



Research on the Development Models and Pathways of Rural E-Commerce under the Rural Revitalization Strategy

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Abstract. This study examines the development models and pathways of rural e-commerce under China's Rural Revitalization Strategy, highlighting its role in bridging urban-rural disparities and fostering sustainable growth. Through case studies of government-led initiatives, enterprise-driven platforms like Alibaba's Taobao, and farmer cooperatives, the research identifies distinct advantages and challenges. Government interventions address infrastructure gaps but risk inefficiency, corporate models expand market access yet raise concerns over profit distribution, while cooperatives empower farmers but face capacity constraints. The study proposes four key pathways for sustainable development: infrastructure and digital inclusion, talent cultivation, brand building, and multi-stakeholder collaboration. Examples such as Zhejiang's Taobao Villages and Shandong's branded garlic initiative demonstrate how these strategies enhance profitability and inclusivity. The findings underscore the need for context-specific policies, equitable digital inclusion, and institutionalized partnerships to balance rapid digitization with long-term sustainability. This research provides actionable insights for policymakers aiming to leverage rural e-commerce as a transformative tool for rural revitalization, offering lessons applicable to other developing economies.

Keywords: Rural Revitalization Strategy, Rural E-Commerce, Development Models, Sustainable Pathways.

1 Introduction

In recent years, the Rural Revitalization Strategy has emerged as a key component of China's national development programme, aiming to eliminate the systemic disparities between urban and rural regions through economic diversification, infrastructure enhancement, and improved quality of life for rural residents. Despite progress, challenges such as population outflow, industrial homogenization, and limited market access persist, necessitating innovative solutions like rural e-commerce to bridge these gaps [1]. Connecting farmers directly with consumers through digital platforms, rural e-commerce has transformed traditional agricultural supply chains, enabling rural producers to bypass intermediaries, get involved in broader markets, and in-

crease profitability. Platforms such as Alibaba's Taobao and Pinduoduo's agricultural initiatives exemplify how technology-driven models can empower rural economies, fostering entrepreneurship and stimulating ancillary industries like logistics and digital services [2].

The role of e-commerce in rural revitalization is not unique in China. BRICS nations (including Brazil, India, and South Africa) similarly develop e-commerce to decrease poverty, enhance food security, and integrate rural areas into national and global value chains [3]. However, disparities in infrastructure, digital literacy, and policy frameworks highlight the complexity of applying these policies in different regions. For instance, while China's Taobao villages have contributed significant economic growth, they also face challenges such as industrial informality, environmental degradation, and market saturation due to low entry barriers and fragmented branding efforts [1,2]. Similarly, BRICS countries struggle with imbalanced e-commerce penetration, where urban areas benefit more compared to rural and remote regions [3].

This study seeks to systematically analyze the development models and pathways of rural e-commerce under China's Rural Revitalization Strategy. By examining initiatives led by the government, enterprise-driven ecosystems, and farmer cooperatives through case studies, this research identifies critical strategies for developing infrastructure, talent cultivation, and brand-building. Furthermore, it addresses systemic challenges such as the digital divide, supply chain inefficiencies, and the discrepancy between formal and informal economic practices. Drawing on lessons from rural e-commerce case studies, this paper aims to provide actionable recommendations for policymakers to foster sustainable, inclusive rural development while mitigating risks associated with rapid digital transformation.

2 Development Models of Rural E-Commerce under the Rural Revitalization Strategy

2.1 Government-Led Model

The government-led model relies on state intervention to eliminate infrastructure gaps and foster rural e-commerce ecosystems. A typical example is the Taobao Village initiative in Zhejiang Province, where local governments established e-commerce service centers to provide training, logistics support, and brand promotion. For instance, Suichang County leveraged Taobao to sell tea and bamboo products, boosting farmers' incomes by connecting rural producers with urban consumers [4]. With states' coordination accelerating resource integration, this model thrives in regions with weak market foundations. However, over-reliance on subsidies has risks on creating inefficiencies. For example, some infrastructure, such as e-commerce parks, remained underutilized due to mismatched local demand.

2.2 Enterprise-Driven Model

Corporate platforms like Alibaba dominate this model, leveraging their market reach and technological resources to integrate rural economies into broader networks. Alibaba's Rural Taobao project exemplifies this approach. This project establishes village service stations to assist farmers in product listing, logistics, and data-driven market analysis. In Shandong Province, garlic and apple farmers refrained from traditional intermediaries, achieving national sales through Taobao's platform. However, corporate dominance brings about concerns about profit distribution and farmer autonomy. Recent studies propose hybrid governance models that integrate corporate platforms with farmer cooperatives, which can balance profit-sharing and autonomy by leveraging local production networks and collective decision-making [4]. Alibaba's unilateral policy changes occasionally prioritized shareholder interests over rural e-tailers, highlighting power imbalances [5].

