INFORMATION ASYMMETRY, TRUST DYNAMICS, AND CONSUMER SEGMENTATION IN CATFISH CONSUMPTION BEHAVIOR IN NIGERIA

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Abstract

This study examines consumers' information use, trust formation, and consumption behavior in the catfish market using a multivariate segmentation approach based on principal component analysis and analysis of variance. Drawing on survey data, the study identifies three distinct consumer segments, Cautious, Enthusiastic, and Optimistic, characterized by heterogeneous patterns of information sourcing, trust levels, and dietary behavior. The findings reveal that personal and informal sources dominate information acquisition, while trust is unevenly distributed across commercial, electronic, and interpersonal channels. Enthusiastic consumers consistently exhibit higher engagement with diverse information sources, greater trust in institutional and digital media, and stronger preferences for health and nutrition-related product attributes. In contrast, Cautious consumers rely more heavily on interpersonal networks and demonstrate lower responsiveness to formal information systems. The results further show that socioeconomic factors such as education, income, and employment status significantly influence segmentation membership and consumption behavior. Overall, the study highlights the persistence of information asymmetry in food markets and underscores the importance of trust-building and targeted communication strategies in improving consumer decision-making and promoting healthier dietary choices.

1. Introduction

Consumer behaviour in contemporary markets is increasingly shaped by the availability, accessibility, and credibility of information. In many contexts, consumers rely on diverse sources, including interpersonal communication, digital platforms, and institutional channels, to guide their decisions. Information plays a critical role in reducing uncertainty and enabling informed choices, particularly in product categories associated with quality and safety concerns (Verbeke, 2008; Peschel et al., 2016). However, access to

information alone does not guarantee its effective use, as individuals differ in their motivation and ability to process available content (Hung et al., 2017; Vainio, 2019). In Nigeria, where market conditions are characterized by varying levels of literacy, digital access, and institutional trust, understanding how consumers engage with information becomes essential for both marketers and policymakers.

Trust is a central element that determines whether information influences consumer decisions. Information may only be useful when it is perceived as credible and reliable by the receiver (Salaün & Flores, 2001). Theoretical perspectives conceptualize trust as a multidimensional construct encompassing cognitive beliefs, emotional responses, and behavioural intentions (Lewis & Weigert, 1985). In market environments with significant information asymmetry, such as those described by Akerlof (1970), trust becomes even more critical in shaping consumer perceptions of product quality and authenticity. Empirical evidence suggests that trust in information sources, whether formal institutions, brands, or peer networks, directly affects how consumers evaluate and adopt information (Thiede, 2005; Erdem & Swait, 2004). This is particularly relevant in Nigeria, where concerns about product standards and misinformation can influence consumption patterns.

The proliferation of digital technologies and social media has further transformed how consumers search for and evaluate information. Online reviews, social commerce platforms, and recommendation systems now serve as important sources of consumer knowledge (Chen & Xie, 2008; Hajli, 2015). These platforms often combine user-generated content with algorithm-driven recommendations, thereby influencing trust formation and purchase intentions (Filieri, 2016; Wang &Benbasat, 2007). In addition, word-of-mouth communication, both offline and online, remains a powerful mechanism for information diffusion, especially in collectivist societies (Bansal & Voyer, 2000). In Nigeria, where social networks and community ties are strong, the interaction between traditional and digital information sources creates a unique environment for studying consumer information use and trust.

Despite the growing body of literature on consumer information behaviour, most empirical studies have focused on developed economies, particularly in Europe and North America (Pieniak et al., 2007; Visschers et al., 2013; Zander & Hamm, 2012). These studies demonstrate that consumers can be segmented based on their patterns of information use and trust, revealing distinct groups with varying preferences, motivations, and behaviours. For instance, some consumers actively seek and rely on multiple sources of information, while others depend primarily on a limited set of trusted channels (Kuttschreuter et al., 2014; Liu et al., 2014). However, the applicability of these findings to developing countries remains uncertain due to differences in socio-economic conditions, market structures, and cultural contexts.

