# EXPLORING FACTOR ANALYSIS OF CUSTOMER BEHAVIOUR ON LOCAL APPLE PRODUCTION KORCA REGION – ALBANIA

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## Abstract

*The reason what makes customers act differently from one another has been studied and will continue to be studied with the hope that marketing managers and customer behavior researchers will understand better their needs in order to meet them. Understanding why some people like red apples and others green apples might be a difficult process but easier than understanding why people chose to consume imported apples rather than domestic products when no verifiable feature is distinguishable among them. It leads to other reasoning, which are often invisible even to the most attentive researchers. In attempt to analyze such invisible element and identify it, there might be components like familiarity with the product, information about it, physical aspect, etc. among others. In this paper, we will prove that there is another identifiable and measurable element such as the credence attribute in local apples produced by farmers in Korca region. 335 interviews with apple consumers in Korca were conducted; analysis was conducted on descriptive statistical data. In order to know more about credence attributes and ascertain their existence compared to other attributes, Exploring Factor Analysis in SPSS was used. By following the stages of exploring factor analysis we draw the conclusion that the respondents' behaviors about apple can be divided into 4 latent factors: (1) Physical and experience attributes, (2) Subjective knowledge on apples, (3) Credence attributes and (4) Market elements (added attributes).*

*Keywords: EFA, Apple consumers, Albania, Credence attribute, Subjective knowledge, Added attributes, Physical and experience attributes*

## INTRODUCTION

Traditionally speaking, food have two sets of distinguishable attributes: appearance and experience attributes. The first attributes are related to physical presence of the products such as: color, uniformity and flavor (smell, attraction). These attributes can be checked through product physical inspection: touching, smelling and/or observing. Appearance is not important only to customers looking for higher quality products, but the institutions of classification and standardization as well, since many standards defined by them are based only on the physical appearance of the product.

Second group attributes could be distinguishable only when products are tasted. Such attributes are taste, ripeness, softness and sweetness. It is essential that consumers have a positive experience with a certain product in order to be encouraged to repurchase it, a positive reputation and increase of customers' base.

Since attributes of experience cannot be distinguishable entirely without having consumed the product, they could be promoted through labeling and word of mouth.

By increasing the incomes and certification demands further, a third group of attributes was added to the list: the credence attribute.

The credence attributes cannot be distinguishable through appearance or consumption of the products, but they can be perceived and evaluated instead (M. R. Darby & Karni, 1973). In global markets of agricultural products and food, such terms as "grown locally", "country of origin", "animal welfare", "organic", "environment friendly", "safe", "natural", are examples of credence attributes that customers increasingly appreciate when they chose what products to consume. (K. Darby et al., 2008; Froehlich et al., 2009; Kanter et al., 2008). Such attributes are being appreciated even more from Albanian customers as well.

Following the analysis of apples grown locally in Korca region, we start to explore why customers prefer products with credence attributes and what are the direct and indirect effects of credence attributes.

## LITERATURE REVIEW

Earlier, the decision-makers used to understand the customers through daily experience gained during product selling processes. But, as companies and markets increase, direct contacts of decision-makers and customers in a company weaken or might become lost. Increase of competition and customers' information on market make it difficult for the companies to satisfy the expectations of customers that they serve. On the other hand, knowing what customers purchase and what they expect from the company make up for the basis for marketing success. For this reason, the companies conduct detailed studies related to

purchasing power of customers to give an answer to the following questions: *Why customers buy? What makes them to? What do customers buy? When do they buy? Where do they buy? How much do they buy? How do they buy?*

Various authors provide arguments which lead to a common ground where there is still much to do regarding to the customer behavior.