Qingyanliu Village in Yiwu City takes advantage of China's largest small-commodity wholesale market. Local entrepreneurs adopted the "online supermarket" model, where wholesalers supply goods to Taobao stores on demand, minimizing inventory costs. This strategy, combined with cross-border e-commerce policies, exports wooden toys to global markets. In spite of success, intense competition led to price wars and product homogenization, underscoring the need for innovation and brand differentiation [6].

2.3 Farmer Cooperative Model

Cooperatives emphasize grassroots organization, with farmers collectively managing production and sales. In Suqian City, Jiangsu Province, a self-funded cooperative launched an e-commerce platform to sell rice and peaches and at the same time guarantee quality control and brand consistency. Members shared responsibilities from cultivation to marketing, demonstrating how cooperatives enhance e-commerce capability. However, challenges such as limited technical expertise and funding hinder further development. For example, only 40% of cooperative employees had tertiary education, reflecting broader rural talent shortages [6].

Each model offers unique pathways for rural e-commerce development. Government-led initiatives are appropriate in regions with poor resources but require market-driven adjustments. Enterprise-driven models expand market access but risk corporate overreach. Cooperatives empower farmers but depend on organizational capacity. Balancing these approaches through policies that incentivize innovation, improve digital literacy, and foster public-private partnerships is critical for sustainable rural revitalization.

3 Development Pathways of Rural E-Commerce under the Rural Revitalization Strategy

The development of rural e-commerce is a comprehensive process. Infrastructure development and digital inclusion provide fundamental support for talent cultivation and entrepreneurial ecosystems, which in turn drive brand building and agricultural value addition. Meanwhile, multi-stakeholder collaboration and policy innovation permeate the entire development process, coordinating resources across sectors and ensuring the smooth advancement of all pathways. Based on the analysis of existing models and case studies, this section proposes four key pathways to promote rural e-commerce development under China's Rural Revitalization Strategy.

3.1 Infrastructure Development and Digital Inclusion

Sound infrastructure is the prerequisite for digital inclusion, while digital inclusion in turn amplifies the utility of infrastructure. These two elements complement each other, jointly laying a solid foundation for the growth of rural e-commerce. Currently, many rural areas still suffer from unreliable internet access and inefficient transportation systems, which significantly impede e-commerce expansion. Governments should prioritize investments in broadband network expansion, cold chain logistics, and last-mile delivery solutions. A case in point is Zhejiang Province's remarkable success with Taobao Villages, which was largely attributable to its early strategic focus on establishing county-level logistics hubs and village service centers [5]. Furthermore, public-private partnerships can substantially accelerate infrastructure development, as exemplified by Alibaba's collaborative initiatives with local governments to establish "Rural Taobao" service stations.

3.2 Talent Cultivation and Entrepreneurial Ecosystems

The persistent digital literacy gap and lack of e-commerce competencies among rural populations remain significant barriers to development. Targeted capacity-building programs can empower farmers and young entrepreneurs to effectively leverage digital platforms. Initiatives such as Alibaba's "Taobao University" and government-sponsored workshops have demonstrated success in equipping rural residents with critical skills in online marketing, customer relationship management, and supply chain operations [6]. Furthermore, policy incentives, including startup grants and tax exemptions designed to attract urban-educated youth back to rural areas, could help address the talent shortage. A notable example comes from Jiangsu Province, where returning migrant workers played a pivotal role in establishing agricultural cooperatives that subsequently thrived on e-commerce platforms.

3.3 Brand Building and Value-Added Agriculture

Brand building is a critical pathway to agricultural value addition. By establishing distinctive regional brands, rural producers can enhance market recognition and reputation for their products, thereby commanding premium pricing. This process typically involves three key mechanisms, including quality differentiation through certification (e.g., organic or geographical indication labels) reduces information asymmetry and justifies price premiums, cultural storytelling embedded in packaging and marketing creates emotional connections with urban consumers, and standardized quality control systems coordinated by cooperatives ensure consistent brand experiences that foster customer loyalty [7].

Recent empirical studies highlight how these strategies interact with e-commerce models. Industrial-led rural e-commerce tends to dilute brand value through price competition, widening the urban-rural income gap as urban intermediaries capture most surplus [8]. In contrast, agricultural-led e-commerce—exemplified by Shandong's branded garlic initiative achieving 30% revenue growth—demonstrates that geographically unique products with strong brand identities can bypass intermediaries, allowing farmers to retain more value [6].

