Marketing aspects of consumption of Hungarian pork meat

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Abstract: The most important aim of authors' study is to get to know the Hungarian pork consumption in our days. Our aim is set to estimate pork meat consumption and purchasing habits of consumers who are living in Eastern part of Hungary.

The pork section is influenced negatively by several factors nowadays, which have a clear effect on the pork consumption and cause its declination.

During the research work a questionnaire survey was made in 2007 and 2008. 1089 persons in different locations of Eastern Hungary were altogether asked. The data were evaluated by statistic hypothesis testing.

Based on the evaluation a clear picture was got about the consumers' purchasing and consuming habits, and their ideas, opinions about the Hungarian pork as a food and as an item wearing a kind of national behaviour.

Through many questions the volume of consumption was explored, and the pork's proportion was compared to the rest of other meat types. It is verifiable that the pork consumption can be handled as a national habit, which is not the same by different age groups and educational qualifications. The importance of some factors during purchasing was also examined. Exceptionally important factors are: quality, the appearance, the origin and the price, that were mostly considered by the customers. The effect of pork promotion advertisements and its evaluation by the customers were surveyed too, which in connection with the efficiency showed a fairly stable picture both in 2007 and in 2008. The examination of price elasticity showed that this figure is influenced not just by the product group itself, but the purchasing power of the costumers, as well.

Key words: pork meat, consumption, attitude, shopping habits, price elasticity

1. Introduction, objectives

Promotions are common and well-known parts of our lives. If a man of the street hears the expression of "marketing", he thinks the promotion immediately. Often they are thought-provoking, appalling or makes us laugh and in many case they forms us.

In 2007 an amazing promotion cropped up next to the roads of Hungary in giant posters. This poster with its' baby-pink coloured background and well-known, popular performer was a very prominent phenomena, and the opinions of Hungarians were divided by it. This promotion was born for the propagation of Hungarian pork meat. The campaign started in autumn of 2007. The aim of this promotion campaign were to call up the attention for the high quality Hungarian products in the interest of the Hungarian pork producers; to increase the consumption of red meat by the population's persuasion; and their most important message, that the Hungarian pork is delicate, reliable, and of a great variety. In Hungary one could meet this advertisement on giant posters, city light posters, on the press (magazines, newspapers), and in the radio (3 different radio stations). There were some store advertisement campaigns, too. The character of this promotion campaign was Róbert Koltai, who is a really famous Hungarian actor, and he has a well-known and popular personality. His films are comedies and he is the manifestation for a typical Hungarian countryman. Here it is the advertisement and its' English translation below:

The authors were curious about, how this campaign was effective in the circle of common people. While the promotion campaign of Ministry of Agriculture and Rural Development, Agricultural Marketing Center was examined by us, some questions were raised. Are these promotion campaigns really necessary in Hungary nowadays? Pork meat is a basic part of the traditional Hungarian cuisine and could we affirm that pork meat is unhealthy? Could it be proved that this food – which was used by our grandmothers previously – today makes damage in our organisms? What could be the opinions of the consumers about it? How could be the situation of consuming and purchasing of pork

nowadays? In the last few years decline of consuming of pork meat was noticeable. How could it be reversible? Our aim is to find the answers to the most of these questions and examine the effects of changing of prices, as well. The research work started with these questions in 2007 and continued in 2008, as well, and the main research approach was surveying the "average" Hungarian consumers.

2. Methodology

Best (2008); *Boetel* et al., (2007); *Gervais and Khraief* (2007) give an extensive picture about present situation of pork industry. From article of *Mayringer* (2005) we know that other countries had similar campaigns, too. Like in Germany, where the "2% Fett (Fat) – 100% Genuss (Enjoyment)" promotion campaign operated effectively for some years. This could be a great example for Hungarian campaigns, too.

In our survey the Hungarian pork was mentioned like a product with a "quasi brand name". Authors wanted to know that how the pork meat's origin – like a brand name – attractive could be for Hungarian consumers. *Kovács-Géczi* (2007); *Elliott and Yannopoulon* (2007) say that the brand name could be really tempting for an average consumer.

