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Article

Path Analysis of Digital Marketing Promoting Fresh Corn Sales Under Rural Revitalization Policy

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Abstract: The digital transformation of agricultural marketing represents a critical pathway for achieving rural revitalization objectives in China, particularly in sectors combining traditional production with modern consumption patterns. This study examines the mechanisms through which digital marketing strategies influence fresh corn sales by analyzing consumer purchase decisions within the policy context of rural modernization. Drawing on survey data from 384 consumers in Beijing and surrounding regions, the research employs partial least squares structural equation modeling to identify transmission pathways from marketing exposure to purchase behavior. The analysis reveals that artificial intelligence applications and digital marketing strategies demonstrate significant positive associations with purchase decisions ($\beta=0.142$, $p<0.001$ and $\beta=0.119$, $p<0.01$ respectively), with customer satisfaction emerging as a dominant mediating mechanism that accounts for over 55% of the total effect. The indirect pathways through satisfaction (0.184 for AI applications and 0.155 for digital strategies) exceed direct effects, indicating that digital marketing primarily influences sales potential through enhanced consumer experiences rather than functional benefits alone. The model explains 63.2% of variance in purchase decisions, demonstrating substantial explanatory power for understanding digital marketing effectiveness in agricultural contexts. These findings illuminate the importance of customer-centric approaches in agricultural digitalization and provide empirical evidence for optimizing marketing strategies within the broader framework of rural development policies.

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Keywords: digital marketing, fresh corn, customer satisfaction, purchase decision, rural revitalization

1. Introduction

The integration of digital marketing technologies into agricultural product distribution represents a fundamental shift in the association of rural urban market linkages, especially in the context of China's rural revitalization initiative, which commenced in 2017. The example of fresh corn value chain demonstrates the trend, encompassing 22 million acres and facilitating more than 270 billion yuan's worth of e-commerce transactions (Zhang & Berghäll, 2021). A variety of digital marketing tools are integrated in such a value chain, including recommendation systems powered by AI, personalised content delivery, dynamic price discovery systems, and automated customer service systems that collectively address challenges including information asymmetry, seasonal demand fluctuations, and required standards of quality (Rahmadani & Elinur, 2024). Implementation takes place under an enabling policy environment, characterized by infrastructure investments, technical training programs, as well as facilitation of markets enabling barriers to adoption and enhancing efficiency. Despite the enormous investment in digital agriculture, the specific pathways through which marketing technologies influence consumer purchase decisions remains largely unknown, creating a significant knowledge gap for policy decision - making and business strategy formulation. This limitation is addressed in the current work by analyzing communication mechanisms between exposure to digital marketing and purchasing behavior as well as by the enabling role of customer satisfaction in the transformation of technological capabilities into market performance. The study connects the links between them by means of consumer-side observation, and states that purchasing decisions represent the "immediate antecedent to sales realization" and therefore appropriate leading indicators in terms of marketing effectiveness of rural revitalization strategy.

2. Theoretical Framework

To understand how digital marketing affects agricultural product sales, we need to look at two important theories that work together: technology acceptance theory and consumer satisfaction theory. The Technology Acceptance Model gives us a solid way to understand how people react to new digital marketing tools. When consumers find these tools useful, it's usually because they can get information more easily and don't have to spend as much time searching for what they want. Whether people find these tools easy to use depends heavily on how well they're designed and how simple they are to access (Zhang et al., 2024). Furthermore, artificial intelligence makes things even better by offering personalized product suggestions, smart pricing that adjusts automatically, and customer service that works around the clock. These AI features are particularly helpful in agriculture because they solve some really tough problems - like products going bad quickly, inconsistent quality from harvest to harvest, and the challenge of building trust when farmers and customers are far apart geographically.

Successful digital marketing strategies involve much more than just using new technology. Instead, they're really about creating a whole collection of practices that focus on building genuine customer experiences online through meaningful interactions, strong brand connections, and ongoing relationship management. For example, social media marketing creates direct ways for consumers to talk with producers, which wasn't possible before. When real customers share their experiences and recommend products to their friends and family, it builds much stronger trust than traditional advertising. Content marketing also plays a crucial role by giving people detailed information about where their food comes from and how it's grown, which helps create emotional connections with agricultural products that go way beyond just buying and selling. All these approaches work together to close the information gap and build genuine brand loyalty through better engagement and more personalized experiences (Bai et al., 2019).

