Article

Consumer Preferences for Cheese with Focus on Food Safety—A Segmentation Analysis

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Abstract: This research work analyzes Albanian urban consumer preferences and purchasing behavior related to cheese, focusing on food safety and related attributes, including origin, packaging, and certification. This paper is based on a structured survey targeting urban consumers. The analysis consists of a two-step cluster and descriptive statistics. The clustering was based on key sociodemographic variables, namely, gender, education, and age. The results show that the local cheese is preferred to imported cheese, and the main sources of food safety guarantee are the producer name/brand and knowing the seller. Most consumers across all five identified clusters preferred buying unpacked cheese to packed cheese. The cluster of educated female consumers preferred to buy cheese mainly in supermarkets compared to other clusters that preferred convenience shops. Consumer clusters with a university education appeared to be more informed about both HACCP and ISO compared to other (less educated) consumer clusters. Low trust in state institutions to guarantee food safety calls for the need to strengthen their capacities, professionalism, and awareness engagement with consumers.

Keywords: consumer preferences; packaging; cheese; two-step cluster analysis; Albania

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1. Introduction

One of the major concerns among consumers in developing or transition countries, characterized by weak law enforcement systems and limited resources, is food safety. The concerns are often more pronounced in the case of livestock products. Dairy and meat products have been considered problematic regarding compliance to food safety also in the case of Albania, a post-communist emerging economy, which is the focus of this paper [1,2].

In developed countries with consolidated institutions, consumers tend to trust public institutions to ensure food safety [3]. In the case of countries with weak food safety control systems, the level of trust in public institutions to ensure food safety tends to be lower and consumers may trust the retailer more than the public institutions. When possible, consumers often choose to buy food directly from producers to obtain higher safety and quality—consumers' trust is traditionally directly related to the short value chain [4].

Considering institutional conditions, consumers follow other type of indices to ensure food safety. Since food safety is a credence attribute, to achieve food safety consumers use cues that strengthen their trust in producers' processes. Consumers may rely on origin (domestic vs. imported and in the case of domestic, certain local area within the country where food is produced) and brand reputation to ensure food safety in decisions to purchase. According to a recent study, information about expiry date, knowing the producer or the brand name, and origin are the most frequently used food safety and quality cues for Albanian consumers [5].

Consumer buying behavior for food is influenced by various economic, cultural, psychological, and lifestyle factors [6]. Changes in lifestyle are also related to changes in

the place of purchase. Many authors suggest that the growing culture of supermarkets and hypermarkets is associated with improvements in traceability systems and standards, and has also increased the need for packaged products. Furthermore, lifestyle changes for consumers prioritize convenience [7].

The development and modernization of food retail chains (including logistics) combined with rapid changes in consumer buying behavior in connection to increased income have caused the food retail market to grow rapidly [6]. On the other hand, packaging has received higher attention in the context of COVID-19—food packaging policies and practices have been subject to revision [8].

As highlighted earlier, livestock products, namely, meat and dairy products, are often exposed to food safety problems. There have been several studies on consumer awareness and concerns about food safety, which has been becoming increasingly important for consumers [9]. Food supply chain operators have to deal with growing food safety concerns, both reflected in increasing consumer expectations and also the legal and institutional requirements to meet the Albanian EU agenda on food safety. Furthermore, with the expansion of supermarket chains on the one hand, and the evolution of consumer preferences and lifestyles on the other, the Albanian agroindustry is struggling to strengthen its position in the retail market—especially in the case of livestock products due to food safety concerns and the strong competition from imports. This is particularly important in the case of dairy (and meat) products because they are key elements of the Albanian consumer basket—cheese is the main dairy product and one of the main food items in Albanian households [10,11]. Thus, having a better understanding of consumer perceptions and preferences related to food safety and quality in general, and to cheese specifically, is crucial—such an understanding may help food operators gain a competitive advantage through the successful implementation of sustainability practices [12].

This paper analyzes the consumer preferences towards key attributes related to the purchase of cheese products in Albania. The main objective is to explore Albanian consumer behavior and preferences for main product attributes such as packaging, place of purchase, and origin of the product (domestic or imported) in connection to food safety and to assess the relationship between consumer perception of these attributes and demographic characteristics of Albanian consumers.

