

Consumers' food choice and quality perception: Comparative analysis of selected Central European countries

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Abstract: Food quality and safety belong to the most important factors of building the image of the product, brand, or country of origin at the local, regional or global markets. The main aim of the paper is to compare the food products quality perception in the selected countries of Central Europe: Poland, the Slovak Republic and the Czech Republic. Different aspects of the food products quality perception were considered during our research as food hygiene, product safety, taste, brand, quality mark and safety processes in food manufacturing. The methodical approaches of the paper are based on the questionnaire survey, and, consequently, the cluster analysis defining the consumer's perception typology. The computations were processed by using the statistical program SAS. The research results point at the food hygiene as the most important qualitative factor for the respondents in all three countries. On the other hand, the packing as a factor is considered as of either a less importance or an irrelevant one in terms of the product quality perception.

Key words: food product, quality factor, perception, cluster analysis, dendogram

Consumers are increasingly demanding foods that are assured to be healthier, safer, more palatable and more environmentally or animal friendly (Krasnodębski and Cieřlik 2001; Matysek and Szafranska 2009; Gao et al. 2010). There are many research works and studies which showed that non-economic factors are becoming more important during the recent period in determining the consumers' purchasing decision (Bielik and řajbidorová 2009; Hupková et al. 2009). The consumer (Solomon 2011; řredl and Soukup 2011) want quality and value, however, these terms have slippery meanings that are hard for us to pin down. We infer quality when we rely on the clues as diverse as the brand name, price, product warranties, and even our estimate of how a company invests money in its advertising. In manufacturing, a measure of excellence or a state of being free from defects, deficiencies, and significant variations, brought about by the strict and consistent adherence to the measurable and verifiable standards to achieve the uniformity of output that satisfies the specific customer or user requirements. The ISO 8402-1986 standard defines quality as "the totality of features and characteristics of a product or service that bears its ability to satisfy stated or implied needs".

Today, we understand under the quality background (Kolár et al. 2003; Vilhanová and Nagyová 2011) that

is the summary of symbols and characteristics of a product or service, which could satisfy the consumer needs. The quality food product we could understand as the product, which can satisfy the consumer needs with its benefits. The quality is made by the consumer through his/her decision to buy or not to buy. The basic quality product requirements are as they are shown in the Figure 1.

The perception of quality could be different because of the various reasons. Firstly, the consumer could be influenced by his/her vision or his/her experience of a low quality product. Therefore, a consumer does not have to believe in any new fact about the quality or he/she does not plan to devote his/her time to the verification aims. Secondly, the company can achieve quality in the areas, which are not important to be perceived by consumers. Thirdly, the consumers seldom have the necessary information, in the point of the rational and objective valuation of the product quality. If they own these information, they very often do not have time and the motivation to assess them. In the end, they count on one or two impulses, which are related to the quality.

However (De Magistris et al. 2010), a policy action is important in this field especially when certain illnesses could be partially prevented by following



Figure 1. Action model impacts on the product quality in the different product life cycle

Source: Kollár a kol. (2003)

the healthy eating habits (i.e. the regular physical activity, a moderate alcohol consumption, the avoidance of smoking, etc.). Even though the inclusion of the nutrition facts is voluntary, the regulation of this type of claims ensures that consumers have access to more information of the intrinsic food attributes in order to allow them to follow a balanced diet. The nutritional label use depends on: (i) the consumer socio-demographic characteristics (*age, gender and education*), (ii) the situational, behavioural and attitudinal factors (*income, working status, time spent shopping, special diet status, diet-health awareness, type of household, area of residence, etc.*), (iii) the product involvement factors (*price, nutrition and taste*), (iv) nutritional knowledge and, (v) other factors (*scepticism and attitudes toward nutrition*).

The answer to the question “What does quality actually mean?” (Hron and Macák 2009) is generally vague, as it is obvious in the following three concepts’ definitions. It is not possible to automatically reach the compliance with the standards that specify the user’s features, operating characteristics and external parameters of the product. The possible concepts of the quality classification are:

- Satisfying the needs and requirements as well as any specific demands of customers at any time and immediately.
- Providing the costumers with such products and services that consistently satisfy them or surpass their expectations.
- Immediate doing the right things in the right ways, the consistent struggle for improvements and above all doing it for the costumer’s full satisfaction.

