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E-Commerce in the Retail Chain Store Market: An Alternative or a Main Trend?

Christina Kleisiari ^{1,*} , Marie-Noelle Duquenne ²  and George Vlontzos ¹ 

¹ Laboratory of Agricultural Economics and Consumer Behavior, Department of Agriculture, School of Agricultural Sciences, Crop Production and Rural Environment, University of Thessaly, 384 46 Volos, Greece; gvlontzos@agr.uth.gr

² Laboratory of Agricultural Space, Department of Planning and Regional Development, School of Engineering, University of Thessaly, 383 34 Volos, Greece; mdyken@uth.gr

* Correspondence: chkleisiari@uth.gr

Abstract: The purpose of this research is to assess the impact of important aspects leading to the further development of e-trade in the retail market and to identify the rationale behind consumer preferences. The degree of total service (adequacy of staff, reception) and the overall satisfaction regarding the facilities (organization and hygiene level of the supermarket) are the main factors influencing consumers' decisions for their purchases. Other important components are the degree of coverage of needs in quality products, the intention to use an online store, the interest of consumers in finding quality and safe food, having at the same time information about their prices and possible offers. A quite important criterion is the degree of physical accessibility to the store. The main norm about using e-trade platforms instead of physical presence in supermarkets is quite low. It is tested though if there are significantly different approaches among customers of different firms, with no surprising results to be obtained. Customers familiarized with e-shopping, to a greater extent, are highly educated but quite sensitive to price issues as well. The findings of this survey reflect the consumers' decision-making process to familiarize and use electronic platforms, instead of visiting physical stores for shopping, based on a group of motives and anti-motives relative to this alternative.

Keywords: consumer behavior; retail chain stores; e-commerce; consumer loyalty; technology acceptance model; principal component analysis



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1. Introduction

The ever-increasing demand for food, due to the growth of the world population, combined with the rapid development of technology, has led to radical changes as regards the purchasing decision-making process in the retail market. At the same time, consumers are, on a daily basis, under a series of economic, social, political, cultural, and/or technological influences. Nowadays, the internet is a means for searching and making transactions, and therefore, an integral part of the everyday life of millions of consumers around the world. Rapidly evolving e-shopping offers many opportunities for both businesses to grow and become more profitable and consumers themselves to facilitate the buying process. In recent years, the retail trade is striving to meet the ever-modifying consumers' demands and is influenced by continuous technological developments. This status is constantly reshaping and evolving. It is evident that e-commerce gains considerable shares of economic activity in Europe, especially in the coronavirus pandemic era. According to the latest data from the European Commission, taking into account the impact of the COVID-19 pandemic on trade, the total turnover of e-commerce at the European level is likely to reach EUR 717 billion in 2020, marking an increase of 12.7% [1]. As Laato et al. suggest, COVID-19 can be used as a reference period in order to clarify new patterns of consumer behavior during the presence of global challenges [2]. Based on the aforementioned crucial parameters, formulating the current status of the retail chain store market, it is necessary to analyze the

up-to-now development and objectives of e-commerce, the theoretical framework related to it, and its major contribution on realizing the evolution of consumer behavior and discuss similar analyses and findings.

2. Literature Review

2.1. Factors Affecting the Acceptance of Electronic Trade by Consumers

It has been proven that many successful companies have managed to build strong relationships of trust with their customers through repetitive internet consumption. A business website, for instance, is a means of great influence on consumers' perceptions of the enterprise [3]. According to Oliveira et al., the ease of use of an online platform, website quality, consumer's confidence in the e-shopping provider, views, and user ratings, are the main variables that shape customers' views toward acceptance of shopping from an online store [4]. Consumer trust in sales websites is one of the most significant factors for which customers remain loyal in choosing a specific online store, as supported by Hongjun and Aiwu [5]; this fact is, at the same time, confirmed in the research of Jones and Leonard [6], claiming that network security is the one that mainly affects consumers' confidence in the store. Another survey states that even in the digital era, trust still remains an issue, regarding all the aspects that determine a professional profile from the seller's side (e.g., website appearance, purchase security, and risk minimization) [7].

The aforementioned consumer confidence in an online store is enhanced by the name of the store and the impact it has on them. Thus, a consumer is more likely to make an online purchase from a branded store or a high-traffic website than from an unknown brand [8]. At the same time, consumers prefer to shop from a store that has an attractive, and interactive, website that is also friendly to use so that they do not have to waste time to get acquainted with the electronic environment [9], while surveys show that consumers who have used online stores for their purchases seem willing to repeat online purchases in the future [10].

The 24-h operation of online stores is a considerable competitive advantage, providing the ability to purchase any time of the day, as there are no specific opening hours, unlike in physical stores [11]. It is worth mentioning that a comparative advantage of online shopping is the ability to choose products without any concern regarding the geographical distance between residence and store. Additionally, online transactions allow the product to be received in a short time from the moment of an order, even when the store is in another country or continent, without requiring the consumer to travel, search, and buy the product [12]. Furthermore, price comparison among similar products enriching shopping alternatives, increasing the possibilities to find offers and buying discounts [13]. It is also observed that, in many cases, products sold online have significantly lower prices than the corresponding price in the physical store, with this difference to be justified due to reduced operating costs (e.g., staff costs, space rental costs, etc.) [14].

As mentioned above, e-commerce can be significantly faster and easier than conventional shopping [15]. Even though e-commerce has been widely spread, m-commerce still does not inspire enough trust in end users, and thus, special strategies should be followed, offering motives such as special discounts or extra points for future purchases [16].

2.2. Limitations on E-Commerce Use

Perhaps the major characteristic of the online stores' purchases is that there is no direct contact between consumer and product, while there is often uncertainty about the guarantee provided from the online store, as opposed to what happens when the customer visits a physical store. Contrary to what happens with shopping in conventional stores, online shopping is quite complicated. Customers do not have the opportunity to touch, feel, and/or try the products they want to buy, which often discourages them. A combined effort is made in order to fill this sensory gap using 3D visualization, auditory, and multisensory characteristics [17]. Another concern, on consumers' side, is that the chosen product will not fully meet their expectations [18]. A relevant survey showed that a fairly large

percentage of participants (about 62%) said they had returned products purchased online, as it was not exactly what they expected to be [19]. There are many consumers who are skeptical about the use of online stores, as they state they prefer to see and check a product closely before making their decision. This is why physical stores are still dominant over electronic ones, as there are certain products (such as fruits and vegetables in the case of supermarkets) difficult to be chosen online, as consumers want to check their freshness and color before choosing them. It has been observed that although many internet users use the electronic platforms of the stores they prefer, their use is limited to comparing prices and to being informed about new products, eventually making their purchases from physical stores [20].

Another issue of online shopping is that the time of purchase and the time of product delivery can differ substantially, with such delays being relevant to seasonal peaks of demand. In contrast, this is not an issue in the case of physical stores. Such delays cause dissatisfaction and disappointment to the consumers [12]. Collier argued that the delivery of products is the most important criterion for the customer, as he waits to acquire a good at a specific time [21], while Wolfinbarger et al. [22] added that reliable shipping to the customer on time affects positively their future preference. Moreover, there is skepticism about the use of credit cards to complete online shopping due to frequent cases of fraud. Additionally, individuals often seem reluctant to use their card numbers and personal information, in case of possible misuse by the company of their personal data [23].

According to a relevant study by London Economics [24], one of the leading financial data analytics companies in Europe, the main reasons affecting consumer confidence have been assessed to be store reputation, past experience (positive or negative) from the store or brand, and the type of personal data that should be disclosed for the realization of the transaction. However, recently, this situation has been improved significantly as the implementation of personal data protection policies (such as General Data Protection Regulation (GDPR)) and overall informing about these issues, seems to have significantly restored consumer confidence in online stores.

Retail chain stores follow this trend of e-trade evolution, as key players of the market in both developed and developing economies. The mixture of products being traded in stores (fresh, refrigerated, processed) increases the complexity of applying these trade channels, reassuring, at the same time, increased safety and reliability standards. The ongoing COVID-19 pandemic accelerated the need for exponential adoption of this alternative, creating new standards for the sector [25]. In many cases, this purchasing process meets the theoretical basis of consumer behavior in the retail market [26]. There is already evidence that this purchasing approach will remain and develop even further when this pandemic will end [27]. Table 1 illustrates the main advantages and barriers of using e-shops according to previous field research. The purpose of this paper is to assess the purchasing behavior of consumers in relation to the retail store they prefer, to outline the criteria that would influence consumers either to remain loyal to the supermarket they visit or to choose a different one, and to determine the attitude of consumers toward the use of e-trade purchasing in order to identify the main obstacles that prevent individuals from using online platforms for retailing purchases.