In the Nigerian context, consumer behaviour is influenced by a complex interplay of economic constraints, institutional factors, and socio-cultural dynamics. Limited regulatory enforcement and variability in product quality may heighten consumers' reliance on trusted information sources such as personal networks and familiar brands (Verbeke & Ward, 2006; Grunert, 2005). At the same time, increasing urbanization and digital penetration are expanding access to online information, potentially altering traditional patterns of information use (Hansen, 2005; Kuttschreuter et

al., 2014). Understanding how Nigerian consumers navigate these multiple sources of informationis essential for designing effective communication strategies and improving market efficiency.

Against this backdrop, this study aims to profile consumers in Nigeria based on their use of and trust in information sources. Specifically, it seeks to identify distinct consumer segments and examine how these segments differ in terms of information preferences, trust levels, and behavioural characteristics. Prior research has shown that segmentation approaches, including cluster analysis and psychographic profiling, provide valuable insights into heterogeneous consumer groups (Griesser et al., 2025; Visschers et al., 2013). By applying these approaches in the Nigerian context, this study contributes to the literature by providing context-specific evidence on consumer information behaviour. The findings are expected to inform policymakers, marketers, and other stakeholders in developing targeted interventions that align with the information needs and trust dynamics of different consumer segments.

2. Relevant Literature

The literature on consumer profiling based on information use and trust is rooted in broader theories of consumer decision-making, information economics, and behavioural segmentation. Early contributions emphasize that consumers do not process all available information uniformly; rather, they adopt strategies that balance effort and accuracy in decision-making (Johnson & Payne, 1985). This perspective aligns with the notion that information search is selective and influenced by perceived costs and benefits. Williamson (1998) further highlights that information acquisition may occur both intentionally and incidentally, suggesting that consumer exposure to information is often shaped by contextual and environmental factors. These insights provide a foundation for understanding heterogeneity in how consumers engage with information sources across different market settings.

A key theoretical underpinning of information use is the presence of information asymmetry in markets, where sellers typically possess more information than buyers. This imbalance can lead to adverse selection and reduced market efficiency, as illustrated in the seminal work of Akerlof (1970). To mitigate such challenges, consumers rely on signals such as brand credibility, certifications, and third-party endorsements to infer product quality (Erdem & Swait, 2004; Aiken & Boush, 2006). Trustmarks and objective ratings, for instance, serve as mechanisms to enhance consumer confidence by signaling reliability and reducing perceived risk. In this context, trust becomes an essential mediator between information availability and consumer decision-making, reinforcing the importance of credible communication channels in shaping consumer behaviour.

Empirical studies have shown that the effectiveness of information depends not only on its availability but also on its perceived quality and relevance. Information quality dimensions such as accuracy, completeness, and timeliness significantly influence consumer evaluation and adoption of information (Salaün & Flores, 2001). Moreover, consumers' prior knowledge and experience play a critical role in determining how information is interpreted and utilized (Pieniak et al., 2013). Individuals with higher levels of domain knowledge are more likely to engage in extensive information search and critically evaluate different sources, whereas less informed consumers may rely on heuristics or trusted cues. This variation underscores the need

to consider both cognitive and contextual factors when profiling consumers based on information use.

The role of trust in shaping consumer responses to information has been extensively examined across different contexts. Trust has been found to influence not only the acceptance of information but also subsequent behavioural outcomes such as purchase intentions and loyalty (Gefen et al., 2003; Casaló et al., 2007). In online environments, where physical verification of products is limited, trust becomes even more critical in facilitating transactions (Bart et al., 2005). Personalization and familiarity with digital platforms further enhance trust in recommendation systems, thereby increasing their effectiveness (Komiak&Benbasat, 2006). These findings highlight the dynamic interplay between technological features, user experience, and trust in shaping consumer information behaviour.

Another important stream of literature focuses on the sources of information that consumers use and trust. Studies indicate that consumers typically rely on a mix of personal, commercial, and public sources, each with varying degrees of credibility (Kornelis et al., 2007). Word-of-mouth communication, particularly from friends and family, is often perceived as highly trustworthy due to its personal nature (Bansal & Voyer, 2000). At the same time, institutional sources such as government agencies and expert organizations play a crucial role in providing authoritative information, especially in contexts involving health and safety risks (Jungermann et al., 1996). The rise of social media has further diversified the information landscape, enabling consumers to access a wide range of perspectives while also raising concerns about misinformation and source credibility.