When considering what these definitions have got in common, there are three principles on which the quality management stands:

- Quality relates to procedures, products, personnel and working environment.

- Quality means to at least meet (optimally to surpass) the consumer’s expectation related to the value that he/she gained while having purchased the offered product.
- Quality is a permanently variable aspect.

OBJECTIVES, MATERIAL AND METHODS

The paper is focused to identify how important the quality of the food perception on the buying decisions using mainly cluster analysis. The question has the answers code in the Likert Scale, we can see the similar analysis. For their classification, a scale method (scale of attitudes) can be used. The scales represent a group of questions which are used by the consumer to assign the researched problem on a chosen basis (continuum). This continuum can be expressed verbally (good, average, bad level of an effect), numerically (good level = 1, average level = 2, bad level = 3) and graphically (by the means of pictograms). They used the semantic differential for analysis and quantification.

Knowledge about the food choice motives which have the potential to influence the consumer consumption decisions is important when designing the food and health policies, as well as marketing strategies (Hoonkanen and Frewer 2009). The Russian consumers’ food choice motives were studied in a survey (1081 respondents across four cities), with the purpose of identifying the consumer segments based on these motives. These segments were then profiled using consumption, attitudinal and demographic variables. Cluster profiles differed in relation to the socio-demographic factors, consumption patterns and attitudes towards health and healthy food. The analysis of Granzin et al. (1998) represented the consumers’ orientation toward health issues which often influences their behavior in the market-place,

Table 1. Questionnaire question

<i>In your opinion, which aspects are important for the definition of high quality of food? Please, list the importance of quality with the number 1–5, 1 – it means the least importance and 5 – it means the highest importance:</i>					
Food hygiene (C41)	1	2	3	4	5
Product safety (C42)	1	2		3	4
Taste (C43)	1	2	3	4	5
Brand (C44)	1	2	3	4	5
Packing (C45)	1	2	3	4	5
Quality mark on the packing of product (46)	1	2	3	4	5
System of quality safety during production (C47)	1	2	3	4	5

Source: own research

suggesting the implications for the marketers of health-related products and services on how best to reach their customers. A cluster analysis of the consumers' participation in 29 health-promoting behaviors identified six consumer segments.

For this article, we use the following question from our survey (Table 1). The research was done in 2007 to 2010 and we have gathered 978 Slovak respondents from whole area of Slovakia, 313 Polish respondents from Cracow, Warszawa, Katowice and their surroundings and 184 Czech respondents from Prague, České Budějovice and Brno cities. The respondents could determine by 5 scales the importance of image factors in chosen European countries. These indicators of food quality were evaluated by the respondents with the scale values from 1 (very weak indicator) till 5 (very high indicator). The research question looks like the following:

Cluster analysis is a class of statistical techniques that can be applied to the data that exhibit "natural" groupings. Cluster analysis sorts the raw data and groups them into clusters. A cluster is a group of relatively homogeneous cases or observations. Objects in a cluster are similar to each other. They are also dissimilar to the objects outside the cluster, particularly the objects in other clusters. The term cluster analysis (first used by Tryon 1939) encompasses a number of different algorithms and methods for grouping objects of the similar kind into the respective categories. A general question the researchers are facing in many areas of the inquiry is how to organize the observed data into meaningful structures, that is, to develop the taxonomies. In other words, cluster analysis simply discovers structures in the data without explaining why they exist.

