The Impact of the Economic Crisis on Greek Consumer Behaviour towards Food Consumption

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ABSTRACT

This study was focused on investigating the factors that affect consumers and their shopping attitudes in the turbulent economic period which characterizes the recent years. In particular, the main aim of this study was to investigate and contribute towards understanding consumer behavior and to explore the factors that affect consumers during their food shopping in adverse economic conditions. To address our research objective, the study is focused on identifying consumers' current spending habits and investigating consumers' food purchasing behavior. Data were obtained from an intercept survey conducted in a random selected sample consisting of 553 consumers between January and May 2016 in the Prefecture of Thessaloniki. In the data which were collected, initially, reliability and validation testing was performed with Factor Analysis (EFA) followed by a second checking of validity with Confirmatory Factor Analysis (CFA) using the statistical program LISREL 8.80. The results were used to formulate a conceptual model in order to investigate consumers' behavior towards food. The empirical examination of this theoretical model was carried out by forming a model of structural equations. Results demonstrate that "objective resources" have been found to influence behavior both indirectly through the "attitudes" towards diet, but also directly. Income was found to affect the model directly and significantly. Also, consumption of food is affected by the number of adults in the household. At the same time, there is a rejection of the "quality" factor due to its higher price.

Keywords: Consumer purchasing behavior; food; economic crisis; Greece; Structural Equation Model.

1   Introduction

In Greece, the economic crisis in 2008 caused a deep recession in its economy. The social consequences of this crisis are very discouraging, with the unemployment rate continuously increasing without knowing until now when and where it will reach its peak. When the crisis started (2008), the official unemployment rate was 14.8%; in June 2011 it was 17.2% (Frangos et al, 2012, EL.STAT, 2012), and in September 2014 it increased up to 26.1%. The biggest percentage of unemployed people, at almost 50%, is in the 20 to 35 year-old age group, while the total number of unemployed people are over one million (Eurostat, 2014).

Consumption in both private and public sectors took a big hit resulting in major reductions which affected every sector of the economy, even the food sector (Karelakis et al, 2013; ELSTAT, 2012). Facing decreased wages up to 30%, with average annual household income estimated at 13.000 euros, at the same time, 20% of people live on 6.500 euros per year (OECD, 2011), increased taxation and recession; low- and middle-income households have difficulty to even maintain the regular accounts (Frangos et al, 2012). Because of the failure to implement working programs through the years, a significantly large percentage of the population (35,7%, 2015) is living near or below the poverty level, with the majority of them being pensioners, unemployed, immigrants and even former entrepreneurs (KEPE – Centre of Planning and Economic Research, 2012; Vlontzos et al, 2017).

According to a wide range of surveys, an average of six out of ten households in Greece during the financial crisis were affected by debt and austerity. Facing cuts in wages and pensions with reductions of up to 30%, increased unemployment rates, taxes and recession, a large proportion of low-income and middle-class households had difficulty paying their daily expenses (Frangos et al., 2012). According to a GESEVE (2013) survey, 78% of households faced serious difficulties in meeting needs. 63.7% of households made cuts in food consumption and 50% of households spend only 2.2% of their income to food. 17.9% of Greeks, twice as high as pre-crisis levels, did not have enough money to provide them with the necessary food, placing the country at a higher level of economic downturn, even from countries with emerging economies with much lower per capita income such as China and Brazil (OOSA, 2014).

However, the economic crisis does not affect consumers only economically, but also psychologically, mainly in the beginning stages (Köksal and Özgül, 2007). People start worrying about their future and do not enjoy shopping anymore (Ang et al., 2000). For example, they do not want to spend money on high-quality products, even if they could afford it (Ferrell and Hartline, 2002). In addition, in their study, Ang et al. (2000) and Köksal and Özgül (2007) found that in general, consumers are more likely to think in monetary terms during the financial crisis. They buy only the necessary goods, turn to cheaper brands and have a more rational view of a product's promotion.

In addition, consumer behavior is influenced by the importance consumers give to nutrition, health, food quality characteristics, price, psychological and socio-demographic characteristics (Tsourgiannis, 2008; OECD 2000). Moreover, according to Lazaridis (2003) and Michalopoulos and Demoussis (2001), the social characteristics of consumers, including family size, family income and educational attainment, are a major influence on the food purchases of Greek consumers.

Research has shown that quality, taste, freshness, price, nutritional value, production method, etc (Almli et al., 2011; Ness et al., 2010; Brown et al., 2009) are the main factors influencing consumer purchasing behavior in the food market. Changes in consumer habits in food consumption, food availability and food accessibility, income, urbanization and marketing are also related to consumer decisions about their food market (Kearney, 2010).

However, in the midst of the economic crisis in Greece, all of the aforementioned factors that affect consumers' purchasing behavior towards food are being questioned. As most of our knowledge about consumer behavior towards food comes from surveys conducted before the financial crisis, we do not have real-time results. It is very important to look at the factors affecting the behavior of consumers in times of unfavorable economic conditions, as economic, demographic, social and cultural characteristics influence the consumer's purchasing behavior towards different foods (Michalopoulos and Demoussis, 2001; Kotler, 1994).

Most of the previous researches (Vlontzos and Duquenne, 2013; Frangos et al, 2012; Stevenson et al., 2007) about food choices by consumers during the economic crisis are more descriptive, paying more attention to the factors leading to choice, and focus mainly on poor nutrition and its consequences.

In this paper, the main objective of the research is to investigate and contribute to understanding consumers' behavior, exploring the factors that affect consumers during their food shopping in adverse economic conditions.

