shopping online, ensuring both breadth and depth in data collection. First, the author distributed a carefully designed structured questionnaire to 120 households that had previous experience using e-commerce platforms, achieving a response rate of 85% with 102 valid and useful responses returned. The survey instrument was developed to capture multiple dimensions of consumer behavior, including basic demographic and socioeconomic background information, perceptions and evaluations of different sales strategies such as pricing tiers and promotional activities, and attitudes toward critical factors like price points, trust mechanisms, product quality assurance, and delivery options. Each section of the survey utilized Likert scales and multiple-choice questions to quantify consumer preferences and concerns systematically.

In order to dig deeper into the qualitative aspects of consumer psychology, I conducted detailed semi-structured interviews with 12 strategically selected participants representing different engagement levels with e-commerce. This purposive sample included individuals who had never purchased online despite awareness of the platforms, occasional users who made sporadic purchases during promotional periods, and regular shoppers who had integrated e-commerce into their routine purchasing habits. These in-depth conversations, lasting between 45 to 60 minutes each, helped me understand their underlying motivations, specific worries about online transactions, decision-making processes, and the barriers they faced in adopting digital shopping methods. Additionally, I spent considerable time conducting ethnographic observations at local pickup spots over a two-week period, systematically documenting operational patterns. I took detailed field notes on peak traffic times, the nature of customer-staff interactions, common questions and concerns raised by consumers, and various logistics problems that emerged such as delays, product damage, or order mix-ups. Finally, I strengthened and validated my findings with secondary data from official reports published by government agencies and comprehensive sales data provided by local farming offices and e-commerce cooperatives, including transaction volumes, return rates, and seasonal variations. Using all these complementary methods together in a triangulated approach helped ensure my results were not only reliable and well-rounded but also captured the complex reality of rural e-commerce adoption from multiple perspectives.

3.3. Analysis Methods

In this study, quantitative data were analyzed using multiple statistical methods to reveal the trends and correlations within the data. Various data and charts were employed to present the information, the changing trends of the data over time, or the correlations between different variables could all be clearly displayed through these methods.

To enhance the reliability and validity of the research results, the data from different sources need to undergo cross-validation. These results will be tested from different perspectives and through different methods to ensure that the numerical analysis and textual analysis can mutually confirm each other. Through the above approaches, the reliability of the research conclusion is strengthened.

4. Results

4.1. Impact of Pricing Strategies

The pricing and grading standards of apples were systematically established according to the differences in quality attributes, creating a tiered pricing structure designed to accommodate various consumer segments. Premium apples, characterized by their superior shape, uniform size, absence of surface blemishes, and enhanced taste profile with optimal sweetness and crispness, are priced at 8 yuan per pound. These high-quality apples undergo stringent selection processes to ensure they meet elevated standards for both visual appeal and eating experience. In contrast, ordinary apples, which satisfy basic consumption needs while potentially having minor cosmetic imperfections or less uniform sizing, are strategically priced at 6 yuan per pound. This pricing strategy represents a deliberate market positioning, with the price of ordinary apples set at 12% lower than that in the local traditional market, creating a compelling value proposition for price-conscious consumers who prioritize affordability over aesthetic perfection.

The results demonstrate a significant impact on consumer behavior, showing that the purchasing intention of consumers with low income has increased by a substantial 40% following the implementation of this tiered pricing strategy. This marked improvement in purchase willingness reflects the effectiveness of price differentiation in overcoming economic barriers to e-commerce adoption. Recent research by Cang and Wang confirms that product quality, logistics service quality, and online word-of-mouth are the main variables affecting willingness to shop online for fresh agricultural products, with price sensitivity being particularly pronounced among first-time buyers [5]. The subsequent sales data provide concrete validation of this trend, confirming that the sales of regular apples account for 65% of the total sales volume, while premium apples constitute the remaining 35%. This distribution pattern further indicates that cost sensitivity plays a dominant role in purchasing decisions, as xx % of respondents reported price as their foremost concern, who demonstrate clear preference for value-oriented options over premium alternatives. The data underscores the reality that in rural markets, practical considerations and budget constraints significantly outweigh preferences for product aesthetics or marginal quality improvements (See Figure 1).