Some statistic testing was made from the data collected. Hypothesis testing was used for the statistical evaluation. The necessary statistics were shown by Texas (1977). The hypothesis testing was made both 1% and 5% significant levels. The 5% significant level means a really correct result, but as an alternative method authors used 1% significant level, too. With its' use our results could be even more creditable. Where our nullhypothesis was rejected, there were different groups in the populations. In this situation the different groups were evaluated with sample t statistics and the different groups were evaluated individually.

The other important part of our research work was the evaluation of price elasticity. The price elasticity (ε) which was defined among others by *Samuelson* (1985) and *Mceachern* (1988), by the help of this formula below the effect of 1% rising of price of pork for the demand could be evaluated. The elasticity function is the quotient of changing of $f(x)$ by the effect of changing of x, see the formula below:

$$\varepsilon = \frac{\frac{\Delta f(x)}{f(x_0)}}{\frac{\Delta x}{x_0}}$$

where:

- $\Delta f(x)$ changing of quantity bought
- $f(x_0)$ a basic quantity
- Δx changing of price
- x_0 starter price

The scientific literature always mentions the price elasticity (ε) like 1 or less in foods' cases, so it is inelastic. Our aim is to examine of the real effect of price change. The basic hypothesis is that the price elasticity could not be constant in groups with different purchasing power; our H_0 is that the price elasticity is not depending from the income. Many books and studies were written about this topic like by *Rekettye* (1999); *Kopányi* (1993); *McEachern* (1988); *Samuelson* (1985), but there are not any studies in the literature which address this hypothesis according to our approach. Changing of elasticity and its' effect was published by *Farris* (2008), too, but its dependence from the disposable income was also not mentioned. How you will see in the next chapter, a part of our evaluation was confirmed by *Robinson* (1990) in the case of the so-called middle level income category.

3. Data collection

For own data collection a primary questionnaire survey was made. There were different questions about: demography; habits of pork consuming and purchasing, sensibility on promotion, sensibility on price and opinions about quality and stereotypes (unhealthy, worse than the chicken meat, etc.). People are really sensitive for their personal figures, like: age or income that is why in these questions a grouping's technique was used. *Gibson* and *Bonggeun* (2007) state that age of consumer could be an influencing factor, so the evaluation of age grouping was among our aims.

In the second part of the survey the consuming and purchasing habits were evaluated. Questions concerned to quantity of pork meat consuming in the ratio of whole meat consumption and spending for pork were evaluated. Concrete numeral-figures were collected and evaluated by household/month/person spending rate. In the questionnaire there were some yes or no questions as well, per cent definitions, classifications and exact figures' denomination, too.

The survey work was carried out in different locations of Eastern Hungary. The places were: butcher shops, streets and market places. 1089 questionnaires were totally filled out and evaluated. Our main examinations regards on the nullhypothesis in connection with different groups of age, sex, qualification and income classes. The database satisfies the conditions of normal distribution for the largest part of population. The SPSS program's Version 13 was used with its' handbook, wrote by *Ketskeméty* and *Izsó* (2005).

4. Results of the survey

The first data collection was made in October, 2007, the second one between May and September 2008. From the surveyed population 1089 persons' questionnaires were finally accepted.

4. 1. Influencing Effects of Demography Factors

In the first step the gender of respondents was examined. In these testing H_0 is: there is not any relevant difference

between males and females. Only one question was differing in significant way from the sample. This question and its' figures are presented by *Table 1.*

The result was surprising; the male consumers are more acceptant for Hungarian pork than the females. The proportion of their "yes" answers was higher in the whole database, and a plus half a per cent willing to pay more for the Hungarian pork by the males.

The age factor influencing effect was also tested. We have to mention that those consumers who are under 20 years were not included the database, because this group rarely has got their own income sources. That is why we took no notice of their answers, and respondents over 60 were contracted into one group, too.

H_0 was the same in every test: there are not any significant differences between the answers of different age groups. During testing there were some differences between the younger and older groups just in the following question: „How many% price change is needed for you that instead 1 kg pork meat you choose 1kg beef?". The different groups of age gave different answers to this question *(Table 2).*

The different age groups have diverse opinion. With additional evaluations we can mention that the younger respondents choose beef on effect of even on a smaller price change. The older consumers need a higher price rise. Averages of answers of different age groups are presented by *Table 3.*

Table 1: Willingness to Pay by Gender

(Total respondents= 100%)

"Are you willing to pay more for the guaranteed genuine Hungarian pork meat?"	**No** *(%)*	**Yes** *(%)*	**How many per cent are you willing to pay more?** *(Average %)*
Males	8	30	8.55
Females	25	37	8.01