Kotler and Armstrong argue that customer behavior is never simple; although its understanding is an essential task of marketing management. Customer behavior refers to end customers' behavior – individuals and families that buy goods and services for personal consumption. All these end customers are combined together to create the consumption market (Kotler & Armstrong, 2021). Hawkins and co-authors think that customer behavior is the study of individuals, groups or organizations and processes that are used to select, provide, utilize and finish the products, services, experiences or ideas to satisfy the needs and effects of these processes on customers and society (Hawkins et al., 2020; Hawkins & Mothersbaugh, 2010). Kahn defines the customer behavior as decision-making and physical activity processes involved in purchasing, estimating, using and finishing goods and services (Khan, 2006).

## Customers' beliefs and attitudes to a product

There is a large literature on customers' psychology which analyses the relationship between customers' beliefs in presence of product qualities and their attitudes towards a certain product and their willingness to pay for it (Ajzen, 1991, 2011; Fishbein, 1967; Fishbein & Ajzen, 1975).

Specifically, the theory of learning and attitude formation by Fishbein, sets the relations between a person's beliefs in presence of individual attributes of an object and his/her attitude in its entirety to this object. Such attitude to an object has been defined as a "psychological tendency" which is expressed by assessing a *certain entity* on a favorable or unfavorable level." (Eagly & Chaiken, 1993). There are a lot of evidence showing that attitude of a person towards an object is positively accompanied by actions which involve such object even when there are personal and social factors which might weaken or eliminate the relation (Ajzen & Fishbein, 1980).

Effects of product attributes as signals (suggestions) of customer perceptions on quality was an important psychology research field. Customers use attributes as a suggestion (signal) when the information is incomplete or difficult to obtain (Erickson et al., 1984; Kirmani & Rao, 2000; Olson, 1978).

Some researchers suggested the credence attributes - *place of origin* – as a practical attribute among other attributes; several studies are conducted already and the literature is

more complete, but little has been made related to agricultural marketing (Lusk et al., 2006) with few exceptions (Loureiro & Umberger, 2004). There is evidence that the place of origin of a product plays an important role in increasing customer confidence about the presence of other attributes of experience (Cameron & Elliott, 1998; Erickson et al., 1984). The effect of the place of origin as a suggestion for other attributes was determined by Van der Lans (2001) as an *indirect effect*, as an effect of credible attributes about customer willingness to pay for a product intermediated by customer perceived quality (understood, felt) (van der Lans, 2001).

## Exploratory Factor Analysis

Measures in social and behavior sciences contain casual errors generally. Regression models and other models with independent variables having errors in measurements are problematic because they lead to inaccurate estimations, such as regression coefficient estimations. These inaccurate estimation results (inferential) can be avoided, by modelling the latent variables and the error process. Since data collection in many disciplines contains the measurement errors, modelling with latent variables contains an emergent necessary means for this disciplines (Catalano & Ryan, 1992; Kendler et al., 1992). *Latent variables* are those variables, which cannot be measured directly. These are features, characteristics, or unobserved skills such as intelligence, motivation, political idealism, problem severity caused by gambling, etc. these latent variables can be measured indirectly, through measuring models, which link the latent variables with a series of observed variables. In many research fields like social, education or behavior, observed variables are mostly obtained by responses (items) of various questionnaires. As per the type of variables obtained by the questionnaire responses, if these variables are continuous or categorical, the measuring models are usually divided into models of factor analysis (FA), Exploratory Factor Analysis (EFA), Principal Component Analysis (CPA) and Confirmatory Factor Models (CFA) and models that are based on item response models, IRT. Variables are related to one another and factor combined. Factors are hypothetical variables, which explain why a number of variables are related to one another. The main purpose of FA is to define the number and nature of latent variables (factors) which express the variance and co-variance between observed variables that usually are called indicators. (Hair, 2019)

