

STATISTICAL ANALYSIS OF CHANGING OF CONSUMPTION HABITS IN CHOSEN COUNTRY AFTER GOING TO THE EU

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Abstract

Economic development is normally accompanied by improvements in a country's food supply and the gradual elimination of dietary deficiencies, thus improving the overall nutritional status of the country's population. Furthermore, it also brings about qualitative changes in the production, processing, distribution and marketing of food. We realized research through questionnaire. It was done primary examination: in 2004 were asked 1000 persons and in 2007 and 2008 220-220 persons in the Western-Transdanubian Region of Hungary. According to the statements of the examination got the medical and quality respects in the course of the choose of the foods because of the effect of the crisis into background and the price became a determining factor. The results of the research show also in the same time that the consumption frequency of the products with higher additional value (cheese, yoghurt) rose and the consumption of kefir and liquid milk decreased.

Key words: product consumption, dairy industry, factor analysis, cluster analysis

JEL Code: C38, L66, M31

Introduction

Factors affecting food consumption came into the limelight of the scientific researches in the last decades of the 20th century. The participants of the agricultural market, from the primary producers to the leaders of the government offices, face the fact that the carefully worked-out and adopted marketing for the production process can establish the efficient work of the food industry.

More business enterprises lay stress on international opportunities, innovation activities and competitive advantages. From this viewpoint, their activities are affected by the factors and reasons regarding adaptation to the foreign market. (Ubrežiová – Bujňáková – Kapsdorferová – Majorová, 2009)

The experiences of the developed countries verify that that kind of market strategy can be successful which can handle the product improvement, the price strategy and the claims of the consumers accordingly and can be guided by the changing home market (Kapsdorferová – Nagyová, 2005). As a consequence it is important for the marketing strategies to know the characteristics and the processes of the home food market which leads to the scientific establishment of the marketing work of the companies.

The manufacturers have to get to know the consumption and buying habits of the inhabitants, (Mura – Löster, 2011) different target groups have to be determined for the different products and they have to adjust to the newest nutrition habits and trends to increase the sales.

The most important aims of the research are the following:

- Analysis of the „consumers and buyers“ behavior with primary research method in Hungary.
- The analysis of the result of the effective demand and prices on the Hungarian food – within this the dairy product - consumption habits.
- The demonstration of the changing consumption habits of the dairy products and revealing the future trends.
- Food consumption habits and their change in Hungary between 2004-2009 in particular consideration for crisis in 2008.

The given answers may include important information about the buying and consumption habits for the experts who work in the field of food industry, mainly in the dairy industry. We can get some other important information about the separation of the different target groups, the popularity of the different dairy products and some anomalies (etc.: butter, margarine).

1 Materials and methods

During this work we applied the method of quantitative research. The research was based on quantitative survey within it on personal interviews. At setting up the samples was the basis the last national census in 2001. The preparation and the national representative interviews were carried out according to the following plan of sampling. During the sampling a thousand individuals were chosen. This size of the sample provided on the one hand that the subgroups formed by different background variables will provide sufficient members to receive

statistically reliable results, on the other hand that this number is general in the international and in the national market research and public opinion poll.

The personal interviews were carried out between October 2004 and summer 2005. At setting up the samples the primary aim was to ensure the representativeness of the sample. A many-stage sampling method was created to provide multiple representativeness (Szakály, 2004; Berke, 2003). The examination was done again in 2008 and 2009 in two regions of Hungary, where we examined the food consumption habits change because of the crisis.

The basis of the reliable results – over the representativeness – is, that possibility of chance choice has to be provided. To this was applied the method of „random walking”, which has characterize, that all people has the same chance, to come into the sample. The method „random walking” we combined with the method „birthday key” in home, so providing the chance in the second step, too. This methods used Statistical Office of Hungary (2008), too. The essence of the method is, that those family member has to fill in the questionnaire, whose birthday is the nearest to the day of question.

For the easier processing the questionnaire made by me contains closed questions. In the most case the responders had to write their answers on a five-graded scale. This was easy to understand, and the results show good the opinion of the responders.

The processing of numerous data happened with the SPSS for Windows 9.0 and 16 mathematical-statistical programm. Besides calculating the averages, significance tests were conducted with Chi-square test, and for multiple analyses ANOVA, cluster and factor analyses were used. With this methods made analysis Řezanková et al. (2009), too.

