

A Comparative Evaluation of Wholesale and Retail Fish Marketing Channels in Thoothukudi District: Challenges, Satisfaction and Sustainability Perspectives

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Received – 07 Sep. 2024

Accepted – 10 Oct. 2024

Published – 18 Oct. 2024

Abstract:

Marketing of fish is highly important in linking the producers with consumers and also it is highly significant in adding to the economy of Thoothukudi District, Tamil Nadu. Fish marketing system in Thoothukudi district mainly works by means of wholesale marketing and retail marketing systems, and both of them are highly important for the smooth flow of fish from landing centers to consumers. In this study, the above two marketing channels have been comparatively analyzed by considering the issues, satisfaction, and sustainability aspects. This study is conducted using both primary and secondary data sources. Primary data were collected from 120 respondents comprising of consumers, retail fish vendors, and wholesale fish vendors through a structured questionnaire. On the other hand, secondary data were gathered from the government reports, journals, books, and other sources. Percentage analysis, mean, standard deviation, independent samples t-test, One-Way ANOVA, One-Sample t-test, and Chi-Square tests were used for analysis. Based on the finding, it is evident that price volatility, lack of sufficient cold storage facilities, inadequate infrastructure, transportation issues, congestion in markets, and poor hygiene are some of the critical factors that pose major barriers to fish marketing. In addition to that, it is clear from the above results that there is no considerable effect of gender and education on respondents' perception about market issues and sustainability strategies.

Key Words: Fish Marketing, Fish Supply Chain, Fish Marketing Channels, Wholesale Markets, Retail Markets.

Introduction of the Study:

In South India, Thoothukudi is crucial for fishing and fish sales. The neighbourhood features good fishing harbours and a shoreline. Additionally, there are bustling seafood markets. Thus, fish from rivers and the sea are bought and sold at Thoothukudi. There are two methods that fish is sold in Thoothukudi. In Thoothukudi, fish is marketed through both tiny markets where consumers actually purchase the fish they like to eat and markets where seafood is first sold. Between those who capture fish and those who consume it, these little markets serve as a kind of intermediary. Thoothukudi's wholesale seafood markets usually get a lot of fish from fishing harbours and landing centres. These wholesale fish markets are very important for figuring out the price of fish sending out amounts of fish and storing fish. On the other hand, retail fish markets in Thoothukudi sell fish directly to people who want to buy fish and also to small buyers. These retail fish markets sell kinds of fish in small amounts. The retail fish markets are affected by what people like to buy, how much fish people want to buy, how good the service is, how clean and how fresh the fish and market is, how the fish is displayed and how the people selling the fish behave. Wholesale fish markets and retail fish markets are both important, for people who buy fish in Thoothukudi.

Fish marketing in Thoothukudi has changed a lot lately. This is because of things like more people moving to cities people having money to spend and people caring more about their health. Also, big stores and online platforms that deliver fish have become popular. All these things have made it harder for old style wholesale and retail stores to compete with each other. People are now asking questions about how well these stores are run, how they set their prices how much money they make from selling fish if they have good enough facilities and how well they treat their customers. Fish marketing is still a deal and people want to know if these stores can keep up with the new changes, Fish marketing, in Thoothukudi needs to adapt to these changes to survive.

Review of Literature:

Sathiadhas, Narayanakumar and Aswathy did a study in 2017. They looked at how fish marketing systems work in some areas of Tamil Nadu. What they found out is that the big fish markets have a lot of problems. The price of fish can change a lot. The way they sell fish is not very clear. They do not have enough cold storage to keep the fish fresh. The small fish markets have problems. They have to deal with conditions. The quality of the fish is not always the same. It costs a lot to run these markets.

Kumar, Singh and Dey did a study in 2018. They looked at how fishes sold in coastal areas of India. They wanted to see if the big markets and the small shops were working well. What they found out was that there are a lot of people in between the fishermen and the people who buy the fish. This means the fishermen do not get a lot of money for the fish and the people who buy the fish have to pay a price. The big markets are really important for selling a lot of fish and deciding the price. The small shops are more about making sure the fish is good and fresh and that the people who buy the fish are happy. Kumar, Singh and Dey found this out when they did their study, on fish marketing channels. The study showed that we need to make cold storage facilities better. We also need to improve the way we transport things and make the markets more modern. This will help reduce the number of fish that goes bad and make it easier to sell fish. The people who did the study think that if we use supply chain methods with the old fish markets it will make a big difference in how we sell fish to stores and to people

who want to buy fish. The fish marketing systems will be better for everyone, from the people who sell fish in bulk to the people who buy fish to eat.