## Labeling as an appearance attribute

Labeling food products today is not only a marketing issue or some specific technic for distinguishing a product form another. Rather, it is an imposed legal obligation by a full legislation with laws and legal articles. It is related to the need for increasing food safety

adapted to the respective EU legislation's directions. Regardless of what the legislation determines about a label or a sign, it is not obligatory for the non-processed agricultural products. We will show further what the literature has to offer on labeling which we were able to explore. Product labels not only help us identify and promote the products; they also display a lot of information to help customers make the right choice of the product (Ferrell & Hartline, 2016). Whereas, Kotler and Armstrong expand their definition on labels by adding the importance of the logo (brand symbol) which according to them, may vary from simple labels attached to the product to more complex graphic design which are part of packaging. They perform a series of functions at least label identifies the product or the brand. It may also describe the product - who made it, where and when is made, contents and how should be used. Lastly, the label and logo help promote the brand and engage the customers. For most companies, labels and logos became important elements in the most expansive marketing campaigns (Kotler & Armstrong, 2021).

Pride and Ferrell in 2021 define labeling as closely related to packaging being used for identifying, promotional, information and legal purposes. Just like packaging, labeling is important during the purchase decision making process. Labels may be small or large depending on the product size and they might contain various amounts of information. Sticker labels on a banana or an apple are small and only show the brand name, type of fruit and maybe the storage unit number. A label may be part of the package itself or a special element attached to the package. The label on a Coca-Cola can is in fact part of the can, whereas the label on a 2 liters Cola bottle is separate and can be removed. The information provided on the label might contain the brand name and the brand, symbol of the registered trademark, size and content, features of the product, nutrition information, allergenic data, type and stile of the product, number of serving, precautions, safety measures, name and address of the producer, expiry dates, stamps of approvals and other data (Pride & Ferrell, 2022).

In estimating the customers and their quality perceptions, it is necessary to divide the quality concept into two main factor groups (Asioli et al., 2017; Steenkamp, 1997). The first group is made up of internal qualities (attributes) that allow objective measurement of quality. These qualities give the product its own functionality and are linked to its physical aspect. According to (Jacoby et al., 1971) internal attributes are specific for each product, disappear when it is consumed and cannot be altered without changing the nature of the product itself. External attributes, in the second group, are aspects related to the product, but are not part of it physically and can be altered without altering the physical characteristics of the product. Examples of external attributes which affect the customers' choices considerably are the brand, price, packaging and health claims (Jæger, 2006).

## METHODOLOGY

In order to understand the apple issues in Korca Region, individual meetings with people who are engaged in apple cultivation, processing, storing and distribution were organized. Those were farmers, local institutions staff, NGOs, managers of warehouses, sellers, processors, etc. Information about apples in Korca Region was provided such as: defining the traditional apple varieties, actual consumption trends, actual and expected problems.

Considering other studies conducted earlier by other researchers (Barber, 2009; Dentoni, n.d.; Endrizzi et al., 2015; Meike et al., 2022; Skreli & Imami, 2012; von Schaewen, 2014) a 6-section questionnaire was prepared. Being written as a questionnaire that will be used for several issues, structured data in the first section collect demographic information (gender, age, place of birth, residence, education, monthly household income, number of family members, number of children under 18, family members in working age, as well as the question whether the respondents or their family members were engaged in agriculture). Second section of the questionnaire made up of 14 nominal questions by multiple choice, provides information on the apple consumption model and familiarity with the product (consumption frequency, how are apples provided, who takes care of purchases, when was the last time they ate an apple, do they have apples at home in time of the interview, price range they know best, main preferences in apple color, apple byproducts they know and consume, do they chose to eat domestic apples as compared to imported ones, the most important element they consider when they chose apples, their choices between labeled and unlabeled apples and the dimension they preferred). Third section involved questions related to subjective and objective information about apples.

Subjective information was measured by claims estimated by a 5-level Likert scale (from I don't agree to I totally agree) which is structure verified by other authors in previous studies referring (Meike et al., 2022), whereas objective information was provided through 5 questions aiming at estimating the knowledge accuracy of the respondents by writing +1 when the answer was accurate. Fourth to sixth section of the questionnaire was made up of statements estimated by a Likert scale aiming at measuring the agreement of the customer through a 5-level scale from "Do not agree" =1 to "Totally agree" =5. These 18 statements were divided into three structures where agreement was required on attitudes related to market features (such as price, motive, labeling and standardization); apple physical attributes (color, variety, smell, skin, marks, hardness, durability, dimension); attitudes of farmers who are apple cultivators and attitudes of farmers from the area.

