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## THE ASYMMETRY OF INFORMATION ON FOOD MARKET AND CONSUMERS' PREFERENCES – SOME ASPECTS

There is the asymmetry of information between the subjects that represent supply and demand on food market. The level of the asymmetry is differentiated depending on a product category. The following paper focuses on bioactive/functional food. These are segments in which the asymmetry is particularly visible as the characteristics of these food products (especially pro-health characteristics) may be revealed only after consumption. The discussion indicates interrelations between the level of consumers' knowledge and the level of the asymmetry of information on food market of functional/bioactive products. The influence of the asymmetry of knowledge and the asymmetry of information on consumers preferences has been presented based on the results of the conducted research.

**Key words:** the asymmetry of information, the asymmetry of knowledge, bioactive/functional food, consumers' preferences on food market.

### Introduction

When the subjects that enter into a transaction differ in terms of the scope of information they have we talk about the asymmetry of information. The asymmetry of information is also connected with the asymmetry of knowledge which means that two subjects with the same knowledge do not understand it to the same extend<sup>1</sup>. It is beyond all doubts that the asymmetry of information on food market exists. Manufacturers have much more information about their products than customers do. Moreover, an average customer is usually not able to verify the quality of a product during the act of shopping. This phenomenon is particularly visible while purchasing bioactive/functional food. Apart from a generally understood notion of quality of such food customers are also unable to establish whether and to what extend consuming such food will influence their health. Health effects are visible only after a long time from the consumption. Functional food is therefore an example of credence-quality products<sup>2</sup>.

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<sup>1</sup> Compare: G. A. Akerlof: The Market for "Lemons": Quality Uncertainty and the Market Mechanism, *The Quarterly Journal of Economics*, 3/1970, pp. 488-500, <http://www.jstor.org/stable/1879431>; S. Forlicz: Mikroekonomiczne aspekty przepływu informacji między podmiotami rynkowymi. WYDAWNICTWO WYŻSZEJ SZKOŁY BANKOWEJ, Poznań 1996; S. Forlicz: Niedoświadczona wiedza podmiotów rynkowych. WYDAWNICTWO NAUKOWE PWN, Warszawa 2001, pp. 48-51; B. Pietrzak, Z. Polański, B. Woźniak: System finansowy w Polsce - tom I. WYDAWNICTWO NAUKOWE PWN, Warszawa 2008, cited by: B. Karaban: Zjawisko asymetrii informacyjnej i niewiedzy uczestników rynku na przykładzie rynku kapitałowego w Polsce, [http://www.kapital.edu.pl/pliki/wyrozniowane\\_prace/B\\_Karaban-Asymetria\\_informacyjna\\_i\\_niewiedza\\_uczestnikow\\_ryнку\\_KARABAN.pdf](http://www.kapital.edu.pl/pliki/wyrozniowane_prace/B_Karaban-Asymetria_informacyjna_i_niewiedza_uczestnikow_ryнку_KARABAN.pdf)

<sup>2</sup> R.R. Darby, E. Karni: Free Competition and the Optimal Amount of Fraud, *Journal of Law and Economics*, 16/1973, pp. 67-87, <http://www.socio-legal.sjtu.edu.cn/uploads/papers/2011/xzh110623120436269.pdf>; S. Forlicz, *Mikroekonomiczne ...*, op. cit. pp.40-42.

There is also the asymmetry of knowledge between manufacturers and consumers on food market. This situation can be observed when consumers are given information from manufacturers, which is to create conditions favorable to level the asymmetry of information, however, it does not seem to be effective. Consumers do not notice, do not understand and cannot interpret the information or signals which they receive; therefore, their level of knowledge does not rise. The causes of the asymmetry of knowledge lie in:

- the asymmetry of information,
- lack of or limited primary knowledge of one of the subjects,
- lack of willingness to process information resulting from the lack of need to interpret information or predicting high expenditure (of time, intellectual effort etc.)<sup>3</sup>.