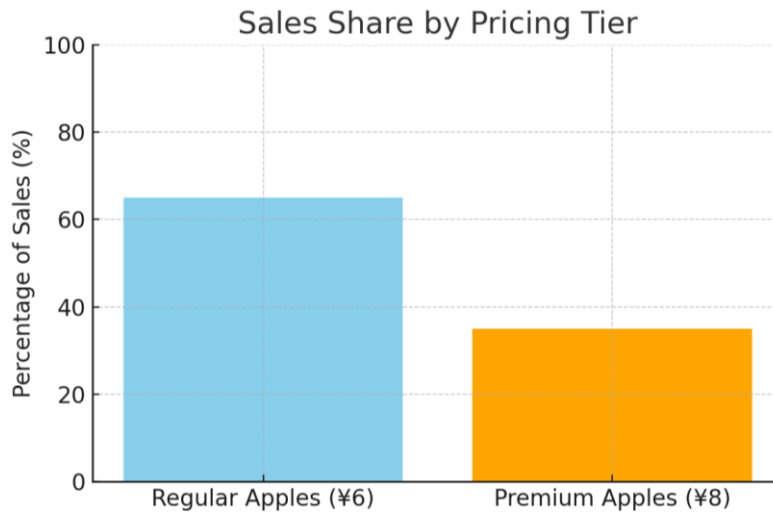


Figure 1. Sales share of regular apples (¥6) and premium apples (¥8). Regular apples dominate with 65% of sales, confirming cost sensitivity in consumer behavior [6].

4.2. Impact of Trust-building Strategies

Through real-time live streaming of the orchard, customers witnessed the entire process of tree planting, fruit growth, and harvesting, which increased their sense of authenticity. At the same time, the village committee also conducted quality certification, effectively reducing consumers' concerns of its quality, making them more confident in the quality of the fruits. Moreover, the interview results showed that 80% of repeat customers placed more emphasis on the transparency during the purchasing process rather than whether the fruit was perfect in appearance. This conclusion is also evident in the data comparison: the return rate of certified products is only 8%, while the return rate of products without certification reaches 1/4 of all orders (See Figure 2). Li et al. found that institution-based trust, particularly endorsements from local governments and cooperatives, significantly improves online purchase intention of agricultural products by reducing perceived risks [7].

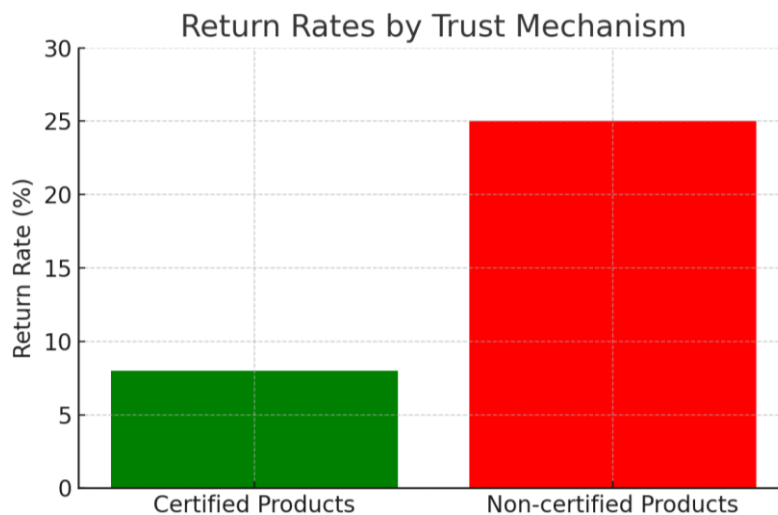


Figure 2. Comparison of return rates for certified vs. non-certified apples. Certification reduces return rates significantly, enhancing customer trust [6].