The paper is organized as follows: First, a literature background on consumers' behavior is presented. Next, the research design is presented, analyzing the survey procedure, questionnaire design and statistical methodology of the study. Finally, the results are listed, followed by concluding remarks and discussion.

2 Literature Background

A review of the literature showed that the impact of the economic crisis on consumers' food purchasing behavior has not been fully explored yet (Basen, 2014). According to the literature, consumers might have to change their buying behavior, but with doubtful results when facing an economic crisis.

According to Solomon (1996), consumer behavior is extremely complex, including a range of events from consumption to the disposal of a product. Choosing food products is a complicated procedure of preferences for sensory characteristics, combined with the influence of non-sensory factors, health claims, price, moral issues and mood (Fotopoulos et al., 2009; Prescott et al., 2002). Economic, social and cultural factors can concur in the adoption of patterns. Physiological and psychological factors that create consumers' preferences and attitudes towards food can be differentiated from interpersonal or social factors (Eertmans et al., 2001).

Consumers encounter an array of stages while choosing services or products (Solomon, 1996). Also, according to Schiffmkan and Kanuk (2004), consumers' behavior is associated with how consumers choose to spend their available sources, such as money, effort and time, on consumption items. Some aspects that can determine consumers' decision-making include: a) personal characteristics like demographics, consumers' attitudes, values, resources and personality, b) environmental influences such as family, culture, social class and personal influences, and c) psychological processes including information processing, attitudes and learning (Blackwell et al., 2001).

Furthermore, studies have shown that typically consumers are faced with a five-stage decision making process (Problem recognition, Information search, Evaluation of alternatives, Purchase decision and Post-purchase evaluation) before making their decision to buy food (Stavkova et al., 2008). However, when they buy frequently purchased low-price items, like food, they usually search less and decide more easily (Zander and Hamm, 2011; Carrigan and Attalla, 2001). The general idea across those models was summarized by Howard (1983) as a four-stage decision process: Information-Attitude-Intention-Purchase.

The stimulus-response model (or the black box model) examines consumers' behavior. Specifically, the model shows the interaction between consumer characteristics and responses, decision processes and stimuli. Furthermore, it is related to the black box theory of behaviourism, which focuses on the interaction between stimuli and consumers' attitudes and not on their psychology (Furaiji et al., 2012).

Lastly, Fieldhouse (1996) developed the food selection paradigm which suggests that food consumption is influenced by several factors including economic factors, socio-demographic characteristics, regional diversity, preferences and attitudes, food availability and food choice. But during an economic crisis, consumers' purchasing behavior varies related to their expectations. Ang et al. (2000) showed that during turbulent economic times consumers purchase fewer products, replace luxury products with more economical ones, decisions are based mainly on prices, and consumers make purchases of selected products that fulfill mostly their basic needs.

The cost increase of food often leads to changes in the quantity and type of food being purchased. This may lead to a reduction in the quantity of food consumed, and/or the substitution of high-priced food for cheaper food, which is often less nutritious and of worse quality. Over an extended period of time, changes like these could have negative consequences for nutrition, both through the quantity of food consumed for maintaining energy balance and in the quality of food consumed for maintaining ample intakes of proteins, fats and micronutrients such as vitamins, minerals and trace elements (Thompson, 2012).

According to Mansoor and Jalal (2011) and Flatters and Willmott (2009), in a period of economic crisis, consumers' behavior is described by consumption smoothing at various levels. People are

not so willing to pay more for products that can be replaced by cheaper ones. Consumers have redefined what they consider as "necessities" and what are considered "luxuries". This can be verified by the annual research of the Boston Consulting Group (2011), which claims that 73% of the surveyed consumers declared that they will purchase only the absolutely necessary goods. Furthermore, the hierarchy of consumers' "values" has been modified with "savings", "health", "value for money", and others at the top (Tsourgiannis et al., 2014).

The literature review indicates that consumers change their buying behavior when they are affected by an economic crisis. But their purchasing intentions vary according to their cultural background and other factors.

3   Research Design

3.1   Survey Procedure

The research was based on primary data collected by employing a fully structured questionnaire, supplemented by person to person interviews. The completion of the questionnaires took place in the Prefecture of Thessaloniki, during the period of the survey which was from January to May, 2016. In the survey, a sample from the corresponding population was included, in order to show that the obtained results could be generalized to some extent in the total population of the Prefecture of Thessaloniki.

Regarding this research, the available sample data were all the residents of all municipalities and communities of the Prefecture of Thessaloniki. For the entire sample population, the census data of 2011 by the National Statistical Service of Greece (ELSTAT, 2016) were used. In other words, all the above-mentioned people were considered as potential consumers that purchase food, something that made them eligible to participate in the survey. In this study the sampling unit was one person from each household. The sample was selected randomly[1].

3.2   Questionnaire Design

Factors that affect consumers' behavior towards purchasing food were identified by searching the literature. After that, a pilot survey was conducted in December 2015 among 15 consumers in the prefecture of Thessaloniki within three focus groups with in-depth interviews. In the next stage, a questionnaire was designed in order to meet the research objectives, and therefore the main survey was conducted between January and May, 2016.

The questionnaire was designed in three parts: the primary part consists of questions concerning consumers' food habits and the characteristics they are looking for when they are purchasing food. Next, the second part consists of questions that include attitudinal statements in a 5-point Likert scale related to consumers' opinions and food consumption under the current economic crisis, both for nutritional food and junk food. Lastly, the third part consists of questions concerning consumers' personal information such as age, education, marital status, income, occupation etc.