Interviews were conducted in two methods: face to face (213) and online through Google forms (122), total of interviews was 335. Sample selection was made into two methods:

customers in shops around Korca and students from the University of Korca and their relatives involving a wider distribution of the area.

Descriptive analysis and frequency ratios were used to provide a profile of the study interviewees. Responses to all sections of the study questionnaire were tabulated. A description of the results was made for all the answers.

The reliability of the study instrument was done after the data was collected and the value of the reliability coefficient was used to determine the degree of reliability of the questionnaire. Specifically, the alpha coefficient was used in order to verify the internal consistency of the tested items. The alpha coefficient (α) is an indicator in tracking the level of reliability of a scale and is designed as a measure of internal consistency. Coefficient alpha is measured on the same scale as Pearson's correlation coefficient (r) and typically varies between 0 and 1. Internal consistency is reflected through a statistical technique that measures the homogeneity of the scale called Cronbach Alpha, whose acceptable values, in general, should not be less than 0.7, and where its maximum value is 1. Another measure of internal consistency is what is called Split-Half Reliability (Frashëri, 2017).

In the SPSS 26 program, the following steps were followed for the realization of the exploratory factor analysis, respecting the stages suggested by Hair in the 2019 edition: stage 1: Factor analysis objectives; stage 2: Designing an exploratory factor analysis; stage 3: Assumptions in exploratory factor analysis; stage 4: Factor extraction and fit assessment; stage 5: Interpretation of factors; stage 6: Evaluation of exploratory factor analysis; stage 7: Data Reduction—Additional Uses of Exploratory Factor Analysis Results. As a result of the application, SPSS26 were used and analyzed using the theoretical criteria: Correlation Matrix, Determinant, Inverse of Correlation Matrix, KMO and Bartlett's Test, Anti-image Matrices, Communalities, Total Variance Explained, Scree Plot, Component Matrix, Reproduced Correlations, Rotated Component Matrix, Component Transformation Matrix, Component Plot of Factors 1, 2, 3, 4.

## RESULTS

### Data Screening

11 interviews out of a total of 335 came out to be incomplete so they were not considered. Other 19 interviews, mainly those conducted online, had a 0 standard deviation for all Likert scale questions (so, all of them were 3, 4 or 5) considering that the respondents answered quickly without analyzing the statements and these interviews were not considered further; and 305 remaining interviews were considered for the study and put under process. The data was screened for univariate outliers. The minimum amount of data for factor analysis

was satisfied, with a final sample size of 305 (using listwise deletion), providing a ratio of over 14 cases per variable.

