MEASURING SHORT FOOD SUPPLY CHAIN SUSTAINABILITY: A SURVEY ON CONSUMER SATISFACTION THROUGH QUALITATIVE APPROACH

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Introduction

Short food supply chains have a long history in India, an agrarian country with a rich legacy of traditional food processing methods (SFSC) (Thulasiraman et al., 2021). The advent of globalization has made a wide range of food products available everywhere. The food industry, food producers, and consumers have all seen significant increases in their financial returns as a result of this opportunity (Cappelli & Cini, 2020). It is indisputable that this shift has affected consumers' dietary and shopping choices, often prompting them to substitute supermarkets and discount stores for local and retail markets, where they can easily obtain a variety of food products (Pato, 2020).

Key Factors Shaping Short Food Supply Chains

The recent COVID-19 outbreak has highlighted many problems and highlighted the need for a more balanced approach by exposing flaws in the current production and supply chain systems (Thulasiraman et al., 2021). Several critical factors have contributed to the growth and success of these shorter supply chains. Today, the world faces an abundance of challenges related to food, including the loss of biodiversity, wasteful consumption, health issues resulting from overconsumption, and widespread food insecurity (Abideen et al., 2021). Organic farmers face difficulties in finding appropriate purchasers, which increases the cost of transactions (Nandi et al., 2017). Slack resources, prevention of occupational and process health and safety hazards, natural resource management, information exchange, clean technologies, internal variability, food price, external variability, diversity of consumer profiles, uncertainty in judgment due to diversity of criteria for waste and pollution assessment, and climate change are the factors that managers should develop in order to reduce system complexity, said (Silva et al., 2023). The systems for food quality that are currently in place, the added value found throughout the food supply chains, the demands and characteristics of consumer choices, the difficulties involved in implementing the concept of sustainable development, and the degree of cooperation and teamwork among supply

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chain participants are the other factors which is concentrated by (Ziemianczyk& Krakowiak-Bal, 2018). Farmers believe that the product itself-its quality, freshness, and location-as well as client referrals and loyalty, are the most crucial factors in selling their products locally (Horská et al., 2020). In real terms, it became evident that producers needed to put in every effort to develop their marketing and communication plans. From a political perspective, it was acknowledged that local governments should offer the support required to put training programs into place and create marketing and communication strategies that work (Pato, 2020b). With the involvement of digital platforms driving the integration and development of cross-border agricultural product supply chains through live-streaming e-commerce, the organization and coordination of cross-border e-commerce platforms in agricultural product trading are constantly on the rise. As a result, producers, sellers, and expert service providers have all grown more fully integrated into the ecosystem (Wang et al., 2023).

Strategies for Improving Customer Engagement and Fulfilment

The COVID-19 pandemic had no appreciable impact on consumer spending or frequency of shopping at SFSCs. This lack of change could hinder SFSCs' capacity to grow beyond their current capacities and suggest that SFSCs and LFSCs work well together to promote more environmentally friendly consumption habits (Mass et al., 2022). Short food supply chains benefit from a competitive advantage that is provided by sales and producers, who are recognized as the essential components of the marketing mix and who exhibit definite indications of customer satisfaction (Tiganis et al., 2023). From the point of view of producers as well as consumers, the direct purchasing network demonstrated its adaptability as a short, flexible food chain in times of crisis Ušca&Tisenkopfs, 2023. Short food chain producers can take advantage of specific market niches and provide consumers with useful information about food, including its health benefits. The primary obstacles that have been identified should be addressed by policies in order to support SFSCs, as should the development of stronger ties between producers and consumers. (González-Azcárate et al., 2021). Short food supply chains, or SFSCs, present a viable way for producers to reach specific market segments, give consumers useful food information, and respond quickly to emergencies. Encouraging policies, the elimination of obstacles, and improved producer-consumer relationships are critical for the prosperous expansion of SFSCs. In today's ever-changing food environment, sustained success of SFSCs depends on an open approach to creative distribution systems, cooperation, and cooperation with researchers.

STATEMENT OF THE PROBLEM

A short food supply chain refers to a system in which the production, processing, distribution, and consumption of food involve fewer intermediaries and are more localized. This approach aims to reduce the distance between producers and consumers, fostering

direct relationships and promoting sustainability. This article focuses more towards analysing the satisfaction of consumers in purchase of short foods and their perception in short food supply chain.

OBJECTIVE OF THE STUDY

F To identify the awareness of consumers in short food supply chain.

F To analyse the satisfaction of consumers in purchase of short foods

RESEARCH METHODOLOGY

Research Design

Simple Random sampling was used.