Das, Khan and Mandal did a study in 2019 about what people like. Do not like when they buy fish in cities in India. They found out that people care about things like how fresh the fish's how clean the market is, how the vendors treat them if the prices are fair and if they can find the kind of fish they want. People are willing to pay a little money for good quality fish and a clean place to buy it. The problem is that a lot of markets do not have facilities, which makes it hard for people to get the fish they want and for the vendors to make money. Das, Khan and Mandals study showed that retail fish markets in India have a lot of problems like bad infrastructure and no cold storage, which affects how happy people are, with their shopping experience and how much money the vendors can make.

Statement of the Problem:

Thoothukudi is a place for fishing. The people who sell fish in Thoothukudi have a lot of problems. The big markets where fish is sold to people have issues like the price of fish changing a lot. They also do not have cold storage to keep the fish fresh. These markets are often very crowded. It is not clear how the fish is sold at auctions.

The small markets where people buy fish to eat have their set of problems. The places are often not clean. They do not have facilities. The quality of the fish is not always the same. The price of fish is different from one seller to another. Thoothukudi fish markets really need to solve these problems to help the people who sell fish and the people who buy fish. The fish marketing channels, in Thoothukudi need to be improved so that fish sellers and buyers have an experience. The way fish gets to people is not very efficient. There are a lot of people in, between the fishermen and the stores that sell the fish. This means that the fishermen do not get much money as they should and the people who buy the fish have to pay more. The fishermen have to pay to get their fish to the stores. This costs a lot of money. The stores then charge people more for the fish. Also, the fish is not. Packaged in a consistent way. This means that people do not know what they are getting when they buy fish. It also makes it harder for the stores to sell the fish. The wholesale and retail markets are very important for the fish supply chain. We do not have enough information to compare how well they work. We need to know how they are different when it comes to the price of fish how much money vendors make, how they run their businesses if they have facilities if vendors are making a profit and if customers are happy in Thoothukudi District. If we do not have this information, it is hard for the people who make decisions and the market authorities to come up with plans to make the markets work better and to help the fish marketing business in a way that's good, for everyone.

Therefore, a systematic and empirical study is needed to comparatively evaluate wholesale and retail fish marketing channels in Thoothukudi, identify the major constraints affecting their performance, and suggest suitable measures for strengthening the fish marketing system in the district.

Objectives of the Study:

1. To Compare the operational characteristics of wholesale and retail fish marketing channels in Thoothukudi district.
2. To examine the level of Satisfaction in Wholesale and Retail Markets.
3. To identify major Constraints faced by Wholesalers and Retailers.

4. To analyse whether the demographic variables influence perceptions regarding marketing challenges and sustainability measures.

Hypothesis of the Study:

- ✓ There is no significant difference between Gender and Problems Faced by Wholesalers & Retailers.
- ✓ There is no significant difference between educational qualification and Measures for Improvement & Sustainability.
- ✓ There is no significant relationship between Consumer Satisfaction towards Retail Fish Market.
- ✓ There is no significant relationship between Buyer Satisfaction towards Wholesale Markets.

Methodology of the Study:

The present study adopts a descriptive and analytical research design to comparatively evaluate wholesale and retail fish marketing channels in Thoothukudi District. Both primary and secondary data were used for the study, wherein primary data were collected through a structured questionnaire from a sample of 120 respondents comprising consumers, retail fish vendors, and wholesale fish traders, selected using the convenience sampling method. Secondary data were gathered from government reports, research journals, books, and online sources. The questionnaire included demographic details and 5-point Likert scale statements relating to satisfaction levels, problems faced, and measures for improvement and sustainability. The collected data were coded, tabulated, and analyzed using SPSS and MS Excel with the help of statistical tools such as percentage analysis, mean and standard deviation, independent samples t-test, and one-way ANOVA to test the formulated hypotheses. The study was conducted within selected fish markets in Thoothukudi District over a period of three months, and the findings are subject to limitations such as restricted geographical coverage, convenience sampling bias, and respondent subjectivity.