Most importantly, customer satisfaction acts as the crucial bridge that connects digital marketing exposure to actual purchasing decisions. It's essentially the main pathway that turns functional benefits into real behavioral changes. According to expectation-confirmation theory, people feel satisfied when their experiences meet or go beyond what they expected to happen. Digital technologies influence this process in two important ways: they help shape what consumers expect through marketing messages, and they improve actual experiences by making services better overall (Liu

& Zheng, 2023). Therefore, artificial intelligence and digital marketing strategies work both directly by providing practical benefits like saving time and money, and indirectly by making the overall customer experience so much better that people feel more confident about buying. Ultimately, digital marketing creates value mainly by optimizing the customer experience while also making services more efficient.

3. Methodology

This study employs a cross-sectional survey design, which surveys consumer responses to digital marketing services within the fresh corn market in Beijing and surrounding areas. Stratified random sampling was performed to achieve demographic and digital divide representation and produced 384 usable responses giving sufficient statistical power for structural equation modeling analysis. The survey tool was based on previous experiments and adapted for the context, and exposure to artificial intelligence used the ten items for consumer usage of recommendation engine and automated services (α=0.89), digital strategy exposure for social network usage and the social media interaction (α=0.87), customer satisfaction for product quality attitude and service score (α =0.92), and purchase decision for intention and actual purchase (α=0.88). Data collection utilized online channels with 60% of responses coming from e-commerce platforms and social media. Conversely, face-to-face surveys at farmers' markets and supermarkets contributed the last 40%. This approach ensured full representation of different degrees of digital literacy, and in doing so maintaining quality through a standardized protocol. The analytical procedures used included the partial least squares structural equation modelling using SmartPLS 3.0 to test intricate relationships with alternative mediation options. Reliability was assessed by Cronbach's alpha and composite reliability, convergent validity by average variance extracted, and discriminant validity by Fornell-Larcker criterion for the measurement model. Mediation analysis was performed using bootstrapping using 5,000 resamples to estimate confidence intervals for indirect effects. Using Harman's single-factor test to assess common method bias also confirmed that the first factor accounted for 31.2% of the variance, but it was below the critical 50% threshold. Sample characteristics and key variable distributions are presented in **Table 1**.

Table 1

Sample Characteristics and Digital Marketing Engagement (N=384)

Variables	Categories	n	%	*M*	*SD*
Demographics					
Gender	Male	184	47.9		
	Female	200	52.1		
Age	18-25 years	96	25.0		
	26-35 years	134	34.9		
	36-45 years	77	20.1		
	46-55 years	58	15.1		
	≥56 years	19	4.9		
Income (RMB/month)	<5,000	77	20.1		
	5,000-10,000	192	50.0		
	>10,000	115	29.9		
Digital Channel Usage					
Primary Purchase Channel	Online Platform	210	54.7		
	Supermarket	120	31.3		
	Farm Direct	54	14.1		
Key Variables					
AI Application Exposure				3.86	0.72
Digital Marketing Engagement				3.94	0.68
Customer Satisfaction				4.12	0.65
Purchase Decision				4.02	0.70

Note. M = Mean, SD = Standard deviation. Income in Chinese Yuan (RMB)

4. Results

Descriptive analysis reveals that the sample encompasses diverse demographic profiles with balanced gender distribution (47.9% male, 52.1% female), age representation concentrated in economically active groups (26-45 years comprising 55.0%), and income levels reflecting middle-class consumption patterns. Digital channel usage patterns indicate substantial market penetration, with 54.7% of

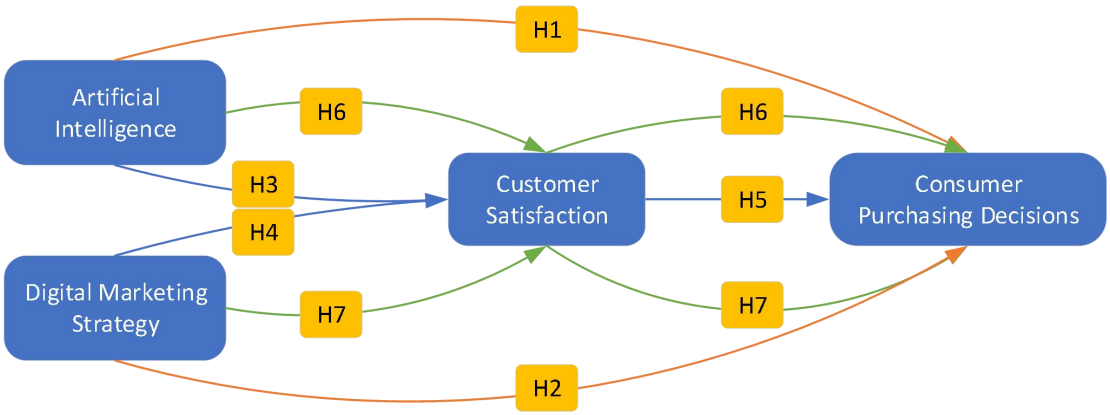
respondents utilizing online platforms as their primary purchase channel for fresh corn purchases, suggesting successful initial adoption of digital marketing channels within the policy-promoted transformation framework.