Data Collection

The data were collected from the respondents of Coimbatore city through Survey method. The collected data from the consumers were analysed through simple percentage analysis, Factor analysis through SPSS and Path analysis through AMOS

From the simple percentage analysis, it is inferred that the majority of the respondents were male, comprising 56% of the sample, while females represented 44%. The distribution of respondents across different age groups showed that the 21-40 years age range had the highest representation at 28%, followed by those above 60 years at 30%, while below 20 years and 41-60 years age groups made up 17.3% and 24.7% of the respondents, respectively. Marital status revealed that 52.7% of the respondents were married, while 47.3% were unmarried. In terms of their area of residence, a significant portion lived in rural areas, constituting 38.7%, followed closely by urban residents at 32%, with semi-urban areas making up 29.3% of the total. When it comes to family size, households with three members were the most common, accounting for 28%, followed by those with more than four members at 27.3%. Families with two members and four members made up 22.7% and 22%, respectively. Regarding monthly income, 28% of the respondents fell in the 30001 to 60000 income range, with 26.7% earning less than 30000, 24% earning above 90000, and 21.3% earning 60001 to 90000. Educational qualifications were diverse, with under graduation being the highest at 33.3%, followed by school education at 29.3%. Post-graduates made up 18%, and those with other professional degrees represented 19.3% of the sample. In terms of expenditure on vegetables per week, 28% of respondents spent 1001 to 2000, 26.7% spent above 3000, 25.3% spent 1000 or less, and 20% spent 2001 to 3000. The location of purchase was distributed among directly buying from farmers (36.7%), green grocers (30.7%), and retail shops (32.7%). When selecting a location for purchase, factors like product quality (30%), availability of all vegetables (15.3%), lower prices (14.7%), ease of vegetable selection (17.3%), and proximity to the house (22.7%) were all considered by respondents.

SATISFACTION OF PURCHASE IN SHORT FOOD SUPPLY CHAIN

The satisfaction of purchase in Short Food Supply Chain includes the variables viz.,

Quality Attributes (taste, aroma, context and Colour), Nutritional Value, Freshness and Appearance, Access to the Point of Sales, Working hours for the sales, Availability and variety of the products, Information during Sales, Presentation of the products, Opportunity of Free trial, Lowered price of the product, Discounts / Offers for the product, Politeness and friendliness of the producers, Willingness to share information, Trust Relationship with the producers, Services during sales, Waiting time, Delivery Service, Appearance and cleanliness of the point of sales and Quality of the products.

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.833
Bartlett's Test of Sphericity	Approx. Chi-Square	1452.306
	df	171
	Sig.	.000

In Table Bartlett's test of sphericity and KAISER MEYER OLKIN measures of sample adequacy were used to test the appropriateness of the factor model. Bartlett's test was used to test the null hypothesis that the variables of this study are not correlated. Since the approximate chi-square satisfaction is 1452.306 which is significant at 5% level, the test leads to the rejection of the null hypothesis.

The value of KMO statistics (0.833) was also large and it revealed that factor analysis might be considered as an appropriate technique for analysing the correlation matrix. The communality table showed the initial and extraction values.

Total Variance Explained									
Compon ent	Initial Eigen values			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	6.437	33.881	33.881	6.437	33.881	33.881	5.476	28.819	28.819
2	2.648	13.938	47.819	2.648	13.938	47.819	3.275	17.235	46.054
3	1.585	8.342	56.162	1.585	8.342	56.162	1.611	8.481	54.535
4	1.281	6.740	62.902	1.281	6.740	62.902	1.590	8.367	62.902
5	.983	5.172	68.074						
6	.804	4.233	72.307						
7	.758	3.990	76.296						
8	.684	3.601	79.898						
9	.652	3.433	83.331						
10	.586	3.085	86.416						
11	.457	2.407	88.823						
12	.408	2.146	90.969						
13	.366	1.924	92.893						
14	.315	1.655	94.549						
15	.301	1.584	96.132						
16	.256	1.346	97.478						
17	.185	.975	98.452						
18	.154	.811	99.263						
19	.140	.737	100.000						
Extraction Method: Principal Component Analysis.									

Extraction Method: Principal Component Analysis.

From table it has been observed that the labelled "Initial Eigen Values" gives the EIGEN values. The EIGEN Value for a factor indicates the 'Total Variance' attributed to the factor. From the extraction sum of squared loadings, it was learnt that the I factor accounted for the variance of 6.437 which was 33.881%, the II factor accounted for the variance of 2.648 which was 13.938%, the III factor accounted for the variance of 1.585 which was 8.342%, the IV factor accounted for the variance of 1.281 which was 6.740%. The four components extracted accounted for the total cumulative variance of 62.902%

Determination of factors based on Eigen Values

In this approach only factors with Eigen Values greater than 1.00 are retained and the other factors are not included in this model. The four components possessing the Eigen values which were greater than 1.0 were taken as the components extracted.

Factor I : Comfort

The variables, "Discounts / Offers for the product, Lowered price of the product, Politeness and friendliness of the producers, Trust Relationship with the producers, Services during sales, Willingness to share information, Opportunity of Free trial, Information during Sales and Presentation of the products" contributes Factor I which accounts for 28.819 percent of variance.

Factor II : Attributes

The variables, "Quality Attributes (taste, aroma, context and Colour), Nutritional Value, Working hours for the sales and Availability and variety of the products" contributes factor II which accounts for 17.235 percent of variance.