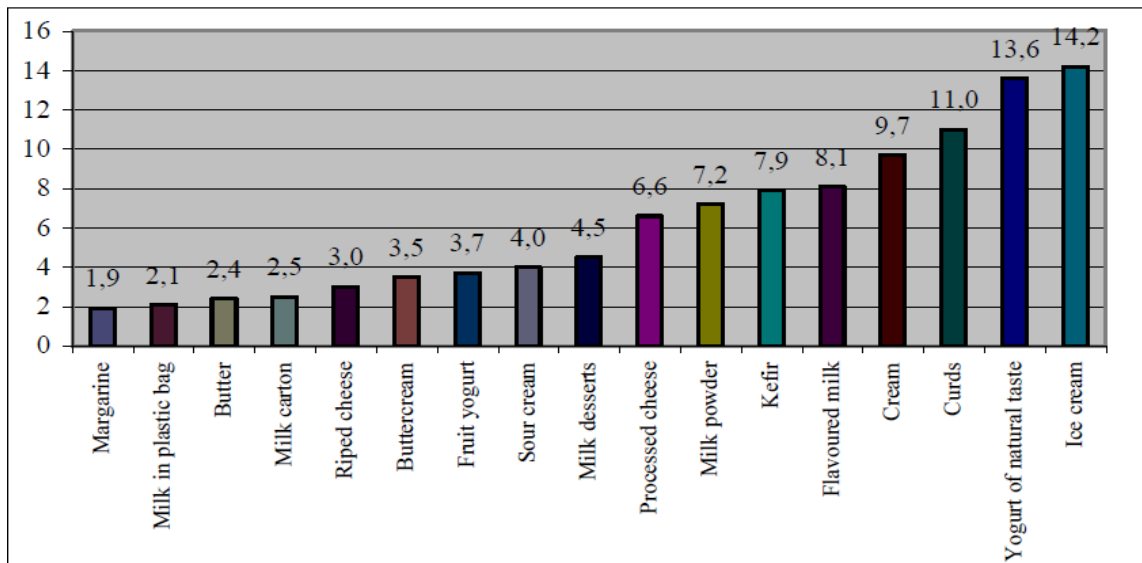
With the rework of the method created by Zeleňáková – Mura (2011) and Kretter – Mura (2010) was shown the frequency of the consumption of dairy products. The frequency of the consumption had to marked on an eight-graded frequency scale. With using of the method was shown also the annually frequency of the products, that is how many times a given product is consumed annually in Hungary. If we divide the number of days in a year with the number of consumption cases in a year we can get, on which day we consume a given product.

2 Results and discussion

2.1 Examination of the frequency of the consumption of milk, dairy products and margarine.

The responders had to mark the frequency of consumption of the certain products on an eight part scale as in the abovementioned. The results in the Figure 1 show, that the certain dairy products and the margarine in which day come to the table of the consumers, which is the measure number of the frequency of the consumption.

Fig. 1: Title of figure How often consumers do consume different kind of dairy products? (days)



Source: own research and processing

Our results show, that we consume the cheaper milk in a plastic bag average per two days, which stands nearest to the consumption of margarine. The butter and the more expensive, but best quality founded canned milk we take on our table per two and a half days. It follow the more and more liked ripened cheeses, butter creams, fruit yoghurts and sour cream. This means consumption per thee-four days. We consume the milk desserts, processed cheeses and milk powder minimum once a week. The last one use the responders fast only to coffee. The row end curds, nature yoghurt and ice cream. The last one we consumed per two weeks. The results of the research completed in 2008 and 2009 show that we consume from the more important dairy products liquid milk more rarely (every 2,3 days) while the consumption frequency of the ripped cheeses and curd in the examined regions didn't change or in some measure decreased (we consume every 3 or 3,5 days). Taking into consideration that the real wages decreased in the examined period in Hungary by some 15 %, we can state that the consumption frequency of the liquid milk as basic food essentially didn't change while the consumption frequency of the higher processed cheeses and curd practically rose in

the Western-Transdanubian Region of Hungary, but in the less developed South-Transdanubian Region of Hungary stagnated.

In the mirror of the extremely high value of butter consumption we must call attention to this, that the big part of the population is not aware of differences between the butter and margarine. The big part of the consumers consumes margarine in the belief that he consumes of milk origin product.