The findings of this study are important considering that dairy products are an essential part of the household food basket and a backbone of the processing industry of livestock byproducts in many countries. Moreover, the dairy industry is one of the segments of the supply chain where quality and safety concerns occur most [13]. The importance for consumers is also crucial, especially in transition countries where, due to increasing incomes, price preferences are inferior to quality and safety concerns. The present study provides comprehensive knowledge on key factors of sustainable food safety, which appear critical to the effectiveness of the overall sustainable development of the society. Providing effective communication of food-related risks to consumers is crucial considering the emerging food safety threats [14]. The information on consumers' tactics in collecting information on food safety enables state agencies and other responsible actors to establish or revise the process of production, and achieving sustainability practices in food supply chains is expected to overcome such emerging challenges [12]. An important aspect of sustainability is the application of governance practices at the firm level. The implementation of such practices, especially for the agri-food sector, has a significant impact on the performance of firms/businesses [15]. The study contributes by emphasizing this aspect, too.

The Section 2 provides the literature review, the Section 3 consists of the methods, the Section 4 shows the results, and the Section 5 consists of discussions and conclusions.

2. Literature Review

Consumer purchasing behavior is a complex process. Consumers are oriented between research, experience, and credence characteristics to evaluate the product before

purchase, after purchase, and the implications it brings [16]. Consumer perception of food quality, which also applies to the case of cheese, is related to their experiences toward taste, perception of effects on health, interests to convenience, and understanding of the way it is produced [16]. In this regard, the information transmitted to the consumers through packaging is important. Information about dairy products, considering the impact they have on consumer health, often creates confusion, especially about the fat content [17]. In cases where the information provided about a product, which may be the information provided through the packaging, has inconsistencies, consumers tend to reduce the perception of reliability [18].

Packaging is one of the most valued factors in consumer decision-making, with essential weight in the purchasing process [19]. Cheese can be purchased packaged or unpackaged, and this can have an impact on the consumer preference for this product. Packaging creates the first impression [20], as the buyer first comes in contact with the packaging and then with the product itself [21]. The role of packaging for consumers is becoming the main tool for communication and branding [22]. Special attention should be paid to packaging elements for their impact on consumer feedback [23]. Color as a packaging element encourages consumers to appreciate the product more, especially for healthy products [24]. Thus, frequent changes to packaging elements can disorient the consumer, affecting the perception of brands [23].

The consumers also use packaging as an indicator of quality—they create a relationship of symmetry between packaging and product quality [19]. Alternatively, consumers may prefer unpackaged products (in the case of cheese) due to the possibility to observe the extrinsic features through the sensory experiences, visibility, or touch [25]. They can use circumstantial factors that guide their choice, such as color, texture, aroma and the size of objects [26]. A differentiation strategy for cheese product sellers is to present the entire product (uncut cheese wheel) on the counter and leave the seller to cut and roll the cheese at the customer's request [27,28], a tactic that draws the attention to the fact that individual consumer characteristics such as customer involvement, experience, and time availability are important [29]. In this context, the sociodemographic factors such as age, gender, status, residence, and education are very important in understanding consumers' tactics and packaging demands.

There are fewer studies on the impact of sociodemographic factors on the packaging elements themselves [30]. According to a previous study on Polish consumers preferences for dairy products, age, gender, and level of education affect packaging preferences [30]. Other research work emphasized the role of gender and age in decision-making [31]. Verbal elements of packaging and place of origin are important elements for both female and male consumers. However, in the case of female consumers, the impact of visual aspects appears to be more important. The more educated people are, the more concerned they are with the information that appears on the packaging [31].

Another attribute that can be analyzed about food is the place of purchase. Consumers may choose products sold in supermarkets based on the perception that products are inspected and safe to consume, or they may be unaware of the hazards associated with consumption of uninspected cheese and choose supermarkets due to the availability of product diversity and convenience [32]. Some consumers prefer different grocery stores for a variety of reasons: Lack of items, prices and promotional campaigns, time constraints, impulse buying, and convenience are some reasons [33].