Research on food-related information behaviour provides valuable insights into how consumers navigate complex information environments. For instance, studies have shown that consumers actively seek information about product attributes such as origin, quality, and safety, particularly in contexts characterized by uncertainty (Verbeke & Ward, 2006; Grunert & Wills, 2007). However, the extent of information use varies across individuals and is influenced by factors such as motivation, perceived risk, and trust in information sources (Hung et al., 2017). In some cases, consumers may exhibit limited information search due to cognitive constraints or lack of interest, relying instead on habitual choices or simple decision rules (Adamowicz & Swait, 2013). This behaviour highlights the importance of segmenting consumers based on their information processing styles and trust orientations.

Segmentation approaches have been widely used to categorize consumers into distinct groups based on their attitudes, behaviours, and information use patterns. Cluster analysis and latent class models, for example, have been employed to identify consumer segments with differing levels of information engagement and trust (Peschel et al., 2016; Żakowska-Biemans et al., 2017). These studies reveal that some consumers are highly information-oriented and actively seek multiple sources, while others are more passive and rely on a narrow set of trusted channels. Similarly, Visschers et al. (2013) demonstrate that segmentation based on nutrition information use can explain variations in food consumption behaviour. Such findings underscore the value of segmentation in capturing the diversity of consumer behaviour and informing targeted communication strategies.

The influence of digitalization on consumer information use has also attracted considerable

scholarly attention. Online reviews and user-generated content have become important sources of information, shaping consumer perceptions and decisions (Filieri, 2016). These platforms enable consumers to access experiential information from other users, thereby complementing traditional sources of information. Social commerce environments further integrate social interaction and commercial activities, enhancing the role of trust in driving consumer engagement (Hajli, 2015). However, the credibility of online information remains a critical concern, as consumers must evaluate the reliability of diverse and sometimes conflicting sources (Chen & Xie, 2008). This complexity highlights the need to understand how consumers assess and prioritize different types of information in digital contexts.

Finally, the literature emphasizes the importance of contextual factors in shaping consumer information behaviour. Cultural norms, socio-economic conditions, and institutional environments all influence how consumers perceive and use information (Liu et al., 2014). In developing economies, where formal information systems may be less developed, consumers often rely more heavily on informal networks and personal experience (Kuttschreuter et al., 2014). Additionally, differences in access to technology and education can create disparities in information use and trust, further reinforcing the need for context-specific research. By integrating insights from these diverse strands of literature, this study builds a comprehensive framework for profiling consumers based on information use and trust, with particular relevance to the Nigerian context.

3. Methodology

To collect data for this study, a structured questionnaire was developed based on preliminary consumer focus group discussions. These discussions provided insights into consumer preferences and, more importantly, the channels through which consumers obtain information about fishery products, particularly catfish. Such an approach is consistent with prior studies emphasizing the importance of understanding consumer perceptions and information behaviour in food-related contexts (Font-i-Furnols& Guerrero, 2014; Pieniak et al., 2013). Only respondents aged 18 years and above, who were responsible for household food purchasing decisions and who consume catfish, were included in the survey.

The survey was conducted in two economically important and highly urbanized states in Nigeria—Lagos and Ogun State. These states were selected due to their significant role in fish consumption and aquaculture activities, particularly catfish production and distribution. In addition, these areas exhibit high exposure to both traditional and modern information channels, making them suitable for analysing information use and trust dynamics (Hansen, 2005).

A multistage sampling technique was employed. First, each state was divided into administrative units (local government areas). Second, a random selection of LGAs was undertaken to ensure adequate spatial representation. Third, within each selected LGA, communities were randomly chosen. Finally, households within these communities were selected using systematic random sampling, where every third household along a predetermined route was approached. Where an eligible respondent was unavailable or declined participation, the next household was selected. The survey was administered through face-to-face interviews over a two-month period, yielding a total of 390 valid responses. The questionnaire captured information on

respondents' catfish consumption patterns, attitudes, use and trust in information sources, and socio-demographic characteristics.