On the other hand, the asymmetry of knowledge may also be treated as a cause of the asymmetry of information. Consumers' insufficient knowledge may cause that the information is sent by the manufacturers is not received or interpreted well. Thus, the actions aimed at minimalizing the asymmetry of information are not efficient as their recipients, because of their insufficient knowledge:

- do not see the need to interpret information,
- and/or do not notice the dangers related to not processing information,
- and/or cannot interpret it appropriately.

Obligated by law, manufacturers convey information about the composition of grocery products, nutritional values, caloric content, recommended nutritional requirements or nutritional and health claims<sup>4</sup>. Unfortunately, numerous consumers make decisions without paying attention to this information or omitting it deliberately. Whether the information is noticed or not depends on:

- the visibility of information (placing information in front of packaging increases the possibilities that it will be noticed<sup>5</sup>, so does spatial organization or suitable texture<sup>6</sup>);
- the legibility of information (font size and type, space between verses, the contrast between the text and the background)<sup>7</sup>.

Some manufacturers take advantage of the knowledge about perception which they possess to display beneficial information and present those less favorable information in such a way that they are difficult to notice. Such actions lead to the increase of the asymmetry of knowledge despite conveying more information.

The willingness to use the information or its conscious avoidance is influenced not only by the features of a consumer and a shopping situation but also by the clarity of

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<sup>3</sup> B. Karaban, op. cit. p. 6.

<sup>4</sup> Rozporządzenie Parlamentu Europejskiego i Rady (UE) Nr 1169/2011 z dnia 25 października 2011 r.

<http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2011:304:0018:0063:PL:PDF>

<sup>5</sup> In Grunert research 2/3 of people watched in a shop looked at the front of packaging, less than 12% looked at some other parts of the packaging and less than 1/3 did not look at the packaging at all. (K. G. Grunert, et al.: Nutrition knowledge, and use and understanding of nutrition information on food labels among consumers in the UK, *Appetite*, 2010, doi:10.1016/j.appet.2010.05.045,

<http://www.eufic.org/upl/1/default/doc/GDApaperJPubHealth.pdf>

<sup>6</sup> A. Falkowski: Przywoływanie z pamięci, *Marketing w Praktyce*, 8/2011.

<sup>7</sup> R. Nestorowicz: Komunikacja marketingowa wspierająca prozdrowotne wybory żywieniowe a zachowania nabywców, *HANDEL WEWNĘTRZNY*, V-VI/2012, pp. 283-291.

information (the vocabulary which is used if it is suitable for average consumers' level of knowledge, explicitness of information, graphic elements on packaging which highlight or complete textual information). Provided that manufacturers convey information clearly, they can decrease the asymmetry of knowledge and thereby the asymmetry of information. However, if this is to happen, a purchaser must feel the need to process and interpret information in a correct way. It, on the other hand, depends on consumers' level of knowledge. The more a consumer knows about:

- bioactive/functional products,
- their influence on health and well-being,
- information on food packaging including nutritional and health labels,
- perception rules,
- decision making process etc.

the better and wider the interpretation of received from a manufacturer information will be. The wider consumers' knowledge is, the lower the asymmetry of knowledge between them and manufacturers become.

The following paper focuses on the influence of consumers' knowledge on their interpretation of manufacturers' information, which may have impact on minimalizing the asymmetry of information. The paper focuses on the information given on product packaging by its manufacturers. Because of a chosen category of products to be analyzed nutritional claims were selected.

The aim of the paper is to indicate the interrelation between the level of consumers' knowledge and the level of asymmetry in particular segments of food market in Poland and to present the influence of such asymmetry on consumers' shopping preferences. Therefore, field research was conducted.

### **Aims and methods**

One of the ways of reducing the asymmetry of information between subjects is conveying information from a well-informed party to the one that has less knowledge. In the case of food market it is a manufacturer that is more competent and a consumer is the one who has limited knowledge. Manufacturers can convey information in numerous ways, using varied media and informational materials. Information which manufacturers place on food packaging was brought into the main focus of the research presented in the paper.