**Descriptive statistics**

Table 1. *Demographic statistics*

| Question | Answers | Frequency | Frequency in % |
|---|---|---|---|
| P01.Gender | Male | 152 | 49.8% |
| | Female | 153 | 50.2% |
| | Total | 305 | 100.0% |
| P02. Age | Under 20 | 38 | 12.5% |
| | 20-29 | 63 | 20.7% |
| | 30-39 | 46 | 15.1% |
| | 40-49 | 69 | 22.6% |
| | 50-59 | 46 | 15.1% |
| | over 60 | 43 | 14.1% |
| | Total | 305 | 100.0% |
| P03. Place of birth | Urban | 221 | 72.5% |
| | Rural | 84 | 27.5% |
| | Total | 305 | 100.0% |
| P04. Residence | Urban | 239 | 78.4% |
| | Rural | 66 | 21.6% |
| | Total | 305 | 100.0% |
| P05. Education | Secondary level | 31 | 10.2% |
| | High school | 66 | 21.6% |
| | University degree | 208 | 68.2% |
| | Total | 305 | 100.0% |
| P06. Household average monthly incomes (ALL) | Up to 50 000 ALL | 69 | 22.6% |
| | 50 001 – 60 000 ALL | 54 | 17.7% |
| | 60 001 – 70 000 ALL | 33 | 10.8% |
| | 70 001 – 80 000 ALL | 15 | 4.9% |
| | 80 001 – 100 000 ALL | 32 | 10.5% |
| | Above 100 001 ALL | 102 | 33.4% |
| | Total | 305 | 100.0% |
| P07. Number of family members | Only family member | 6 | 2.0% |
| | Two family members | 39 | 12.8% |
| | Three family members | 79 | 25.9% |
| | Four family members | 129 | 42.3% |
| | Five family members | 40 | 13.1% |
| | Six family members | 12 | 3.9% |
| | Total | 305 | 100.0% |
| P08. Number of children | None | 54 | 17.7% |
| | One child | 94 | 30.8% |
| | Two children | 130 | 42.6% |
| | Three children | 18 | 5.9% |

| | | | | |
|---|---|---|---|---|
| | Four children | 9 | 3.0% | Table 1… |
| | Total | 305 | 100.0% | |
| P09. Number of working family members | None | 27 | 8.9% | |
| | One | 30 | 9.8% | |
| | Two | 123 | 40.3% | |
| | Three | 65 | 21.3% | |
| | Four | 54 | 17.7% | |
| | Five | 6 | 2.0% | |
| | Total | 305 | 100.0% | |
| P10. You and/or other family members involved in agriculture: | Yes | 84 | 27.5% | |
| | No | 221 | 72.5% | |
| | Total | 305 | 100.0% | |

The first section provided demographic data on the respondent. This section is made up of 10 questions displayed on the above table along with respective data. According to the data, 152 (49.8%) individuals who answered to the questionnaire are male, and 153 (50.2%) are female. AS far as the age of the respondents is concerned, the table shows that 38 individuals (12.5%) are under 20, 63 (20.7%) respondents are between 20-29, 46 respondents (15.1%) are between 30-39, 69 respondents (22.6%) are between 40-49, 46 respondents (15.1%) are between 50-59 and 43 (14.1%) respondents are over 60 years. 221 respondents (72.5%) were born in town, whereas 84 respondents (27.5%) were born in villages. 239 respondents (78.4%) live in urban area, whereas 66 respondents (21.6%) live in rural area.  As per education level, it results that 31 respondents (10.2%) have secondary level education, 66 respondents (21.6%) have high school education and 208 respondents (68.2%) have a University degree. As far as the option on University degree is concerned, the answer might have been affected by the fact that they actually attend University. Household average monthly incomes (in Albanian Lek) shows that 69 of the respondents (22.6%) have monthly incomes up to 50 000 ALL, 54 respondents (17.7%) have monthly incomes between 50 001-60 000 ALL, 33 respondents (10.8%) have monthly incomes between 60 001-70 000 ALL, 15 respondents (4.9%) have monthly incomes between 70 001-80 000 ALL, 32 respondents (10.5%) have monthly incomes between 80 001- 100 000 ALL, whereas over 100 001 ALL is estimated for 102 respondents (33.4%) as monthly incomes.

As per variable "number of family members", 6 respondents (2%) are only members, 39 respondents (12.8%) are two family members, 79 respondents (25.9 %) are three family members, 129 respondents (42.3 %) are four family members, 40 respondents (13.1%) are five family members and 12 respondents (3.9%) ate six family members. Related to the topic of "the number of children", it results that 54 respondents (17.7%) do not have children. AS

follows, 94 respondents (30.8%) have one child, 130 respondents (42.6%) have two children, 18 respondents (5.9 %) have three children, and 9 respondents (3 %) have four children. It should be noted that "children" are those individuals who are not in working age. Next variable is "the number of working members" showing that 27 respondents (8,9 %) have no working family member, 30 respondents (9.8 %) have one working member, 123 respondents (40.3 %) have two working members, 65 respondents (21.3 %) have three working members, 54 respondents (17.7 %) have four working members and 6 respondents (2 %) have five working members. The last variable analyzed in relation to the general data about the respondents is "You and/or other family members involved in agriculture" and as the above table shows, 84 respondents (27.5%) have family members or themselves involved in agriculture, whereas 221 respondents (72.5 %) have no family members involved in agriculture.