We asked also different opinion of buyers. With the question „the margarine is also an of milk origin product” was full agree the 27,1% of the responders, 9,9% was some agree, and 19,0 % said I agree and I do not agree, too. The 56,0% of the buyers has incorrect knowledge. Only the one third (37,8%) of the responders knew surely that the margarine is not dairy product. Thus the extremely high value of the consumption of butter is not so shocking, which is essential information for the dairy companies. The population should be informed about this, which can lead to the increase of butter consumption. The mentioned I show in the Table 1.

Tab. 1: Agreement of asked consumers with statement „margarine is a dairy product”, (%; 2004, 2008)

Value of agreement	Agree fully	Agree partly	Yes and No	Don´t agree partly	Don´t agree fully
Altogether	27,1	9,9	19	6,2	37,8

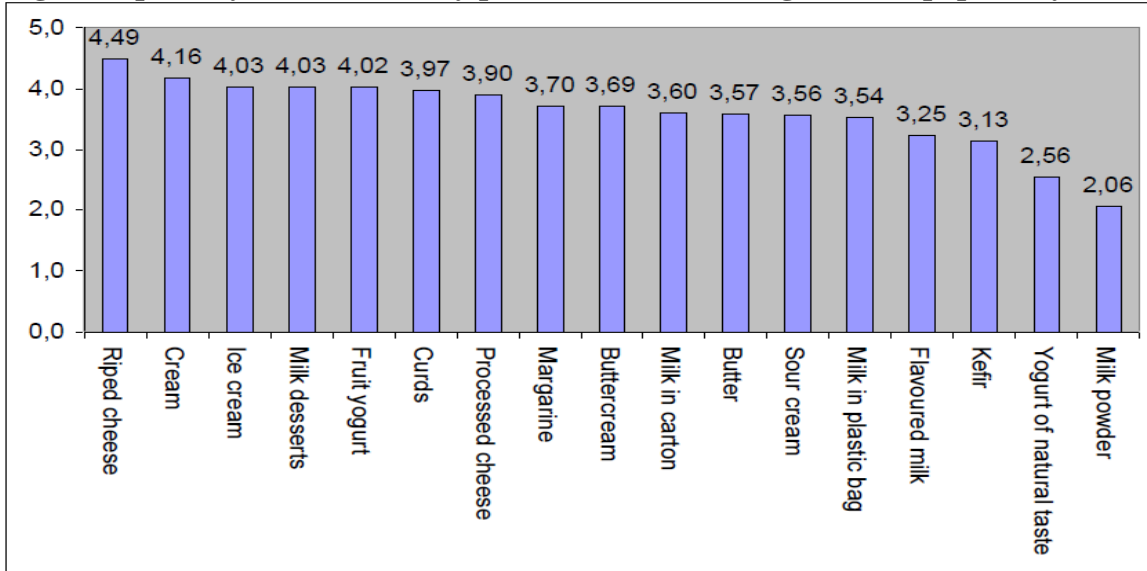
Source: own research and processing

Regarding the above is thinkable also the data, that the 59,4 % of the responders consume margarine daily or much times per week, thus it is before the butter and butter cream. It is the question, what kind of product want to consume eventually the consumers, when they eat margarine.

2.2 Popularity of milk and dairy production

The next question of own survey was aimed at popularity of the dairy products. The respondents ad to mark on a scale 1-5, how they like the products (1: I like it at all, 3: I also like, and also do not like it, 5: I like it expressly). On the basis of the answers formed the following order (Figure 2).