2.3. Stimulus–Organism–Response Model (SOR)

Consumer decision making is influenced by various factors, dominated by consumers' experience from previous purchases of a particular product and/or the choice of a particular store, but also various external factors formulate behavior such as culture, social status, demographic characteristics, and psychological identity. Interactions of all factors involved pass through the "black box" of consumers' minds, as they strongly influence the buying perceptions [28]. Cultural characteristics differ either on a national level or a regional one, representing a set of concepts such as ethics, customs, art, religion, science, customs, etc. that influence the formation of consumers' behavior. In the same geographical area, differences can be met, depending on social groups, and their values, interests, habits,

and attitudes. For example, consumers with weak purchasing power may give more consequence to products' price, compared to others who focus their attention on the quality characteristics and nutritional value of products [29].

Table 1. Advantages and obstacles of using e-commerce according to previous research.

Advantages		Obstacles	
Reference		Reference	
Oliveira, T. et al., 2016	ease of use of an online platform, website quality, consumer's confidence in e-shopping provider, views and user ratings	Petit, O. et al., 2019	lack of the opportunity to touch, feel, and/or try the products
Hongjun, G.; Aiwu, Z., 2014	trust in sales websites	Liu, C.T.; Guo, Y.M., 2008 Kleinman, S., 2012	consumers' concern, that chosen products will not fully meet their expectations
Jones, K.; Leonard, L.N.K., 2014	network security	KPMG, 2017	need to check a product closely before making a consumer decision
Lee, S.J., 2018	website appearance, purchase security, risk minimization	Vasic, N. et al., 2019	differentiation between the time of purchase and the time of product delivery
Chiu, C.M., 2010	brand, traffic of website	Wolfenbarger, M.; Gilly, M.C., 2003	unreliability of shipping to the customer on time
Pantano, E.; Di Pietro, L., 2012	attractive, friendly website, easiness to use, shortening purchasing time	Parveen, A.S.; Krishna Priya, V., 2019 Godel, M. et al., 2017	concerns about credit card security and the sharing of personal data
Al-Jahwari, N.S. et al., 2018	e-commerce users' willingness to purchase online		
Sunitha, C.K.; Gnanadhas, E., 2014	24-h operation of online stores		
Vasic, N. et al., 2019	purchasing goods from large distances		
Atulkar, S.; Kesari, B., 2014	prices' comparison, buying offers, and discounts		
Duch-Brown, N., 2017	lower prices, than in physical stores		
Sohn, S.A., 2017	fast and easy		

Social factors are divided into three categories: (a) social groups, (b) family, and (c) individual's social profile. The first category includes the social environment, i.e., groups in which individuals of the same age, origin, work, common place of residence, etc. are members. The next category is family, which, in some cases, is an important factor for formulating consumer habits. This importance is based on the fact that it is the first social group every man starts to shape his personality, his subjective beliefs, and preferences until he receives new exogenous different stimuli from the wider environment [30].

Psychological aspects are internal factors influencing consumer behavior and are divided into four categories: (a) motivation, (b) learning, (c) perception, (d) beliefs and attitude (toward the product). Each person has different needs, of different severity, which are the motivations that lead to a similar market-consumption of a product in order to meet these needs. The weight of each need or the pressure it creates on the consumer to buy is difficult to measure because it varies from person to person and usually relies on the subjective approach of buying. A person's perception is defined as the selection, analysis, and interpretation of information and stimuli to arrive at a meaningful decision

and experience [31]. This process can be shaped, depending on each case, by the impact of promoting a product and, at the same time, by the acceptance/rejection of the individual. Learning comes from the action and experiences the individual has gathered throughout his purchasing attitude. Depending on the decisions made, the consumer behavior of the individual is reshaped based on the positive or negative externalities derived from these activities. The last factor is characterized by the beliefs and attitudes of consumers toward a brand or a specific product, based on the experiences, learning, and external stimuli to which the consumer has been exposed in relation to a specific product [32].

In other words, consumers receive various stimuli from external sources (e.g., media, marketing techniques used to promote the products of interest, consumer's social environment, etc.). All this information collected is processed by the individual so that a final decision is made, which will be directly or indirectly influenced by the characteristics and motivations of the consumer himself. External factors affect the final product choice, brand and store selection, but also the quantity of the purchased product. The final stage taking place is the "Response" stage, which includes the selection and purchase of the desired product, the evaluation of the product before and after consumption, the consumption experience and the degree of satisfaction, and the fate of the product packaging [33]. According to researchers [34], the stimulus–organism–response (SOR) model attempts to answer the following two key questions of (a) how decision-making process evolves in the human brain and (b) how consumer behavior is influenced by the previous mentioned external factors. Based on this model and literature review results, demographic, cultural, social, and psychological aspects have been taken into consideration with a view to depict their influence on consumer decision making.

2.4. *Theory of Planned Behavior (TPB) and Theory of Reasoned Action (TRA)*

Consumer attitude and consumer behavior are two of the most common terms describing consumers' intention and consumers' final choice accordingly; two concepts that are inextricably linked, although they should not be confused, as they describe two different acts. Theory of planned behavior (TPB) connects these two concepts, including all the external factors involved that affect and guide the consumer decision defining the final product, place, or platform, and time of purchase. It has been proven [35] that the final step of product purchase depends on the availability of all necessary means to adopt this behavior and the existence of the feeling of "freedom," a sense that all influences affecting this decision are under control by the consumer.

Theory of reasoned action (TRA) preceded TPB and refers to the investigation process of evaluating all the possible consequences a consumer behavior may have before the individual expresses his/her intention to buy [36]. TRA is based on the theory that chances of applying a behavior increase as the intention of the person making a conscious decision develops [37]. The main factor influencing behavior is reaching a conscious decision, and according to this theory, the greater the intention of the individual is to implement a behavior, the greater the chances of implementing it. Although both theories are based on the fact that the behavior of the individual is determined primarily by intention, TPB has prevailed because it includes the component of perceived control of behavior [38].

2.5. *Technology Acceptance Model (TAM)*

The technology acceptance model (TAM) is the method of investigating the attitude of people toward the use of technological achievements [39]. TAM includes a wide range of factors that influence the decision to use or not to use an electronic platform, software, or digital media in order to perform an action that could be implemented by a conventional process. TAM is considered an extension of TPB and is one of the most tested models in the information systems literature. Nevertheless, there are several important factors affecting the "perceived usefulness", "perceived ease of use", and "intention" of the user in relation to new technology [40]. All these components should be identified in order to successfully outline the decision-making process. A meta-analysis of TAM identified the main variables

affecting the acceptance of technology by users as being the type of respondents, i.e., participants in the research, and the type of technological achievement and culture [41]. Another relevant study showed that although the ease of use of technology is an important factor in its appropriation, components such as trust, usefulness, and the competency of a technology tool are of great importance to interviewees [42]. TAM-based results indicate the factors that influence college students to adopt the practice of e-shopping. It seems, therefore, that the design of the e-shop website plays a dominant role (over 50% of total variance), followed by significant factors, such as customer service, market security/privacy, and the pleasure that results from the shopping experience through the online platform [43].

2.6. Other Related Studies

A survey of Slovak students was conducted in 2018 so as to outline the factors promoting their willingness to use the internet for their shopping [44]. The statistical processing of the 221 questionnaires completed exclusively by experienced internet users, with an average age of 21 years, revealed seven factors that explain almost 80% of the total variance. The first and most important factor is the price clustering together all the variables having an impact on the final market price. The second important factor is the availability and experience of the respondents from the ordering process. The third component refers to the influence of respondents from their social environment to form an opinion about the products they will buy from the store. The following components concern the influence of new consumers, regarding the way that products are depicted in the online stores. The last factor is related to the store's impact on social media.