There have been two main aims of the research:

- Determining the influence of information which is on packaging on consumers' preferences.
- Defining the influence of the asymmetry of knowledge on consumers' preferences.

Considering the segments of the market which have been analyzed the information conveyed as nutrition claims was chosen as the subject of the research. Functional or bioactive food is claimed to influence positively the health of those who consume it<sup>8</sup>, therefore health claims and nutrition claims are placed on the packaging of such products.

In order to achieve both goals mentioned above there was an experiment conducted which was supported by an auditorium questionnaire.

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<sup>8</sup> I. Wrześniewska-Wal: Żywność funkcjonalna – aspekty prawne, Przemysł Spożywczy, 1/2009, p. 30.

Respondents were asked to take part in a questionnaire and they were to receive a jelly in reward for the time they devoted to it<sup>9</sup>. They chose the prize before completing the questionnaire. The participants chose one out of six kinds of jelly presented below (picture 1). There were 2 flavors to choose from. Every flavor was in 3 versions:

- packaging with a nutrition claim: “Natural dyes only”;
- packaging with a catchphrase put in the place of a nutrition claim: “Intensely fruity”
- packaging without any catchphrases.



Picture 1. The way of presenting the products from which respondents chose.

The presentation of packaging lasted 10 seconds. The time of presentation was established on the basis of the results of research on time devoted to the choice of grocery products in a shop<sup>10</sup>. The rotation of the order of presentation was used during the experiment to eliminate the influence of preferences of products presented on the right<sup>11</sup>.

After having chosen the prize for participation in the research, the respondents filled in a short questionnaire owing to which it was possible to determine the differences in the

<sup>9</sup> It was jelly that was used for the purposes of the research because it is a product whose packaging can contain nutritional claims in real circumstances and it is not perceived as an unhealthy product at the same time, as it is in case of instant soups in powder.

<sup>10</sup> Grunert op. cit.

<sup>11</sup> R. E. Nisbett, T. DeCamp Wilson: Telling More Than We Can Know: Verbal Reports on Mental Processes, Psychological Review, 3/1977, <http://people.virginia.edu/~tdw/nisbett&wilson.pdf>, p. 243-244.

level of influence of nutrition claims upon preferences depending on the level of declared “nutritious awareness” of the respondent and his/her familiarity with nutritional claims and their declared influence on shopping decisions. I was assumed that the higher consumers’ knowledge and higher their “nutritious awareness” is, the lower the asymmetry of knowledge between consumers and manufactures of food products is. Lower asymmetry of knowledge leads to the tendency to notice information and interpreting it correctly (in this case information stands for nutritional claims), it is turn, decreases the asymmetry of information between consumers and food manufacturers.

The research was limited as the selection of respondents was based on demographic description not on the level of “nutritional awareness”. The reversion of the sequence of the research would, however, have a negative influence on the credibility of the results which were obtained because of priming which would take place<sup>12</sup>.

There were 42 respondents in the research – external students of Management Department of private universities in Wielkopolska. The age of the respondents ranged from 20 to 53 (the age median equalled  $M_{age}=24$ ). The majority (71,4%) of the respondents were women.

### **Research results and discussion**

The results of the research proved that the use of nutritional claims did not influence significantly the preferences of the consumers among the general number of respondents. It has been noticed that there was a higher interest in products with nutritional claims among those consumers who had children below 12 years old. However, the differences in the preferences of packaging in these groups of respondents are not important statistically<sup>13</sup>.

In order to determine the impact of the asymmetry of knowledge on the preferences concerning the choice of a product certain segments of respondents according to several criteria were established. Then preferences in particular segments were analyzed to verify whether they vary significantly.

The author used the following criteria of establishing the segments of respondents who varied in terms of knowledge:

- declared impact of presented nutritional claims on shopping decisions,
- declared earlier contact with nutritional claims,
- declared nutritional awareness,
- declared search for and processing information about nutritional products.

