



Analysis of Factors Influencing Customer Satisfaction in Small Community Fresh Supermarkets

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Abstract

Based on the survey data of residents in Taiyuan City purchasing fresh products in small community fresh supermarkets and previous research results, combined with the ECSI (European Customer Satisfaction Model) and ACSI (American Customer Satisfaction Model), a customer satisfaction evaluation model for community fresh supermarkets was designed. It aims to study the effects of economy, convenience, safety and reliability, corporate image, and customer expectations on customer satisfaction and loyalty when purchasing fresh products. The results show that economy, convenience, safety and reliability, and corporate image have a positive impact on customer satisfaction. Customer satisfaction has a significant positive impact on customer loyalty. The demand of community residents is the foundation of fresh supermarket operation, and consumer satisfaction has a significant impact on the operation of retail enterprises. By analyzing the factors that affect customer satisfaction and proposing countermeasures to improve consumer satisfaction. It can provide a theoretical basis for the subsequent operation of fresh retail stores.

Keywords

Community Small Fresh Supermarket, Customer Satisfaction, Structural Equation

1. Introduction

With rising consumer purchasing power, demand for high-quality products, especially fresh foods like fruits, vegetables, meat, and aquatic products, is surging. This high-frequency demand, relatively inelastic, is driving significant changes in consumption patterns. In today's era of abundant and accessible goods, the business landscape has shifted to offer not just enough food, but diverse and convenient options. The competition among agricultural markets, big fresh supermarkets, small shops, and online fresh food retailers is intense. Among these, community shops are the least organized and regulated. Community fresh food supermarkets, being local and close to consumers, have a fixed product range and customer base. They face stiff competition from big supermarkets but can win by enhancing service quality, customer satisfaction, and loyalty.

Most research on fresh products focuses on online purchases, overlooking small community supermarkets. Dai Guoliang et al. collected customer review data from four mainstream fresh e-commerce platforms and used the online content text mining method to study the influencing factors of customer satisfaction in fresh e-commerce (Dai Guoliang & Chen Lingyan, 2020). Wang Yun focuses on customer decision-making in developing a satisfaction model for online fresh agricultural product purchases (Wang Yun, 2021). Gao Ju developed a conceptual model using the PPM framework, with thrust, tension, and anchoring factors as independent variables, customer satisfaction and inertia as mediators, and repurchase intention as the dependent variable (Gaoju Chrysanthemum, 2022). Dai Peipei

identified perceived factors affecting customer satisfaction in online reviews and constructed a multivariate SVR demand prediction model for fresh products (Dai Peipei, 2022). Zhao Wenlei uses online review data of fruit products on a live streaming platform, this study employs machine learning and LDA models in the digital economy to analyze data. It collects and preprocesses reviews of popular fruits from January to December 2021, predicts ratings with a random forest model, and clusters topics with LDA to explore emotional information and topic importance for consumer satisfaction (Zhao Wenlei, 2022).

2. Model design and research hypotheses

2.1 Structural Variables of Customer Satisfaction Model

The article takes consumer satisfaction and loyalty of small community fresh supermarkets as the research object, based on previous research results, combining ECSI (European Customer Satisfaction Model) and ACSI (American Customer Satisfaction Model) to design structural variables in the customer satisfaction evaluation model. There are six structural variables as follows: Economy, Convenience, Safety and reliability, Corporate image, Customer expectation, Customer satisfaction, and Customer loyalty.

2.2 Observational Variables

(1) Economy

Community fresh shops offer high-quality products due to proximity to consumers, but high operating costs lead to higher prices. Consumers prioritize quality when purchasing fresh goods, preferring cost-effective options. Merchants must balance quality and pricing to meet consumer demand.

Observation variables: 1) price discounts, 2) sufficient quantity of goods

H1: Economic preferences have a significant positive promoting effect on consumer satisfaction and loyalty in community small fresh supermarkets.