4.3. Impact of Channel Strategies

The refrigerated pickup points are specifically designed to store perishable goods such as fresh produce. The introduction of such pickup stores effectively alleviates consumers' concerns about the spoilage of goods. At the same time, the platform's launched assistance service for placing orders significantly enhances the convenience of use. This measure makes it possible for elderly users or

those unfamiliar with online operations to place orders as well. Ma et al. emphasize that e-commerce platforms enable farmers to sell products directly to consumers, bypassing traditional intermediaries and reducing transaction costs, particularly when combined with appropriate logistics infrastructure [8].

Within half a month after the implementation, the number of orders assisted in placing accounted for 30% of the total transactions, becoming an important source of orders. At the same time, the average delivery time for users was shortened and the efficiency significantly improved. As a result, user stickiness increased, and the weekly repurchase rate of the platform rose from 15% to 27%, showing a notable growth (See Figure 3).

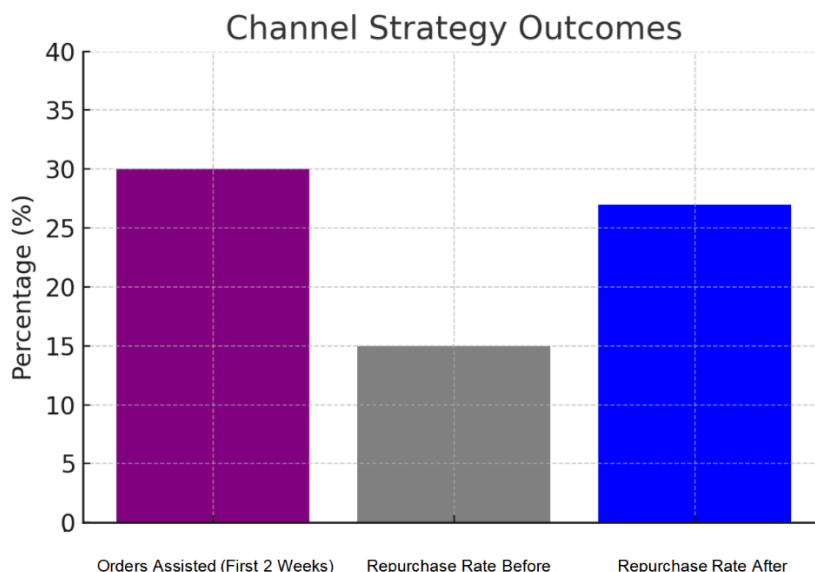


Figure 3. Outcomes of channel strategies, showing the contribution of assisted orders and the improvement in repurchase rates after implementation [6].

4.4. Integrated Strategy Effects

These three strategies do not operate independently but rather create a synergy effect. The pricing strategy, with an attractive price threshold, effectively attracts consumers to make their first purchase. The second step is to win the trust of customers through various means, further alleviating users' concerns. Finally, there is the optimization of channel efficiency. This measure not only ensures the satisfaction of consumers but also expands the customer base.

For instance, there was a family that initially was a hesitant first-time buyer. Due to the attractive low price, they were willing to give it a try. Also, because of the verified reliable quality, they gained trust. Additionally, the convenient and stable delivery service provided a good experience. Under the combined influence of these three factors, they eventually became regular customers, making two fixed purchases every month.

4.5. Pricing and Psychology

The high price sensitivity observed in rural consumers is largely attributable to constrained budgets and high food expenditure ratios. World Bank data indicate that rural households in low-income countries spend nearly 58% of their income on food, making even minor price differences influential [9]. In Zhaotong, price parity with offline markets was insufficient to drive adoption because consumers expected additional value online; a discount of 10–15% was necessary to shift behavior. Sompanijkul et al. demonstrate that segmented (tiered) pricing allows farmers to charge different prices to different customer groups based on value perception, even when costs are identical, enabling them to capture more value from their agricultural products [10].

4.6. Trust, Channels, and Local Adaptation

Trust deficits and logistical bottlenecks are major impediments to e-commerce in rural areas [3]. In Zhaotong, localized trust mechanisms, such as village endorsements, were more effective than corporate guarantees. Similarly, in Indonesia, live endorsements by village heads doubled coffee sales. Channel strategies succeeded by addressing barriers step by step: ensuring accessibility, then quality, and finally support services: first ensuring accessibility, then improving quality assurance, and finally enhancing user support. This phased approach is replicable in other under-resourced settings, such as Bangladesh or Nepal.

