Segmenting Czech and Ukraine Using the Food-Related Lifestyle Instrument

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Abstract

During recent years, a lot of new information has been published about the factors which cause food diseases. The most cost-effective and sustainable trend of controlling these diseases is through lifestyle changes, such as eating healthfully. Food culture stimuli research is required to better understand transnational character. In a convergence context, the aim of this paper is to know whether the segmentation of food related lifestyle (FRL) in the relation to attitude toward healt-diet, local, natural, organic foods expected in the Czech Republic are represented in Ukraine, which is differentiated in contextual factor (social learning). Data from 196 undergraduate students from Czechia and data from almost 123 undergraduate students from Ukraine were collected in 2019. We have used a modified FRL framework to cluster analysis segmenting food shoppers into four groups that had some characteristics of uninvolved consumers. These segments exhibited significant differences organic local food shoppers in Ukraine and in the Czech Republic. These findings are important for the future as the social and lifestyle changes such as a prevention of non-communicable diseases are very well beneficial for the cost savings and provide social returns and better care system for patients who require treatment.

Key words: food-related lifestyle; food choice, consumer behaviour, cluster analysis

JEL Code: M31, Q18, P36

Introduction

Various type of published studies using food related lifestyles (FRL) concept (Grunert et al., 1997; Brunso, 1996). Previous studies segmenting and profiling personality characteristics, food-related lifestyles and behavior. Furthermore, some studies that attempt to examine consumer segments with regards to exploring relationships between FRL and variable in general (such as organic or local buyers) and to develop marketing strategies in particular. The instrument has been successfully applied over the years to various European and other Western food cultures (Grunert et al., 2011).

Compared consumer using multi-sample confirmatory factor analysis with structured means were cross country of Denmark, France, Germany, Spain and the UK (Scholderer et al., 2004) and using for segmentation European Union food consumers (Grunert, 2001). Additionally, Thøgersen (2017) investigates sustainable food consumption in the nexus between national context and private lifestyle in ten European countries.

Also, various studies in different countries that used segmentation according to the concept FRL explored dietary factors (Pérez-Cueto et al., 2010); analyzed rural and urban consumers, divided population samples into FRL consumer segments (Cullen and Kingston, 2009); found relationships between FRL and vegetable consumption (Nijmeijer et al., 2004). Nie and Zepeda (2011) used a modified FRL to examine organic and local food consumption and to generate better empirical predictions of who buys organic and local food (Zepeda and Nie, 2012). Wycherley et al. (2008) examined speciality food orientation. Furthermore, Aschemann-Witzel (2018) provided marketing strategies to reduce food waste for each specific segments of consumers.

In a convergence context, the aim of this paper is to understand if the segmentation of food related lifestyle in the relation to attitude toward healt-diet, local, natural, organic foods (Nie and Zepeda, 2011; Szakály, 2011; Wycherley et al., 2008) expected in the Czech Republic are represented in Ukraine, which is differentiated in contextual factors (social learning). In other words, in this study we examine the role of social learning in food avoidance behaviors in both countries through the following questions. "What distinguishes consumers who are motivated to buy organic food in different countries?"; "Do the consumers who tend to be more interested in buying organic food have a higher awareness of nutrition, they tend to be considered the social relationships"; "Is food a social event for them?". It is commonly believed that food consumption and dietary choices can make an important contribution to meeting current environmental challenges. Informed choice, much as in the case of nutrition labelling, is hoped to empower people to consume more sustainable food products (European Commission, 2008).

The rest of the study is organized in the following way: In the next section, there is a description what data was collected and how it was analyzed. The following section contains the results of the cluster analysis. The last section offers conclusions.