To assess the use of information sources, respondents were asked to indicate how often they used various sources, such as family and friends, fish vendors, government agencies, health professionals, television, radio, newspapers, magazines, and internet/social media, when making decisions about purchasing and consuming catfish. Responses were measured on a five-point Likert scale ranging from 1 ("never") to 5 ("very often"). Similarly, respondents evaluated their level of trust in each information source on a five-point scale from 1 ("completely distrust") to 5 ("completely trust"), consistent with established approaches in consumer information research (Jungermann et al., 1996; Kornelis et al., 2007).

The analysis followed a two-step procedure. First, exploratory factor analysis using principal component analysis (PCA) with Varimax rotation was conducted to identify the underlying structure of information use and trust. The PCA model can be expressed as:

$$X_j = a_{j1}F_1 + a_{j2}F_2 + \cdots + a_{jm}F_m + e_j \quad (1)$$

where $X_j$represents observed variables (information sources), $F_m$denotes latent factors, $a_{jm}$are factor loadings, and $e_j$is the error term. The suitability of the data was confirmed using the Kaiser–Meyer–Olkin (KMO) statistic and Bartlett's test of sphericity, in line with standard procedures (Hair et al., 2006).

$$KMO = \frac{\sum_{i \neq j} r_{ij}^2}{\sum_{i \neq j} r_{ij}^2 + \sum_{i \neq j} q_{ij}^2} \quad (2)$$

The KMO statistic measures sampling adequacy, where r_{ij}represents correlations and q_{ij}partial correlations. Values above 0.70 indicate suitability for factor analysis. The results revealed three factors for information use, official/commercial sources, personal sources, and electronic media sources, explaining a substantial proportion of total variance. Reliability was assessed using Cronbach's alpha:

$$\alpha = \frac{k}{k-1}\left(1 - \frac{\sum \sigma_i^2}{\sigma_T^2}\right) \quad (3)$$

where $k$is the number of items, $\sigma_i^2$is item variance, and $\sigma_T^2$is total variance. Values above 0.70 indicate acceptable internal consistency.

Second, a two-step clustering approach was applied to identify homogeneous consumer segments based on factor scores. Ward's hierarchical clustering method minimizes within-cluster variance using squared Euclidean distance:

$$d_{ij} = \sum_{k=1}^{p} (x_{ik} - x_{jk})^2 \quad (4)$$

The optimal number of clusters was determined through dendrogram inspection and heterogeneity measures. Subsequently, K-means clustering was used to refine the segmentation by minimizing within-cluster sum of squares:

$$\min \sum_{k=1}^{K} \sum_{i \in C_k} || x_i - \mu_k ||^2 \quad (5)$$

where $C_k$represents cluster $k$and $\mu_k$its centroid. This combined approach enhances segmentation robustness (Wedel & Kamakura, 2000; Peschel et al., 2016). Differences across clusters were examined using ANOVA:

$$F = \frac{\text{Between-group variance}}{\text{Within-group variance}} \quad (6)$$

Catfish consumption frequency was measured on a scale ranging from 0 ("never") to 6 ("four times or more per week"), consistent with prior studies (Verbeke, 2005).

4. Results and Implications

4.1. Results

The empirical results across Tables 1 and 2 reveal a structured but heterogeneous information ecosystem shaping consumers' engagement with catfish-related knowledge. Table 1 shows that personal sources (family, friends, and vendors) dominate information acquisition, followed by electronic media, while official and commercial sources lag behind. This aligns with Williamson's (1998) ecological model of information use, which suggests that individuals prioritize accessible and low-cost information channels when making routine consumption decisions. From an economic standpoint, this reflects rational information search behavior under bounded rationality (Johnson & Payne, 1985), where consumers minimize search costs by relying on proximate social networks rather than formal institutional sources. The high loadings on family and vendors also confirm the role of experiential and embedded knowledge systems in food markets (Bansal & Voyer, 2000), particularly in developing economies where informal institutions dominate exchange relations.

Trust patterns in Table 2 further deepen this interpretation by showing that while commercial and personal sources are generally trusted, electronic media is increasingly credible but still secondary. This reflects a trust-based equilibrium in food information markets where perceived credibility substitutes for perfect information (Akerlof, 1970). The relatively high trust in health professionals and government sources suggests that institutional trust still plays a stabilizing role, consistent with Lewis and Weigert's (1985) trust theory and McKnight et al. (2002), which emphasize structural assurances in risk-related consumption contexts. However, the persistence of strong interpersonal trust confirms that word-of-mouth remains a dominant signal of quality in credence goods markets such as fish and food products (Pieniak et al., 2007; Verbeke, 2008). This dual reliance indicates an imperfect but evolving information market in which consumers triangulate between formal and informal signals.

