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Conference Paper

Determining factors in Romanian consumer behavior on the nuts market (nuts, cashews, almonds, pistachios)

Provided in Cooperation with:

The Research Institute for Agriculture Economy and Rural Development (ICEADR), Bucharest

Suggested Citation: Pop, Ruxandra-Eugenia (2022) : Determining factors in Romanian consumer behavior on the nuts market (nuts, cashews, almonds, pistachios), In: Rodino, Steliana Dragomir, Vili (Ed.): Agrarian Economy and Rural Development - Trends and Challenges. International Symposium. 13th Edition, The Research Institute for Agricultural Economy and Rural Development (ICEADR), Bucharest, pp. 273-279

This Version is available at:

<https://hdl.handle.net/10419/301734>

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DETERMINING FACTORS IN ROMANIAN CONSUMER BEHAVIOR ON THE NUTS MARKET (NUTS, CASHEWS, ALMONDS, PISTACHIOS)

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Abstract: *Within the internal research plan of the Research Institute for Agrarian Economy and Rural Development, the project entitled "Marketing studies for sustainable agri-food products and analysis of consumption behavior, in the objectives context of the European strategy From farm to Fork (From farm to consumer)". Starting from the objectives of the strategy mentioned in the title of the project, in the first phase, we identified 4 groups of agri-food products for which marketing studies will be carried out, respectively: nuts, fruits, vegetables and whole grains. The present work presents the main results obtained following the analysis methodology used, to outline the profile of consumers of nuts in Romania, as well as a form of validation or not of research hypotheses, using the SPSS program, in order to calculate reference parameters for studying the synergies between the independent and dependent variables under research, such as the chi-square test or the contingency coefficient.*

Keywords: *consumer behavior, quantitative research, chi-square test, contingency coefficient, nut market*

JEL classification: M31, C12

INTRODUCTION

The choose motivation for this market segment, of nuts, in this paper, derives from the importance of this category of agri-food products, recommended both within the From farm to fork (2020) strategy as being sustainable, but also by medical specialists, in order to maintain a balanced, healthy lifestyle. Moreover, the changes in food consumption trends, in our country and beyond, the increase in the number of those who travel abroad, the diversification of food recipes promoted on online communication channels, the increase in the number of those who are interested in a vegetarian, vegan lifestyle and others, all these represent causes and reasons underlying the diversification of the offer of economic agents operating on the nut market. In order to determine the consumption behavior in the Romanian market of interest, a quantitative research was carried out, applying a questionnaire among consumers in Romania, with the aim of identifying the preferences and requirements of consumers in terms of the qualities and properties of nuts and products derived from them.

MATERIALS AND METHODS

Regarding the quantitative research carried out in order to achieve the results presented in this work, the applied questionnaire have **21 questions**, in which **140 respondents** participated, **65% women** and **35% men**, with ages between 18 and over 60. Consumers residing in Bucharest, Timisoara, Craiova, Neamț, Teleorman, Cluj, Otopeni, Călărași, Ploiesti, Vaslui, Arad, Suceava, Brăila, Sibiu, Brașov, Constanța, Pitesti, etc. participated in the research. Regarding the composition of the questionnaire, there are filter questions, questions with one or more answer options, open questions, questions with different measurement scales as answer options, aiming to facilitate the process of coding the questions and answers by the which analyzes the collected results. Due to the context regarding the spread of the COVID-19 virus, but also to make the research more efficient, the

collection of answers from the interviewed consumers was carried out online, using the Google Forms platform. The research was carried out between 01.05.2022 and 30.06.2022.

In order to study the correlations between the variables of research, the SPSS program was used, for chi square test (χ^2) calculation, when its value was below the threshold of 0.05 we calculated contingency coefficient also, because only for values smaller than 0.05 of the chi square test, it can be stated that there are links between the studied variables. To calculate the values of the mentioned parameters, the following method will be used, in the SPSS calculation program (*Analyze – Descriptive statistics – Crosstabs – Statistics – Chi-square, Contingency coefficient*) (Datulescu, 2006). Also, in order to choose the best questions in order to achieve the objectives of the quantitative research, publications were disseminated (domestic or international scientific works, the results of other research of interest, studies, reports, etc.).