1 Methodology

1.1 Data collection and sample

In this study we used data collected through an online survey. Statistical populations of research were all students at five universities in Czechia and students from one university from Ukraine. Participating students were informed that participation was voluntary and anonymous. The current analysis got data from 196 undergraduate students from Czechia at five universities in Czechia (University of Economics in Prague, Czech agriculture university in Prague, Mendel University in Brno, the University of South Bohemia, Palacký University Olomouc) and data from almost 123 undergraduate students from Ukraine (Kherson State Agrarian University in Kherson). These data findings were conducted between May and December in 2019 at six participating universities. To enable respondents to easily fill in the questionnaire in a short time, we adjusted the length of questionnaire to the minimum possible items. A online survey was used because we wanted respondents to reflect on their answers. The final sample reflected the main socio-demographic characteristics of the study area for age, gender and income. The questionnaire was developed in Czech and translated into Ukraine languages. In order to check the translation, they were check again by the different person. Before implementing the surveys, the final online questionnaire was further checked by a knowledgeable, native speaker of the language in question and then in the University in Ukraine and Czech. The samples from each country, was discussed. The purpose of selecting these countries was that difference between both countries, are in the variety of social learning circumstances.

1.2   Questionnaire and variables FRL

For the present study, there are construct associated with the research framework. The questionnaire was developed as a general FRL to study to analyse the lifestyle implemented in several countries. For the purpose of the study were analysed only modified domains of FRL (Brunsø & Grunert, 1996) concept. To avoid central tendency bias of responses, a 4-poin scale ranging from "agree" (0) to "disagree" (3) was used to collect information on. Finally, certain socio-demographic characteristics, such as age of respondent, household income, gender were also collected (all items FRL are not presented).

1.3   Data analysis

A number of steps were taken to assess reliability of the variables. Firstly, the Cronbach's alpha (Cronbach 1951) test was carried out to assess the internal reliability of the items specified for each domain and for each country.

The clustering method (CA) used to identify the FRL segments was Ward´s method for aggregation and Euclidian distance. A hierarchical CA was employed to determine

clusters for each of country (StataCorp, Version 16). The number of clusters was obtained to determine the number of identified clusters. The Duda-Hart stopping rule was considered. Cluster solutions of clusters were run using the Calinski-Harabasz stopping rule. These stopping rules examine the between- and within-cluster variance to ensure the most distinct clustering cluster solution is obtained. If a cluster contained <10% of the total sample, it was considered too small for adequate statistical power. Finally, a Kruskall-Wallis test allowed the resulting groups to be profiled. Data presented in the text are 99 % confidence. Among the clusters Cramer´s V was a measure of association, with values 0.10 or less considered weak, between 0.10 and 0.30 moderate, and 0.30 or higher considered strong (Tanur, 1977).

2 Results and discussion

A total 323 students with complete data were included in this study. The Cronbach's alpha will suffice for the reliability toleration. They were considered in farmer´s market (32% agree, 26% rather agree in Ukraine, 19% agree; 45% rather agree in Czech) and direct from the farm (33% agree, 30% rather agree in Ukraine; 19% agree 34% rather agree in Czech). The growth in local food systems, including direct marketing by farmers, is demonstrated by the increase in the value of agricultural products sold directly to individuals for human consumption (US Department of Agriculture, US Census of Agriculture, 2009). This finding is in line with the results obtained by Pascuscucci et al., 2011, Hughes, Massa, 2015) related to current issue of changing consumption habits.

The four-cluster solution produced the best cluster outcome for both countries and well separated clusters (determined by a high Calinski-Harabasz pseudo F statistic), but that it was not formed a reasonable size sample in Ukraine (less 10% of sample size). The information of frequency FRL variable across clusters demonstrated that the identified cluster had varied characteristics of profile.

In the Ukraine the highest Calinski–Harabasz pseudo F value is 25,58 for the two-group solutions but it is close to the four-group solution. The largest Duda–Hart stopping-rule value is 0,92, corresponding to four groups (0,919) and eight groups (0,92). The smallest pseudo-T-squared value is 2,05 for the 12-group solution, but the pseudo-T-squared value for the four-group solution is also low, with a value of 5.12. In the case of CR, the highest Calinski–Harabasz pseudo F value is 17 for the two-group solution, it is close to the four groups solutions (13). The largest Duda–Hart stopping-rule value is 0,93 corresponding to two, four and five groups. The smallest pseudo-T-squared value is 2,53 for the 15-group

solution, but the pseudo-T-squared value for the four-group solution is also low, with a value of 4,58.