Fig. 2: Popularity of various dairy products, in decreasing order of popularity

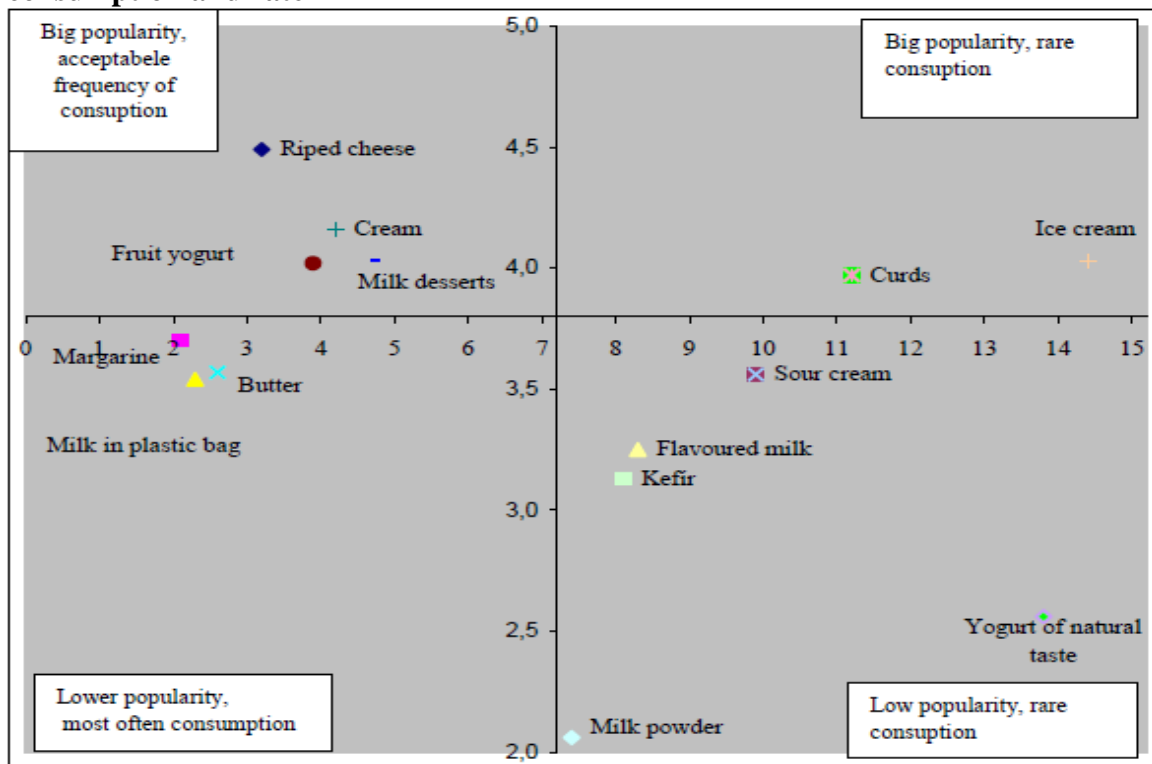


Source: own research and processing

Our results partly support, partly oppose respectively complete the results of BERKE (2003). On the basis of the data of diagram the popularity of ripped cheese can said proper, as it reach the low limit of category „I like it expressly” (4,5). We think important, that the dispersion 0,8 is the lowest under the products, which indicates us, that the consumers are the least divided regarding the popularity of product.

It is worth remarking, that the main part of products belong to category „liked”, if we the value of category explain between 4,5 and 3,5. To this yet acceptable category belong our most important basis dairy foods and the margarine, too. 4 out of the 17 products came to the category „I like it and do not like it, too”, which fall behind the required level: the flavored milk product, the kefir, the nature yoghurt and the milk powder. The popularity of kefir and natural yogurt is low belike because of the acidulated taste. The one part of flavored products – for example cocoa - can be made also at home a la gusto of the consumer. This can give explanation to the low popularity of the product available in trade. In some responders opinion is the cocoa available in shop not enough sweet. If we take also the results of the research in 2008-2009 into consideration shows the analysis of the data from the last five years concerning the popularity of the dairy products that the crisis did not influence in effect the popularity of the products by the home population. We get clearer picture (Figure 3) if we compare the frequency of consumption and the popularity of the products.

Fig. 3: The consumption/popularity map of certain products according to frequency of consumption and rate