RESULTS AND DISCUSSION

Over time, many specialists tried to define the consumer behaviour and to observe it, irrespective of what category of products they consume. For example, Ph. Kotler (1999) defines in his paper the main factors that influences the consumer behaviour:

- **Cultural factors:** culture or subculture, social class;
- **Social factors:** reference groups, family, roles and status;
- **Personal factors:** age, occupation, life style, economic circumstances, personality;
- **Psychological factors:** motivation, perception, learning, convictions, attitudes.

R. Boier (2002) defines the major factors that influences the consumer behaviour, such as:

- **Individuals factors of consumer behaviour:** needs, motivations, personality, self-image, attitudes and preferences;
- **Social factors:** family, reference groups, opinion leaders, role and social status, social classes;
- **Cultural factors.**

A different type of approach is delimited by I. Catoiu (1997), that consider the consumer behaviour is influenced by two types of variables: direct observable and deduced through the inferential research as a result. This lead to the following classification:

- **Direct influences:** demo-economics factors, marketing mix specific factors, situational factors;
- **Induced influences:** psychological factors (endogenous nature), social factors (exogenous nature).

Thus, it is observed that some categories of factors are identified by the majority of authors, in terms of the influence they exert on consumer behavior. For this paper, the focus will be on the socio-demographic factors of the respondents, such as: *gender, age, marital status, education level*. Demographic factors characterize the structure of the population and the processes that affect it. At the macroeconomic level, the main variables are: population size and geographic distribution, birth rate and mortality rate, age, occupation, level of education, number of members in a household, type of residence (urban or rural). The category of economic factors is of major importance at the macroeconomic level, because it defines, at a given moment, the purchasing power of society. These factors directly affect the size and evolution of consumption. At the microeconomic level, the level

of consumer income is the main factor, thus representing, depending on size and fluctuation, the material premise, and also the main restriction imposed on the consumer. However, not all goods and services have the same cost sensitivity.

Starting from this determining factors identification in the purchase process of a product in question, at the level of research, for the present work, 2 hypotheses were formulated, in order to validate them, or not, as follows:

- **Hypothesis 1:** The gender and age of the respondents influence the consumption of nuts products following the advice received from a medical specialists;
- **Hypothesis 2:** Gender, age and marital status of the respondents influence the association of the nuts consumption with the consumption of alcoholic beverages;

From socio-demographic characteristics point of view outlined for the sample of the conducted quantitative research, the following are mentioned:

- **Sample size:** 140 respondents;
- **Sample structure:**
 - **gender:** 92 women, 48 men;
 - **age:** 18 – 25 years – 12 respondents; 26 – 34 years – 20 respondents; 35 – 42 years - 48 respondents; 43 – 52 years – 36 respondents; 53 – 60 years - 16 respondents; over 60 years – 8 respondents;
 - **marital status:** 80 married; 40 singles;
 - **education level:** postgraduate studies - 56 respondents, higher education (bachelor's degree) - 80 respondents;

The respondents socio-demographic characteristics are of interest for the present work, the hypotheses of the stated research being based on different possible correlations that may exist between the independent variables of the present research (socio-demographic characteristics of the respondents: age, sex, education level, marital status) and the independent variables subject to research, represented by the centralized answers following the application of the questionnaire in this case. So, according to the first hypothesis of the research, *the gender and age of the respondents influence the consumption of nut products, following the advice received from medical specialists.* Thus, to the question **Do you consume nuts at the urging of the specialist doctor?** the answers showed that 114 respondents do not consume nuts for this reason (figure 1).