There are numerous other linkage rules such as these that have been proposed: Single Linkage (the nearest neighbor), Complete Linkage (the farthest neighbor), Unweighted Pair-Group Average, Weighted Pair-Group average, Unweighted Pair-Group Centroid,

Weighted Pair-Group Centroid (median). We have applied the Ward methods and tried to describe this method more deeply. The method is distinct from all other methods because it uses an analysis of variance approach to evaluate the distances between clusters. In short, this method attempts to minimize the Sum of Squares (SS) of any two (hypothetical) clusters that can be formed at each step. We can refer to Ward (1963) for details concerning this method. In general, this method is regarded as very efficient, however, it tends to create clusters of small size. Ward (1963) proposed a clustering procedure seeking to form the partitions P_n, P_{n-1}, \dots, P_1 in a manner that minimizes the loss associated with each grouping, and to quantify that loss in a form that is readily interpretable. At each step in the analysis, the union of every possible cluster pair is considered and the two clusters whose fusion results in the minimum increase in the 'information loss' are combined. The information loss is defined by the Ward in terms of an error sum-of-squares criterion.

RESULTS AND DISCUSSION

The globalization as a multidimensional process is not only a driving power but at the same time, it is a resultant force of many development trends. In this sense, the formation of the sustainable dimension of globalization is fundamental from the view-point of the world society, competition or the consumer success perception. This aim is very considerably connected with the global trends. In characterizing the global structures and defining requirements for the need of the global coordination, it is necessary to stem from multidimensionality and a very high importance of quality products in the export period of international business. In the Table 2, we compare the results of three years lasting research in the chosen EU countries. The

Table 2. Comparison of the chosen European consumers by their quality perception

	POLAND	CZECH REPUBLIC	SLOVAKIA
Importance of price	Typical price oriented consumer, price is very important for most Poles	Very important impact on Czech purchase decision is the impact of price factor	Slovak consumer is typical prototype of price sensible consumer, but he/she is also the “researcher“ of quality in rational price
Country-of-origin (COO) perception	More than half Poles perceive COO; what is foreign, is better and of a really high quality	They like to buy food news, positive perceive the packing or new flavors before COO(that is not so important for Czechs)	The Slovaks rather buy more expensive goods, but they more intensively perceive COO than bio or other...They join the product quality with some of COO perception
Food consumer preferences	More than 87% of Poles buy by their habits and traditions, which they have learnt in the environment, where they lived or live	Most Czechs think that Czech products are of high quality such as beer, alcohol or sweets in the comparison of foreign food or drink products	The knowledge of foreign brands we know very well in the comparison of other nationalities. Slovaks love brands and brand products
Shopping places	They prefer shopping in fun-shopping centers, in hypermarkets and supermarkets	Hypermarket is already 7 years the most shopping place of Czech consumers	Slovaks buy in hypermarkets, spend their leisure time and are most of time in shopping centers
Quality symbol on the product packing	Packing with the quality symbol influences very positively the Polish consumers	Quality symbol plays a very important role in the Czech consumer behavior. “Klasa” has a very dominant position in the food marketing strategy	Symbol of quality has a very low perception by the Slovaks. Many of them do not know the food name, which has the symbol on the packing. The promotion is weakest in the comparison of Poland or Bohemia
Purchase decision according to the purchase price factor	Noodles and sauces, Milk products, Fruit and vegetables	Juice and soft drinks, Noodles and sauces, Buns and rolls	Juice and soft drinks, Noodles and sauces, Chocolate and sweets
Purchase decision according to the purchase quality factor	Meat products, Milk products, Fruit and vegetables	Fruit and vegetables, Meat products, Milk products,	Milk products, Meat products, Fruit and vegetables

Source: own research

factors, which influence the consumer purchase decision, recently passed several changes. While the Western European prototype consumer preferred food quality and the Eastern European is inclined to the price decision. The consumer preferences were changed despite of the fact that the purchasing power of the Eastern European population and the average monthly wage in the East European countries are substantially lower than in the Western Europe, we are also citizens not satisfied with the goods, and carefully considering the goods we buy. We like to try news in the market or we like to discover a new brand, what is reflected in the fact that if we want to have the experience we have to also pay extra. We have defined nine food segments, where we compare the quality perception with price such as: milk and meat products, wine and other alcohol, juice and soft drinks, chocolate and sweets, bioproducts, noodles and sauces, fruits and vegetables, buns and rolls.