Source: own research and processing

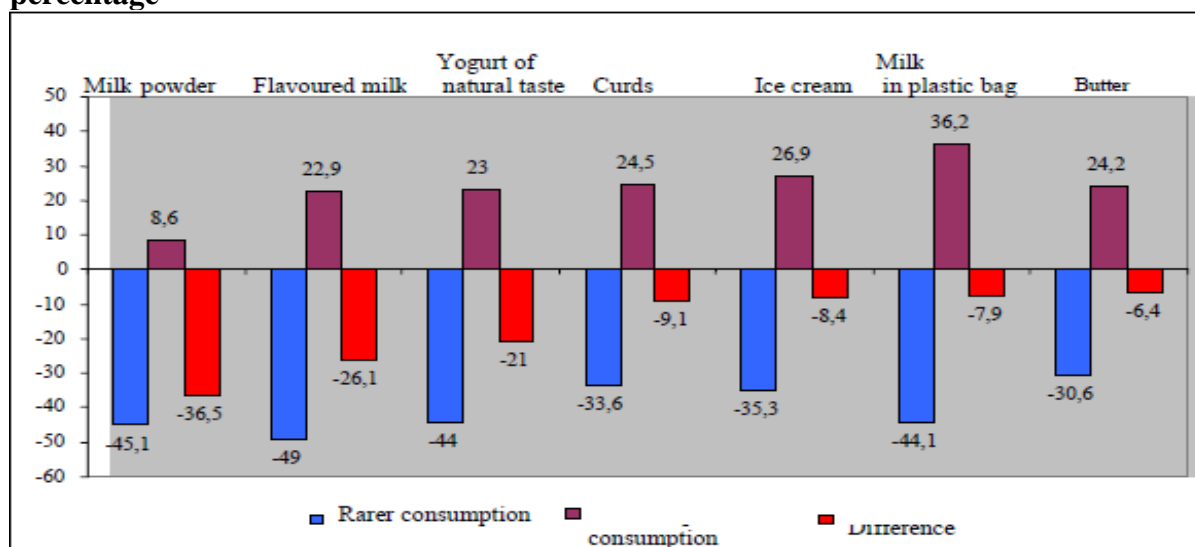
It can be found generally, that it can be considerable differences between the popularity and the effective consumption. The first group is characterized by large popularity and relatively frequent consumption. In the second group are the most frequent consumed products (for example the butter and liquid milks), which are consumed per two days, but its popularity is not satisfactory. The third and fourth group is very different from each other. To the former belong the products with big popularity, but rarely consumption (e.g. ice creams), while the latter is represented by products with low popularity and low frequency of consumption (e.g. flavored milk).

It can be drawn the conclusion from the stated above that on the one hand with the better satisfaction and more thorough assessment of the customer-consumer demands could be increased the popularity of the products which would result probably more frequent and/or more consumption, on the other hand the quantity of the consumed dairy products could be increased taking advantage of the popularity by the otherwise popular products.

2.3 Change of the frequency of the consumption of milk, dairy products and margarine

It has been found the research that 48% of the population felt that certain changes have occurred in their consumption. Analyzing the data, the products can be divided into two groups. In the first group consumption has changed into a negative direction, i.e. the product was consumed more rarely. In the other group the consumption of the products was more frequent. Eight of the seventeen products have been consumed more rarely recently, and seven products –including margarine - have been consumed more often. Examining kefir and processed cheese I have found, that the rate difference between the more and less frequent consumers has not reached 5% thus I have not put them into either of the groups. In Figure 4 those most important dairy products can be seen which are consumed more rarely. Thus recently the structure of consumption has changed into an unfavorable direction.

Fig. 4: The changes in the frequency of consumption of certain dairy products given in percentage



Source: own research and processing

It can be seen in the figure, that the rate of the more and less rarely consumed dairy product is negative. This means that consumption in all has decreased. This decrease and the increase (which was calculated whit the same method in Figure 6) are marked as the „difference“.

From Figure 4 it can be deduced that 49% of the consumers who consume flavored dairy products have consumed the product quite or more rarely in the past five years. This value is above 40% in the case of unflavored yoghurt, liquid milk in a plastic bag and milk powder. With other dairy products it changes between 30-35%.

In the case of unflavored yoghurt a significant difference has been found in the income. In the frequency of consumption the change has not been outstanding with those who have higher income, while with people with lower income there has been a decrease in the frequency of consumption.

In the case of milk in a plastic bag the effective consumption frequency decrease was 7,9%. I have found significant differences while examining the qualification, region and income. Together with the higher qualification and income the number of those who have refused to consume the product in the past five years has grown.