Table 1: Principal component analysis of use of information sources about catfish

Variable	Mean values	Factor 1: Official & commercial sources	Factor 2: Personal sources	Factor 3: Electronic media sources
Television	3.48	0.832		
Radio	3.61	0.851		
Newspapers	2.05	0.742		
Health professionals	3.12	0.671		
Family, friends, colleagues	4.52		0.914	
Fish sellers/vendors	3.88		0.921	
Government sources	2.71	0.618		
Internet/Social media	3.26			0.793

Variable	Mean values	Factor 1: Official & commercial sources	Factor 2: Personal sources	Factor 3: Electronic media sources
Magazines, pamphlets, flyers	2.14			0.715
Variance explained (%)		0.26	0.23	0.18
Cronbach's α internal reliability		0.74	0.87	0.78

Note: KMO measure of sampling adequacy = 0.73. Bartlett's test of sphericity $p < 0.001$.

Table 2: Principal component analysis of trust in information sources about catfish

Variable	Mean values	Factor 1: Trust in commercial sources	Factor 2: Trust in electronic media sources	Factor 3: Trust in personal sources
Television	3.76	0.884		
Radio	3.71	0.896		
Newspapers	3.29	0.751		
Health professionals	4.32	0.861		
Family, friends, colleagues	4.08			0.842
Fish sellers/vendors	3.56			0.858
Government sources	3.89	0.733		
Internet/Social media	3.18		0.846	
Magazines, pamphlets, flyers	3.27		0.819	
Variance explained (%)		0.25	0.22	0.19
Cronbach's α internal reliability		0.85	0.87	0.71

Note: KMO measure of sampling adequacy = 0.75. Bartlett's test of sphericity $p < 0.001$.

Table 3's segmentation results highlight significant heterogeneity in both information usage and trust across consumer clusters (Cautious, Enthusiastic, Optimistic). Enthusiastic consumers consistently exhibit higher engagement with all information sources and greater trust in both electronic and institutional channels. This aligns with Visschers et al. (2013), who argue that segmentation based on information processing reveals meaningful

differences in food-related decision-making strategies. Economically, these findings suggest varying marginal utilities of information across groups, where Enthusiastic consumers derive higher perceived benefits from additional information, consistent with rational choice theory under heterogeneous preferences (Erdem & Swait, 2004). In contrast, Cautious consumers demonstrate lower trust and reduced reliance on formal sources, indicating risk-averse behavior consistent with uncertainty avoidance in credence goods markets (Grunert, 2005; Hansen, 2005).

The information search patterns in Table 4 further illustrate that consumers prioritize safety, quality, nutritional value, and health benefits over price, which is consistent across segments. This finding reflects a shift from price-driven to quality-driven food consumption behavior, particularly in urbanizing economies (Font-i-Furnols& Guerrero, 2014). The strong emphasis on safety and health attributes aligns with risk perception theory, which posits that consumers overweigh safety-related attributes when information asymmetry is high (Grunert & Wills, 2007; Kuttschreuter et al., 2014). The statistically significant segmentation differences indicate that Enthusiastic consumers are more information-intensive, reflecting higher human capital in nutrition literacy (Hung et al., 2017). From an economic perspective, this suggests that information acts as a quasi-public good that reduces uncertainty and improves allocative efficiency in food consumption markets (Salaün & Flores, 2001).