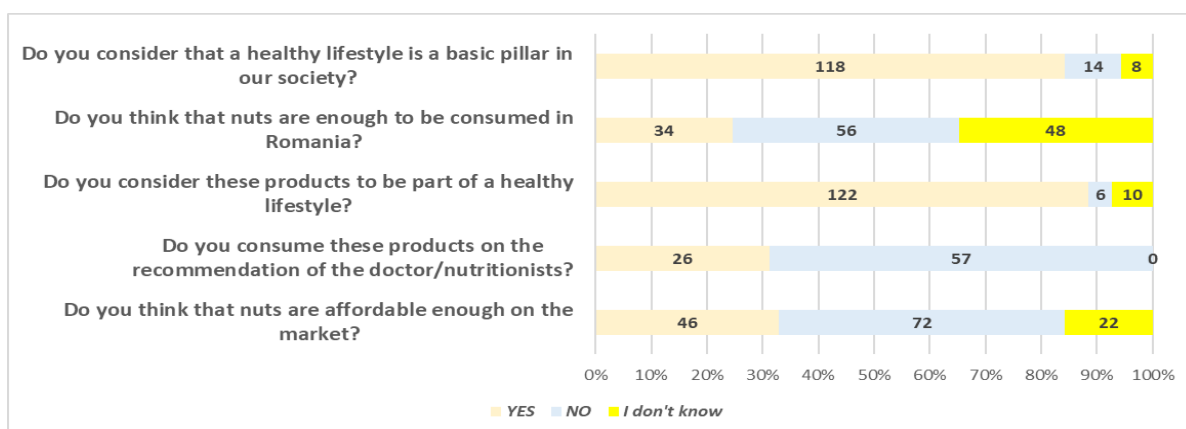


Figure 1. Questionnaire responses regarding consumer's perception regarding the nuts consumption

Source: processing answers of quantitative research regarding the consumers behavior on the nuts market

Regarding hypothesis 1 of the present work, according to which "gender and age of the respondents influence the consumption of nut products following the advice received from medical specialists", the following results were obtained in the SPSS program, following the application the methodology described in the section related to it:

Symmetric Measures			
		Value	Approx. Sig.
Nominal by Nominal	<i>Contingency Coefficient</i>	.287	.002 (hi^2 test)
N of Valid Cases		138	

Figure 2. Validation of hypothesis 1. The gender of the respondents influences the consumption of nuts, following the advice received from the medical specialist

Source: result of SPSS interrogation for hypothesis 1

Thus the value of the hi^2 test is 0.002 (<0.05), which proves the existence of the correlation between the independent variable (gender of the respondents) and the dependent variable (the answers to the question Do you consume these types of products at the urging of the specialist doctor?), in the sense that women take into account in - a greater measure than men of the exhortation received from the specialist doctor regarding the consumption of nuts. The value of the contingency coefficient is, according to the SPSS program, 0.287, which shows that there is a weak link between the two mentioned variables.

Regarding the second part of hypothesis 1, the value of the hi^2 test is 0.000 (<0.05), which proves the existence of the correlation between the independent variable (the age of the respondents) and the dependent variable (the answers to the question Do you consume these types of products at the urging of the specialist doctor?), in the sense that the mature audience in the sample (35-42 years, respectively 43-52 years) answered the reference question in the affirmative, unlike the younger ones (18-25 years). The value of the contingency coefficient is, according to the SPSS program, 0.443, which shows the fact that between the two mentioned variables there is a link of medium intensity (fig. 3).

Symmetric Measures			
		Value	Approx. Sig.
Nominal by Nominal	<i>Contingency Coefficient</i>	.443	.000 (hi^2 test)
N of Valid Cases		138	

Figure 3. Validation of hypothesis 1. The age of the respondents influences the consumption of nuts, following the advice received from the medical specialist

Source: result of SPSS interrogation for hypothesis 1

Regarding the second hypothesis stated, according to which the association of the consumption of nuts with that of alcoholic beverages is influenced by gender, age and marital status, it is observed that the majority of respondents agree with the statement from which the hypothesis stated starts, obtaining an average score of 2.91, based on the Significance Differential measurement scale (figure 4). The other results show that respondents consume more nuts during fasting periods, when preparing homemade sweets, but not when dieting.