Cluster analysis used in the comparison of quality perception in chosen European countries

The full and detailed analysis of the structure of the research output data we illustrated via the dendograms of cluster analysis, in which we can see the sequences of the cluster steps in the each cluster level. In the next dendogram figures we show the objects (indicators) which belong to the each cluster (research countries: Poland, the Czech Republic and Slovakia) in the association of their numbers.

Poland

The integration of Poland into the EU in 2004 strengthened the association linking the “Eastern” Polish consumers to the Western consumers through the comparison of price and quality factor by the food purchasing. The

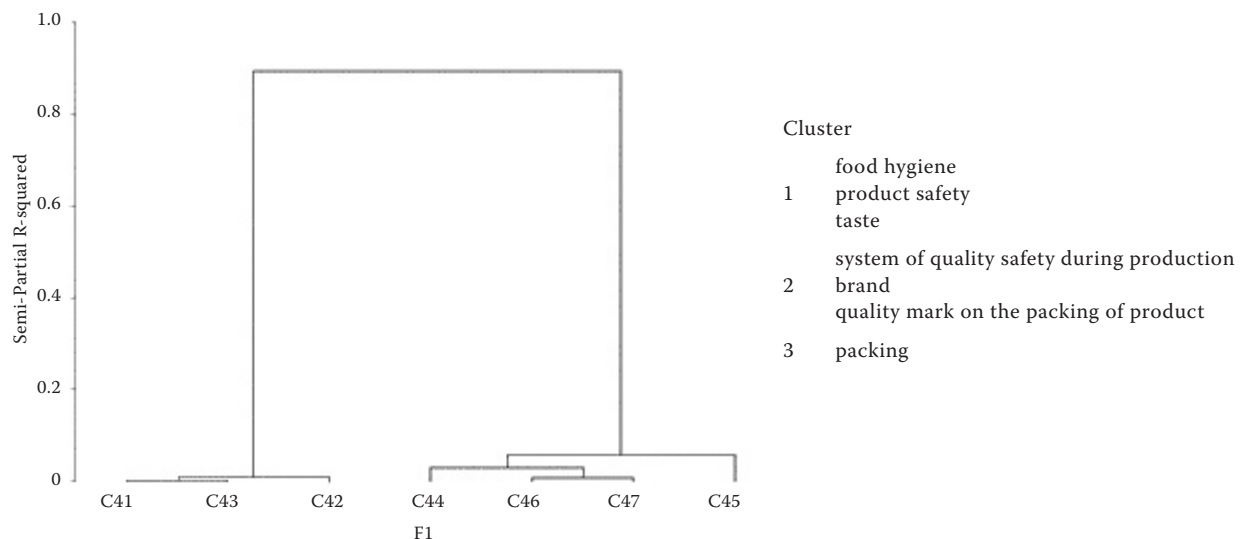


Figure 2. Poland dendrogram

Source: own research

Polish consumer behavior under the impact of the ever-new and global products approaches the preferences of the group of Poles who begin to intensely perceive the quality factor before price factor. The relevant shopping decision depends on the material equipment of the Polish consumer's income, because the larger group still remains affordable – sensible consumers, as those who prefer quality and food safety.

In this case, which is illustrated in Figure 2, we analyzed the respondent views on the aspects, which are very important do them by the high food quality perception. In Poland, there is very important the factor of food hygiene (C41), product safety (C42) and taste (C43), which are the most important for them and they determined these factors by the scale 5 of the modus. The modus means the most well known factors in the statistical file or research. Of a slightly less importance is the factor of system of quality safety during the production (C47), brand (C44), packing (C45) and quality mark on packing of the product (C46) are average for the Polish respondents – of the neutral importance, which were determinatde by the scale 3.

From the results of research in Poland, there were built 3 big clusters such as the group of food hygiene, its safety, and taste. The second biggest cluster is the system of quality safety, the brand and quality mark on the packing. A very important result is that the packing factor is really separated by the comparison from the other quality factors.