The clarification and assessment of factors contributing to consumer decision making, by applying the methodology of factor analysis, was investigated in a survey to record the shopping habits of Tehran residents [45]. The study involved 496 inhabitants and identified 10 factors explaining the main reasons for making a consumer decision. The main criterion is the influence of consumers by the brand, while the second most important is the factor of product locality, as consumers express a greater preference for local products. The third component is price sensitivity, while the fourth factor is the preference of consumers to make online purchases. The other six factors are less important, as their influence on buying is to a smaller degree than the previous ones and refer to the quality of markets, influence from the social environment, quantities of the purchased products, store characteristics, the factor of custom, terms of payment methods, and the impact of technology on consumer habits.

According to a recent survey of internet users' opinions on online shopping, a small percentage (about 30%) of those declare they are confident in adopting such practices [46]. The same research also revealed the main factors increasing consumer's confidence in online stores. The most important of these is the reliability of the store, with 90% of the respondents answering that they are highly concerned about this. Other factors highlighted the security of personal data and the privacy policy of the store, the presence of rich photographic material of the products on the website, as well as easy access to information about the company, such as address and contact details. Research on the deprivation of customers in retail stores, which stems from the quality of the facilities and the available products [47], showed that the good impression that a store provides to the buyer, due to the practical layout of the products and good service, helps buyers to stay loyal and repeat future purchases from the same store. The assessment of consumers' satisfaction of three supermarket chains [48] emphasized factors such as location, reliability, and friendly service from the employees, while the quality of the products also plays an important role. Other important factors that emerged from the same research were the attractive atmosphere of the place, as it seemed decoration and music have a positive effect on consumers' perception. Finally, consumers stated that they are very interested in flexible opening hours of stores so that they can adjust their purchases according to their daily

schedule, while they seem dissatisfied when they have to wait in queues at the supermarket checkout. An alternative for this is the use of express counters.

Table 2 contains the main findings of previous related surveys, focusing on the components influencing consumer behavior referring to the use of e-commerce.

Table 2. Other related studies' findings.

References	Research Focus	Sample	Key Findings
Bucko, J.; Kakalejčík, L.; Ferencová, M. <i>Cogent Bus. Manag.</i> (2018)	Online shopping: Factors that affect consumer purchasing behavior.	221 internet users' average age 21 years	Price-availability and experience of the respondents from the ordering process creating loyalty-influence of respondents from their social environment-store's impact on social media
Jowkar, A.A.; Derakhshanian, H.; Hoseini, M.H.; Rahmani, Z.A. (2013)	A factor analysis of identifying the customer behavior patterns: A case study in Tehran.	496 Tehran residents	Influence by the brand-locality price sensitivity
Huseynov, F.; Yıldırım, S.Ö. (2014)	Internet users' attitudes toward business-to-consumer online shopping	195 university students	Reliability of the store-security of personal data-privacy policy of the store—the presence of rich photographic material of the products on the website-easy access to information about the company affect online shopping
Yuen, E.F.T.; Chan, S.S.L.J. (2010)	The effect of retail service quality and product quality on customer loyalty	Hong Kong residents aged 21–60 years old	The physical aspect, reliability, and problem solving have a positive impact on customer loyalty to a store
Lu, P.H. (2011)	Customer Satisfaction toward Retailers	125 clients of three stores	Location, reliability, friendly service from the employees, products' quality, attractive atmosphere influence consumer behavior

Another emerging issue is sustainability assurance for the whole supply chain [49]. As mentioned before, a series of different methodologies have been developed in order to assess sustainability in the supply chain. The need for further inclusion of social aspects and the formation of a common framework for sustainability assessment is underlined [50]. Sustainability principles apply to the new era of e-commerce as well and strive to change online stores to incorporate them in their structures so as to meet customer requirements. More precisely, in a survey of 1069 respondents about organic stores in different countries (Czech Rep., Poland, and Slovakia), the necessity of promoting the three pillars of sustainable development from the online store is depicted. However, as the authors stated, younger people with a healthy lifestyle are more likely to buy products from an online store. For this reason, this paper should be taken into consideration for the upcoming years and meet the needs of a consumer audience with new needs and particularities [51]. E-commerce and sustainability can be combined, creating opportunities for both sellers and customers. Despite the fact that enabling sustainability in e-commerce needs changes in the enterprise structure, usually accompanied by proportional costs, an overall positive effect is achieved for business and society in the long term [52].

Nowadays, both consumers and businesses benefit from significant advantages of digital stores and platforms over traditional, conventional, physical stores. E-commerce is,

after all, undoubtedly a key driver of promoting price competition, ease of product search, and price comparison. This survey aligns with the time period when the coronavirus pandemic (COVID-19) has significantly increased the dependence of consumers on e-trade. The major finding of this is the integrated profile of consumers willing to use e-platforms for retail shopping and the quantification of this market segment. Additionally, it also identified their anticipations from retail firms for improving their satisfaction and repetition of purchase.

2.7. Research Objectives

The theoretical framework presented above explains how consumers' behavior and satisfaction derived from online supermarket purchases evolves in a period of innovative progress in the field of retail trade. The purpose of this field research is to clarify and assess factors influencing consumers' shift toward electronic supermarkets, taking also under consideration a series of criteria applied in the consumer decision-making process. Two hypotheses were tested in this survey as follows:

1. Consumers are willing to buy more from an online supermarket instead of a conventional one;
2. Criteria for selecting a retail chain store are the same for both physical and digital stores.

Internet marketing is a new booming approach of marketing, where factors such as globalization of the economy and technology have urged the necessity for this evolution. Based on this, the main contribution of this study is to assess consumers' intention to adopt the use of e-platforms for retail purchasing and justify this by clustering parameters and influences affecting this decision-making process. Identification of consumers' profile for digital shopping includes loyalty principles; there is a need though for modifications affected by radical technological changes accompany the development of e-trade.

3. Materials and Methods

Based on the findings of the literature review, a questionnaire was created aiming to analyze and assess the factor influencing store selection and constraints existing in the use of e-platforms [53]. In the first part of the questionnaire, consumers were invited to answer questions related to their socioeconomic and demographic characteristics such as their age, gender, their monthly income, their family status, and educational level. The second part consisted of questions referring to the frequency of visits, the amount of money usually spent, the group of products they usually buy, as well as the store usually chosen for their purchases. The final part consisted of 26 questions related to the consumers' decision-making process. Responses were given on a 1–5 Likert scale, with 1 to refer to absolute disagreement and 5 to a strong agreement [54]. The scale 1–5 was used again with 3 expressing neutrality, 1 denoting low importance of motivation, and 5 denoting high importance. Based on this rating, a low score per criterion also means increased consumer satisfaction with the existing retail shop. When a criterion is evaluated by consumers with a low score, it means that this parameter is not able to persuade them to change their preference in order to be more satisfied.

For this survey, 940 questionnaires were collected from a randomly stratified sample of Greek consumers. Sample distributed from May 2020 to August 2020, with stratification criteria of gender (50/50 ratio) and age to be applied, using the last general population census to satisfy the second criterion [55]. According to the last population census of the Hellenic Statistical Authority (2011), the ratio of males aged 20–80+ was 0.48 (Table 3). The relative ratio of the sample used for this study was 0.47, justifying the representativeness of it. Moreover, the age stratification of the sample was very close to the national data, as can be seen in the following table.

Table 3. Age group stratification.

Age Groups	Country Population	%	Sample Characteristics	%
20–29	1,350,868	15.5	164	17.4
30–39	1,635,304	18.8	202	21.5
40–49	1,581,095	18.2	164	17.4
50–59	1,391,854	16.0	145	15.4
60–69	1,134,045	13.0	108	11.5
70–79	1,017,242	11.7	101	10.7
80+	583,334	6.7	56	6.0
Total	8,693,742	100.0	940	100.0

Questionnaires were filled mainly through personal interviews, without affecting the interviewees' answers, while a smaller number was completed online. At first, an extensive check was carried out to assess the reliability of the responses and then the data collected were processed using SPSS26. The aim was to highlight the main factors related to consumer attitudes in order to clarify consumer profiles related to specific retail chain stores.