The products with a visible nutritional claim were preferred by respondents who:

- encountered the claim “natural dyes only” earlier - the differences in the preferences of packaging in these groups of respondents are important statistically (Table 1)
- encountered numerous nutritional claims, but the differences in the preferences of packaging in these groups of respondents aren’t important statistically (Table 2)

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<sup>12</sup> T. M. Wanat: Atrybuty produktu a konstruowanie preferencji przez nabywców. Wydawnictwo Uniwersytetu Ekonomicznego w Poznaniu, Poznań 2010, pp. 210-211, Psychologia. Podręcznik akademicki, red. J. Strelau, Gdańskie Wydawnictwo Psychologiczne, Gdańsk 2004, s.140.

<sup>13</sup> In assessing the statistical significance  $\chi^2$  Pearson’s test was used..

- declared the choice of a product with a claim “natural dyes only” and “without artificial dyes”, but the differences in the preferences of packaging in these groups of respondents are not important statistically (Table 3)

Table 1. Preferred packaging in groups of respondents established according to an earlier contact with nutritional claim “natural dyes only” [%]

Tabela 1. Preferowane opakowania w grupach respondentów wyodrębnionych ze względu na wcześniejszy kontakt respondenta z oświadczeniem „tylko naturalne barwniki” [%]

The chosen packaging	Respondents who have seen a nutritional claim “natural dyes only”.	Respondents who haven’t seen a nutritional claim “natural dyes only”.
“ Natural dyes only”	61	29
“Intensely fruity”	22	17
without any catchphrases	17	54
Total	100	100

Source: own elaboration

Table 2. Preferred packaging in groups of respondents established according to an earlier contact with nutritional claims [%]

Tabela 2. Preferowane opakowania w grupach respondentów wyodrębnionych ze względu na wcześniejszy kontakt respondenta z oświadczeniami żywieniowymi [%]

The chosen packaging	Respondents who have seen numerous nutritional claims	Respondents who have seen an average number nutritional claims	Respondents who have seen few nutritional claims
“ Natural dyes only”	50	38	40
“Intensely fruity”	21	31	7
without any catchphrases	29	31	53
Total	100	100	100

Source: own elaboration

It was more important, what kind of nutrition claims have respondents seen, that the number of known claims.

Table 3. Packages preferred in groups of respondents established according to the declared impact of presented nutritional claims on shopping decisions [%]

Tabela 3. Preferowane opakowania w grupach respondentów wyodrębnionych ze względu na deklarowany wpływ prezentowanych oświadczeń żywieniowych na decyzje zakupowe [%]

The chosen packaging	Respondents who declared the choice of products “without artificial dyes” and “natural dyes only”	Respondents who did not declare that any information* is significant for them	Other respondents
“ Natural dyes only”	58	25	36
“Intensely fruity”	21	8	27
without any catchphrases	21	67	36
Total	100	100	100

\* “without artificial dyes” and “natural dyes only”

Source: own elaboration

Differences in preferences among respondents grouped according to the criteria of:

- declared nutritional awareness
- declared search for and processing information about nutritional products were not determined.

The results of the research have partially confirmed that wider knowledge of consumers (lower asymmetry of knowledge between manufacturers and consumers) exerts influence on the preferences of the choice of a product. More extensive knowledge contributes to the choice of a product on which there is a nutritional claim, not an insignificant catchphrase.

The fact that the differences were not always important statistically may result from doing the segmentation of consumers on the basis of their declarations not a real level of knowledge and small sample size.

## **Conclusions**

One of the possible methods of minimalizing the asymmetry of information by manufacturers is supplying consumers with varied information (voluntarily or because of current legal regulations). Such information may be placed for instance on product packaging and this information in particular was the subject of interest of the author of the following paper.