In establishing consumer preference for products, authors who have studied retail in South Africa suggest that consumers value convenience in retail units [34]. Supermarket comfort is related to the interior environment of the store, which refers to elements such as image, easy movement, cleanliness of shops, and attractive decor. Supermarkets should attract the attention of the consumers by offering a large number of alternatives not only in products but also in different quality categories. Since time is essential in supermarket purchases, supermarkets are created to increase the efficiency and speed of purchases [34]. For example, British consumers prefer to buy products in department stores and supermar-

kets by staying loyal to those retail stores [35]. Indeed, more than 73% of British consumer decisions are made in shopping places like supermarkets and hypermarkets [22]. Other studies have found that many consumers prefer more traditional outlets [36]. However, food purchasing patterns differ across countries. For example, Indian consumers perceive that food markets offer lower prices and more shopping benefits compared to conventional stores, but are less satisfied with the service provided by them [6].

In creating the concept of food safety and quality, aspects such as research, experience, and reliability attributes are taken into account [37]. Origin can become an indication of safety if the product is provided by a country or region promoted for food safety or higher quality [38]. Various studies have been conducted on the reliability of imported food products and their impact on consumer preference [39]. A previous study found that consumers prefer domestic products compared to imported products and are more likely to pay more for local products (e.g., cheese)—for these consumers, information about the country of origin is important [39]. This attribute can be considered in communication, as consumers use packaging elements such as color as an indicator of product originality [24]. Previous research has shown a strong preference of Albanian consumers for domestic cheese [10], as origin is perceived an indicator of the quality and safety of food products [5].

Ethnocentric behavior refers to maintaining loyalty to locally produced goods [40]. Consumer preference for domestic products should be analyzed in the case of the existence of substitute products or similarity in the cultures of the countries from where the products are imported. In this respect, the authors have some contradictory conclusions regarding a study with Greek consumers [41]. The positive relationship between American consumer ethnocentrism and the tendency to buy local products is also suggested for cheese products [42].

An additional instrument for strengthening consumers' perception of safety is certification. Certification is a way to advance the consumer's trust in food safety. However, certification has not always achieved or significantly improved food safety perception for some products [43]. Previous research has found that other attributes are considered more important than certification by consumers [44]. For Albanian consumers, the brand reputation and the presence of standard certificates are more important in decision-making [5]. It is crucial, given the emergence of the concerns of risk from contamination in cheese and the presence of high microbic levels, to explore consumer understanding of cheese processing standards. ISO and HACCP (Hazard Analysis Critical Control Point), are two main types of protocols/certifications that guarantee the use of safe practices in producing cheese. The latter is an obligatory protocol for all cheese producers in many countries. However, considering the high informality in many transition or developing countries, HACCP is often a hypothetical attribute.

As mentioned earlier in this section, the consumer sociodemographic expresses particular differences on the perception of food safety. Consumers with a high income level and high education level perceive food safety as more important. This trend has also been observed for female consumers and the elderly [45]. According to a recent survey in Albania, in terms of gender differences, women and well-educated consumers pay more attention to verifying food safety information. There are differences also regarding age. Younger and female consumers pay more attention to ingredient lists or safety elements [5].

3. Data and Methods

3.1. Sampling

This study was based on a face-to-face survey with consumers. The survey was administered in the urban areas of Tirana—the capital, and the largest city and market in Albania. Data collection took place during November 2012. Interviews were carried out by students trained and supervised by the authors of this paper.

A total of 200 valid questionnaires were included in the analysis. Table 1 below provides data on key sociodemographic variables from the sample and population. Overall, the sample structure is similar to the population structure in terms of gender and age.

Table 1. Main sociodemographic data for the survey respondents and Tirana’s population.

Indicator		Survey Respondents	Tirana Population
Gender	Male	53.0%	50.1%
	Female	47.0%	49.9%
Age	18–24	19%	20.6%
	31–35	7.5%	10.7%
	36–40	12.5%	11.4%
	41–45	9.0%	11.8%
	46–50	14.5%	10.5%
	51–55	13.0%	8.6%
	56–60	8.5%	6.7%
	61–64	7.0%	6.5%
	65 and up	9.0%	13.3%

Source: field survey and [10].