Factor III : Access

The variables, "Freshness and Appearance and Access to the Point of Sales" contribute Factor III which accounts for 8.481 percent of variance.

Factor IV :Quality

The variables, "Appearance and cleanliness of the point of sales, Quality of the products, Waiting time" contributes factor IV which accounts for 8.367 percent of variance.

VARIABLES IN THE STRUCTURAL EQUATION MODEL ANALYSIS

The variables used in the structural equation model are

I. Observed, endogenous variables

    1. Income

    2. Satisfaction

II. Observed, exogenous variables
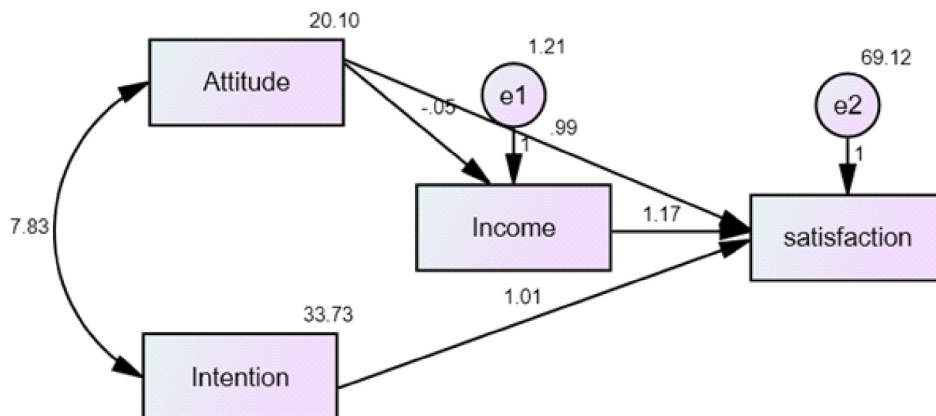
    1. Attitude

    2. Intention

III. Unobserved, exogenous variables

      1. e1: Error term for Income

      2. e2: Error term for Satisfaction

Hence Number of variable in the SEM is

Number of variables in your model:	6
Number of observed variables:	4
Number of unobserved variables:	2
Number of exogenous variables:	4
Number of endogenous variables:	2

Structural Equation Model (SEM) based on Standardised Coefficient on

Variables			Unstandardised Coefficient (B)	S.E	Standardised Co-efficient (Beta)	t value	P Value
Income	<---	Attitude	-.048	.020	-.190	-2.362	<0.001**
Satisfaction	<---	Intention	1.007	.123	.499	8.185	<0.001**
Satisfaction	<---	Attitude	0.987	.162	.378	6.095	<0.001**
Satisfaction	<---	Income	1.174	.619	.112	1.898	<0.001**

Note: ** denotes significant at 1% level

      From the above table, Unstandardised coefficient of Attitude on Income is -0.048 represents the partial effect of Attitude on Income, holding the other path variables as constant. The estimated Negative sign implies that such effect is negative that Expectation would decrease by -0.048 for every unit decrease in Attitude and this coefficient value is

significant at 1% level.

Unstandardised coefficient of Intention on Satisfaction is 1.007 represents the partial effect of Intention on Satisfaction, holding the other path variables as constant. The estimated positive sign implies that such effect is positive that Satisfaction would increase by 1.007 for every unit increase in Intention and this coefficient value is significant at 1% level.

Unstandardised coefficient of Attitude on Satisfaction is 0.987 represents the partial effect of Attitude on Satisfaction, holding the other path variables as constant. The estimated positive sign implies that such effect is positive that Satisfaction would increase by 0.987 for every unit increase in Attitude and this coefficient value is significant at 1% level.

Unstandardised coefficient of Income on Satisfaction is 1.174 represents the partial effect of Income on Satisfaction, holding the other path variables as constant. The estimated positive sign implies that such effect is positive that Satisfaction would increase by 1.174 for every unit increase in Income and this coefficient value is significant at 1% level.

Based on Standardised coefficient, Intention on Satisfaction (0.499) is most influencing path in this SEM model, followed by Attitude on Satisfaction (0.378), Income on Satisfaction (0.112) and so on.

For the purpose of testing the model fit, null hypothesis and alternative hypothesis are framed.

CONCLUSION

The assessment of short food supply chain (SFSC) sustainability is crucial in understanding and enhancing the environmental, economic, and social dimensions of local food systems. Through this research, various factors influencing the sustainability of SFSCs, including resource efficiency, economic viability, and social equity were explored. Findings suggest that SFSCs offer several sustainability benefits compared to conventional long supply chains. Environmentally, SFSCs have lower carbon footprints due to reduced transportation distances and more localized production and consumption patterns. This means less pollution and a smaller environmental impact. Economically, SFSCs can provide better income opportunities for small-scale farmers and local businesses, allowing them to capture a greater share of the value chain. This supports the livelihoods of these vital community members and strengthens the local economy. Socially, these supply chains strengthen community ties, improve food security, and promote healthier eating habits through increased access to fresh and locally produced foods. This is great news for families and communities who can enjoy healthier, more sustainable food options.

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