## Factor Analysis

Initially, the factorability of the 22 attitudes items was examined. Several well-recognized criteria for the factorability of a correlation were used. Firstly, it was observed that 18 of the 22 items correlated at least .30 with at least one other item, suggesting reasonable factorability (see Appendix A). Secondly, the Kaiser-Meyer-Olkin measure of sampling adequacy was .861, above the commonly recommended value of .6, and Bartlett's test of sphericity was significant (Approx. Chi-Square (231) = 3190.615, $p=.000 <$ .05). After removing 4 items, the Kaiser-Meyer-Olkin measure of sampling adequacy was .829, above the commonly recommended value of .6, and Bartlett's test of sphericity was significant (Approx. Chi-Square (153) = 2335.76, $p=.000 < .05$). The diagonals of the anti-image correlation matrix were also all over .5 Finally, the communalities were all above .4 (see Table 1), further confirming that each item shared some common variance with other items. Given these overall indicators, factor analysis was deemed to be suitable with 18 items.

Principal components analysis was used because the primary purpose was to identify and compute composite scores. Initial eigen values indicated that the fourth factors explained 30.19%, 12.66%, 10.93 and 8.15 %, of the variance respectively. The fifth, sixth factors and others had eigen values just below one. Solutions for three, four, five and six factors were each examined using varimax and oblimin rotations of the factor loading matrix. The four factor solution, which explained 61.94% of the variance, was preferred because of: (a) its previous theoretical support; (b) the 'leveling off' of eigen values on the scree plot after four factors; and

(c) the insufficient number of primary loadings and difficulty of interpreting the fifth factor and subsequent factors.

A total of four items were eliminated because they did not contribute to a simple factor structure and failed to meet minimum criteria of having a primary factor loading of.4 or above, and no cross-loading of .4 or above.

For the final stage, a principal components factor analysis of the remaining 18 items, using varimax and oblique rotations, was conducted, with four factors explaining 61.94% of the variance. An oblique rotation provided the best defined factor structure. All items in this analysis had primary loadings over 5. The factor loading matrix for this final solution is presented in Table 2.

Internal consistency for each of the scales was examined using Cronbach's alpha. No substantial increases in alpha for any of the scales could have been achieved by eliminating more items.

Overall, these analyses indicated that four distinct factors were underlying by the answers provided in the interviews related to apple customers in Korca Region.

Table 2. *Construct Reliability*

| **Reliability Statistics** | | | |
|---|---|---|---|
| | Cronbach's Alpha | Cronbach's Alpha Based on Standardized Items | Nr of Items |
| All Items | 0.837 | 0.838 | 18 |
| First factor (Physical and experience attributes) | 0.843 | 0.846 | 8 |
| Second factor (Subjective knowledge) | 0.899 | 0.901 | 4 |
| Third factor (Credible attributes) | 0.743 | 0.749 | 3 |
| Fourth factor (External or added attributes) | 0.801 | 0.813 | 2 |

These factors resulted in: first factor - *Physical and experience attributes*, second factor - *Subjective knowledge*, third factor - *Credible attributes* and fourth factor - *External or added attributes*. Four items were eliminated from the initial version. An approximately normal distribution was evident for the composite score data in the current study for three factors for F1, F2 and F3, for the last one the distribution did not seem to approximate normal. Therefore, data were well suited for parametric statistical analysis only for the first factors.