3.3   Statistical Methodology

In the 553 valid questionnaires collected, multivariate analysis techniques were applied to reveal the key information contained in the responses. Initially, an Exploratory Factor Analysis (EFA) with the factors extraction method in principal components (PCA) and rotation (Varimax Rotation) was applied, to be pooled in a group of independent quantitative variables calculating the rate of Cronbach's alpha, to assess the validity and reliability of the Likert scales used in the questionnaire.

The Exploratory Factor Analysis (EFA) was used to provide a means of assessing validity and reliability (Miles, 2014; Brown, 2006; Kachigan, 1991; Kish, 1987). Exploratory Factor Analysis is a multivariate statistical analysis approach that takes a large number of variables and reduces them into smaller, measurable constructs. It is used to reduce variables to a manageable number, to identify a small number of factors representing relationships among sets of

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[1] The sample was set at 553 people, for a confidence level of 95% (a = 0.05) with the margin of acceptable error at 5%, according to the equations from Raosoft on determining the random sample size: $x=Z(c/100)^2 r(100-r)$, $n=N x/((N-1)E^2 + x)$, $E=Sqrt[(N - n)x/n(N-1)]$, where N is the population size, r is the fraction of responses that you are interested in, and Z(c/100) is the critical value for the confidence level c.

interrelated variables and to study relationship patterns among dependent variables (Miles, 2014; Gorsuch, 1983; Mulaik, 1972; Rummel, 1970).

Then, a Confirmatory Factor Analysis (CFA) was held with the statistical package LISREL 8.80 for assessing and confirming the measurement models of Factor Analysis, to purify the included factors in the model. The method was applied with the statistics "communalities" located on the diagonal of the correlation matrix. Thereby it was confirmed that the empirical variables (indicators) of factors representing a specific meaning (juristic validity) as well as the concepts were homogeneous (convergent validity) (Jöreskog and Sörbom, 1993). Therefore, the resulting correlation estimates among factors and food consumption have been corrected for attenuation.

To continue with the methodology, a comparison was made between the results of the exploratory factor analysis and confirmatory factor analysis for each variable used. More specifically, the t-test was performed on the average below normal distribution in order to determine if the loads of variables for the two analyses revealed a statistically significant difference, and the results indicated no statistically significant difference between the variable loads (p 0.01, p < < 0.05).

Lastly, structural equation modeling (SEM) was conducted, using LISREL 8.80, in order to test the factors influencing the purchasing behavior of consumers towards food consumption. The building strategy was implemented.

"SEM is a statistical technique for testing and estimating causal relationships amongst variables, some of which may be latent using a combination of statistical data and qualitative causal assumptions" (Bollen, 1989). Latent variables (also known as hidden variables, hypothetical variables or hypothetical constructs) are not directly observed but are inferred from observed and directly measurable variables.

The most common use of SEM is for confirmatory rather than exploratory modelling, and thus, it is used more in theory testing than theory development. It usually starts with a hypothesis, it represents it as a model, operationalizes the constructs of interest with a measurement instrument, and at the end it tests the model. The basic SEM consists of two parts: the measurement model used for specifying the relationships between the latent variables and their constituent indicators, and the structural equation model used for designating the causal relationships between the latent variables. The model is defined by the following system of three equations in matrix terms (Jöreskog and Sörbom, 2001):

The structural equation model: $\eta = B_\eta + \Gamma_\xi + \zeta$

The measurement model for y: $y = \Lambda_y \eta + \varepsilon$

The measurement model for x: $x = \Lambda_x \xi + \delta$

where: η is an mx1 random vector of endogenous latent variables, ξ is an nx1 random vector of exogenous latent variables, B is an mxm matrix of coefficients of the variables in the structural model, Γ is an mxn matrix of coefficients of the ξ variables in the structural model, ζ is an mx1 vector of equation errors (random disturbances) in the structural model, y is a px1 vector of endogenous variables, x is a qx1 vector of predictors or exogenous variables, Λ_y is a pxm matrix of the coefficients of the regression of y on η, Λ_x is a qxn matrix of coefficients of the regression of x on ξ, ε is a px1 vector of measurement errors in y, and δ is a qx1 vector of measurement errors in x (Toma et al., 2009).

SEM takes under consideration both direct and indirect causative relations between constructs, which means that one causative relation could also be bolstered or counteracted by another. It is possible there could be more than one way to depict the interlinkages amongst the latent variables. The proposed model can provide additional evidence that the chosen model is the best in representing reality, if it was compared to other alternative running models (Toma et al., 2009).

4   Results

In order to investigate the preliminary relationships that may exist between the factors relating to changes in consumer eating habits, the choice of food market places, the reason for choosing specific products and the most selective food, a correlation table has been created (Product Moment Correlation Matrix) for the factors related with consumers' nutrition changes toward food. Table 1 below shows the correlation between factors and food consumption.