Analysis and Interpretation of the Study:

H0: There is no significant difference between Gender and Problems Faced by Wholesalers & Retailers

Independent T-test					
Factors	Levene's Test for Equality of Variances		t-test for Equality of Means		
	F	Sig.	t	df	Sig. (2-tailed)
Price fluctuations affect my business severely.	.010	.922	-.887	118	.377
			-.870	99.396	.387
Lack of cold storage causes high spoilage losses.	.594	.442	-.387	118	.699
			-.392	112.698	.695
	.103	.749	-.463	118	.644

Poor market infrastructure affects business efficiency.			-.461	105.686	.646
Transportation problems increase marketing costs.	.401	.528	.966	118	.336
			.984	114.067	.327
Market congestion delays business operations.	.522	.471	.009	118	.993
			.009	105.949	.993
High operating costs reduce profit margins.	.123	.727	.391	118	.696
			.392	108.948	.696
Lack of government support affects fish marketing.	.233	.630	.710	118	.479
			.707	106.028	.481
Lack of digital payment facilities affects transactions.	.288	.592	.462	118	.645
			.470	113.399	.640
Unhygienic conditions affect customer trust.	4.863	.029	.504	118	.615
			.523	117.576	.602
Competition has reduced my sales and profits.	.698	.405	-.492	118	.624
			-.489	105.103	.626
Seasonal Fluctuations affects fish availability.	1.704	.194	.043	118	.966
			.044	115.427	.965

Source: Computed Primary data

Interpretation

The Independent Samples t-test was conducted to examine whether there is a significant relationship between Gender and the Problems Faced by Wholesalers and Retailers in fish marketing in Thoothukudi District. The null hypothesis (H_0) states that there is no significant relationship between gender and the problems faced by wholesalers and retailers. For all the problem-related factors such as price fluctuations, lack of cold storage, poor market infrastructure, transportation problems, market congestion, high operating costs, lack of government support, lack of digital payment facilities, unhygienic conditions, and competition, the Sig. (2-tailed) values are greater than 0.05. This indicates that there is no statistically significant difference between male and female respondents in their perception of these problems.

Although Levene's Test for Equality of Variances shows a significant value only for "Unhygienic conditions affect customer trust" (Sig. = 0.029), the corresponding t-test Sig. (2-tailed) value is 0.615, which is still greater than 0.05. Hence, even for this factor, there is no significant difference between genders. Therefore, since none of the variables show a p-value less than 0.05, the null hypothesis (H_0) is accepted.

H_0 : There is no significant difference between educational qualification and Measures for Improvement & Sustainability

ANOVA						
Factors		Sum of Squares	df	Mean Square	F	Sig.
Modern cold storage facilities should be established.	Between Groups	4.556	4	1.139	.973	.425
	Within Groups	134.644	115	1.171		
	Total	139.200	119			

Hygiene and sanitation facilities must be improved.	Between Groups	1.461	4	.365	.474	.754
	Within Groups	88.506	115	.770		
	Total	89.967	119			
A fair and transparent pricing system should be implemented.	Between Groups	1.437	4	.359	.411	.801
	Within Groups	100.555	115	.874		
	Total	101.992	119			
Market infrastructure should be modernized.	Between Groups	2.640	4	.660	.698	.595
	Within Groups	108.660	115	.945		
	Total	111.300	119			
Digital weighing machines should be made compulsory.	Between Groups	3.448	4	.862	1.145	.339
	Within Groups	86.544	115	.753		
	Total	89.992	119			
Digital payment systems should be promoted.	Between Groups	4.849	4	1.212	1.721	.150
	Within Groups	81.018	115	.705		
	Total	85.867	119			
Government financial support should be increased.	Between Groups	5.605	4	1.401	1.816	.130
	Within Groups	88.720	115	.771		
	Total	94.325	119			
Training programs should be given to fish vendors.	Between Groups	4.274	4	1.069	1.437	.226
	Within Groups	85.517	115	.744		
	Total	89.792	119			
Intermediaries should be reduced to lower prices.	Between Groups	2.522	4	.630	.599	.664
	Within Groups	120.945	115	1.052		
	Total	123.467	119			
Online fish marketing should be promoted.	Between Groups	2.291	4	.573	.575	.681
	Within Groups	114.501	115	.996		
	Total	116.792	119			