The factor analysis (FA) method was used as a means to justify priorities and common decision-making processes among a group of variables. FA is a valuable marketing tool for market segmentation and identification of nonmeasurable factors formulating consumer behavior, which are useful on a managerial basis for implementing the most appropriate promotion strategies [56]. There are two main categories of FA: confirmatory and exploratory. The main role of exploratory factor analysis (EFA) is to identify a possible underlying formation of interrelated variables without imposing any specific structure of the results. This method allows the factor structure or model to be determined for a number of variables. Confirmatory factor analysis (CFA) is a statistical technique used to verify the structure of factors of a set of observed variables. The CFA provides the opportunity to test the initial hypothesis of a relationship between the observed variables and their underlying hidden variables [57]. The most common method of EFA is principal component analysis (PCA) and, respectively, the most common method of confirmatory FA is common factor analysis. The noticeable difference between the two categories is that confirmatory FA uses existing knowledge, as it has emerged from previous research, on the relationships between variables, while exploratory FA is used when there is no information about the relationship between variables [58].

For the purposes of this study, PCA was conducted using the data set obtained from the field survey, aiming to clarify and highlight the significance of factors affecting consumer preferences. PCA is therefore a statistical process, which converts a set of values (observations) of potentially related variables into a group of new values, which are non-linearly correlated variables and are called principal components. The number of new variables emerging is equal to, or smaller than, the number of original variables [59]. This model is based on the assumption that variables can be sorted into groups depending on the correlation between them. This methodology initially examines the correlation between data and components. Moreover, data are grouped together as well as the general information and thus significantly reduce their volume. It is also important to prioritize the factors arising according to their importance in answering the research question [60].

The rotation technique of the main axes can be either orthogonal or oblique, providing an important contribution to the enhancement of the quality of representation and interpretation of the exported factors. In the first case, there is no correlation between the factors, while in the second there is a partial correlation [61]. The axis rotation technique used is varimax rotation, which is considered to be one of the most reliable for extracting components [62]. In order for PCA to be performed, a satisfactory sample volume of more than 100 samples must be collected, with the ratio between sample size and variables to be 10–20/1. Still, variables should be expressed in a quantitative manner. The most

common tool for this is the Likert scale. Finally, a prerequisite is that the observations are independent [63].

Kaiser–Meyer–Olkin (KMO) index was used to assess the suitability of the sample. KMO test provides a qualitative indicator of the connection of variables based on zero-order (original) and partial correlation [64]. At the same time, this indicator calculates how sufficient the sampling is for each variable and for the overall model. This index takes values in the interval {0–1}. If $KMO > 0.6$, the sample is considered suitable for factor analysis [65]. Bartlett’s sphericity test was used to determine the suitability of the sample as well in order to detect the existence of a high degree of correlation between some of the included variables. The research hypothesis was tested at a significance level of 5%, and the sample is appropriate as the price approaches the unit [66].

Another indicator that is usually calculated is the factor loading and the variation of the main components. According to the value of this index, the efficiency of each variable will be obtained for the interpretation of each factor. When the index takes a value less than 0.4, the influence exerted is too small and thus rejected [67].

4. Results

4.1. Market Share of the Main Supermarkets in Greece

Figure 1 shows the distribution of the 940 survey participants according to the supermarket store they usually choose for their purchases. More precisely, 217 of the participants have selected as their main market AV Vasilopoulos representing 23.1% of the total sample. Galaxias was the second most preferable store with 172 consumers selecting it for their everyday purchases. Lidl, Masoutis, and My Market have scored 126, 114, and 115 participants, respectively. The lowest market shares refer to “other” and Sklavenitis markets.

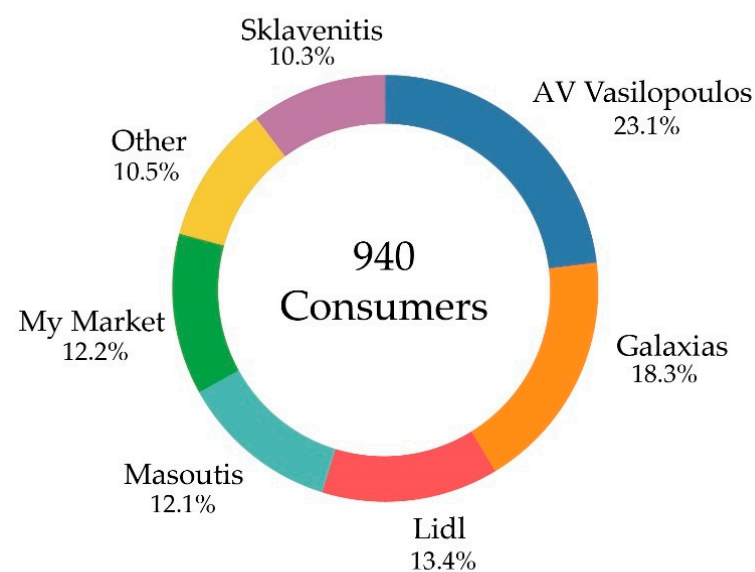


Figure 1. Market share of the main supermarkets in Greece.

The following graph (Figure 2) presents the monthly family expenses and the correlation of these answers with the store they choose. The monthly expenses per household amount to approximately EUR 225 (95% C.I.: 217–232), corresponding to monthly expenses per person of EUR 95 (95% C.I.: 92–98). These monthly expenses do not fluctuate significantly depending on the retail shop where households make most of their purchases.

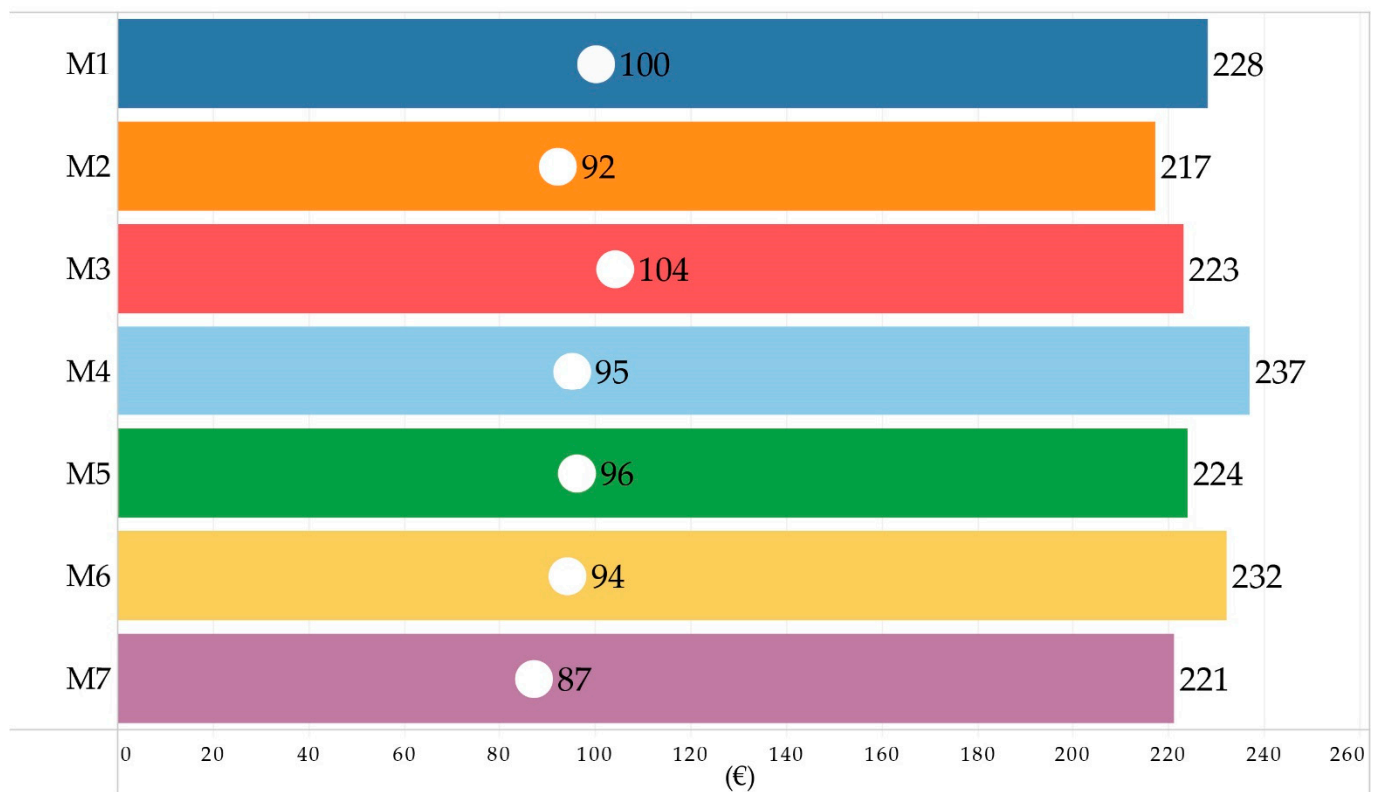


Figure 2. Average dispenses per person or household depending on the market brand. M1 = AV Vasilopoulos, M2 = Masoutis, M3 = Galaxias, M4 = LIDL, M5 = My Market, M6 = Sklavenitis, M7 = other markets, where “other markets” represent small retail shops, not well-known.