Czech Republic

The Czech Republic is currently, together with the other countries of the Central and Eastern Europe, fully integrated into the global economy. The Czech con-

sumer segmentation is an important group of European consumers for many multinational, global but also local companies due to the positive associations and the openness of Czech consumers towards various goods imported to the Czech market. Despite the positive attitude of Czechs towards foreign products, most consumers believe that Czech products are of a high quality and competitive in comparison with foreign products. In the views of Czech consumers, there predominates a strong preference of domestic products over the foreign ones. Clearly they believe that these are their Czech products: *Skoda Auto, Budvar, Pilsner Urquell and Bata*. In the modus of the statistical research, there are for Czechs very important, regarding food purchasing, the food hygiene (C41), taste (C43) and the system of quality safety during production (C47), in the first three aspects of which they are similar to the Polish consumers. These quality aspects were most determined by them. The average scale 3 was by brand (C44), packing (C45) and quality mark on the packing of product (C46). In the comparison with Poland, we can see in the Figure 3 that the Czechs prefer the food hygiene (C41) factor as the most important for them. Other quality aspects are also important in the segment of food, but not so much. The packing aspect (C45) is perceived as neutral in the both groups of the researched consumers.

Slovakia

The changes in the socio-economics indicators after 1989 led to a transformation of the Slovak consumer behavior. The Slovak consumer is more informed, he/she meets with a cosmopolitan group of services, and he/she is more aware of their rights, which he/she

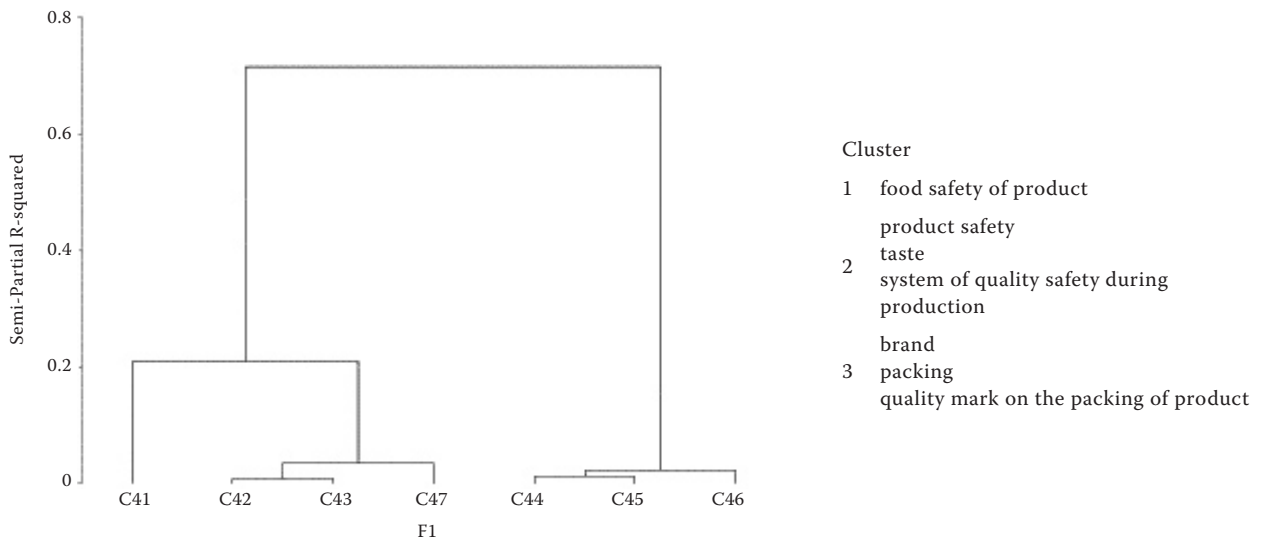


Figure 3. Czech dendrogram

Source: own research

also seeks. He/she is classified into similar groups of European consumers, influenced by the price factor, as the most important decision point of the purchasing process. After the accession to the EU in 2004, with the positive development of the Slovak economy and the increase of earnings, the consumers can, on one side, afford a “better” buying. On the other side, despite the smaller gap in the salaries and a similar preferences to buy food based on quality, still their behaviour is not the same as the consumer behavior in Western Europe and the price factors have an intensive impact on the purchase decisions, which affects more than one half of the Slovaks. In the case of food, for Slovaks, there are very important the freshness and quality of goods and certainly the price. Most Slovaks say that they purchase based on quality, but often the

situation has changed the point of purchase and must be decided by price. A very positive impact on consumers is that of the “red prices”, which are marking the discounted goods.