Source: Computed Primary data

Interpretation

One-way ANOVA was applied to test whether educational qualification has a significant influence on measures for improvement and sustainability of fish marketing channels in Thoothukudi District. The results indicate that all the improvement-related factors such as modern cold storage facilities (Sig. = 0.425), hygiene and sanitation facilities (Sig. = 0.754), fair and transparent pricing system (Sig. = 0.801), market infrastructure modernization (Sig. = 0.595), compulsory digital weighing machines (Sig. = 0.339), promotion of digital payment

systems (Sig. = 0.150), increased government financial support (Sig. = 0.130), training programs for fish vendors (Sig. = 0.226), reduction of intermediaries (Sig. = 0.664), and promotion of online fish marketing (Sig. = 0.681) have p-values greater than 0.05. This clearly shows that there is no statistically significant difference in opinions across different educational groups regarding the suggested improvement and sustainability measures. Hence, the null hypothesis (H_0) is accepted, and it can be concluded that educational qualification does not significantly influence respondents' perceptions, indicating a uniform agreement among all groups on the need for better infrastructure, hygiene, fair pricing, digitalization, government support, and sustainable development of fish marketing channels in Thoothukudi District.

H_0 : There is no significant relationship between Consumer Satisfaction (Retail Fish Markets)

Factors	t	df	Sig. (2-tailed)	Mean Difference
I am satisfied with the freshness of fish sold in retail markets.	56.016	119	.000	4.17500
The quality of fish available meets my expectations.	50.051	119	.000	4.01667
The price of fish is reasonable compared to its quality.	50.019	119	.000	4.08333
Retail fish markets maintain proper hygiene and cleanliness.	51.570	119	.000	4.18333
A good variety of fish is available in retail markets.	40.540	119	.000	3.78333
Fish vendors behave politely and provide good service.	37.475	119	.000	3.70000
Weights and measures used by vendors are accurate.	48.085	119	.000	3.81667
Fish is properly displayed and handled in retail markets.	44.471	119	.000	3.75833
I feel comfortable purchasing fish from retail markets.	43.609	119	.000	3.85000
Overall, I am satisfied with retail fish markets in Thoothukudi.	49.233	119	.000	3.90833

Source: Computed Primary data

Interpretation

A One-Sample t-test was applied to examine the level of consumer satisfaction towards retail fish markets in Thoothukudi District. The null hypothesis (H_0) states that there is no significant level of consumer satisfaction towards retail fish markets. The results reveal that for all satisfaction-related factors such as freshness of fish, quality, price reasonableness, hygiene and cleanliness, availability of variety, vendor behavior, accuracy of weights and measures, display and handling of fish, comfort in purchasing, and overall satisfaction, the Sig. (2-tailed) values are 0.000, which are less than the 0.05 level of significance. This indicates that the mean scores for all factors are statistically significant and greater than the test value, showing a high level of agreement among consumers. The mean differences, which range from 3.70 to 4.18, further confirm that consumers are highly satisfied with the retail fish markets in Thoothukudi District. Therefore, the null hypothesis (H_0) is rejected, and it is concluded that consumers are significantly satisfied with various aspects of retail fish markets, particularly in terms of freshness, hygiene, price, and service quality.

H0: There is no significant relationship between Buyer Satisfaction (Wholesale Markets)

Factors	Chi-Square	df	Asymp. Sig.
The supply of fish in wholesale markets is adequate.	75.917 ^a	4	0.000
The pricing mechanism in wholesale markets is fair.	85.833 ^a	4	0.000
The auction system is transparent and reliable.	53.917 ^a	4	0.000
Cold storage facilities in wholesale markets are sufficient.	52.333 ^a	4	0.000
Transportation facilities are efficient for wholesale trading.	71.333 ^a	4	0.000
Infrastructure facilities in wholesale markets are satisfactory.	87.917 ^a	4	0.000
Market congestion does not affect business operations.	65.167 ^a	4	0.000
Operating costs in wholesale markets are reasonable.	39.917 ^a	4	0.000
The role of intermediaries is beneficial to the trade.	70.833 ^a	4	0.000
Overall, I am satisfied with wholesale fish markets.	63.250 ^a	4	0.000