4.2. Analysis of Demographic and Social Characteristics of the Sample

Figure 3 presents the participants’ responses on the main market depending on their gender. The average age of the respondents—consumers of each one of retail chain stores is 48 years old (± 1 year). The overall sample characteristics indicate that there is an equal amount of men and women participated in the survey. The only exception is the customers of small, corner supermarkets (M7) that are evidently older (average age 54 years old). Regarding the gender ratio of the participants of the survey, in six out of seven stores is almost 50–50, while in the case of M5, females were slightly more (62%) than males (38%).

In terms of educational level, the distribution of customers of the M1 market differs from the sample as a whole, as it presents a significantly higher percentage of higher education graduates (p -value < 0.01), while the “other markets” (M7) accumulate categories of customers with lower educational level. This result can be characterized as expected when combined with the age parameter, since, as mentioned above, the majority of customers of these stores are mainly elderly people. Figure 4 presents the classification of customers per supermarket, applying the satisfaction level regarding the customers’ monthly income as a criterion. The satisfaction flowchart follows the same trend in every retail store, providing hints of high competitiveness among firms in this sector.

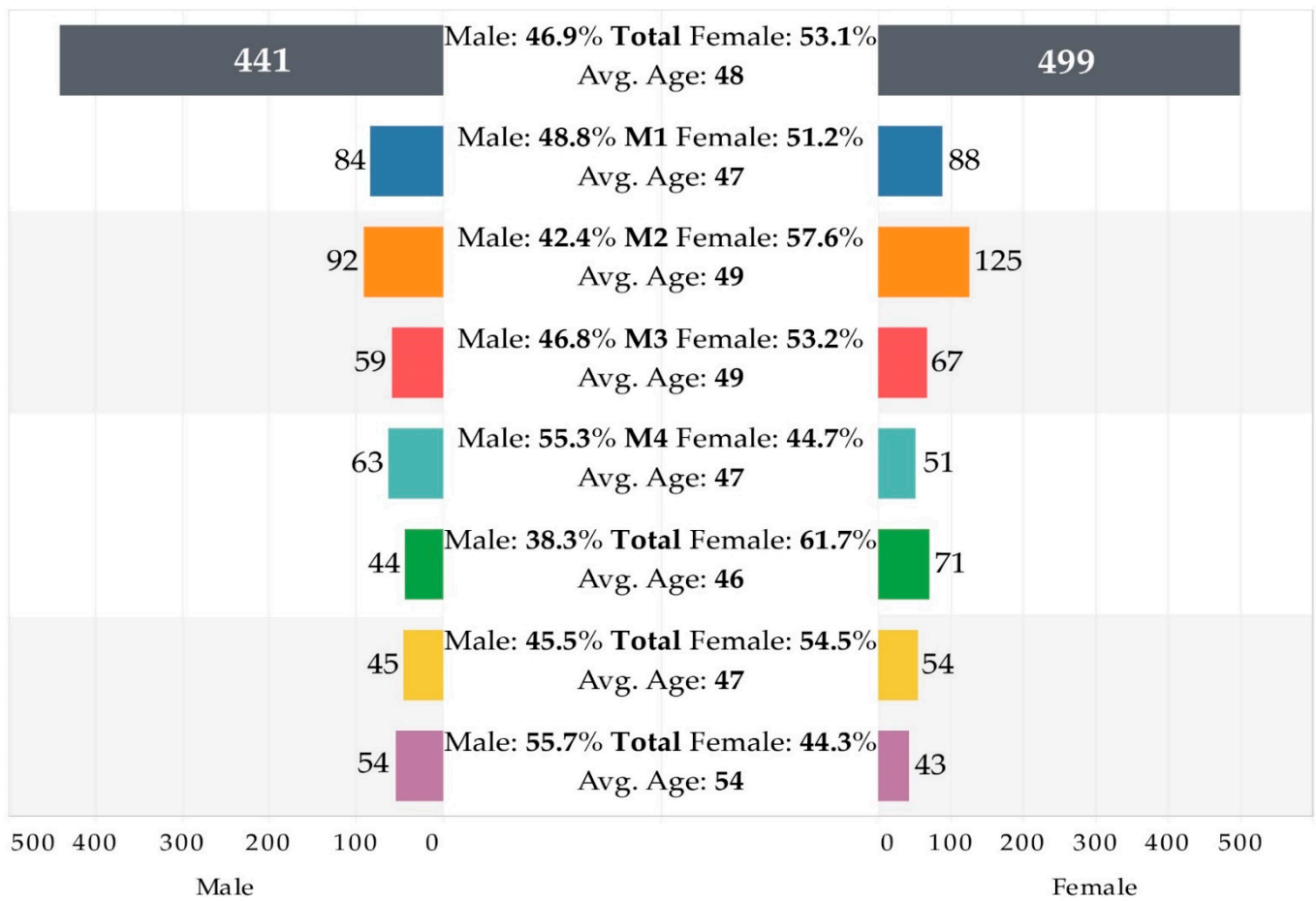


Figure 3. Overview of age and gender of research participants.

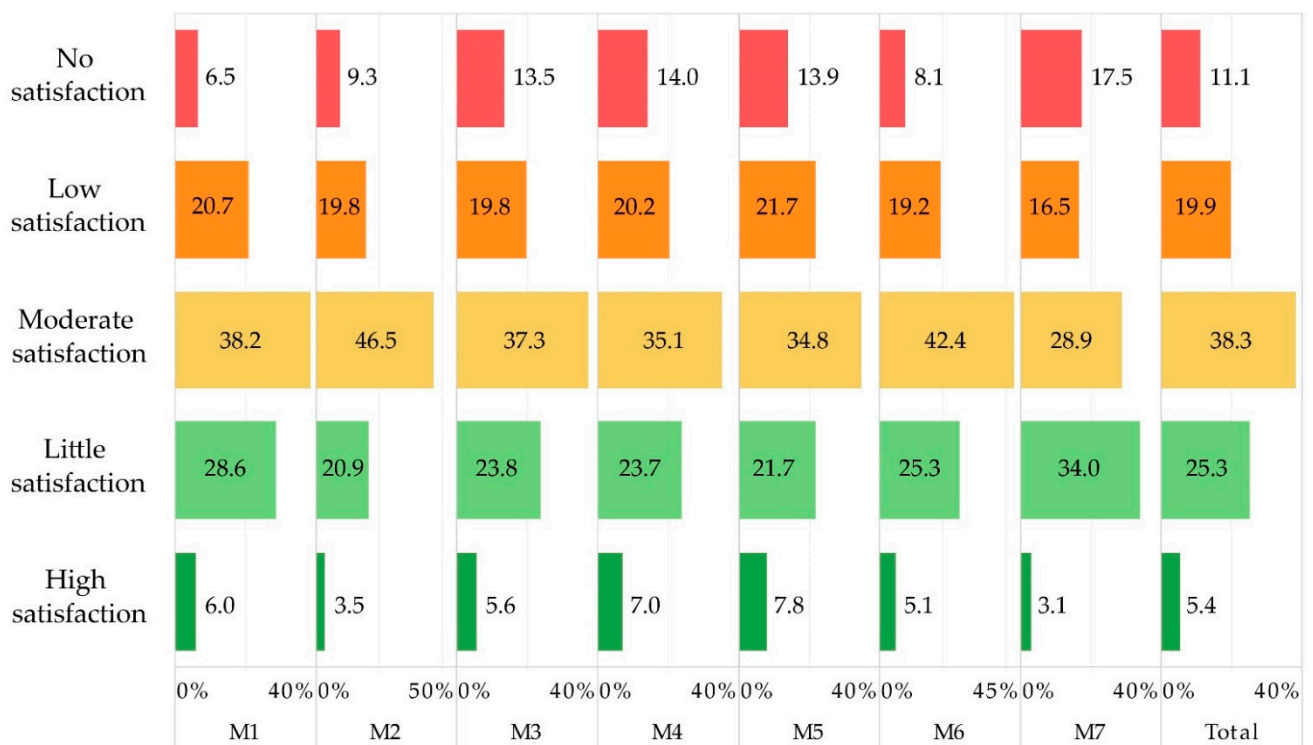


Figure 4. Consumers of each market by income satisfaction level.