(2) Convenience

Community fresh supermarkets, situated nearby residential areas, offer convenience, eliminating the need for long-distance travel. They are crucial for forgotten or urgent purchases. Integrated with consumer needs, these supermarkets fulfill convenient, fast, and comprehensive shopping experiences, especially with innovative and diverse deep-processed fresh products, granting them a competitive edge.

Observation variables: 1) convenience of the store, 2) ease of finding of goods, 3) timeliness of services, 4) operating hours, 5) product integration degree

H2: Convenience preference has a significant positive promoting effect on consumer satisfaction and loyalty in community small fresh supermarkets.

(3) Safety and Reliability

The success of community fresh food stores lies in their commitment to hygiene, safety, and quality of products, along with providing a positive shopping environment. To ensure customer satisfaction, prompt handling of complaints, returns, exchanges, and compensation is crucial.

Observation variables: 1) no food safety issues, 2) service guarantee, 3) after-sales service, 4) product reliability, (5) purchasing environment

H3: Safety and reliability have a significant positive promoting effect on consumer satisfaction in community small fresh supermarkets.

(4) Corporate Image

Corporate image represents consumers' overall evaluation of a company's production activities. In the ECSI model, it's reflected in customer perception of the enterprise's overall image, business practices, ethics, and social responsibility.

Observed variables: 1) reputation of the enterprise, 2) overall image of the enterprise, 3) social responsibility of the enterprise.

H4: Corporate image has a significant positive promoting effect on consumer satisfaction and loyalty in community small fresh supermarkets.

(5) Customer Expectations

Customer expectation refers to the subjective evaluation of a product or service by the customer before making a purchase, as well as the expected quality level of the product or service. Customer expectations are often influenced

by factors such as evaluations from others, advertisements, past consumer experiences, and impressions of the supermarket.

Based on the ECSI model, ACSI model, and service quality evaluation model, there are three aspects of customer expectations with a total of six observation variables. This article summarizes the observation variables of customer expectations into two main aspects: product expectations and service expectations. Assumption:

H5: Customer expectations have a significant positive promoting effect on consumer satisfaction and loyalty in community small fresh supermarkets.

(6) Customer Satisfaction

Customers evaluate their overall satisfaction based on the entire consumption process. Satisfaction is influenced by actual consumption experience, psychological responses, and the fulfillment of expectations and needs.

Based on the ECSI model, ACSI model, and SCSB model, two observation variables of customer satisfaction are obtained: 1) overall satisfaction, 2) comparison between perception and expectation.

H6: Customer satisfaction has a significant positive promoting effect on customer loyalty.

(7) Customer Loyalty

Customer loyalty can lead to repeated consumption behavior by customers towards their preferred businesses in the future, and this repeated consumption behavior is not influenced by emotions or marketing methods (Open, J. & Løkketangen, A., 2008).

Based on the ECSI and ACSI models, three observational variables of customer satisfaction are identified: 1) the likelihood of enthusiastically recommending to others, 2) the likelihood of repeat purchases, 3) the likelihood of purchasing additional products or services.

2.3 Construction of Customer Satisfaction Evaluation Model

Based on the theoretical analysis above, this article constructs a customer satisfaction evaluation model for community fresh supermarkets. The ellipse, rectangle, and arrow in the figure represent structural variables, observed variables, and causal relationships, respectively (see Figure 1 for the evaluation model).