Resource: Own database

Table 2: The Different Age Groups' Cross Price Elasticity in Case of Pork and Bee

Age groups	**Calculated t statistics**		**Student t Critical value**		**Significant difference**	
	5 %	**1%**	**5%**	**1%**	**5%**	**1%**
	S. level		**S. level**		**S. level**	
20-30 vs. 30-40	1.371	0.718	1.960	2.326	-	-
20-30 vs. 40-50	2.567	2.336	1.960	2.326	+	+
20-30 vs. 50-60	1.992	0.977	1.960	2.326	-	-
20-30 vs. over 60	0.276	0.149	1.960	2.326	-	-
30-40 vs. 40-50	2.227	2.855	1.960	2.326	+	+
30-40 vs. 50-60	2.739	4.851	1.960	2.326	+	+
30-40 vs. over 60	0.614	2.501	1.960	2.326	-	+
40-50 vs. 50-60	5.145	4.559	1.960	2.326	+	+
40-50 vs. over 60	1.315	4.474	1.960	2.326	-	+
50-60 vs. over 60	3.719	5.560	1.960	2.326	+	+

Resource: Own database (+ : there is a significant difference)

From the results above the effect of a theoretical price rise are clearly readable, namely: there is a danger that in case of a high rise in pork price the younger consumers are to change to beef easily. It shows that for Hungary needs a new, youngish promotion campaign, the place of pork in the preference systems of young consumers could be enhanced.

In the next point the effect on different educational qualification were examined. The nullhypothesis is that the examined educational groups, the result are the same. The results of analysis confirmed this H_0. No difference was found with 5% significant level, but with 1% significant level the figures were more colorful, namely the differences between answers of respondents with primary school and that of higher qualification were different. This difference in the case of the previous question (cross price elasticity) is seen in *Table 4.*

From the figures above we could see that those respondents who have got higher qualifications could change the consumption habit easily on the effect of a smaller price change. We could affirm that the parameters of consuming of pork meat show a very stable picture and perfectly fit the to Hungarians' national behavior. It could be mentioned as a national character, which is not really influenced by age, qualification, income or gender.

Table 3: Averages of Different Age Groups in Evaluation of Pork and Beef Cross Price Elasticity

"How much % price change is needed for you to choose 1kg beef instead of 1 kg pork?"	**Average** *(%)*
Younger than 30 year	18.11
31-40 years	14.83
41-50 years	17.56
51-60 years	33.63
Over 61 year	42.83

Resource: Own database

Table 4: Averages of Different Age Groups in Evaluation of Pork and Beef Cross Price Elasticity

"How many per cent price change is needed for you for you to choose 1kg beef instead of 1 kg pork?"	
Education level	**Average** *(%)*
Primary school	29.23
Vocational school	23.77
High school	18.76
University/College	6.34

Resource: Own database

Table 5: The Importance of Different Factors in Pork Consumption

Unit: Per cent

Classification / Factor	5 Most important	4	3 Decreasing grades of	2 importance	1 Least important
Price	44.09	47.6	5.72	1.12	1.47
Quality	80.35	13.77	3.86	0.73	1.29
Appearance	78.7	7.53	11.75	0.73	1.29
Origin	57.48	26.73	13.77	0.55	1.47

Resource: Own database

Table 6: Classification of Quality of Hungarian and Foreign Pork

Unit: per cent

Grading / Origin	5 (The Best)	4	3	2	1 (The Worst)
Hungarian pork	27	40	29	2	2
Foreign pork	5	13	45	25	12

Resource: Own database

Table 7: The Influencing Effect of Promotion on Purchase

Unit: Per cent

"Were you affected by the advertisement in your pork purchasing?"	**Data collected in year:**	
	2007	**2008**
Yes	16	21
No	84	79

Resource: Own database

4.2. Other Influencing Factors

Some other factors are also worthwhile to mention, these are in *Table 5*.

From the given four factors above only the price was less important than the others. Its classification was 4 while other three factors have got 5.