4.3. Products Appearing in Supermarket Baskets

The following graph (Figure 5) shows the main categories of products consumers choose to purchase from each supermarket. The main products purchased are cleaning products (86%), refrigerator items (88%), and cheeses/cold cuts (86%). On the other hand, results indicated that there is no preference in store for buying pet items (19.7%), baby products (11.8%), and office supplies (6.1%).

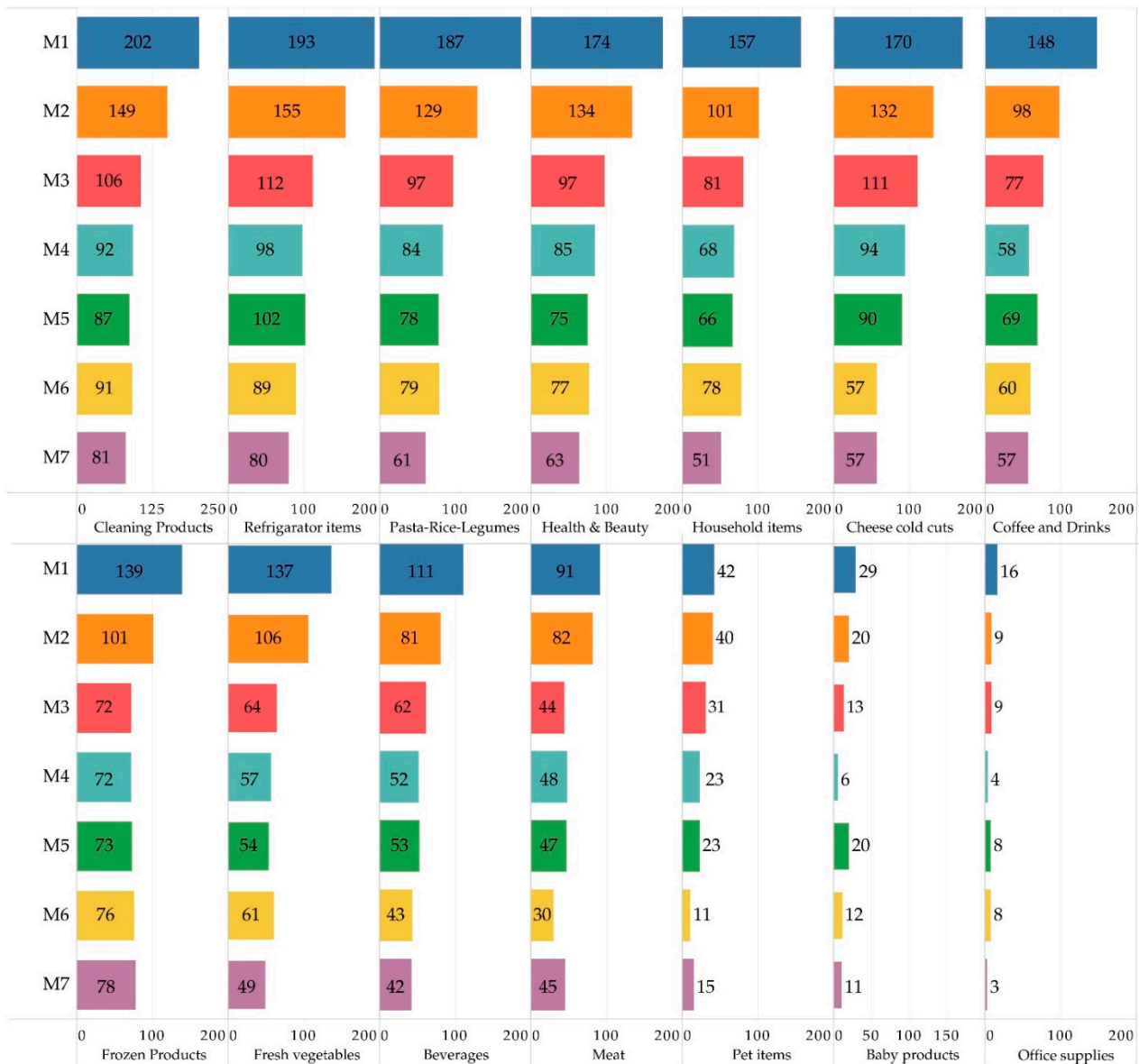


Figure 5. Product categories usually purchased at retail shops.

M1 chain presents statistically significant differences for several categories of the total sample. In fact, in the category of cleaning products, there is a very strong statistical difference (p -value < 0.01) in relation to the total sample. The percentage of customers procuring meat from the M2 chain is higher (48%), compared to the other chains (41%) (p -value < 0.05)). Those who buy household goods and pasta/rice/canned food from M1 are more, with a statistically significant difference when compared with the other six stores. The percentage of those who buy health and beauty products, drinks and coffee, and fresh fruits and vegetables from M1 is also higher than the corresponding percentages of other supermarkets (p -value < 0.05). M3 retail shop customers buy more cheeses and cold cuts

than the average (88.1% versus 79.9% of the total), with a statistically significant difference. On the contrary, less pasta/rice/canned food is sold from M5 store (67.8%, compared to 76.1% of the total), while the same applies to fresh fruits and vegetables (47%, compared to 56.2% of the total) (p -value < 0.05).

In the whole sample, there is no significant difference depending on gender for most product categories, with the exception of products that usually concern females (cleaning products, household items, or even baby products). More specifically, M1 achieves significant differentiation for cleaning products and household items in terms of female customers, while women also show a particular preference (showing a statistically significant difference) in the purchase of baby products from M4. The above findings are evaluated as of particular importance because they are parameters of motivation and consumer loyalty, thus contributing to the gradual development of a significant and sustainable competitive advantage.

4.4. Principal Component Analysis (PCA)

The sample is considered satisfactory, as the KMO index takes the value 0.813 and is therefore considered suitable for analysis. Regarding Bartlett's sphericity test, where the null hypothesis (H_0) is examined, it seems to show an exceptional importance ($=0.000$). In order to further check the validity of the results, FA methodology was applied. Out of a total of 940 customers, PCA revealed six components that reflect 59.5% of the total information (satisfactory level). The answers of Likert scale questions show the on average customer satisfaction is in most cases satisfactory to excellent (average value > 4.0).

The participation rate interprets whether a set of data can change the factor that has been formed. As shown in Figure 6, all factor loadings have a value of >0.400, which means that they are quite satisfactory, and some of them getting values greater than 0.800 being considered as quite satisfactory. Variable Q32 ("I am interested in finding easily a parking space") was removed due to its insignificant contribution ($H_2 < 0.300$) in the components' production.

The first factor appearing with the highest variance level, compared to the other five (19.9% of total variance), refers to the degree of total service and satisfaction of consumers from retail stores. It includes questions regarding the organization, layout, and adequacy of products in the stores where consumers shop, as well as questions about the cleanliness of the physical supermarket stores, the adequacy of staff, and waiting time at the checkout. The second component refers to the importance of the criteria that would lead customers to change retail shop (15.9% of total variance). High quality, great variety, and low prices of the available products are some of these criteria. Focusing on the reasoning behind the choice of a physical store, respondents are very interested in the store's cleanliness and staff's courtesy. Additionally, in the same component, the time required for purchases appears as an important criterion for the selection of a specific store.

The third component is referring to the degree of coverage of needs in quality products (7.6% of the variation). More specifically, the interviewees stated that they are very interested in ensuring the safety of the products they buy for use or consumption, while at the same time are demanding a clear indication of the price corresponding to each product. The intention to use an online store is the fourth component in a row with a very small difference from the previous component (6.9% of the variance). Questions involved in this factor are the following:

Q28: "Would you buy supermarket items from an online store?" and

Q29: "Would an additional discount on any online purchase be an incentive to do your household shopping online?"