Source: Computed Primary data

Interpretation

The Chi-square test was applied to examine the level of buyer satisfaction towards wholesale fish markets in Thoothukudi District. The null hypothesis (H_0) states that there is no significant relationship between buyer satisfaction and wholesale fish markets. The results indicate that for all the satisfaction-related factors such as adequacy of fish supply, fairness of pricing mechanism, transparency of auction system, sufficiency of cold storage facilities, efficiency of transportation, adequacy of infrastructure, impact of market congestion, reasonableness of operating costs, role of intermediaries, and overall satisfaction, the Asymp. Sig. values are 0.000, which are less than the 0.05 level of significance. This shows that the observed responses significantly differ from the expected responses, indicating that buyers have strong and meaningful opinions regarding various aspects of wholesale markets. Hence, the null hypothesis (H_0) is rejected, and it is concluded that buyer satisfaction in wholesale fish markets is statistically significant and influenced by key factors such as pricing, infrastructure, storage, transportation, and market operations. The findings suggest that improvements in these areas can further enhance buyer satisfaction and the efficiency of wholesale fish marketing in Thoothukudi District.

Findings of the Study:**1. Gender and Problems Faced by Wholesalers & Retailers**

The study found that gender does not significantly influence the perception of problems faced by wholesalers and retailers, as all p-values were greater than 0.05. Hence, both male and female respondents experience and perceive market problems in a similar manner.

2. Educational Qualification and Measures for Improvement & Sustainability

It was observed that educational qualification has no significant impact on opinions regarding improvement and sustainability measures in fish marketing. Respondents across all education levels uniformly supported the need for better infrastructure, hygiene, pricing, and digitalization.

3. Consumer Satisfaction in Retail Fish Markets

The results indicate a high level of consumer satisfaction towards retail fish markets, as all satisfaction factors were statistically significant at the 5% level. Consumers were particularly satisfied with freshness, hygiene, price, and service quality.

4. Buyer Satisfaction in Wholesale Fish Markets

The findings reveal that buyer satisfaction in wholesale markets is statistically significant and influenced by key factors such as pricing, infrastructure, storage, and transportation. This confirms that buyers hold strong and meaningful opinions about wholesale market operations.

Suggestion of the Study:

Adequate and modern cold storage facilities should be established in both wholesale and retail markets to reduce spoilage and maintain fish freshness.

The government should provide financial assistance, subsidies, and strict monitoring to ensure proper functioning of fish markets.

Fish markets should be modernized with proper roofing, drainage, ventilation, and organized stalls to improve hygiene and working conditions.

Regular cleaning, waste disposal systems, and availability of clean water must be ensured to enhance customer trust and health safety.

Encouraging e-marketing and home delivery systems can expand market reach and meet the changing preferences of modern consumers.

Insulated vehicles and timely transport should be promoted to maintain quality and reduce post-harvest losses.

Minimizing middlemen through direct marketing and cooperative societies can help fishermen get better prices and consumers buy at lower rates.

Conclusion of the Study:

The study on fish marketing in Thoothukudi District shows that wholesale and retail fish marketing channels are important for the fish supply chain. Both wholesale and retail fish marketing channels have problems. Wholesale and retail fish marketing channels face problems like prices going down not having enough cold storage bad market conditions, issues with transportation, crowded markets, high costs, dirty conditions, limited ways to pay digitally and not getting enough help, from the government. These problems affect fish sellers and retail fish sellers whether they are men or women. Wholesale and retail fish marketing channels need help with these issues. The results of the Independent Samples t-test show that the gender of people does not really affect how they think about the problems that market participants face. The One-way ANOVA results are similar. They show that what people studied in school does not really change their opinions about what should be done to make things better and more sustainable. This means that people from all groups want the things: better cold storage, cleaner markets, prices that are fair, newer and better infrastructure more digital tools, training programs and more help from the government. People from all groups want these things. It is a pretty uniform demand, for market participants. The study also shows that people are happy with markets when they can buy fresh fish the place is clean the prices are fair and the vendors are nice. Retail markets are important for these things. On the hand wholesale markets are important for deciding prices and selling things in bulk but they have problems, like not being efficient and not being transparent. The retail markets and wholesale markets both have their issues and retail markets are where people like to buy fresh fish and other things because of the cleanliness and fair pricing of retail markets. Overall, the study

concludes that strengthening infrastructure, reducing intermediaries, promoting digital systems, improving hygiene standards, and providing policy and financial support are essential for enhancing the efficiency, profitability, and sustainability of fish marketing channels in Thoothukudi District, thereby benefiting fishermen, traders, and consumers alike.

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