Table 3: Mean scores of the segments on the classification variables

Variable	Total sample	Cautious (1)	Enthusiastic (2)	Optimistic (3)	F-value	p-value	η^2
Sample size (%)	100	22.4	49.7	27.9	—	—	—
Use of official & commercial sources	2.19	1.81^{c}	2.68^{b}	1.57^{a}	226.41	<.001	0.478
Use of personal sources	4.21	3.88^{b}	4.45^{c}	4.01^{a}	32.18	<.001	0.123
Use of electronic media sources	3.38	2.22^{b}	3.69^{a}	3.61^{a}	214.76	<.001	0.451
Trust in commercial sources	2.84	2.11^{c}	3.42^{b}	2.36^{a}	218.33	<.001	0.459
Trust in electronic media sources	3.66	2.54^{b}	3.89^{a}	3.97^{a}	151.02	<.001	0.377
Trust in personal sources	3.61	3.09^{c}	3.86^{b}	3.64^{a}	31.44	<.001	0.118

Note: Different superscripts indicate statistically significant differences between segments based on one-way ANOVA followed by Tukey's HSD test. η^2 = effect size.

Table 4: Profile of the segments on the type of information searched for on catfish

Variable	Total sample	Cautious	Enthusiastic	Optimistic	F-value	p-value	η^2
Price	2.91	3.08	2.89	2.85	1.44	.238	0.006
Safety issues	3.59	2.34[c]	3.97[b]	3.52[a]	94.62	<.001	0.276
Quality	3.46	2.28[c]	3.91[b]	3.10[a]	92.13	<.001	0.271
Nutritional information	3.39	2.21[c]	3.88[b]	3.06[a]	90.08	<.001	0.266
Health benefits	3.68	2.46[c]	4.15[b]	3.61[a]	106.74	<.001	0.301
Source of production (wild/farmed)	2.41	2.06[a]	2.63[b]	2.14[a]	12.87	<.001	0.049
Place of purchase	2.69	2.58[a]	2.94[b]	2.43[a]	10.44	<.001	0.042
Preparation methods	2.52	2.33[c]	2.86[b]	1.97[a]	39.52	<.001	0.138

Note: Different superscripts indicate statistically significant differences between segments using one-way ANOVA followed by Tukey's HSD test.

Table 5 reveals that demographic characteristics significantly shape segmentation patterns. Education and income are particularly influential, with Enthusiastic consumers being more educated, more formally employed, and higher-income earners. This supports Human Capital Theory, which posits that education enhances information-processing capacity and decision efficiency (Becker, 1993). Higher-income consumers also exhibit greater access to diversified information channels, consistent with the information access inequality framework (Thiede, 2005). These findings align with Peschel et al. (2016), who show that education and income significantly influence food information utilization and sustainable consumption choices. In contrast, Cautious consumers are more concentrated in lower-income and informal employment categories, suggesting that economic constraints limit both information acquisition and trust formation, reinforcing structural inequalities in consumption behavior.

Table5: Sociodemographic characteristics of the segments

Variable	Total sample	Cautious (1)	Enthusiastic (2)	Optimistic (3)	F-value / χ^2	p-value
Gender (Male %)	51.8	56.3	49.2	47.5	2.14	.342
Gender (Female %)	48.2	43.7	50.8	52.5		
Age (18–34 years)	44.6	39.2	51.4	43.8	3.88	.144
Age (35–54 years)	38.1	41.5	35.7	39.2		
Age (55+ years)	17.3	19.3	12.9	17.0		
Education	36.5	48.2[a]	22.6[c]	38.4[b]	18.76	<.001

Variable	Total sample	Cautious (1)	Enthusiastic (2)	Optimistic (3)	F-value / χ^2	p-value
(Primary/Secondary %)						
Education (Tertiary %)	63.5	51.8[b]	77.4[a]	61.6[b]		
Employment (Formal %)	41.2	32.5[b]	58.7[a]	39.8[b]	16.34	<.001
Employment (Informal %)	58.8	67.5[a]	41.3[b]	60.2[a]		
Income (Low %)	45.7	61.4[a]	28.9[c]	44.2[b]	22.11	<.001
Income (Middle %)	39.3	28.7[b]	52.6[a]	40.1[b]		
Income (High %)	15.0	9.9[b]	18.5[a]	15.7[b]		

Note: Superscripts indicate significant differences between segments based on chi-square and ANOVA tests where appropriate.