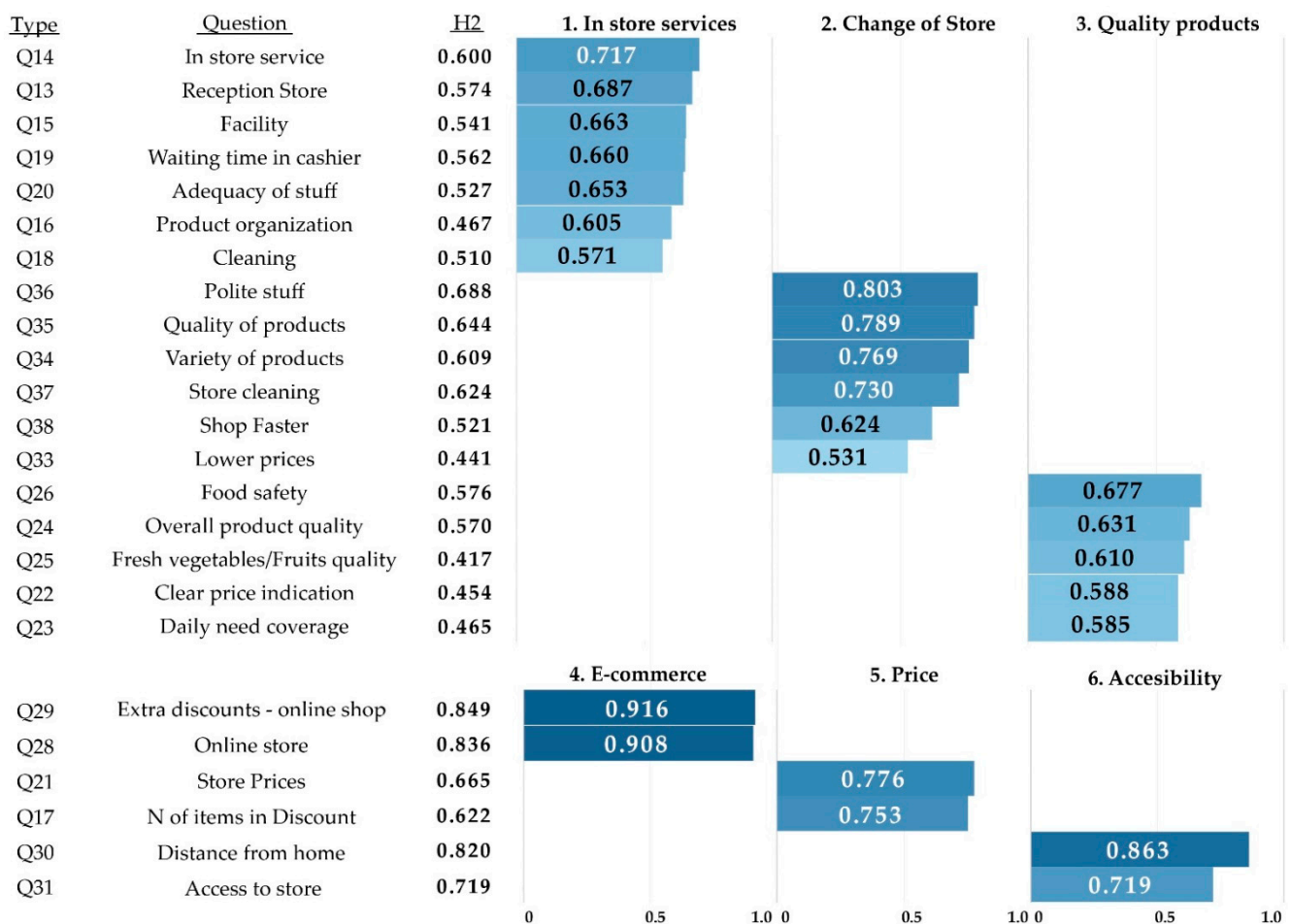


Figure 6. Results of principal component analysis (PCA).

The last two components, with a slight difference between them in terms of the percentage of variation, are the importance of the price (4.9% of the variation) and the degree of accessibility in the store (4.3% of total variation). Specifically, respondents stated that they are concerned about the price of consumer goods and the number of products on sale.

4.5. Assessment of Consumer Loyalty Criteria

Examining the criteria according to which customers of a supermarket may change it in favor of another retail shop, as they emerged from the second component of PCA, reveals that product price is the dominant criterion (significant average of 4.5). The second important is the quality of available products with also high significance, as well as the cleanliness. It is worth noting that there are minimal differences in the evaluations of these criteria between the examined supermarkets. Figure 7 illustrates the relationship and interaction of socioeconomic characteristics with these criteria. Searching for supermarkets with lower prices seems to be a priority for women and people with unsatisfactory monthly family income (p -value < 0.01). Additionally, mothers are consumers who are most interested in the variety of products. The search for high-quality purchased products and the market's cleanness are still two reasons of high importance that would force female consumers to change the point of purchase they usually choose. Family status and the number of children appear as statistically significant factors, verifying their importance on the decision-making process.

	Adults	Age	Children	Dispense	Educ	Empl	Family_st	Gender	Income	MainMarket
Q33	0.045	0.000	0.003	-0.025	-0.044	-0.033	0.016	0.088	-0.137	-0.075
Q36	0.087	0.082	0.020	0.046	-0.077	-0.018	-0.006	0.079	-0.045	-0.145
Q38	0.023	-0.009	0.048	-0.006	0.005	-0.055	-0.041	-0.038	0.000	-0.129
Q37	0.028	0.002	0.012	0.002	0.038	-0.052	-0.045	0.096	-0.065	-0.127
Q34	0.002	-0.061	0.084	0.025	0.019	-0.068	-0.073	0.120	-0.028	-0.126
Q35	0.068	-0.041	0.084	0.046	0.055	-0.070	-0.083	0.093	-0.056	-0.123

Figure 7. Correlation of socioeconomic characteristics with the retail shop selection criteria. Q33: “I am interested in cheaper prices of supermarkets” Q34: “I’m interested in greater variety of products in the retail market.” Q35: “I am interested in better quality products of the supermarket.” Q36: “I am interested in a retail market with more polite staff and better customer support.” Q37: “I am interested in the cleanliness of the store.” Q38: “I would like to have the opportunity to make purchases faster”.

The criterion of proximity (supermarket close to the customers’ house) is decisive and the weight for the customers of M2 is significantly higher than the customers of M1. This means that M1 customers do not intend to change their preference and cover their needs from M2 when the latter’s store is closer to the point of permanent residence. As for M2 customers, proximity is an incentive for them to visit. Moreover, the comparison between M2 and M6 shows that the only reason why consumers would stay loyal to M2 is price affected, while in all other criteria, M6 prevails with a strong statistical difference. Respectively, when comparing M2 and M4 stores, the former succeeds better scores based on the criteria of waiting at the cashier points, the quality of products—fresh and processed—and safety. On the contrary, M4 achieves satisfactory scores in meeting daily needs. Search for low prices is the main reason why M7 customers would visit a different store for their purchases. In contrast, no parameter is significant when comparing the remaining store chains with each other.

4.6. Intention for Future Purchase through Online Retail Stores

The future intention to buy from online supermarket platforms is particularly low for customers of all supermarkets in this survey. There is no statistically significant difference among customers of different supermarket firms. Under these circumstances, however, it is necessary to point out the fact that supermarket M4 customers appear to use online shopping more, which can be explained by the fact that its customers are highly educated, and therefore quite familiar with new technologies, but at the same time, they are highly price sensitive. This combination is able to lead them more easily, compared to consumers of other groups, to use online shopping. However, it is obvious that this intention could be increased by applying incentives, such as discounts for each online purchase. Additionally, customers of M7 stores gave more negative answers to questions about e-commerce, and it seems that even if they had a discount from the online store, they would not choose it for their purchases. This outcome is closely related to the low educational level of the customers of this group, justifying the need for tailor-made promotion strategies to overcome such obstacles.