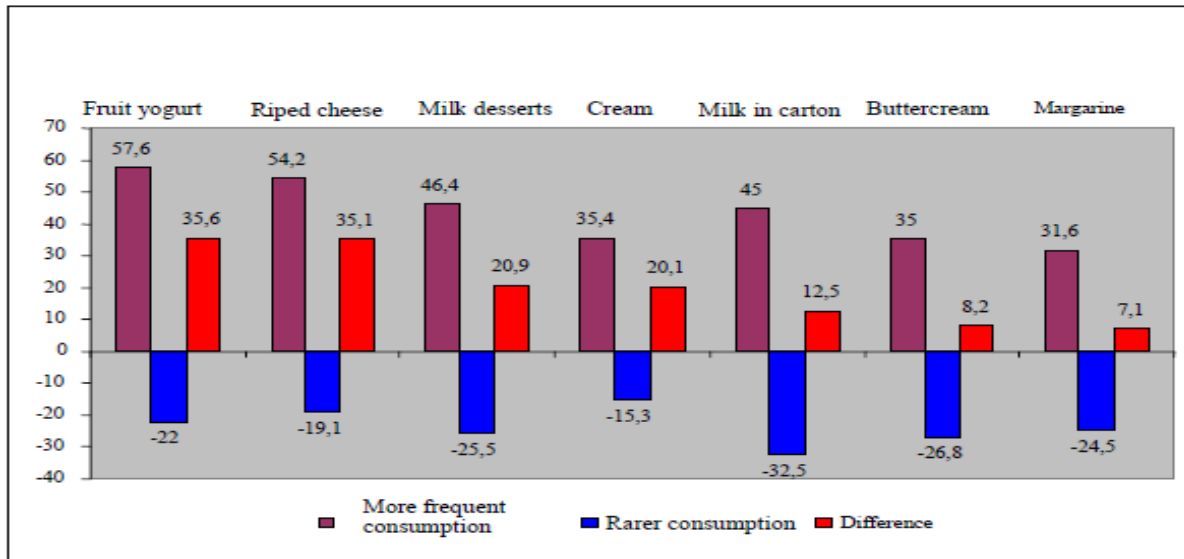
The frequency of ice cream consumption has decreased according to the survey but considerable differences could only be noticed in particular segments. Notable decrease could not be detected with people with lower income but those earning 26.000 – 40.000 HUF the recession in the frequency of ice cream consumption is significant. The poorer segment most probably used to consume ice cream more rarely anyway. People with average or somewhat less than average income – as their income has changed only slightly – have reduced the consumption of the product as an answer to the unfavorable effects

In figure 5 products of more frequent consumption can be seen. With these products the consumption structure has gone into a favorable direction, i.e. we consume them more often. Data analysis of Figure 5 it has turned out that the „winners“ of the changes in the past five years considering the frequency of consumption are fruit yoghurts and the ripened cheeses. These products have been consumed more often by 35% of the population. Similarly, more frequent consumption can be detected in the case of sour cream and milk desserts, the growth of which reaches 20%. It is harmony with the favorable tendency in the consumption of the product in the recent years.

At the milk carton examining the age we found signification. At the age-class 30-39 was the rate of rarely consumer 20,5 %, at the elder then 60 year-olds 40,3%. Also at the rippled cheeses there is significant difference between the age-classes regarding to the change of consumption.

The reason of the decrease of frequency of consumption is not the low popularity, but rather the incoming status, where we found also significant difference.

Fig. 5: The changes in the frequency of consumption of certain dairy products given in percentage



Source: own research and processing

2.4 Examination of the price sensitivity of the consumers

Our buying is influenced strongly by our incoming position and the price of the products. (Kretter – Nagyová et al., 2008). We illustrate what results brought the primary research about the judgment. The responders had to mark on a five-graded scale how they judge the home food prices and how big price rise can they tolerate.

We compare the results with the results of the examination in 2004 because of we were curious if the price sensibility of the consumers changed in the last period.

In four years between the first and the last examination rose by 8% the proportion of the people in whose opinion is the price of the products „unbearable expensive” (it was in 2004 average 10,1%). During the examined period happened a rearrange. Some by 10% decreased the proportion of the people in whose opinion is the price of the products bearable and by so much increased the proportion of the people in whose opinion are the basic foods expensive or unbearable expensive. Its reason is in the adverse real processes.

The analysis of the table 2 shows that the 18% of the population find the food prices unbearable and 60% expensive. The proportion of the people who think the price of dairy products, meat products and bread bearable is only 18%. And only 6% find the prices of the products real or cheap.