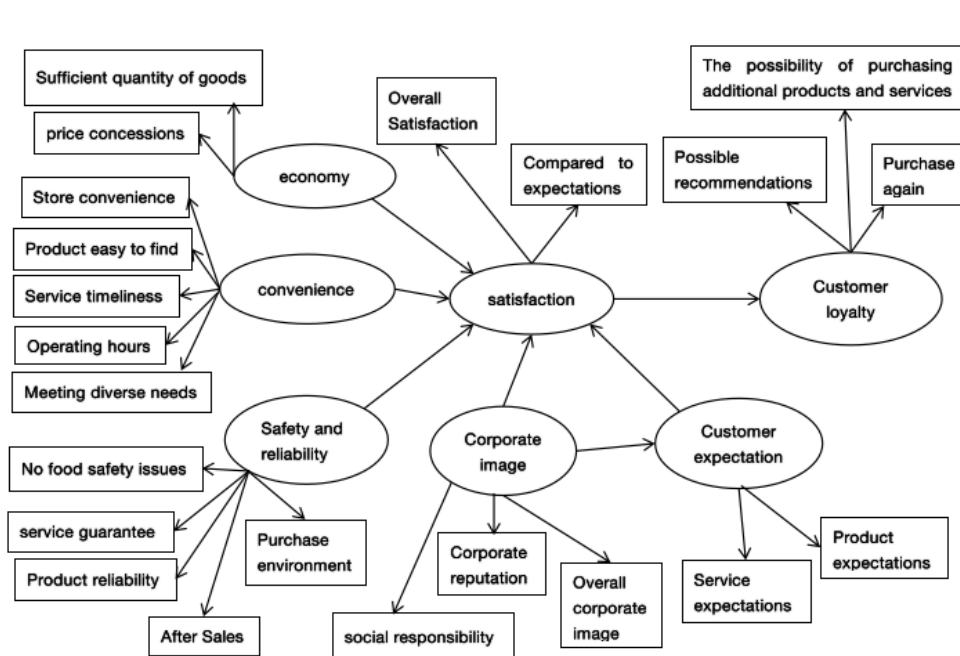


Figure 1. Customer Satisfaction Evaluation Model for Community Fresh Supermarkets.

3. Investigation methods

The data in this article comes from a questionnaire survey conducted among residents in communities in Taiyuan City who purchase fresh products. The questionnaire survey adopts a combination of online and offline methods, and

during the survey process, the survey subjects are selected through random sampling. After removing 13 invalid questionnaires, 400 valid questionnaires were ultimately obtained.

From a gender perspective, males account for 50.25% and females account for 49.75%. In terms of age, respondents aged 25 and below, 26-35 years old, 36-45 years old, 46-55 years old, and 56 years old and above accounted for 19.5%, 21.75%, 18.5%, 20.25%, and 20% of the total, respectively. In terms of education level, high school and below students account for 12.25% of the total, vocational colleges account for 35% of the total, bachelor's degrees account for 40.5% of the total, master's degrees account for 8%, and doctoral degree and above account for 4.25%. From the perspective of income level, survey respondents with a monthly income of less than 1000 yuan, 1000-3000 yuan, 3000-5000 yuan, 5000-10000 yuan, and more than 10000 yuan account for 15%, 11.5%, 7%, 41.75%, and 24.75% of the total, respectively. From a professional perspective, the number of company employees accounts for 16.5% of the total, individuals or freelancers account for 13.75% of the total, students account for 20.5% of the total, government or public institution employees account for 17.5%, and other professionals account for 31.75%.

4. Questionnaire analysis

4.1 Reliability testing

Reliability ensures the credibility of a survey, reflecting its consistency, reliability, and reproducibility. Factors like survey environment stability, respondent motivation, and distractions can impact responses, leading to data errors and measurement deviations. Therefore, surveys must involve similar data collection by different researchers. The reliability coefficient quantifies the impact of measurement errors on survey results, with Cronbach α used to verify it. A coefficient >0.8 indicates high reliability, while >0.7 is still acceptable.

This article uses SPSS to conduct a reliability analysis on the questionnaire, α is 0.926, indicating good internal consistency of the data.