In Slovakia, there is most important for consumers the aspect of food hygiene (C41), product safety (C42), taste (C43) and the system of quality safety during production (C47). These aspects were determinate by the scale 5.

In the Slovak cluster Figure 4, we can see that the perception of quality aspects is really the same in the comparison to the Czech Republic. The cluster analysis shows that the Slovaks prefer food hygiene as one of the most important aspects and especially dominant in the purchasing decision of European consumers.

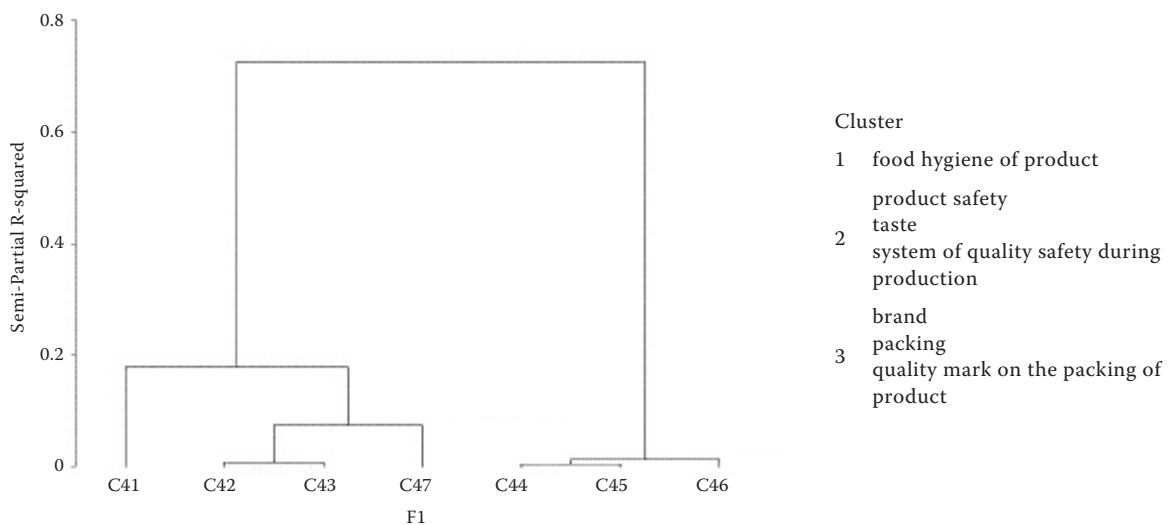


Figure 4. Slovak dendrogram

Source: own research

CONCLUSION

Finally, there is no doubt that price is an important parameter in the consumer choice, and that the trade-off between price and quality is an important aspect in the consumer food choice. However, the unwillingness to pay for a certain quality does not necessarily mean a lack of the interest in quality. If a consumer is not willing to pay for a specific quality, it can be due to many other reasons than the lack of interest in quality:

- the product does not, in the objective sense, have the specific quality the manufacturer claims
- the consumer does not desire the specific quality (enough), i.e. the consumer does not consider the quality improvement to be worth the price differential
- the consumer does not realize that the product actually has the specific quality

Price, if the consumer actually notices it in a purchase situation, may be perceived as high or low not only in relation to the perceived quality, but also in relation to a subjective reference price, which again is based on the previous experience. A high price may even be regarded as positive, a sign of a high quality.

The European consumer will never be a general phenomenon, because of impact of different culture, incomes, the level of the country's GDP, the inflation or unemployment rate. We then consider the group of the East European consumers, but neither they can be completely similar, because every country has its specific habits and traditions, which can influence the consumer decision.

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