3.2. Two-Step Cluster Approach

The consumer sample was classified through a two-step clustering technique, based on the main sociodemographic variables utilized as input factors. The two-step cluster analysis (SPSS statistical package) is an exploratory and unsupervised multivariate data analysis technique that enables the clustering of large data sets and considers both continuous and categorical variables in the same clustering procedure [46]. This method is based on a probabilistic approach—the clustering algorithm utilizes a likelihood distance measure as the similarity criterion, and the most suitable number of clusters is chosen on the basis of Schwarz’s Bayesian inference criterion (BIC). One major advantage of this clustering procedure is that the influence of the researcher’s subjectivity is reduced [47].

SPSS calculates the number of clusters/groups with the best fit, the BIC, and a silhouette coefficient. The silhouette coefficient is a measure of clustering quality that is independent from the number of clusters (K), and can be used to evaluate cluster validity.

Validity is based on either the concept of cohesion, the proximity among members of the same cluster (the higher, the better), or on the concept of separation, the proximity among members or centroids of the different clusters (the lower, the better). The main advantage of this approach is that different measures of cluster validity can be combined, which avoids an arbitrary choice in the event that they are contrasting. The optimal number of clusters (K) in a data set can be found by computing the silhouette coefficients, which are calculated according to the following equation:

$$s_i = (b_i - a_i) / \max(a_i, b_i)$$

where a_i is a measure of cohesion (i.e., the average distance of the i th object to all other objects in the same cluster) and b_i is a measure of separation (i.e., the average distance of the i th object to all other objects in a different cluster). The higher the average silhouette coefficient (or the closer to 1), the “more appropriate” the clustering is [48]. A silhouette measure lower than 0.20 indicates a poor solution quality, values of more than 0.50 indicate a good solution, and intermediate values are acceptable [49–51].

A two-step cluster has been applied in many consumer studies, and this approach has also been applied in previous studies on Albanian consumers related to preferences for meat, olive oil, and organic food [2,51–53]. Other studies observing consumer purchasing, consumption, and related lifestyles have utilized this approach [54–56].

3.3. Sociodemographic Segmentation

In this section of the analysis, typical sociodemographic variables were utilized as clustering variables, such as gender, education, and age. A five-cluster solution was obtained with a relatively high silhouette coefficient (0.6), indicating acceptable clustering for further analysis (see Figure 1 below for a visual illustration of the clustering quality).

Model Summary

Algorithm	TwoStep
Inputs	3
Clusters	5

Cluster Quality

Figure 1. Model summary.

The five-cluster solution is presented in Table 2. The following clusters were obtained:

- Cluster 1 (MEF:middle-educated female consumers): contributed to 17.5% of the whole sample. It consisted of only female consumers with high school education (normally 12–13 years). The average age was 48.
- Cluster 2 (HEF:high-educated female consumers): contributed to 24.5% of the sample. It consisted of only female consumers with university education. The average age was 38. This cluster can be named “educated female consumers.”
- Cluster 3 (LE:low-education consumers): contributed to 13% of the whole sample. It is different from the other clusters, as both genders were included, and 61.5% were males. Most consumers in this cluster (96%) had basic education (typically 8 years of education). The average age was 55.
- Cluster 4 (HEM:high-educated male consumers): contributed to 20.5% of the sample. It consisted of only male consumers with university education. The average age was 37. This cluster can be named “educated male consumers.”
- Cluster 5 (MEM:middle-educated male consumers): contributed to 24.5% of the whole sample. It consisted of only male consumers with high school education. The average age was 48.

Table 2. Cluster analysis results, BIC = 15, silhouette coefficient = 0.6.

Input Variable	Cluster 1—MEF	Cluster 2—HEF	Cluster 3—LE	Cluster 4—HEM	Cluster 5—MEM
Size	17.5% (35)	24.5% (49)	13% (26)	20.5% (41)	24.5% (49)
Education	High school 100%	University 100%	Basic education 96%	University 100%	High school 100%
Gender	Female 100%	Female 100%	Male 61.5%	Male 100%	Male 100%
Age	48	38	55	37	48

Source: field survey.