Table 1. Reliability Analysis of the Questionnaire

Latent Variable	Observed variable	α	Total scale reliability α
Economy	C1~C2	0.887	0.926
Convenience	C3~C7	0.856	
Safety and reliability	C8~C12	0.751	
Corporate image	C13~C15	0.93	
Customer expectations	C16~C17	0.929	
Satisfaction	C18~C19	0.917	
Customer loyalty	C20~C22	0.898	

4.2 Validity testing

Validity is used to measure whether the quantitative data design is reasonable, and is validated through factor analysis methods. This study used the KMO metric to test the validity of the data. The results are as follows:

Table 2. Questionnaire Validity Analysis

Latent Variable	Observed variable	KMO	Total scale validity
Economy	C1~C2	0.805	0.868
Convenience	C3~C7	0.704	
Safety and reliability	C8~C12	0.719	
Corporate image	C13~C15	0.692	
Customer expectations	C16~C17	0.750	
Satisfaction	C18~C19	0.819	
Customer loyalty	C20~C22	0.747	

As shown in the table above, the KMO measurement values for each dimension are 0.805, 0.704, 0.719, 0.692, 0.750, 0.819, and 0.747, all greater than 0.6, indicating that the data is very suitable for factor analysis.

5. Example analysis

5.1 Confirmatory factor analysis

Confirmatory factor analysis is a research method used to measure whether the correspondence between factors and measurement items is consistent with the researcher's prediction. It can verify the fit between the measurement model and survey data, and thus test the compositional reliability, convergent validity, and discriminant validity of the model.

Mean Variance Extraction (AVE) and Combined Reliability (CR) are used for convergent validity analysis. Generally, if AVE is greater than 0.5 and CR value is greater than 0.7, it indicates high convergent validity;

CFA analysis found that among the 7 latent variables, there were observed variables with standardized factor loadings less than 0.5, which require adjustment and correction. Items with factor loadings less than 0.5 were removed to obtain Table 3. The revised standardized factor loadings are all above 0.5, meeting J F. The acceptable standards proposed by Hair et al. (1998).

Table 3. Composition Reliability and Convergence Validity

Latent Variable	Measure Item	Non-standard load factor	Standard Load Factor	CR	p	AVE
Economy	C1	1	0.763	7.941	-	0.502
	C2	0.951	0.666		***	
	C3	0.959	0.764		-	
	C4	0.957	0.857		-	
Convenience	C5	1.027	0.794	7.918	***	0.533
	C6	1	0.839		-	
	C7	0.932	0.63		-	
	C8	1.086	0.799		-	
	C9	1.115	0.807		-	
Safety and reliability	C10	1.185	0.828	7.165	***	0.519
	C11	1	0.746		-	
	C12	1.14	0.808		-	
	C13	1.037	0.781		-	
Corporate image	C14	1.16	0.803	8.122	***	0.51
	C15	1.179	0.694		-	
Customer expectations	C16	1	0.929	8.641	-	0.622
	C17	0.936	0.774		***	
Satisfaction	C18	1	0.789	7.011	-	0.58
	C19	0.906	0.754		***	
Customer loyalty	C20	1	0.691	8.087	-	0.582
	C21	1.146	0.755		***	
	C22	1.104	0.851		-	

Table 4. Discriminant validity: Pearson correlation and AVE square root value

Latent Variable	economy	convenience	Safety and reliability	corporate image	Customer expectations	satisfaction	Customer loyalty
economy	0.65	—	—	—	—	—	—
convenience	0.588	0.782	—	—	—	—	—
Safety and reliability	0.57	0.612	0.668	—	—	—	—
corporate image	0.368	0.394	0.439	0.557	—	—	—
Customer expectations	0.485	0.47	0.461	0.278	0.671	—	—
satisfaction	0.459	0.411	0.451	0.331	0.335	0.524	—
Customer loyalty	0.461	0.518	0.505	0.395	0.372	0.359	0.631

Notes: P represents the level of significance, and *** indicates that P is significant at the 0.001 level.

5.2 Building models

Based on the analysis results of CFA, it indicates that the data is suitable for analysis using structural equations. A structural path analysis model as shown in Figure 2 was constructed using software AMOS.23. Circles represent potential variables, and boxes represent observed variables. e1-e22 is the measurement error of the observed variables, and the final outcome variables are customer satisfaction and customer loyalty.