The measurement model demonstrates satisfactory psychometric properties across all constructs. Composite reliability values range from 0.89 to 0.93, exceeding the recommended threshold of 0.70 and confirming internal consistency. Average variance extracted values span from 0.57 to 0.62, surpassing the 0.50 criterion and establishing convergent validity. Discriminant validity assessment through the Fornell-Larcker criterion confirms that the square root of AVE for each construct exceeds its correlations with other constructs, while HTMT ratios remain below 0.85, providing additional discriminant validity evidence.

Structural model analysis reveals significant positive relationships between digital marketing elements and consumer behavior outcomes. Artificial intelligence applications demonstrate a significant direct effect on purchase decisions (β=0.142, $p<0.001$), while also exhibiting a stronger relationship with customer satisfaction (β=0.351, $p<0.001$). Digital marketing strategies show similar patterns with significant effects on both purchase decisions (β=0.119, $p<0.01$) and customer satisfaction (β=0.297, $p<0.001$). Customer satisfaction emerges as the strongest predictor of purchase decisions (β=0.523, $p<0.001$), confirming its central role in the behavioral model. The complete structural model results are presented in **Figure 1**.

Figure 1

Structural Model Results with Standardized Path Coefficients



Note. ***p < 0.001, **p < 0.01, *p < 0.05; Values on paths represent standardized coefficients; R^2 values shown in constructs

Mediation analysis reveals that indirect pathways through customer satisfaction constitute the dominant mechanism linking digital marketing to purchase behavior. The indirect effect of AI applications through satisfaction (0.184, 95% CI 0.122-0.246) exceeds the direct effect, accounting for approximately 56% of the total relationship. Digital marketing strategies demonstrate similar mediation patterns with an indirect effect of 0.155 (95% CI 0.096-0.214) representing 57% of the total effect. These findings indicate that digital marketing influences purchase decisions primarily through enhancing customer satisfaction rather than through direct functional benefits.

The complete model explains 58.7% of variance in customer satisfaction and 63.2% of variance in purchase decisions, demonstrating substantial explanatory power. Effect size analysis reveals that customer satisfaction exerts a large effect on purchase decisions (f^2=0.38), while digital marketing elements show medium effects on satisfaction (f^2=0.19-0.25). Predictive relevance assessment through Stone-Geisser Q^2 values exceeds zero for all endogenous constructs, confirming the model's predictive validity. Detailed path coefficients and mediation effects are reported in **Table 2**.

Table 2

Path Analysis and Mediation Effects Results

Hypotheses	Path Relationship	Direct Effect	Indirect Effect	Total Effect	95% CI	Result
H1	AI Applications → Purchase Decision	0.142***	-	0.142***	[0.062, 0.222]	Supported
H2	Digital Marketing → Purchase Decision	0.119**	-	0.119**	[0.041, 0.197]	Supported
H3	AI Applications → Customer Satisfaction	0.351***	-	0.351***	[0.254, 0.448]	Supported
H4	Digital Marketing → Customer Satisfaction	0.297***	-	0.297***	[0.206, 0.388]	Supported
H5	Customer Satisfaction → Purchase Decision	0.523***	-	0.523***	[0.435, 0.611]	Supported
Mediation Effects						
H6	AI → Satisfaction → Purchase	0.142***	0.184***	0.326***	[0.122, 0.246]	Supported

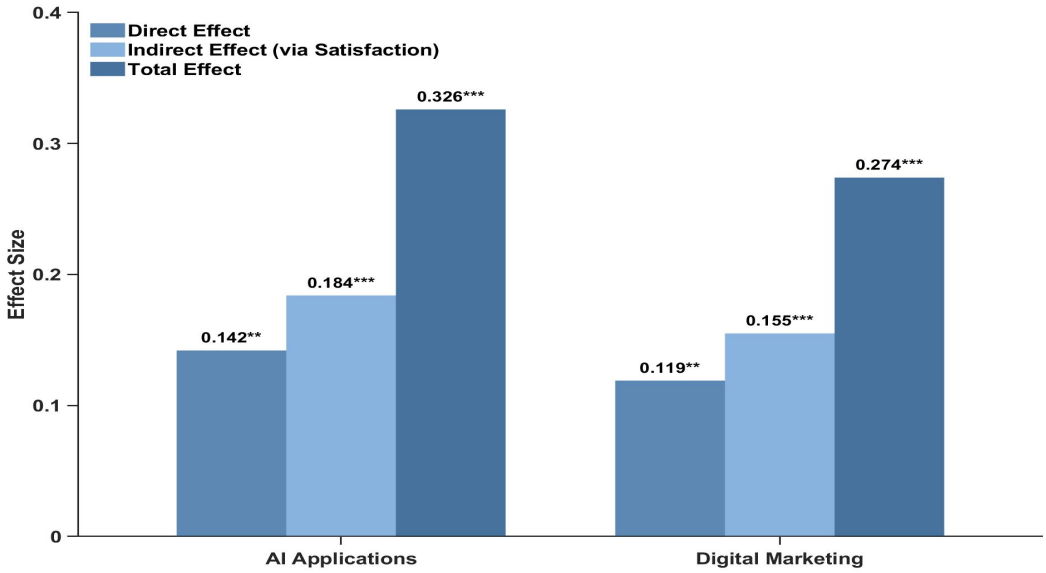
H7	Digital Marketing → Satisfaction → Purchase	0.119**	0.155***	0.274***	[0.096, 0.214]	Supported