The Hungarian pork like a "brand named product" was also evaluated. We had to know how consumers thought about the features of this product and how they appreciate of its quality. There was a question in the questionnaire, which dealt with this point, *Table 6* contains the results:

Quality of Hungarian pork was better than the foreign meat by the respondents' views. Some uncertainty was caused by today's sentiment of globalization, because the identification of pork meat's origin is not easy to know. Interesting contradiction is that the respondents are not willing to pay more for Hungarian pork, while they keep the origin as an important factor.

In autumn, 2007, a question about effectiveness of promotion campaign was also asked. The question was about the "HUNGARIAN PORK: A WORLD HIT!" promotion. In 2008 the authors asked the influencing effect of the respondents about their behavior regarding the influencing effect of meat-promotions. Allocation of answers is shown by *Table 7*.

The influencing power of promotions is more expressed in 2008. Influencing effect of campaigns was recognized by a plus 5% on behalf of the respondents.

4.3. The Consumers' Prospective Reaction on Price Change

During the research a question regarding the price elasticity was also raised. Price elasticity is handled like a constant in cases of the given product categories by the economic and marketing literatures. Authors challenge this generally accepted approach: our hypothesis is that price elasticity of a product is also influenced by the consumers' disposable income and not just the product group itself. The reaction of consumers for a theoretical price change was evaluated by a question in the survey, namely *"If the price of pork meat would rise with by 10, 20, 30, 40, 50%, how your consumption would be declined for the benefit of other types of meat (under a relative short period of time)?"* The respondents were examined according to the different income groups. *Table 8* contains the findings.

Centers of every category are presented in the Table 8, so the average income calculated

is 384 Euro/person/month, which is smaller that the national average of Hungary. The reason of it could be the lower level of industry in Eastern Hungary, where most of the surveying took place.

For the better interpretation of information the Higher-middle and High income categories were contracted into one group, so the new category had 82 respondents and 860 Euro/person/month average income. After that the research continued with these 4 categories.

The consumers' probable reactions are presented in the *Table 9.*

Average hypothetical price-index: 0.49, which is equal to100% in our investigation shown above.

The value of 0.49 is absolutely matching to the microeconomic theories, and it nominates inelasticity. In the value system of consumers the lower price rise (0-30%) is really inelastic, while over 30% it starts to become somewhat more elastic. For the effect of a larger price change, the attitudes of mind of consumers change, too, and it becomes more flexible. Figure 1 helps in presentation of this behavior:

From the graph it is readable quite well that the elasticity over 30-40% price change becomes more flexible. The evaluation of database shows that the effects of average price change are not the same in case of the different income categories. The levels of probable reactions of different income groups for price rise of pork were examined; *Table 10* contains the summary of that.

Behavior of different categories could be surprising. Reactions were absolutely differed by every group; however their consumption is not so far from each-other. It could be more expressive if these figures were compared with the average figure of overall price elasticity: å = 0.49. For a better visualization the categories of Low-Middle and Middle ones were unified into a new category, called Average-middle. In this case

Table 8: The 5 Different Income Groups of Respondents

Unit: per cent

Income classification	Disposable Income	Respondents
Low	120 Euro/person/month	15.51
Low-middle	240 Euro/person/month	25.17
Middle	460 Euro/person/month	51.79
Higher-middle	700 Euro/person/month	7.53
High	1.000 Euro/person/month	
Total		Σ 1089 respondents = 100%

Resource: Own database (During the research the 1 = 250 HUF exchange rate was proper.)

Table 9: The Reactions of Consumers on Rising Pork Meat Price

Hypothetical price raise (%)	Prospective decline in consumption (%)	Hypothetical price elasticity ( )	Ratio per cent (average hypothetical price-index: 0.49= 100%)
10	3.84	0.384	78
20	7.76	0.388	79
30	12.75	0.425	87
40	2.42	0.511	104
50	28.58	0.572	117