The identified consumer segments/classes were further subject to assess differences in perceptions or behavior by applying Pearson's Chi-square.

4. Results

As highlighted earlier, consumers link various food characteristics to food safety. In this context, a clear understanding of the perceptions and importance for consumers for characteristics or attributes such as cheese origin, packaging, and place of purchase is important for both policymakers and private sector actors. Consumer cluster analysis enables market segmentation and fine-tuning of policies according to risk perceptions or behavior of different consumer groups.

Regarding origin, which is an important food attribute and often also linked to food safety (as highlighted above), the results show an overall strong preference for local cheese. More specifically, most respondents (about 95%) preferred domestic to imported cheese (Table 3)—there were no statistically significant differences between the identified clusters.

Table 3. Preferred cheese origin.

Indicator	Origin		Total
	Domestic	Imported	
Count	189	11	200
Percentage	94.5%	5.5%	100%

Source: field survey.

Consumers were also asked about the main perceived source of food safety guarantee. The results show that the main sources of food safety guarantee were the producer name/brand and knowing the seller (Table 4). The trust in state institutions to guarantee food safety appeared to be very low. Similarly, the trust in the label/packaging (including information provided there) was also very low. There were no statistically significant differences between the identified clusters.

Table 4. The source of (food) safety guarantee for purchased cheese.

Category	Frequency	Percentage
Producer name/brand	84	42%
Knowing the seller	82	41%
State institutions/authorities	13	7%
Packaging and labelling	9	5%
Testing and taste	5	3%
Other	7	4%
Total	200	100%

Source: field survey.

Another important factor for consumers was the place or outlet where cheese is bought, which can also be linked to food safety (perceptions). Clusters 2 and 4 (female and male consumers with university education, respectively) preferred to buy cheese mainly in supermarkets (Table 5). The other three clusters preferred primarily convenience (e.g., neighborhood) shops.

Table 5. Main outlet where cheese is purchased/sourced.

Cluster	Indicator	Place of Buying Cheese					Total
		Dairy Shop	Supermarket	Convenience Shop	Dairy Factory	Other	
Cluster 1—MEF	Count	9	5	18	0	3	35
	Percentage	25.7%	14.3%	51.4%	0.0%	9%	100%
Cluster 2—HEF	Count	11	25	8	1	4	49
	Percentage	22.4%	51.0%	16.3%	2.0%	8%	100%
Cluster 3—LE	Count	5	1	12	1	7	26
	Percentage	19.2%	3.8%	46.2%	3.8%	27%	100%
Cluster 4—HEM	Count	6	14	11	4	6	41
	Percentage	14.6%	34.1%	26.8%	9.8%	15%	100%
Cluster 5—MEM	Count	11	10	18	0	10	49
	Percentage	22.4%	20.4%	36.7%	0.0%	20%	100%
Total	Count	42	55	67	6	30	200
	Percentage	21.0%	27.5%	33.5%	3.0%	15%	100%

Pearson's Chi-square p -value = 0.000

Source: field survey.

About 91% of the consumers stated that they usually buy unpacked cheese (thus only 9% usually buy packed cheese). When asked about their preferences, almost 25% of the consumers stated that they prefer to buy packed cheese (Table 6). Consumers belonging to the HEF and HEM clusters (female and male consumers with university education, respectively) were more inclined towards packed cheese, although even within those two clusters, the majority preferred to purchase unpacked cheese.

Table 6. Preference for packaging of purchased cheese.

Cluster	Indicator	Type		Total
		Packed	Not Packed	
Cluster 1—MEF	Count	4	31	35
	Percentage	11.4%	88.6%	100%
Cluster 2—HEF	Count	20	29	49
	Percentage	40.8%	59.2%	100%
Cluster 3—LE	Count	4	22	26
	Percentage	15.4%	84.6%	100%
Cluster 4—HEM	Count	12	29	41
	Percentage	29.3%	70.7%	100%
Cluster 5—MEM	Count	9	40	49
	Percentage	18.4%	81.6%	100%
Total	Count	49	151	200
	Percentage	24.5%	75.5%	100%

Pearson's Chi-square p -value = 0.012

Source: field survey.