Tab. 2: Answers the question „How do you judge the food prices in Hungary in 2008” according to the age groups (%)

Price	Age				Average
	16-29	30-39	40-59	60 +	
Unbearable	15	20	18	17	18
Expensive	50	63	60	65	60
Bearable	27	11	18	14	18
Real	6	6	3	4	5
Cheap	2	0	1	0	1

Source: own research and processing

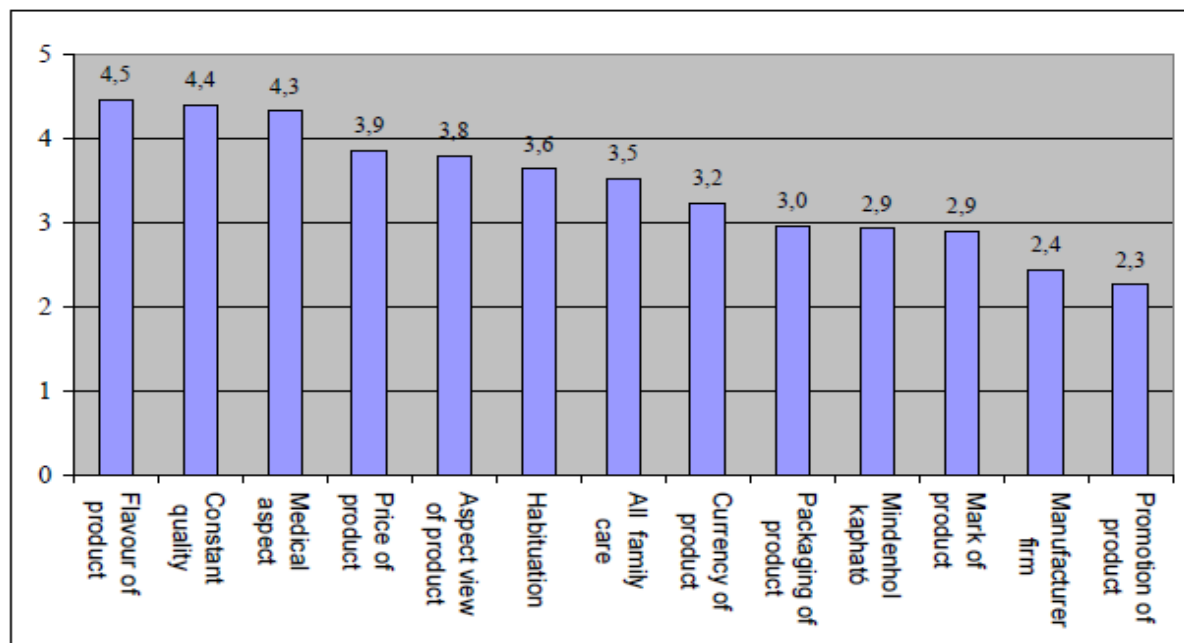
If we compare the research results happened in 2007 before the crisis with the data from 2008 we can experience that taking the prices into consideration happened a rearrange. The proportion of the people who think the price unbearable expensive rose. If we study also the age categories it is conspicuous that among the 30-39 years-olds rose considerable the proportion of the people who find the basic foods expensive. Probable is in this group the proportion of family with children is higher.

It is interesting, that among the young people say 27 % that the price of foods is some more bearable. Their opinion did not change in the period between the two survey moreover decreased the proportion of those in whose opinion are the examined products expensive. Because in this age group is big the number of schoolchildren (above 2/3) it is presumable that the value of the money is less conscious in their case. Not they pay the other expense (for example flat running expense) above their daily expense. It may result that in their case is the highest the proportion of those in whose opinion is the price of the products some more real. Anyway it can be state that big percent of the population think so that they leave there too much money during their buying.

2.5 Influential factors of choice of dairy products

During own survey the answerers had to mark on an five-graded scale, how much they are influenced by the difference aspects at the choice of dairy products. We found important to examine, by what product characteristics and/or external und internal impression the buyer makes decision, when he take a product in his basket. On Figure 6 we demonstrate the influential factors in decreasing order. We complete own results with certain more important statements of the background variables.