Table 1.
Pearson's Correlations between factors and consumers' consumption towards food (two-tailed significance)

	Code	Q.A.3.1	Q.A.3.2	Q.A.3.3	Q.A.5.1	Q.A.5.2	Q.B.9.1	Q.B.9.2	Q.B.9.3	Q.B.9.4	Q.B.9.5	Q.B.9.6	Q.B.9.7	Q.B.10.1	Q.B.10.2	Q.B.10.3	Q.B.10.4	Q.B.6
Product Characteristics	Q.A.3.1	1																
Economic Characteristics	Q.A.3.2	,458**	1															
Identity	Q.A.3.3	,411**	,208**	1														
Neighborhood Stores	Q.A.5.1	,420**	,164**	,236**	1													
Supermarket & Local Market	Q.A.5.2	,516**	,403**	,031	,348**	1												
Mood	Q.B.9.1	,596**	,313**	,302**	,347**	,385**	1											
Ingredients	Q.B.9.2	,438**	,082	,451**	,304**	,185**	,421**	1										
Price & Distance	Q.B.9.3	,226**	,458**	,222**	,126**	,107*	,349**	,199**	1									
Weight Control	Q.B.9.4	,595**	,254**	,199**	,278**	,334**	,410**	,435**	,221**	1								
Health	Q.B.9.5	,315**	,050	,281**	,215**	,071	,578**	,536**	,261**	,313**	1							
Easiness	Q.B.9.6	,449**	,274**	,119**	,166**	,246**	,451**	,111**	,326**	,337**	,247**	1						
Sensory Appeal	Q.B.9.7	,295**	,259**	,183**	,186**	,204**	,584**	,260**	,303**	,176**	,454**	,312**	1					
Red-white meat & fast food	Q.B.10.1	,499**	,360**	-,051	,328**	,629**	,368**	,088*	,081	,301**	,026	,286**	,187**	1				
Mediterranean Diet	Q.B.10.2	,101*	,016	,314**	,060	-,040	,118**	,340**	,138**	,063	,202**	-,046	,131**	-,112**	1			
Drinks & Pasta	Q.B.10.3	,520**	,347**	,096*	,401**	,490**	,408**	,176**	,247**	,313**	,140**	,314**	,234**	,609**	,065	1		
Carbohydrates	Q.B.10.4	,415**	,185**	,156**	,288**	,401**	,308**	,292**	,062	,301**	,204**	,197**	,133**	,404**	,188**	,429**	1	
Changes in Dietary Habbits	Q.B.6	,604**	,517**	,220**	,352**	,559**	,455**	,232**	,356**	,417**	,165**	,386**	,282**	,478**	,027	,518**	,376**	1

* Correlation is significant at p<0.05 (two - tailed). ** Correlation is significant at p<0.01 (two - tailed).

According to the results of the aforementioned correlation table, 12 factors are statistically significant with food consumption in turbulent economic periods, with statistical significance levels of $p < 0.01$ and $p < 0.05$. These factors refer to the characteristics of products and their components (Q.A.3.1 & Q.B.9.2), the economic characteristics of products (Q.A.3.2 & Q.B.9.3), identity and sensory appeal (Q.A.3.3 & QB9.7), the consumers' mood (QB9.1), health (Q.B.9.4 & Q.B.9.5), comfort (Q.B.9.6), neighborhood shops (QA5.1), supermarket and local market (QA5.2), red and white meat (QA10.1), Mediterranean diet (Q.A.10.2) and carbohydrates (Q.A.10.4).

These values of statistically significant correlation coefficients show a first impression of the nature of the factors, the type of interactions between them and the possible impact on consumers' nutritional changes towards food consumption in times of economic crisis. This interaction of factors and their effect on the consumption of food are presented in more detail in the structural model of the study, which was formulated and evaluated on the method of strategic building.
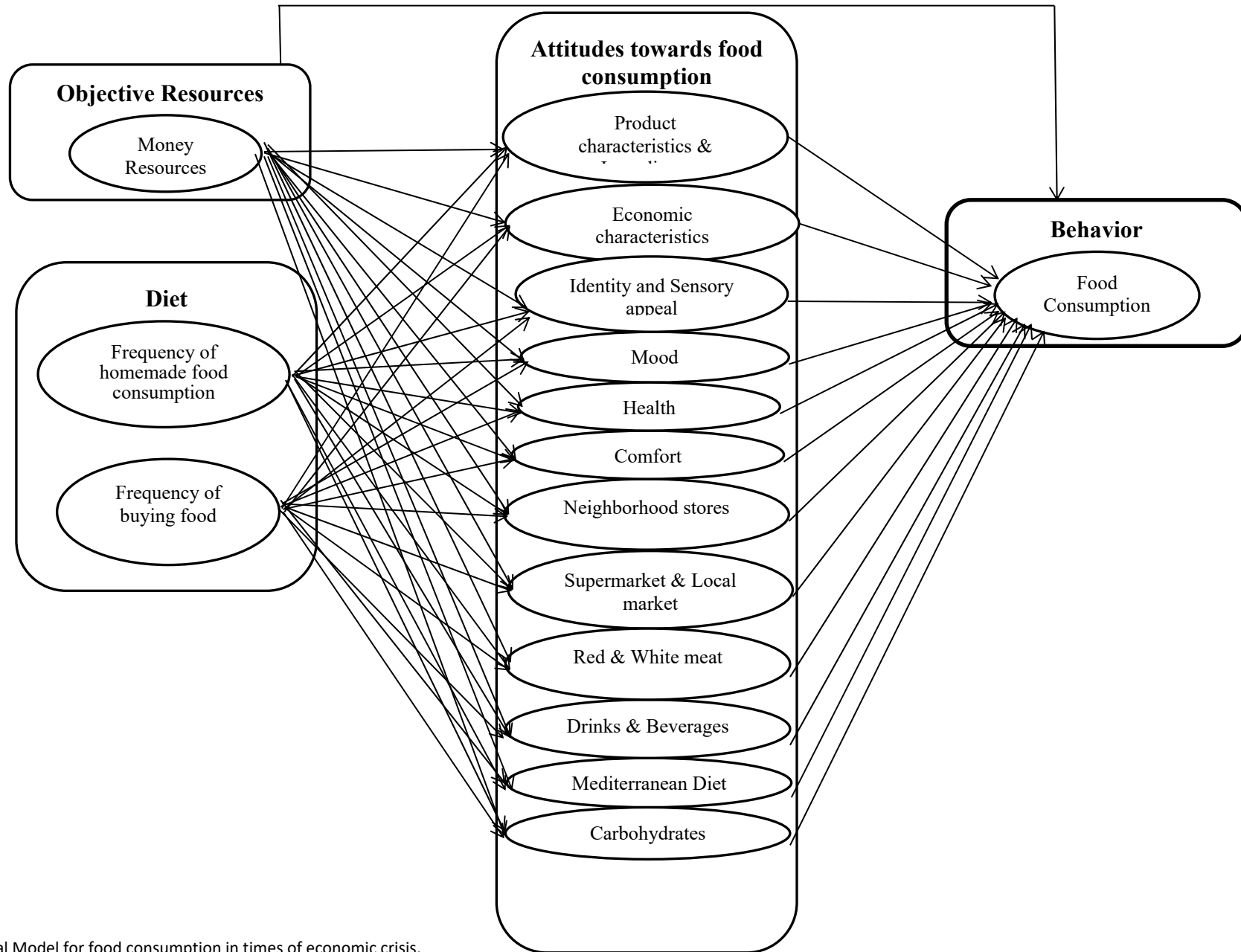
Figure 1. Conceptual Model for food consumption in times of economic crisis.