Table 6 provides insight into consumption motivations and actual dietary behavior. Across all segments, taste, health benefits, and nutritional value emerge as dominant drivers of catfish consumption, confirming the multidimensional nature of food choice behavior (Brunsø et al., 2002). The Enthusiastic segment exhibits the highest sensitivity to health and nutritional attributes, reflecting health-conscious consumption consistent with utility-maximizing behavior under health investment preferences (Adamowicz & Swait, 2013). Economically, this indicates that catfish functions not only as a consumption good but also as a health investment good, where perceived future health returns influence present consumption decisions (Ardeshiri et al., 2019). The significant role of affordability among Cautious consumers reflects income elasticity effects, where price sensitivity increases under budget constraints (Verbeke & Ward, 2006).

Panel B of Table 6 further shows that fish consumption is generally high across all groups, but catfish consumption is particularly strong among Enthusiastic consumers. This suggests that information-rich consumers are more likely to diversify protein sources and adopt healthier diets, consistent with findings by Pieniak et al. (2013). The relatively lower consumption of beef, pork, and lamb reflects both cultural preferences and substitution effects, where consumers shift toward perceived healthier alternatives such as fish (Love et al., 2013). From a demand theory perspective, this indicates cross-price and cross-preference elasticity in protein consumption, where fish substitutes for red meat due to perceived health externalities. The near-universal preference for fish overall reinforces the importance of aquaculture products as essential protein sources in developing food systems (Verbeke, 2005).

Finally, integrating findings across Tables 1–6 reveals a coherent behavioral system where information access, trust, socioeconomic status, and consumption behavior are deeply interconnected. Consumers with higher education and income levels are more likely to engage with diverse and credible information sources, leading to higher trust and more health-oriented consumption decisions. This supports the information-processing framework of consumer behavior, where improved information reduces uncertainty and enhances welfare outcomes (Filieri, 2016; Komiak&Benbasat, 2006). Conversely, lower-income consumers rely more heavily on informal networks,

reinforcing the persistence of informational asymmetries in food markets. Overall, the findings confirm that catfish consumption behavior is shaped by a complex interaction of economic constraints, information asymmetry, and trust dynamics, consistent with broader theories of market imperfections (Akerlof, 1970; Mazzocchi, 2015). This underscores the policy importance of improving institutional communication and nutrition information dissemination to enhance efficient and equitable food consumption outcomes.

Table6: Motives for purchasing catfish and meat/fish consumption frequency across segments

Category	Variable	Total sample	Cautious	Enthusiastic	Optimistic	F-value	p-value	η^2
Panel A: Motives for purchasing catfish								
	Taste	4.21	4.08[a]	4.32[b]	4.15[a,b]	6.74	.001	0.041
	Price affordability	3.89	4.12[b]	3.54[a]	4.01[b]	11.26	<.001	0.062
	Nutritional value	4.05	3.62[a]	4.41[b]	3.98[a,b]	14.88	<.001	0.078
	Health benefits	4.18	3.51[a]	4.62[b]	4.09[a]	18.44	<.001	0.091
	Convenience of preparation	3.96	3.74[a]	4.22[b]	3.88[a]	9.53	<.001	0.054
	Availability	3.72	3.44[a]	4.01[b]	3.68[a]	7.91	.001	0.046
	Low fat content	3.58	3.12[a]	4.06[b]	3.51[a]	16.27	<.001	0.086
	Versatility in meals	4.09	3.95[a]	4.31[b]	4.02[a]	8.18	<.001	0.048
Panel B: Meat and fish consumption frequency								
	Chicken	3.41	3.12[b]	3.58[a]	3.29[a,b]	3.28	.038	
	Catfish	5.12	4.88[b]	5.41[a]	5.22[a]	2.94	.051	
	Beef	2.63	2.71[a,b]	2.44[a]	2.86[b]	2.81	.064	
	Fish (overall)	5.44	5.31	5.48	5.57	2.11	.118	
	Goat meat	1.71	1.62	1.78	1.65	0.74	.479	
	Pork	0.91	1.01	0.89	0.83	0.09	.912	
	Lamb	0.88	0.72[b]	0.86[a,b]	0.99[a]	2.77	.069	

Notes: Panel A reports motives for purchasing catfish, while Panel B reports meat and fish consumption frequency. Different superscripts indicate statistically significant differences between segments based on one-way ANOVA followed by Tukey's HSD test. η^2 indicates effect size where applicable.