Table 3. *Factor loadings and communalities based on a principal components analysis with oblique rotation for 18 items (N = 305)*

| Rotated Component Matrix[a] | | | | | Communalities |
| --- | --- | --- | --- | --- | --- |
| | Component | | | | |
| Items | 1 | 2 | 3 | 4 | Extraction |
| P39. Variety (type) is very important when i chose apples: | 0.602 | | | | 0.408 |
| P38. Color is very important when I chose apples: | 0.612 | | | | 0.409 |
| P43. Hardness (hard apple) is very important when I chose apples: | 0.654 | | | | 0.460 |
| P40. Smell is very important when I chose apples: | 0.664 | | | | 0.504 |
| P42. Spotless skin caused by weather conditions is very important when I chose apples: | 0.702 | | | | 0.538 |
| P41. Smooth skin is very important when I chose apples: | 0.715 | | | | 0.519 |
| P44. Durability (does not rot) is very important when I chose apples: | 0.725 | | | | 0.558 |
| P45. Dimension is very important when I chose apples: | 0.737 | | | | 0.600 |
| P26. I am confident in my knowledge about apples: | | 0.807 | | | 0.728 |
| P27. I am familiar with apples in my home: | | 0.856 | | | 0.758 |
| P25. I know apples, I know everything about them: | | 0.859 | | | 0.825 |
| P28. I know more about apples than other people do: | | 0.862 | | | 0.792 |
| P35. Eating apples is good for your health: | | | 0.634 | | 0.509 |
| P51. I think that use of chemicals on apples is within allowed ranges and standards: | | | 0.724 | | 0.564 |
| P49. I think that apple farmers in Korca are careful to supply us with healthy apples: | | | 0.756 | | 0.695 |
| P46. I think that Korca farmers have their own tradition and experience in apple cultivation: | | | 0.784 | | 0.681 |
| P37. It is very important that apples are selected based on their size and quality: | | | | 0.896 | 0.810 |
| P36. It is very important that Korca apples are labeled as a traditional product of the area: | | | | 0.897 | 0.817 |

*Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalization.*

*Extraction Method: Principal Component Analysis*

*a. Rotation converged in 6 iterations.*

**DISCUSSION**

Exploring factor analysis for apple customers in Korca Region is part of a wider study on apple customer preferences in the area. This component is very important in understanding more about customer behavior in market segments based on consumption, demographic data as well as understanding the difference between those market segments that chose local apples over imported apples. The result of the analysis presents 4 comprehensive factors that will help us analyze further the data by using parametric and non-parametric analyses.

**CONCLUSIONS**

By following the stages of exploring factor analysis we draw the conclusion that the respondents' behaviors about apple can be divided into 4 latent factors such as:

**Factor 1** *Physical and experience attributes* made up of 8 items (P39. Variety (type) is very important when I chose apples; P38. Color is very important when I chose apples; P43. Hardness (hard apple) is very important when I chose apples; P40. Smell is very important when I chose apples; P42. Spotless skin caused by weather conditions is very important when I chose apples; P41. Smooth skin is very important when I chose apples; P44. Durability is very important when I chose apples; P45. Dimension is very important when I chose apples).

**Factor 2** *Subjective knowledge on apples* is made up of 4 items (P26. I am confident in my knowledge about apples; P27. I am familiar with apples in my home; P25.  know apples, I know everything about them; P28. I know more about apples than other people do).

**Factor 3** *Credence attributes for the local apples* is made up of 4 items (P35. Eating apples is good for your health; P51. I think that use of chemicals on apples is within allowed ranges and standards; P49. I think that apple farmers in Korca are careful to supply us with healthy apples; P46. I think that Korca farmers have their own tradition and experience in apple cultivation).

**Factor 4** *Market elements of the local apples* is made of 2 items (P37. It is very important that apples are selected based on their size and quality; P36. It is very important that Korca apples are labeled as a traditional product of the area).

The result is supported statistically and makes room for further analyses in order to understand better the way how these factors interact with the demographic data, how do they affect apple consumption and apple customer behavior.

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