Figure 2 presents the standard solution of the endogenous variable measurement model. As shown in the diagram, all standardized coefficients of the paths left open for evaluation have a value above the acceptance threshold of 0.40, except for the variables B.9.12, A.3.4 and B.6.4 whose values are very high, close to the limit, and are statistically significant. The loads of the variables A.3.9, A.3.7, A.3.11, B.9.21, B.9.7, B.9.1, A.5.3, A.5.8, B.10.18, B.10.13, B.10.20, B. 10.14 and B.6.1 have been set equal to 1 to give a scale to the respective factors. Table 2 presents the results of the endogenous variables' measurement model. As for the adaptation of the model, it is adapted to the data with $x2 = 21,01$ and degrees of freedom $df = 13$. In addition, all values of the adjustment indices are within the acceptable limits with RMSEA = 0.082 [P (RMSEA <0.05) = 1.00], SRMR = 0.095, GFI = 0.65, AGFI = 0.61 and NNFI = 0.91.

Table 2.
Model measuring endogenous variables of food consumption. * Standardized rates

Μεταβλητή	Φορτίο*	Τιμή T-statistic	R^2
A.3.9	0,65	-	0,43
A.3.8	0,69	17,91	0,48
A.3.5	0,55	13,49	0,31
A.3.15	0,63	15,7	0,39
A.3.12	0,63	15,77	0,39
A.3.3	0,42	19,75	0,27
A.3.13	0,55	13,55	0,31
B.9.2	0,57	14,14	0,33
B.9.5	0,44	10,4	0,29
B.9.23	0,49	11,79	0,44
B.9.22	0,42	19,99	0,38
B.9.32	0,51	12,17	0,56
A.3.7	0,61	-	0,67
A.3.2	0,48	11,02	0,43
A.3.6	0,53	12,23	0,58
B.9.36	0,74	18,5	0,55
B.9.35	0,43	19,7	0,79
B.9.11	0,4	18,86	0,86
B.9.6	0,74	18,55	0,55
B.9.12	0,39	17,16	0,91
A.3.11	0,55	-	0,61
A.3.4	0,39	11,73	0,62
A.3.10	0,56	13,11	0,82
A.3.14	0,45	15,52	0,62
B.9.14	0,43	19,86	0,79
B.9.13	0,5	11,46	0,85
B.9.21	0,63	-	0,79
B.9.16	0,83	23,08	0,68
B.9.34	0,77	20,84	0,60
B.9.26	0,82	22,7	0,67
B.9.25	0,59	14,58	0,75
B.9.18	0,64	16,18	0,81
B.9.7	0,6	-	0,96

| Μεταβλητή	Φορτίο*	Τιμή T-statistic	R²
B.9.3	0,63	15,42	0,80
B.9.30	0,59	14,18	0,65
B.9.29	0,41	19,41	0,67
B.9.31	0,64	15,46	0,40
B.9.1	0,65	-	0,43
B.9.28	0,81	19,81	0,66
B.9.15	0,68	16,15	0,46
A.5.3	0,65	-	0,42
A.5.5	0,63	14,92	0,90
A.5.6	0,75	18,58	0,56
A.5.4	0,76	19	0,58
A.5.8	0,85	-	0,72
A.5.1	0,61	14,89	0,37
A.5.7	0,42	17,3	0,81
B.10.18	0,72	-	0,52
B.10.16	0,73	19,42	0,53
B.10.4	0,87	25,15	0,75
B.10.1	0,73	19,27	0,53
B.10.9	0,41	19,73	0,87
B.10.3	0,76	20,54	0,53
B.10.2	0,63	16,11	0,84
B.10.6	0,55	13,49	0,43
B.10.13	0,41	-	0,67
B.10.10	0,49	19,88	0,84
B.10.5	0,53	10,81	0,98
B.10.17	0,45	19,14	0,72
B.10.11	0,61	12,53	0,37
B.10.20	0,59	-	0,35
B.10.19	0,82	20,93	0,68
B.10.7	0,55	13,01	0,31
B.10.14	0,62	-	0,38
B.10.15	0,75	15,89	0,56
B.6.1	0,45	-	0,21
B.6.2	0,79	20,83	0,63
B.6.3	0,84	22,44	0,70
B.6.4	0,37	16,8	0,93