Cluster analysis also provides insights to the questions "What distinguishes consumers who are motivated to buy organic food in different countries?" and "Do the consumers who tend to be more interested in buying organic food have a higher awareness of nutrition, and do they tend to be considered the social relationships as a rather important food purchasing motive? Is food a social event for them?" (All relevant items are show in Table 1)

Tab. 1: Countries clusters ´profile of the relevant item FRL in terms of means, Wald test for differences between FRL segments, and significant

	Czech Republic				Ukraine		
	Cl.1 33%	Cl. 2 15%	Cl. 3 19%	Cl. 4 33%	Cl. 1 49%	Cl. 3 28%	Cl. 4 21%
Higher order product attributes - health							
I try to do this for my health.	1,4	0,51	1,05	0,7	1,2	0,82	0,30
I always check nutrition value of food.	2,15	1,41	1,65	1,31	1,5	0,85	0,61
I prefer to buy „natural products" i.e. products without preservatives.	1,33	0,27	1,05	0,73	1,3	0.70	0,26
The quality recognize according – rich of nutrition.	1,81	1,03	1,36	0,78	1,5	0,61	0,15
Meal preparation scripts							
We often get together with friends to enjoy cooking.	1,43	1,06	0,89	1,78	1,4	0,61	2,15
Going out for dinner with my friend is a regular part of our rating habits.	1,56	1,41	1,28	1,87	1,5	0,67	1,65
Usage situations – Social events							
Regularly have a lunch with my friend.	1,63	1,37	1,31	1,87	1,8	1,02	0,88
Regularly have a lunch with my family.	1,55	1,27	1,34	2,14	1,3	0,70	0,65
Regularly have a dinner with my friend.	2,06	1,72	1,34	2,14	1,83	0,77	1,03
Regularly have a dinner with my family.	1,63	0,89	1,21	1,9	1,15	0,82	0,26
Regularly have a snack with my friend.	2,06	1,17	1,52	2,04	1,83	1,17	1,18
Regularly have a snack with my family.	2,29	1,79	1,94	2,34	1,86	1,05	2
Desired consequences – Social relationships							

The reason I go to the restaurant or fast food/pub/Mensa is mostly my friend.	1,84	1,62	1,71	1,81	1,16	1,02	0,53
When I have friends over to eat, the most important thing is that we are together.	0,76	0,34	0,36	0,75	1,26	0,70	0,57
When I eat with my family, the most important thing is that we are together.	0,58	0,17	0,26	0,53	1	0,94	0,76
Eating with friends or relatives is an important part of my social life.	1,07	0,55	0,73	1,35	1,05	0,61	0,61

*Cl. means cluster. No significant at 1% were for Czech Republic in the item "The reason I go to the restaurant or fast food/pub/Mensa is mostly my friend" and for Ukraine in the items "Regularly have a snack with my friend", "When I eat with my family, the most important thing is that we are together", "Eating with friends or relatives is an important part of my social life."
Source: authors ´own research

In CR cluster 1 (n=65, 33%) is constituted by students who placed the least importance on the product information (labels) and on other aspects such as shop in specialty food stores as well as buying food in farmers´ market and bio-product there. Additionally, they are not considered the organically grown food products if they have the opportunity. Cluster 1 assigned the least importance to nutrition value of food, 52% rather agree with statement to prefer products that include health composition, fresh and nature products attribute. Also, they placed small involvement in other recipes and preparing new food dishes. Cluster 1 and 4 assigned the least importance of all clusters to food consumption situations, and especially to eating out, such as food social relationship.