Note. ***p < 0.001, **p < 0.01, *p < 0.05. CI = Confidence interval based on 5,000 bootstrap samples.

The decomposition of total effects into direct and indirect pathways reveals the dominant role of satisfaction-mediated transmission mechanisms. **Figure 2** provides a visual comparison of these effect components, highlighting that indirect effects through customer satisfaction constitute the majority of the total effects for both AI applications and digital marketing strategies.

Figure 2

Decomposition of Direct and Indirect Effects on Purchase Decisions



Note. Effect sizes in standardized coefficients. Error bars represent 95% confidence intervals

Heterogeneity analysis across consumer segments reveals differential response patterns to digital marketing initiatives. Younger consumers (18-35 years) demonstrate stronger relationships between AI applications and purchase decisions compared to older segments, while income levels moderate the satisfaction-purchase relationship with higher-income consumers showing greater responsiveness to service quality improvements. Urban consumers exhibit higher path coefficients across all relationships compared to suburban respondents, suggesting that geographic factors influence digital marketing effectiveness.

5. Discussion

Customer satisfaction emerges as the crucial bridge connecting technology to market performance. Research reveals that indirect effects outweigh direct effects, challenging technology-centric perspectives. Digital technologies create value through enhanced customer interactions and service experiences rather than technological features alone. Here's how it actually works: Digital marketing tools help customers find information more easily and get better, more personal service. When customers have these positive experiences, they want to buy more products (Yao & Sun, 2023). This means companies should spend their money on improving customer service, not just buying expensive new technology.

Different types of customers behave differently. Young people love trying new AI features like automatic product suggestions or chat robots. So, companies should focus their newest technology on younger customers who are comfortable with digital tools. Rich customers care most about getting excellent service and will pay extra for it. This means businesses can charge higher prices to wealthy customers if they provide really good service.

China's rural development policy has made it easier for farmers to use digital marketing. But building internet connections and digital platforms isn't enough on its own (Wu & Zhang, 2024). The government's investments helped people start using these services, but keeping them interested requires companies to constantly improve what they offer (Wang et al., 2024). Government officials should not only build the basic infrastructure but also help people learn how to use digital tools and trust them (Dong et al., 2023). This study has some weaknesses - it only looked at one moment in time instead of following changes over months or years, and it focused mainly on wealthier areas rather than truly rural places (Wang & Dong, 2022).

6. Conclusion

This research provides empirical evidence for the pathways through which digital marketing promotes fresh corn sales within China's rural revitalization framework, revealing that customer satisfaction serves as the dominant mechanism

for translating technological capabilities into market outcomes. The analysis of 384 consumers demonstrates that artificial intelligence applications and digital marketing strategies influence purchase decisions primarily through indirect pathways that enhance customer experiences rather than through direct functional benefits. The identification of satisfaction as a critical mediator accounting for over 55% of marketing effects underscores the importance of customer-centric approaches in agricultural digitalization initiatives.

The substantial variance explained in purchase decisions (63.2%) indicates that digital marketing represents a powerful driver of consumer behavior in agricultural markets when properly implemented with attention to service quality and experience design. The differential effects across consumer segments suggest opportunities for targeted strategies that align technological sophistication with segment-specific preferences and capabilities. These findings provide actionable guidance for agricultural enterprises seeking to optimize digital marketing investments and for policy makers aiming to accelerate rural digital transformation through market-oriented mechanisms (Glogoveț an & Pocol, 2024).

Future research should extend the analysis through longitudinal designs that capture the dynamic evolution of digital marketing effectiveness, multi-level frameworks that integrate supply-side and demand-side perspectives, and comparative studies across different agricultural products and regional contexts. The continued evolution of digital technologies and changing consumer expectations suggest that ongoing investigation of these relationships remains critical for sustaining agricultural modernization momentum and achieving rural revitalization objectives.

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