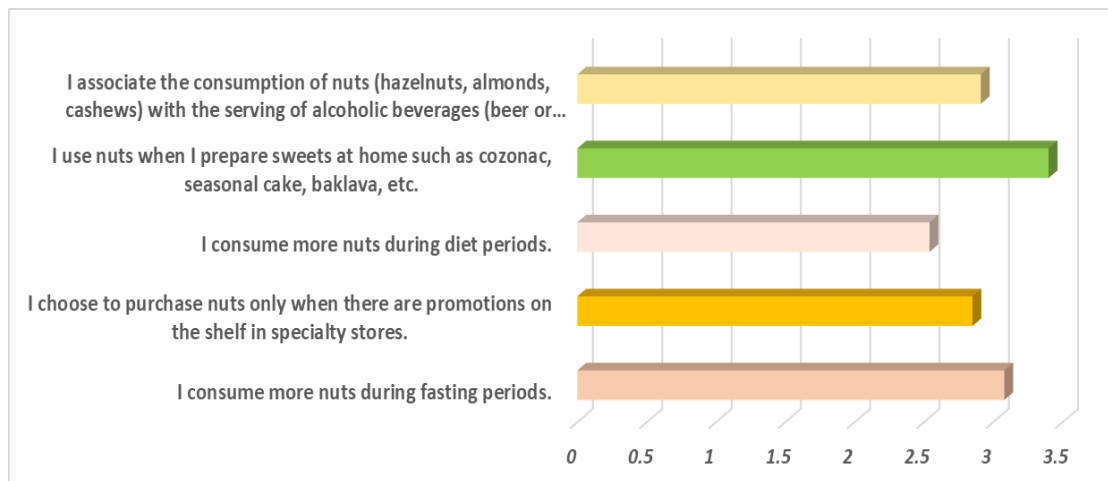


Figure 4. The average score obtained in terms of the respondents' Agreement/Disagreement with regard to the statements contained in the questionnaire

Source: processing answers of quantitative research regarding the consumers behavior on the nuts market

Regarding the degree of influence that the respondents' gender, age and marital status exert on the association studied under hypothesis 2, figures 5, 6 and 7 show the values of the hi2 test and the contingency coefficient, obtained with the help of the program SPSS.

The test value the resulting hi2 test value is 0.000 (<0.05), which confirms the existence of the synergy between the gender of the respondents and the statement of interest for this hypothesis, in the sense that men associate the consumption of nuts more often with that of alcoholic beverages more often than the female part of the sample. The value of the contingency coefficient is 0.357, which demonstrates an average intensity of the link analyzed. (figure 5).

Symmetric Measures

	Value	Approx. Sig.
Nominal by Nominal <i>Contingency Coefficient</i>	.357	.000 (hi ² test)
N of Valid Cases	140	

Figure 5. Validation of hypothesis 2. The gender of the respondents influences the association of the consumption of nuts with the serving of alcoholic beverages

Source: result of SPSS interogation for hypothesis 2

Regarding the influence of the age of the respondents on the association of the consumption of nuts with the serving of alcoholic beverages, the value of the hi2 test, of 0.001, reflects the existence of the link between the studied variables, in the sense that the respondents aged between 35 and 42 years, respectively 43-52 years old, agree to a greater extent with the given statement, compared to the younger audience submitted to the questionnaire (18-25 years old respectively 26-34 years old). The value of the resulting contingency coefficient is 0.494, which reflects an average intensity of the connection between the two studied variables (figure 6).

Symmetric Measures

	Value	Approx. Sig.
Nominal by Nominal <i>Contingency Coefficient</i>	.494	.001 (hi ² test)
N of Valid Cases	140	

Figure 6. Validation of hypothesis 2. The age of the respondents influences the association of the consumption of nuts with the serving of alcoholic beverages

Source: result of SPSS interogation for hypothesis 2

Marital status also influences the association between the consumption of nuts and alcoholic beverages, the value of the chi-square test being 0.000, in the sense that the unmarried part of the sample associates the consumption of these 2 types of products less often than the married ones, they the latter agreeing to a greater extent with the given statement. The value of the contingency coefficient, 0.470, shows an average intensity of the link between the studied variables (figure 7).