* Standardized rates
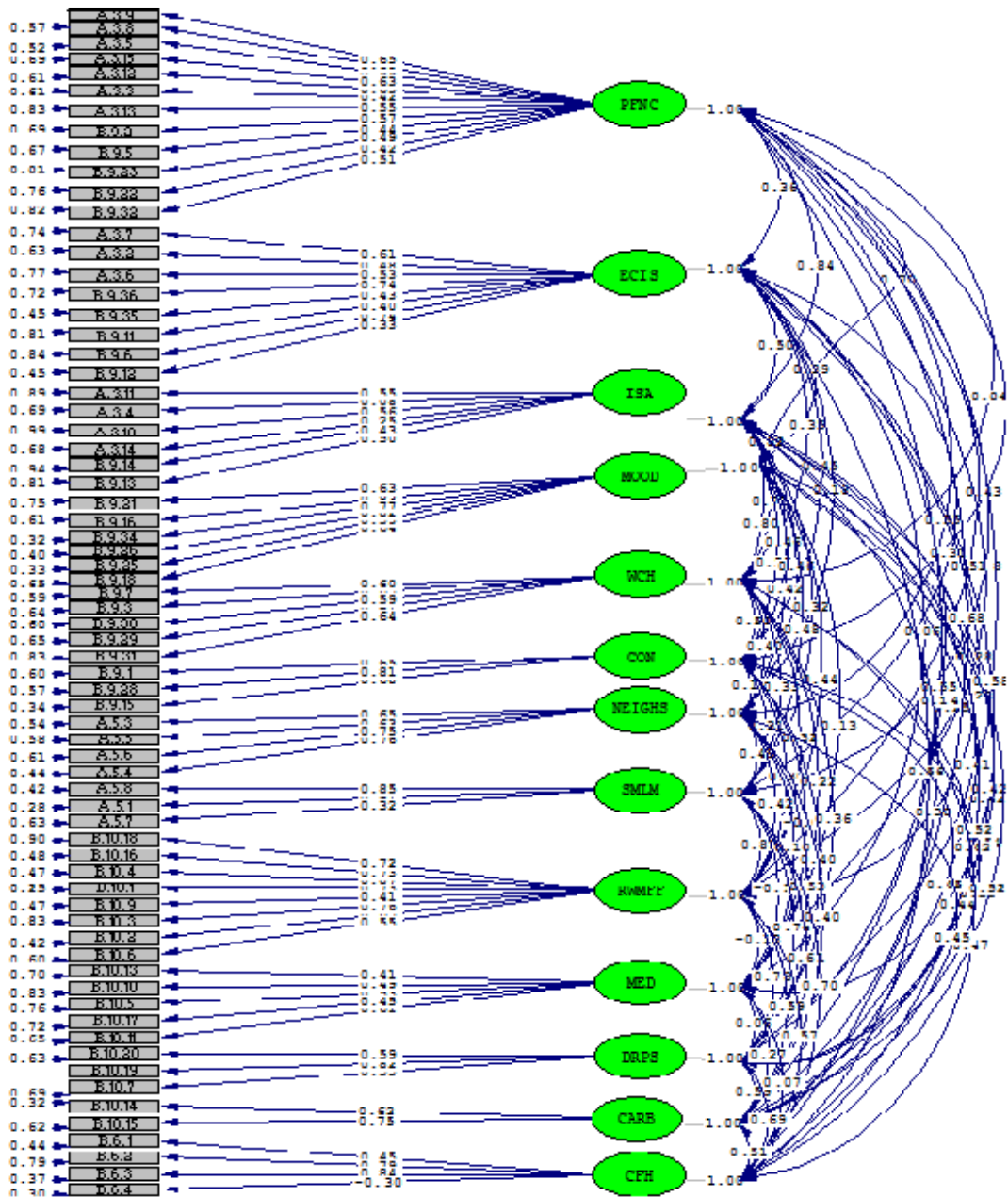
Figure 2. Model of endogenous variables (Standardized solution)

Figure 3 shows the standardized solution of the exogenous variables' measurement model. As can be seen in the diagram, all standardized coefficients of the paths left open for evaluation have a value above the acceptance limit of 0.40 (Nunnally and Bernstein, 1994). Also, all factors in the paths left free for rate are statistically significant. The load of variable A.2.3 has been set equal to 1 in order to give a scale to the corresponding factor (A.2). The loadings of the markers set equal to 1 in order to give a scale to the latent variable usually have a different value (other than 1) in the standardized solution. Table 4 shows the results of the exogenous variables' measurement model. With regard to the adaptation of the model, it is adapted to data with x^2 = 24.06 and degrees of freedom df = 16. In addition, all values of the adjustment indices are within the acceptable limits RMSEA = 0.073 [P (RMSEA <0.05) = 0.955], SRMR = 0.043, GFI = 0.99, AGFI = 0.93, and NNFI = 0.94.

Table 3.
Model measuring exogenous variables of food consumption.