The spatial organization of production further moderates these effects. Clustered branding initiatives (e.g., "One Village One Product" campaigns) generate collective reputation effects that individual farmers cannot achieve alone. Taobao villages specializing in agricultural goods show 18% higher price premiums than dispersed sellers for comparable products, as dense networks facilitate knowledge sharing and quality enforcement [9]. Policymakers should therefore prioritize branding subsidies for certification and packaging design, cluster-based training in digital marketing for cooperatives and geographical indication protections to prevent brand dilution.

This integrated approach transforms commodity agriculture into a value-added industry while mitigating the inequality risks observed in industrial e-commerce models.

3.4 Multi-Stakeholder Collaboration and Policy Innovation

Sustainable rural e-commerce development necessitates coordinated efforts among government entities, enterprises, and grassroots organizations. However, the effectiveness of such collaborations depends on addressing systemic imbalances. For instance, while e-commerce platforms like Alibaba expand market access, they often prioritize urban-centric logistics and high-value segments, leaving rural producers with limited bargaining power [9]. This dynamic underscores the need for adaptive regulatory frameworks that safeguard farmers' interests while fostering innovation. The "Red Taobao" initiative in Shandong Province exemplifies a balanced approach, integrating e-commerce training with inclusive digital transformation programs [5], yet broader evidence suggests rural e-commerce's benefits remain unevenly distributed, with only 15% of rural households—typically younger, wealthier residents in remote areas—experiencing significant cost-of-living reductions while production-side gains prove negligible for most [9].

To address these disparities, policymakers should enforce equitable profit-sharing mechanisms through farmer-centric revenue models, invest strategically in overcoming "last-mile" delivery barriers—a factor shown to double e-commerce uptake where preexisting parcel access exists [9]—and prioritize agricultural e-commerce models that demonstrate neutral or positive income distribution effects over industrial variants that exacerbate urban-rural gaps [10,11]. Cross-sector collaborations, particularly among tech firms, academia, and cooperatives, can drive innovations addressing localized challenges like post-harvest losses and seasonal demand fluctuations. Through such policy alignment, China can transform rural e-commerce into an effective tool for equitable revitalization.

4 Conclusion

This study systematically analyzes the development models and pathways of rural e-commerce under China's Rural Revitalization Strategy, providing critical insights for sustainable rural transformation. The analysis of three primary models, including government-led, enterprise-driven, and farmer cooperatives, reveals distinct advantages and limitations. Government initiatives effectively address infrastructure gaps but may lead to inefficiency without market alignment. Corporate platforms like Alibaba expand market access but require balanced governance to protect farmer interests. Cooperatives empower grassroots participation but face capacity constraints.

The four-dimensional path framework proposed in this study covers infrastructure development, talent cultivation, brand building, and multi-stakeholder cooperation, providing a comprehensive solution to address systemic barriers. As seen in Zhejiang's Taobao Villages, infrastructure modernization remains foundational, while human capital investments address persistent skill gaps. Value-added strategies, such as Shandong's branded garlic initiative, demonstrate how product differentiation enhances profitability. The "Red Taobao" model further illustrates how policy innovation can harmonize economic and social objectives.

Several critical insights emerge from this analysis. First, context-specific adaptations are essential, as the success of coastal Zhejiang may not directly apply to inland regions. Empirical evidence from Zhejiang Province reveals an inverted-U relationship between e-commerce development and the urban-rural income gap, indicating that e-commerce initially widens but eventually narrows the disparity as rural markets mature. Second, digital inclusion must prioritize equity to ensure vulnerable groups benefit. Studies show that rural e-commerce adoption significantly increases selling prices and gross returns for farmers, though it also introduces higher marketing costs, particularly in logistics and packaging. Third, long-term sustainability depends on institutionalizing partnerships between governments, firms, and communities. For instance, farmer cooperatives with strong social capital and education levels are more likely to adopt e-commerce successfully, highlighting the need for targeted capacity-building programs.

Future research should explore the scalability of hybrid governance models, the environmental impacts of rural e-commerce expansion, and comparative studies with

other BRICS nations. Additionally, Yuan calls for longitudinal studies on the role of digital talent cultivation in sustaining rural e-commerce ecosystems, particularly in regions with aging populations and limited access to urban-educated youth [12]. Policymakers must balance rapid digitization with inclusive growth, leveraging China's unique integration of state capacity and market dynamism. By addressing infrastructure, skills, branding, and governance in tandem, rural e-commerce can become a transformative pillar of China's rural revitalization, offering replicable insights for developing economies worldwide.

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