5. Discussion and Suggestions

5.1. Overall Conclusions

The case of Zhaotong apples clearly demonstrates that for rural e-commerce strategies to succeed, the key lies in jointly reducing consumers' psychological barriers through three core measures. First, set reasonable prices to reduce psychological barriers and attract price-sensitive groups to make initial purchases. Second, manage products differently based on local conditions. Let customers see the sincerity of the products and win their trust. Finally, Design adaptable channels based on local realities, for example by expanding township-level pickup points first, such as cold storage pickup points and convenient self-pickup points. Solving logistics and pickup problems will also attract more customers who want a more convenient life. During this process, consumers' behavior is not achieved overnight but gradually progresses from initial hesitation and exploration to a normalized consumption habit through gradual exposure to the products and continuous positive feedback.

5.2. Practical Implications

For enterprises, a differentiated pricing strategy based on product quality should be implemented to meet the needs of different consumption levels. They should actively cooperate with local institutions and enhance consumer trust through various means. Logistics improvement should prioritize focusing on incremental optimization. For example, the layout of pickup points at the township level should be improved first, and then the development of cold chain facilities should be gradually advanced to avoid waste of resources.

For local policymakers, it is crucial to have a thorough understanding of their respective regions. They should Provide targeted subsidies for cold chain infrastructure to reduce food loss and improve food safety in rural areas to solve the preservation problems of fresh agricultural products during the circulation process. At the same time, they should launch digital literacy training programs for rural residents, combining workshops and peer-to-peer mentoring. Through offline teaching and volunteer assistance, they can help those in need acquire the skills for e-commerce operations.

6. Conclusion

This study reveals the core role of consumer psychology in promoting the sustainable development of e-commerce in developing countries' rural areas. The research finds that the organic combination of price strategies, trust mechanisms, and channel optimization can effectively overcome the psychological barriers of rural consumers towards e-commerce, forming a virtuous cycle of "first attempt - building trust - forming habits".

The successful experience of Zhaotong apples demonstrates that the success of rural e-commerce not only relies on technological innovation, but also requires a deep understanding of the psychological characteristics and economic conditions of the target consumers. The tiered pricing strategy lowers the threshold for consumers to try, the visual traceability and local endorsements alleviate concerns about quality, and the cold chain pickup points and order-submission services solve

the convenience problem of the last mile. These strategies work together to build an e-commerce ecosystem suitable for rural characteristics.

This model holds significant reference value for rural areas in other developing countries. It is suggested that e-commerce enterprises adopt differentiated strategies to meet the needs of different income groups, prioritize cooperation with local organizations to build trust, and adopt a progressive channel construction strategy. At the same time, the government should increase subsidies for rural cold chain logistics infrastructure, carry out digital skills training for the elderly group, and create a favorable environment for the development of rural e-commerce.

Future research should focus on real-world contexts in developing countries through in-depth field studies: Firstly, it can Compare differences in infrastructure and local policies using indicators to understand the impact of e-commerce on people. For example, by looking at rural areas in by looking at rural areas by looking at rural areas in Southeast Asia, such as Vietnam, where the conditions such as the quality of the network and the ability to deliver goods vary, trust in e-commerce often stems from peer recommendations within rural communities or certifications from foreign platforms. This can provide a reference for formulating appropriate trust strategies for different developing countries.

Secondly, future research can study how the consumption demands of rural residents in developing countries will change after their incomes increase. For instance, As rural residents' incomes gradually increase, future studies should examine whether purchases shift from daily necessities to higher-value agricultural or processed goods. Such changes will also bring new requirements for e-commerce platforms serving rural residents. For example, future research should examine whether rural consumers begin to value brands, after-sales services, and cross-border delivery. These studies can provide practical suggestions for the long-term planning of rural e-commerce in developing countries and beyond.

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