Μεταβλητή	Φορτίο*	Τιμή T-statistic	R^2
A.2.3	2,05	-	0,59
A.2.1	1,57	5,61	0,34
A.2.2	1,00	-	1,00
B.12	1,00	-	1,00
C.22	1,00	-	1,00
NA	1,00	-	1,00
NC	1,00	-	1,00
AL1	1,00	-	1,00
AL2	1,00	-	1,00

* Standardized rates
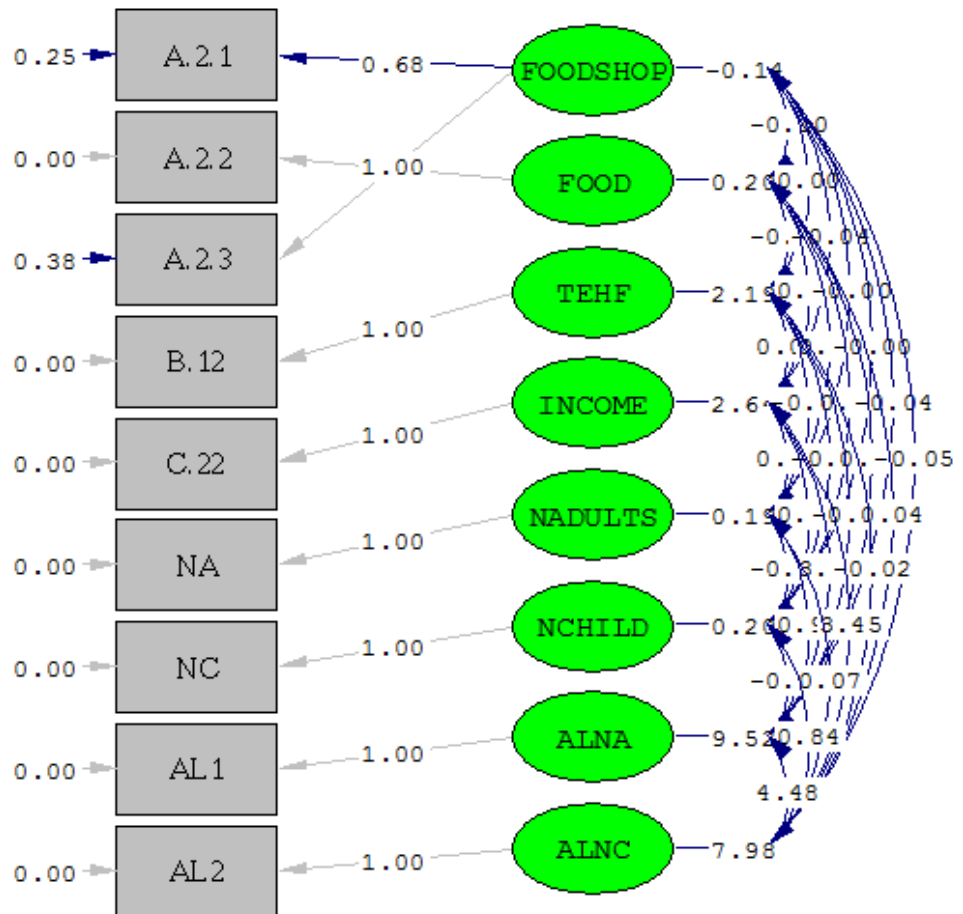
Figure 3. Model of exogenous variables (Standardized solution)

In order to test the structural equations of the model, the strategy of building was followed. Starting from the "zero model" where all coefficients of matrices are set equal to 0, successive paths are released, estimating the adjustment of the model each time. The release of the paths took place according to the following 5 stages:

1. Direct effects of diet on attitudes

2. Direct effects of objective resources on attitudes

3. Direct effects of attitudes on behavior

4. Direct effects of diet on behavior

5. Direct effects of objective resources on behavior

In order to compare the adaptations of the model, the x^2 test, the Non-Normed Fit Index (NNFI) and the Good of Fit Index (GFI) were used. The entry of the paths was accepted only if the x^2 was statistically significant and the difference in the value between NNFI and GFI was positive. The results are presented in Table 4.

Table 4.

SEM model results of the five stages.

Stage	Added Reactions	Adjustment			Change of Adjustment				
		χ^2	df	RMSEA	$\Delta\chi^2$	Δdf	P	ΔNNFI	ΔGFI
0	Zero model	3604,45	1589	0,098	-	-	-	-	-
1	Diet on Attitudes	2032,08	1347	0,096	1571,37	242	0,0000	0,89	0,77
2	Objective Resources on Attitudes	2025,75	1335	0,094	6,3	12	0,0000	0,89	0,8
3	Attitudes on Behaviour	1744,95	1334	0,09	280,8	1	0,0000	0,92	0,82
4	Diet on Behaviour	87,82	277	0,087	1657,13	1057	0,0000	0,86	0,77
5	Objective Resources on Behaviour	51,63	116	0,061	36,19	161	0,0002	0,96	0,98