Symmetric Measures			
		Value	Approx. Sig.
Nominal by Nominal	<i>Contingency Coefficient</i>	.470	.000 (hi ² test)
N of Valid Cases		140	

Figure 7. Validation of hypothesis 2. The marital status of the respondents influences the association of the consumption of nuts with the serving of alcoholic beverages

Source: result of SPSS interrogation for hypothesis 2

Thus, as the results of the conducted research show, but also the results of other reference studies, publications, socio-demographic characteristics are important in creating the profile of consumers and the decision to purchase agri-food products. The two hypotheses of the present research were validated, and the premises from which they started as well.

Among other results of the conducted quantitative research, important in achieving the stated objectives, we mention:

- The respondents have a particularly favorable perception of the consumption of nuts, consuming them often and the main reason for their consumption being represented by the actual pleasure of serving them;
- The preferred supply location is that of supermarket/hypermarket stores;
- Respondents are aware of the benefits that the consumption of nuts can have on health: decreasing the risk of cardiovascular diseases or diabetes;
- High importance is not given to the provenance of the nuts, in the purchase process;
- Respondents prefer walnuts, almonds and pistachios;
- The preferred brands identified by consumers were Nutline, Alesto (Lidl's own brand), Alpro vegetal milk and Milbona milk (Lidl's own brand), the quality-price ratio, freshness and taste being the criteria by which consumers choose a product on this market;
- Nuts are mostly consumed fresh, preferably in salted, fried form and less often in raw form. Substitutes for traditional and non-dairy products such as butter, milk or oil are hardly consumed by the studied sample;

CONCLUSIONS

In the present paper, the main results obtained following the quantitative research were presented, results that aimed to achieve the main objective of the research, that of outlining the profile of the Romanian consumer, on the tree fruit market. Also, the questions in the questionnaire met the secondary objectives, which include: determining the perception of the Romanian consumer on the consumption of nuts and products obtained from them; the frequency of consumption, reasons for consumption, the form in which it is consumed, the period in which it is consumed; determining the influencing factors in the consumer's purchase decision: which characteristics and attributes of nuts and nut products are of major importance in the purchase decision, subjecting to analysis indicators such as: product type, price, packaging, quality, method of preparation, origin and others; determining consumer preferences regarding the types of nuts consumed frequently or occasionally; determining

the reasons why consumers choose to consume nuts and derived products; determining the frequency in which Romanian consumers choose to purchase nuts, depending on the occasion or period (diet, fasting, consumption of alcoholic beverages); determining the notoriety of the producers from whom Romanian consumers choose to purchase nut products; establishing the type of nuts consumed mainly in our country and the reasons why this happens; determining favorite culinary preparations from nuts

Thus, the consumers participating in the present research have a predominantly favorable perception regarding the consumption of nuts, consuming mainly walnuts, pistachios, almonds and hazelnuts. However, they are not familiar with products obtained from the processing of nuts, such as milk, vegetable butter or oil. They prefer to eat them fresh and the main reason they do it is because they like their taste. Although consumers know that serving these types of products can help lower the risk of developing medical conditions such as cardiovascular disease or diabetes, they do not consume them at the urging of medical specialists. Nuts are consumed throughout the year, but in greater quantity during fasting or when preparing homemade sweets such as cozonacs or baklava. Thus, the influence of traditions and customs on the consumption of agri-food products can be observed, even in the present case. The main criteria underlying the purchase process are: the quality/price ratio, the taste and the freshness of the nuts. The price is also a major factor in the purchase process, even if this is not explicitly mentioned by the respondents, however the preferences regarding the choice of the manufacturer in this market demonstrate the importance of the prices (predominantly choosing the own brands of some hypermarkets) .

The two hypotheses of the present paper, based on specialized publications in the field of marketing, implicitly of consumer behavior, were also confirmed by the results obtained in the research. Both hypotheses demonstrate the fact that the independent variables represented by the socio-demographic characteristics of the respondent (in the present case, the age, gender and marital status of the respondents) influence, with a medium or high intensity, the consumption of certain food products following the advice of specialist doctors, the association certain foods and others.

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