Clusters 2 (n=29, 15%), 3 (n=38, 19%) and 4 (n=64, 33%) is constituted by consumers who placed the largest importance of all product information (labels). Moreover, they considered on enjoyment on speciality food stores, Farmers' market and direct sales from farm. The highest importance of all clusters was put by cluster 2. In addition they also placed emphasis on organically grown food products, natural products without preservatives, self fulfillment in food, and they try to do for their health. Similarly, 3 and 4 clusters members' assigned intention "rather agree". Concretely 4 cluster is characterized by least enjoyment of shopping organic products on the Farmers Market, nutrition value of food is one of the attributes to observe and one of the quality aspect of the brand (60% agree). 2 and 3 clusters members attached a certain importance to price, value of the food products, innovation of food dishes and food social relationships as a rather important food purchasing motive.

No significant differences were found between clusters in the attitude towards advertising, enjoyment of shopping, price criterion, price/quality for organic products, the minimum distance between producer and farm, use of a shopping list, quality aspects – low

fat, ready to eat foods in household, dislike everything that might changing eating habits, the reason to go to the restaurant is mostly my friend.

In Ukraine 1 cluster (n=60, 49%) is constituted by students, who again placed least importance of all clusters on food information (label), advertising, attitudes toward distance between farmers and producers, such as enjoyment of shopping, supermarkets, Farmers´ market, direct sales from farm. Also they placed lower importance on price criteria, use of shopping list, quality aspect, price/quality relation. 3 and 4 clusters members emphasised enjoyment organically grown food products, food freshness, healthiness (eg. naturally food), nutrition values, and other attributes of food. Similarly, the highest importance of all clusters was put by cluster 4 on the contribution of the company to meal/eating preparation, consumption situation. Cluster 4 members also held strong self-fulfilment in food and security, conformity. Finally, they showed the highest food social relationships with friend as a rather important food purchasing motive. On the contrary, cluster 3 members assigned the more importance convenience.

No significant differences were found between clusters in the items: attitude towards innovation; more of them are looking for ways to prepare new meals (25% agree, 30% rather agree), I prefer to buy products that include health composition (e.g. vitamin), I eat whenever I feel the slightest bit hungry, I m interested in cooking and reception, regularly have a snack with my friend is not typical for more students (34% disagree, 25% rather disagree) and I m familiar with traditional Ukraine dishes. We could confirm similar results from the Czech part of the survey analysis in attitudes toward social relationship (54% agree that when I have family over to eat, the most important thing is that we are together and eating with friends or relatives as an important part of my social life).

3   Discussion

First, we examined descriptive statistics (Descriptive statistics is not present). For many students food social relationships are a rather important food purchasing motive, and Ukraine have strong concern for organically grown food products.

Four consumers segments were distinguished for each country, we decided not to discuss in detail the results regarding to group two in the Ukraine, due to the risks involved in drawing conclusions based on a segment with a low number of consumer (McEwan, 1997). Thus, significant positive relationship was found with the FRL scales "organic product" and "healths" – aspect like the use of natural ingredients in food products, nutrition value and

healthy diet are mainly not additives in both countries. Specifically, in 2 group in the Czech Republic and group 4 in Ukraine.

The results of the CA revealed a pattern that replicates the results found eg. in five European countries (Pérez-Cueto et al., 2010) and in the USA (Nie, Zepeda, 2011). We could say that these clusters are closes to rational or adventurous segments. Adventurous and rational consumers also are more involved in organic and local food, which is similar with the results of this study (Nie and Zepeda, 2011). Healthiness, freshness and safety of food were particularly important to them.

Conclusion

Avoidance of available food is either directly motivated (some aversion to it) or indirectly motivated (social influence), and in this aspect of social transmission on food aversion can often still be more deeply investigated. The question is, if there are qualitative differences in the role of social influence in food avoidance behavior in the countries with different cultural life experience.

Based on the results of segmentation of consumer behavior, we can confirm that the role of social learning of food avoidance behaviors has become a factor in changing consumer shopping attitudes towards organic foods. To determine whether the role of social learning of food avoidance behaviors we compare FRL from two countries with different life experience of consumers. In Ukraine the organic shoppers have a difference in attitudes towards advertising, stores, price criteria. Furthermore, this result provides explanation of contextual factors between both countries.

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