4.2. Policy Implications

The findings have important implications for food information governance and consumer protection policy. The dominance of personal and informal information sources (Table 1), combined with relatively lower reliance on official channels, suggests that formal institutions are not yet the primary drivers of consumer knowledge in catfish markets. This

creates room for targeted public policy interventions aimed at strengthening institutional visibility and credibility. Governments and regulatory agencies should therefore invest in continuous, simplified, and accessible communication strategies through mass media and community platforms, consistent with Verbeke (2008) and Mazzocchi (2015), who emphasize that effective risk communication improves consumer confidence and market efficiency. Strengthening the dissemination of verified food safety and nutrition information can reduce information asymmetry, thereby improving allocative efficiency in food markets (Akerlof, 1970).

A second implication relates to trust-building in food systems. The results show persistent segmentation in trust formation, with Enthusiastic consumers demonstrating higher trust in electronic and institutional sources, while Cautious consumers rely more on interpersonal networks. This suggests that trust is not uniform but structurally conditioned by socioeconomic and informational access factors. Policy should therefore prioritize institutional trust-building mechanisms such as certification schemes, traceability systems, and visible quality assurance labeling. According to McKnight et al. (2002) and Casaló et al. (2007), trust in institutional systems increases when transparency and perceived integrity are reinforced. In the Nigerian catfish value chain, strengthening regulatory oversight and publicizing inspection outcomes could significantly reduce perceived uncertainty and enhance consumer confidence.

Third, the segmentation differences in information use and consumption behavior highlight the need for differentiated communication and nutrition education strategies. The Enthusiastic segment is more responsive to electronic and official information sources, whereas the Cautious group is constrained by lower education and income levels (Table 5). This supports targeted policy design rather than one-size-fits-all interventions. Public health agencies should design tiered nutrition campaigns that combine mass media messaging with grassroots outreach through vendors and community leaders, aligning with Bansal and Voyer (2000) and Kuttschreuter et al. (2014), who demonstrate the effectiveness of multi-channel communication strategies. Improving nutrition literacy among lower-income consumers can enhance their capacity to interpret food quality signals, thereby improving dietary quality and welfare outcomes.

Finally, the consumption patterns in Table 6 suggest a policy opportunity to promote fish as a sustainable and health-enhancing protein source. The high consumption of fish relative to other animal proteins indicates strong market potential for aquaculture expansion. However, the variation in consumption motivations across segments implies that demand-side policies should be complemented with supply-side interventions such as price stabilization, cold chain infrastructure, and quality assurance systems. According to Brunsø et al. (2002) and Font-i-Furnols and Guerrero (2014), consumers increasingly value health and quality attributes, meaning that improving perceived and actual product quality can significantly expand demand. Therefore, integrated agricultural and nutrition policy frameworks that combine food safety regulation, aquaculture support, and consumer education will be critical for enhancing both public health outcomes and market efficiency in the catfish sector.

5. Conclusion

This study provides a comprehensive analysis of consumers' information use, trust formation, and consumption behavior in the catfish market, drawing on segmentation evidence from principal component analysis and ANOVA-based comparisons. The results demonstrate that consumers operate within a heterogeneous information ecosystem dominated by personal and informal sources, although institutional and electronic media are increasingly relevant. Significant segmentation differences reveal that Enthusiastic consumers are more information-intensive, more trusting of formal and digital sources, and more responsive to health and nutritional attributes, while Cautious consumers rely more on interpersonal networks and exhibit lower trust in institutional information. These patterns underscore the persistence of information asymmetry and bounded rationality in food consumption decisions, consistent with established theories of consumer behavior and market imperfections (Akerlof, 1970; Johnson & Payne, 1985; Mazzocchi, 2015).

Overall, the findings suggest that improving the efficiency of information dissemination and strengthening trust in formal food systems are essential for enhancing consumer welfare and market performance. Socioeconomic factors such as education, income, and employment status play a decisive role in shaping information access and dietary choices, highlighting the need for inclusive policy interventions that reduce informational and economic disparities. By integrating improved risk communication, nutrition education, and institutional transparency, policymakers can promote healthier consumption patterns and strengthen the development of the catfish value chain. The study therefore contributes to a deeper understanding of how information structures and trust dynamics jointly influence food choice behavior in developing economies, with implications for both agricultural policy and public health strategy.

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