Fig. 6: Order of the factors which influence the choice of dairy products in average of opinions of answerers



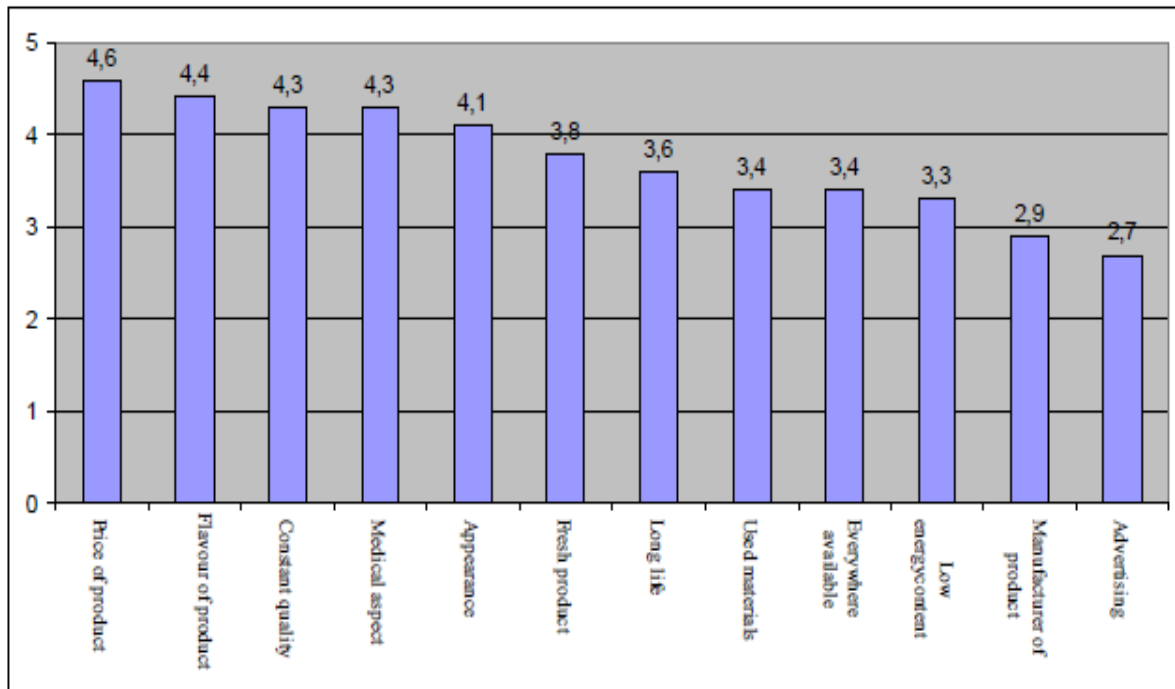
Source: own research and processing

From the results can be found, that the most important influential factor for the responders is the flavor (on five-grade scale 4,5) and quality (4,4) of products. The buyer chooses firstly the product, which has good taste and is characterized by constant good quality. In the order follow the healthiness (4,3) and the price (3,9) of product. For the buyers are more important the factors belong to quality than to price. This means, that the healthy nutrition becomes for the inhabitants more and more important factor.

It is regrettable at the same time, that the function of the image factors influence the buying (name of manufacturer, advertising, trade name) is the lowest. In the middle of the order stand the subjective attributions as the looking of the product (3,8), if the family like it (3,5), or the packaging (3,0). If we could enhance the image of the dairy products, would change the consumption positive, too.

It is important that the survey in 2008 and in 2009 resulted significant differences (Figure 7). On the grounds of the results can be state that for the responders – in case of essentially foods – is the price of the products (4,6) the most important buying influential factor. It follow the flavor (4,4) and the quality (4,3) stands only on the third place. So the buyer chooses first that product which is for him affordable and it has good flavor. The relative favorable judgment of the soundness of the food means that the healthy feeding is more and more important factor for the population.

Fig. 7: Order of the influential factors of choice of basic foods in average of opinion of responders



Source: own research and processing

As the survey was done in the spring this year it is perhaps not so amazing because the previous years – in Hungary – happened real wage decrease (ca. 1,5%) (KSH 2008), the high debt of the population, the energy price rises can effect that the price became determining factor.

Conclusion

The results of the research completed in 2008 and 2009 show that we consume from the more important dairy products liquid milk more rarely (every 2,3 days) while the consumption frequency of the ripped cheeses and curd in the examined regions didn't change or in some measure decreased (we consume every 3 or 3,5 days). If we take also the results of the research in 2008-2009 into consideration shows the analysis of the data from the last five years concerning the popularity of the dairy products that the crisis didn't influence in effect the popularity of the products by the home population. With the better satisfaction and more thorough assessment of the customer-consumer demands could be increased the popularity of the products which would result probably more frequent and/or more consumption, on the other hand the quantity of the consumed dairy products could be increased taking advantage of the popularity by the otherwise popular products. During the examined period happened a

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