Figure 8 presents the correlation among answers for Q28 (willingness to buy from an online store) and Q29 (incentive of extra discount for online purchases) questions and socioeconomic characteristics of interviewees. There is a statistically significant difference in the responses of individuals of different educational levels, and as was expected, more educated people have a more positive behavior toward the use of e-commerce for shopping in supermarkets. A negative correlation is found from the comparison between age and the future use of e-commerce (p -value < 0.01). Employment, marital status, and the number of children influence the answers to these two questions statistically significantly (for employment and marital status p -value < 0.01, and for the number of children p -value < 0.05). It is therefore concluded that married individuals with children and unemployed respondents

were more positive about using e-platforms for supermarket items and using this means of shopping with the motivation of lower prices. In contrast, there is no statistically significant difference in the correlation between usage on e-platforms and criteria such as gender, monthly income, shopping expenses, and type of market usually chosen.

	Adults	Age	Children	Dispense	Educ	Empl	Family_st	Gender	Income	MainMarket
Q28	-0.092	-0.309	0.140	0.049	0.248	-0.184	-0.157	-0.038	0.042	0.035
Q29	-0.083	-0.416	0.157	0.007	0.354	-0.261	-0.247	-0.015	0.042	0.046

Figure 8. Correlation of socioeconomic characteristics with the intention to buy from an online retail store. Q28: “Would you buy supermarket items from an online store?” Q29: “Would an additional discount on any online purchase be an incentive to do your household shopping online?”.

5. Discussion

The findings of this survey outline the current situation of the retail market in Greece, focusing on the intention of substituting visits to stores with the use of e-platforms. The survey aims to assess the factors affecting the choice of a specific supermarket store for the purchase of goods, to outline the criteria driving consumers to change store, and to assess their view on the use of an online supermarket. The market is balanced in terms of monthly food expenditures, as no company prevails on this. There is no statistically significant difference in the ages and gender of interviewees, maintaining an equal distribution at this level as well.

AB Vasilopoulos store manages to attract highly educated customers with satisfactory incomes. The same trend applies to Sklavenitis store, although it maintains low market shares. AV Vasilopoulos supermarket develops a statistically significant difference for a series of products sold in supermarket chains. Based on the same statistical analysis, Masoutis store shows significant importance only in the case of meat. Almost the same picture as AB Vasilopoulos is displayed by the company Masoutis. AB Vasilopoulos achieves statistically significant differentiation of consumer attraction by women for cleaning products and household items. LIDL shows a statistically significant differentiation for baby products.

The results of PCA highlighted the six most important factors influencing supermarket selection. In store services, including facilities, product organization, cleanliness of the store, and staff adequacy have been denoted as the most significant factors. These results are in full agreement with previous research [42], which points out that consumer preference in the store is closely linked to service provided and comfortable facilities of the retail store. In addition, customers are looking for a store where the waiting time at the checkout is as minimum as possible, being this one of the motives for further development of e-trade. As stated in the literature review [43], even in physical stores, consumers prefer express counters in order to save time. The issue of time also appears in the second component, proving it is of great importance for consumers.

The price dimension also became equally important, being this a considerable reason for moving to a different store offering better prices. The proximity of competing stores leads to intense price competition. It should also be noted that the contribution of e-commerce in this field intensifies even further the rivalry among firms because prices are posted on every supermarket website, giving customers the opportunity to compare prices at any time. Quality and variety of products are also criteria of great interest to consumers. Therefore, in the case of physical stores, markets should focus on “price” competition and the “value for money” of available products.

Consumers need extra time to adopt e-commerce at a large scale; however, there is a slight shift toward this direction, as is highlighted by the customers of LIDL retail stores. The results for e-commerce acceptance showed that users of the e-supermarket are people of high educational level, but at the same time, they are quite price sensitive. The strategy of discounts seems to be a motive for consumers with a lack of familiarity with the online platforms, still preferring to visit physical stores for their purchases. A typical example

is displayed with the customers of “other markets,” who have a more negative attitude toward e-commerce due to their age and lack of technology familiarity and adoption. In order to achieve e-commerce growth and increase online sales, more resources should be spent on the promotion of this alternative, focusing on preserving quality standards, reliability of deliveries, and formulating a group of incentives related to the price of goods.

The time required for shopping in physical stores seems to be of great interest to the participants in this research. Previous studies verified that reduced time required to make purchases formulates a comparative advantage of e-commerce. E-shopping can be completed without the need for visiting the supermarket, searching for parking space, and waiting in line at the checkout. At the same time, the use of e-commerce instead of visiting the physical store is a method that reinforces the supply chain sustainability by restricting movements for daily shopping, which in the long run contributes to the adoption of more sustainable consumer behaviors.

Product prices and the intention of most consumers to look for discounts is another parameter of great importance. Digital market search requires substantially less time and relative familiarity with the online platform of retail stores.

Based on the above, it is obvious that in the retail market, despite the intensely competitive environment among different companies operating in the field, there is a balance in consumer spending. A thorough analysis of the data, however, shows that there are qualitative differences, capable of changing existing market shares. At the same time, the intention of consumers for online purchases is promising, foretelling changes in the way that everyday purchases in the supermarkets are made.

6. Conclusions

Online shopping has become an integral part of everyday life, boosted drastically after the emergence of the COVID-19 pandemic. It is therefore useful to identify the pros and cons of adopting such purchasing habits at a large scale. Factors affecting consumer behavior have been assessed in order to signify the barriers to e-commerce transition. Despite the fact that there is a significant impact on this adoption, considerable delays have been identified. The major obstacles are the age parameter and the lack of technology familiarity, as well as the lack of a motivational group of incentives offered by firms, based on price cuts and reliability of deliveries. Loyalty consumer characteristics have been evaluated so as to highlight the main criteria leading consumers to select a store. It also featured the customers' attitude toward future e-commerce purchases. COVID-19 period brought a series of radical changes in every person's life, creating a new space for further monitoring of purchasing behaviors under a global crisis framework.

As mentioned in the Results section, this study contributes to sustainability through the assessment of consumer behavior barriers for adaptation of using e-commerce for purchasing daily goods. The greatest contribution to the environment relates to traffic minimization for reaching the physical store, reducing GHG emissions, and noise pollution. To a further extent, time spent on everyday shopping can be substantially reduced, having this alternative way of shopping positive externalities on stress. In this way, it is possible to increase the productivity of the whole community due to the minimization of wasted time.

This survey aims to become a useful reference for both researchers and practitioners. The formation of an integrated consumer profile for retail chain store shopping, combined with new knowledge on the criteria and the priorities set by consumers to adopt new technologies for such purchases, proposes an effective tool for analyzing the decision-making process in the new era. Given the fact that this evolution is of great interest to firms operating in this field, there is a necessity for proposing novel approaches beyond the typical previous ones focusing on consumer loyalty. The importance of traditional limitations for shopping in terms of distance, access, and lack of information is gradually mitigating, being this the catalyst for considerable changes in market shares. Practitioners can utilize these and similar findings to plan and program essential investments in e-trade and tailor-made marketing policies to increase market shares. Significant benefits arise

from them because they will have the ability to decrease operational costs and increase profitability without jeopardizing the quality and safety of products sold. In the long term, sustainability goals can be met as well, being this a continuous goal on a global basis. As with any research, there are some limitations to this study. First of all, it should be mentioned that the research was carried out in the period after the first lockdown in Greece. This study has not evaluated the impact of the ongoing lockdowns on striving consumers to online shopping. Furthermore, it was observed that when using the Likert scale 1–5 in the questionnaire, many participants gave neutral answers (plenty of variables had mean values close to 3), and these variables did not seem to be so significant due to their little participation in the configuration of the components.

As a suggestion for future studies aiming to overcome the above-mentioned barriers, the Likert scale could have seven options, instead of five, in order to obtain results of higher accuracy with greater variance. Finally, it would be interesting to conduct the same research after the end of the pandemic, when consumers will be more experienced with the use of electronic platforms for their purchases, and firms will have time to be more prepared to meet the demands of this marketing channel. According to Esposti et al. [68], there have already been significant changes in consumer patterns as a result of the pandemic and the application of restrictive measures to prevent its transmission. Similar recent research [69] confirms this, stressing that consumer needs are now rapidly adapting to ever-changing external conditions. For the aforementioned reasons, it would be very useful to verify hints related to whether the global crisis, caused by the COVID-19 pandemic, will affect food trends in the long run. Locality and impacts on human health and the environment will influence purchasing decisions, enhancing the significance of local food supply and value chains [25]. To conclude, it is very crucial to identify new consumer behavior patterns after the end of the COVID-19 era, in which people will be more familiar with e-commerce, combining the fact that they will seek local and healthy food sources.

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