Although ISO and HACCP are common in Albania, and that information is often found on food labels, most consumers were not aware of HACCP, but tended to be more familiar with ISO standards (Table 7). The clusters of consumer with university education appeared to be more informed about both HACCP and ISO when compared to other (less educated) consumer clusters.

Table 7. Answers to the question, “Do you know/are you aware of ISO and HACCP?”.

Cluster	Indicator	HACCP			ISO		
		Yes	No	Total	Yes	No	Total
Cluster 1	Count	2	33	35	16	19	35
	Percentage	6%	94%	100%	46%	54%	100%
Cluster 2	Count	22	27	49	36	13	49
	Percentage	45%	55%	100%	73%	27%	100%
Cluster 3	Count	1	25	26	4	22	26
	Percentage	4%	96%	100%	15%	85%	100%
Cluster 4	Count	19	22	41	28	13	41
	Percentage	46%	54%	100%	68%	32%	100%
Cluster 5	Count	3	46	49	22	27	49
	Percentage	6%	94%	100%	45%	55%	100%
Total	Count	47	153	200	106	94	200
	Percentage	24%	77%	100%	53%	47%	100%
Pearson’s Chi-square		Chi-square = 0.000			Chi-square = 0.000		
<i>p</i> -value							

Source: field survey.

5. Discussion of the Results and Conclusions

This research provides an in-depth understanding of consumer perceptions and aspects related to purchasing behavior. In the sociodemographic segmentation, based on a two-step cluster analysis, gender, education, and age were used as input clustering variables. Five clusters with significant differences related to gender and education were obtained.

Overall, there was a strong preference for domestic cheese over imported cheese for the vast majority of surveyed consumers. This finding is in line with previous research that showed a strong preference of Albanian consumers for domestic cheese [10].

The majority of Albanian urban consumers preferred to buy cheese in convenience shops. That preference is linked to the fact that for many consumers, developing direct trusted relations is crucial to obtain safe and quality products, and that is only feasible for convenience stores—direct personal relations are not very likely to be developed with supermarket chain employees.

Most consumers across all identified clusters usually bought unpacked cheese and preferred to continue buying this unpacked cheese over packed cheese. Testing the product and experiencing extrinsic features from the product in bulk may be much more helpful to consumers looking for quality, compared to the information illustrated on the packaging or other elements of safety emerging from it. Consumers belonging to the two clusters dominated by educated consumers had a tendency to purchase packed cheese. Nevertheless, even within these two clusters the majority preferred unpacked cheese. The preferences on unpacked cheese, despite being a measure to control cheese safety and quality in densely urban areas, may become a risk factor for further food contamination. The emerging behaviors of educated consumers is a signal of opportunity for producers in pursuing market segmentation strategy. Producers may be advisable to provide to urban consumers an increasing share of production packaged. Particular attention to packaging should emphasize information on traceability and cheese content elements, therefore strengthening attributes of the credence of the product. Low-educated or traditional consumers can be provided cheese unpackaged with labelled large containers, which complies with their traditional purchasing behaviors.

Regarding HACCP, most consumers were not aware of it—the clusters of consumers with university education appeared to be more informed about both HACCP and ISO compared to other (less educated) consumer clusters). Low consumer awareness on HACCP, although is obligatory required to producers by the state institutions to guarantee food safety, calls for the need to strengthen consumer education and information, increase National Food Authority capacities, professionalism and accountability toward consumers.

The findings of this study provide useful information for the Albanian dairy industry as well as for policymakers. Dairy industry managers should take into consideration the orientation of Albanian consumers toward quality and safety. On the other hand, policymakers and law enforcement institutions should ensure traceability, transparency and rigorous labelling of cheese, providing complete and reliable information on origin. Communication strategies about domestic food safety and quality from policymakers or companies can target female consumers, and better educated consumers/higher income consumers, since they showed higher awareness about food safety and quality [57].

One limitation is that the survey data are rather old. Future research should assess the evolution/changes of consumer behavior in times of COVID-19, considering the potential impact that the pandemic may have (had) on consumer perceptions related to food safety and origin [58].

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