As expected, attitudes towards consumption of food were found to have significant impact on behavior. Also, the frequency of consumers' food purchases has a significant impact on consumers' attitudes towards food consumption. On the contrary, the direct effect of the frequency with which food is consumed was not found to be supported by the empirical analysis. In addition, objective factors have an impact on consumers' behaviour not only indirectly through attitudes towards consumption but also directly. The statistical effects of the accepted paths are shown diagrammatically in Figure 4.
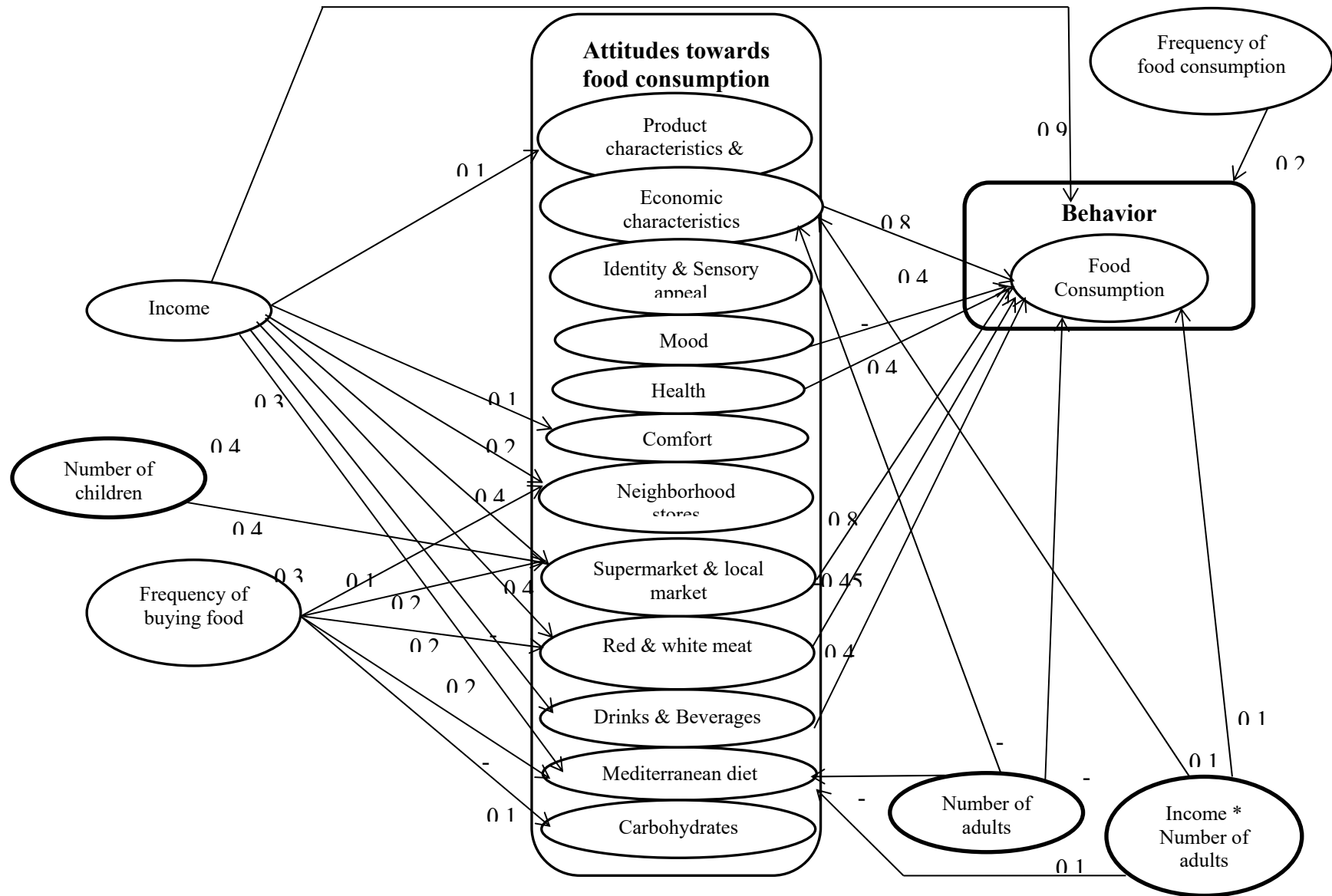
Figure 4. Structural model for food consumption in times of economic crisis (Fully standardize solution)

5   Discussion – Conclusion

This research contributes to the understanding of consumers' purchasing behaviour towards food under the current economic crisis.

The model has indicated that behavior is influenced by different factors every time. This confirms that although different products' groups may belong to the same general category, the behavior towards these groups differs as they are very likely to meet different consumer needs.

The results of the assessment of the food consumption model have shown that, in addition to socio-economic variables, attitudes and perceptions have been found to play a decisive role in explaining consumers' behavior in an economic crisis. The objective resources of the household which were expressed in socio-economic variables in this study were found to influence behavior in two ways: initially, in a direct relationship and secondly through variables referring to consumers' attitudes. The "money" variable has been found to affect behavior both directly and indirectly through attitudes towards food consumption.Furthermore, from the estimation of the food consumption model, there appears to be an important and positive effect of economic characteristics on behavior, as might be expected in the present economic situation.

A very important conclusion is the absence of any effect of the "quality" factor both on attitudes towards consumption and on behavior, in the model of food consumption. It is an interesting conclusion, because based on previous research, the "quality" factor is placed high in the hierarchy of consumer preferences. However, it seems that in times of economic crisis, consumers are interested more in price and offers, and mostly turn to snack consumption. This shift was not expected as fast food is considered by consumers to be expensive. However, it is likely that consumers with lower incomes show a preference to buying fast food because of the easiness that it offers although it is considered more expensive.

By estimating the structural equation model, both the structural relationships between the variables and the relative weight of each variable were revealed. The economic characteristics combined with consumers' income appear to play the most decisive role in behavior.

Overall, the findings of the present study confirm that consumers' purchasing behavior towards food has changed under the current economic crisis. From the objective resources (demographic characteristics), it was found that the factors "income", "number of adults" and "number of minors" are those that most influence the behavior of consumers towards food consumption.

Nevertheless, there are some limitations in this study. Firstly, even though it was a large-scale study, it took place only in the prefecture of Thessaloniki, so it would be valuable to enlarge the sample size to other cities or extend it to rural areas. Another issue is the natural limitation that the survey was conducted on the spot and may not represent the true beliefs and attitudes of consumers' purchasing behavior. It would be interesting if we could examine this over time since natural circumstances change all the time. Finally, the study was conducted during a particular period of the current economic crisis and it would be interesting to examine the factors that affect consumers' purchasing behavior throughout all the facets of the economic crisis.

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