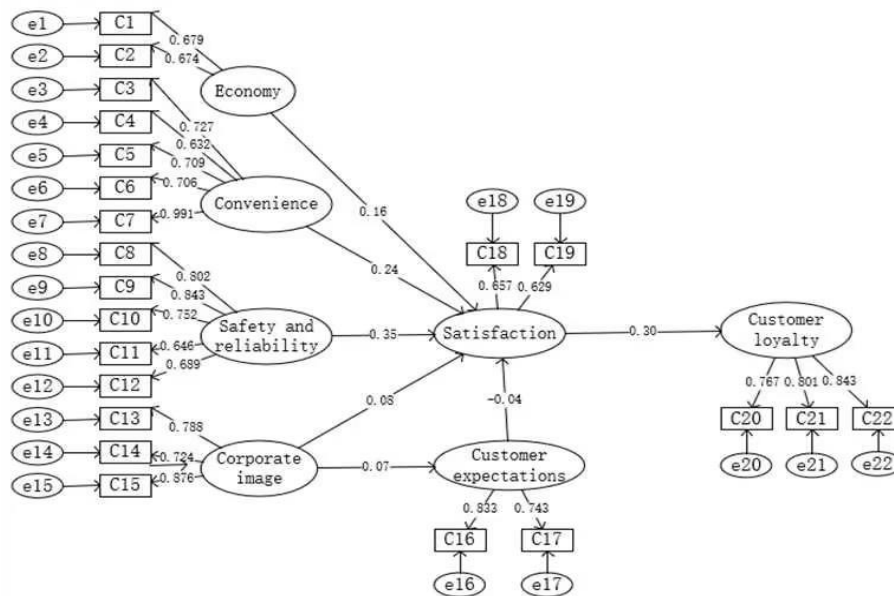


Figure 2. Structural Path Analysis Model.

5.3 Model adaptation

For the selection of fitness indicators for structural equations, different studies have chosen different indicators. To ensure the rigor and comprehensiveness of the fitness index, the author has summarized commonly used fitting indicators and other fitting indicators as fitness indicators for structural models. From Tables 5 and 6, we can see that all fitting indicators meet the fitness index. In summary, the established structural equation model has good compatibility with the actual data.

Table 5. Common Fit Indicators for Models

Common indicators	χ^2	df	χ^2/df	GFI	RMSEA	CFI	NFI	NNFI
Judgment criteria	-	-	<3	>0.9	<0.10	>0.9	>0.9	>0.9
Value	291.600	217	1.344	0.942	0.029	0.952	0.937	0.943

Table 6. Other fitting indicators of the model

Other indicators	TLI	AGFI	PGFI	PNFI	PCFI	SRMR
Judgment criteria	>0.9	>0.9	>0.5	>0.5	>0.5	<0.1
Value	0.943	0.926	0.740	0.718	0.816	0.040

6. Result analysis

6.1 Structural Equation Model Analysis

A structural equation model was constructed using SPSSAU, and the fitting results met the requirements. The hypothesis was tested (as shown in Figure 2), and it can be seen that H5 was not supported, while other hypotheses passed the test.

6.2 Result analysis

(1) The shift in urban consumption patterns has spurred demand for community fresh food stores. Their proximity and alignment with consumer needs offer a unique advantage. These stores not only cater to daily needs but also save customers time and effort.

(2) The development of socio-economy has led to a trend of diversification and personalization in consumer consumption concepts. Due to the limited store area of community fresh supermarkets, the variety of products is not always the best. To achieve high floor space efficiency, product selection and display methods are key.

(3) From the fresh retail perspective, seizing the market solely through low prices to meet new consumer demands is not feasible. Instead, capturing consumer changes and meeting diverse needs is key. Middle-aged and elderly value cost-effectiveness, mothers prioritize food safety, high-income customers value quality, and young people prefer trendy decor. Therefore, use freshness and low prices to attract cost-conscious consumers, and brand and food testing to attract hygiene-conscious moms.

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