Resource: Own database

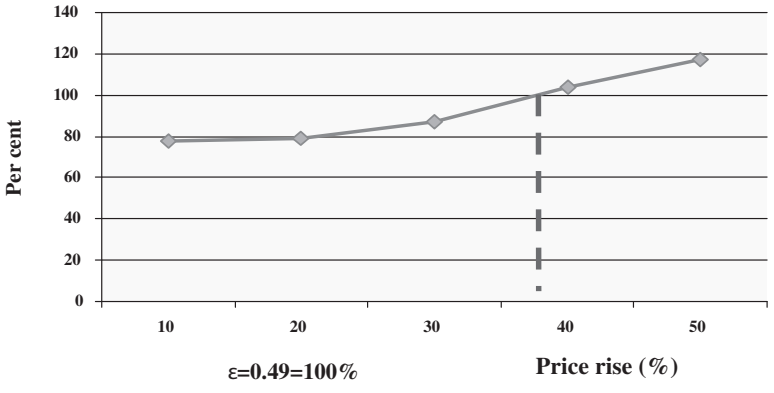

Figure 1: Change of Inelasticity by the Effect of Price Rise

Table 10: Price Elasticity Change on Shifted Price

Hypothetical price rise (%)	Low income category	Low-middle category	Middle category	High category
10	0.394	0.296	0.661	0.185
20	0.479	0.263	0.566	0.241
30	0.608	0.309	0.515	0.283
40	0.797	0.413	0.525	0.307
50	0.841	0.531	0.552	0.363

Resource: Own database

3 totally different income categories are distinguished that makes the comparison more expressive; the findings are in *Table 11.*

It can be established that the wide Average-middle category's behavior is quite similar to the overall average reactions visualized by Figure 1. In the case of the Low income category 30 per cent more elastic reaction is expected than the average figure. The High income category produces 40% less

Table 11: The Effect of Disposable Income on Price Elasticity

Hypothetical price change (%)	Low	Average middle	High	Ratio of Middle/High
10	80	98	38	1:2.1
20	98	85	49	1:2.0
30	124	84	58	1:2.1
40	163	96	63	1:2.6
50	172	110	74	1:2.32
Average	*127*	*95*	*56*	*1:2.2*

Resource: Own database

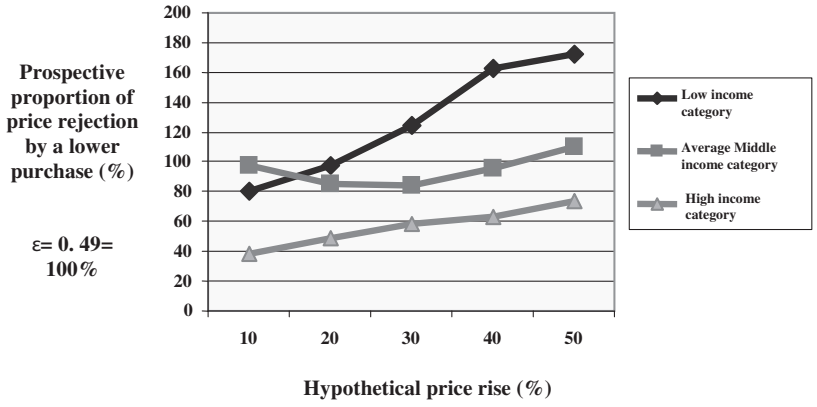

Figure 2: The Reactions of Different Income Categories on Price Elasticity

reaction. The rate between Low and High income categories shows a really stabile picture; it fluctuates between 1:2.0 and 1: 2.6, the average is 1:2.2. The next graph illustrates these relationships.

The reactions of 3 income categories are demonstrated well by Figure 2. Values are become more flexible by the effect of price rise in the lower income categories. Values of Average-middle income groups are in the average province, and values of higher income categories are stayed under the average, but it also shows a rising tendency. Probably a psychological effect of price rise causes this tendency, because otherwise they would have got sufficient income for purchasing of a more expensive pork meat.

5. Conclusion and suggestions

Uniform opinion is pled by the Hungarian consumers. Reassuringly positive opinion is made about Hungarian pork by them, its' price was better awarded than the foreign pork's price.

From the previous research we could know that most of the respondents are not influenced strongly by any promotion campaign in pork consumption, but we could call reassuring that the influencing effects of these promotions were recognized similarly in 2008 by a not large, but increasing group of respondents. It means that marketing of pork needs some development due to the increasing reaction. The declining consumption could be reversed by a correct and effective promotion campaign. In the future for the Hungarian pork meats' promoters it is worthwhile to take into consideration our findings. The German campaign is the perfect example for that, how a well set-up promotion with good marketing tools could produce positive results. These kinds of promotions are exemplary for Hungary.

In the case of price elasticity authors say that price elasticity is not only depends on the group nature of the product, but depends on the consumers' income, as well. It is worthwhile to make an experiment to unify the formulae of price and income elasticities that is our aim for the future research.

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