The aim of the research conducted by the author was to indicate how the activities of an enterprise, which include supplying consumers with nutritional claims, influence their preferences and reducing the asymmetry of information between consumers and producers. It turned out that nutritional claims placed on packaging of grocery products only slightly influence the preferences of purchasers. Lack of attention paid to the information placed on packaging (only 9 out of 42 respondents said that they had chosen a particular product because of a nutritional claim "natural dyes only") limits the possibilities of reducing the asymmetry of information between manufacturers and consumers on food market.

The higher the level of consumers' knowledge becomes, the more frequent is the usage of information included on product packaging. Even earlier contact with a nutritional claim influences the change of preferences. Therefore, a higher initial level of consumers' knowledge influences the possibilities of reducing the asymmetry of information positively, and consequently influences the change of consumers' preferences in terms of the choice of a product provided with a nutritional claim in comparison with the same kind of a product without such a claim.

Enterprises can contribute to reducing the asymmetry of information between the subjects representing supply and demand on food market by educating consumers; hence they need to increase their informative activities. It is crucial as the higher the level of initial knowledge is, the more willingly they receive and interpret information given on food packaging, which leads to reducing the asymmetry of information and the change in preferences to the advantage of products which include clear information in the form of nutritional claims. Besides, appropriately extensive initial knowledge of consumers' lets them interpret available information correctly.

## **Bibliography:**

1. Akerlof G.A.: The Market for "Lemons": Quality Uncertainty and the Market Mechanism, *The Quarterly Journal of Economics*, 3/1970, <http://www.jstor.org/stable/1879431>
2. Darby R.R., Karni E.: Free Competition and the Optimal Amount of Fraud, *Journal of Law and Economics*, 16/1973, <http://www.socio-legal.sjtu.edu.cn/uploads/papers/2011/xzh110623120436269.pdf>

3. Falkowski A.: Przywoływanie z pamięci, Marketing w Praktyce, 8/2011
4. Forlicz S.: Mikroekonomiczne aspekty przepływu informacji między podmiotami rynkowymi. WYDAWNICTWO WYŻSZEJ SZKOŁY BANKOWEJ, Poznań 1996
5. Forlicz S.: Niedoskonała wiedza podmiotów rynkowych. WYDAWNICTWO NAUKOWE PWN, Warszawa 2001
6. Grunert K.G., et al.: Nutrition knowledge, and use and understanding of nutrition information on food labels among consumers in the UK, Appetite, 2010, <http://www.eufic.org/upl/1/default/doc/GDApaperJPubHealth.pdf>
7. Karaban B.: Zjawisko asymetrii informacyjnej i niewiedzy uczestników rynku na przykładzie rynku kapitałowego w Polsce, [http://www.kapital.edu.pl/pliki/wyroznione\\_prace/B\\_Karaban-Asymetria\\_informacyjna\\_i\\_niewiedza\\_uczestnikow\\_ryнку\\_KARABAN.pdf](http://www.kapital.edu.pl/pliki/wyroznione_prace/B_Karaban-Asymetria_informacyjna_i_niewiedza_uczestnikow_ryнку_KARABAN.pdf)
8. Nestorowicz R.: Komunikacja marketingowa wspierająca prozdrowotne wybory żywieniowe a zachowania nabywców, HANDEL WEWNĘTRZNY, V-VI/2012
9. Nisbett R.E., DeCamp Wilson T.: Telling More Than We Can Know: Verbal Reports on Mental Processes, Psychological Review, 3/1977, <http://people.virginia.edu/~tdw/nisbett&wilson.pdf>.
10. Pietrzak B., Polański Z., Woźniak B.: System finansowy w Polsce-tom I. WYDAWNICTWO NAUKOWE PWN, Warszawa 2008
11. Psychologia. Podręcznik akademicki, red. J. Strelau, Gdańskie Wydawnictwo Psychologiczne, Gdańsk 2004
12. Rozporządzenie Parlamentu Europejskiego i Rady (UE) Nr 1169/2011 z dnia 25 października 2011 r. <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2011:304:0018:0063:PL:PDF>
13. Wanat T.M.: Atrybuty produktu a konstruowanie preferencji przez nabywców. Wydawnictwo Uniwersytetu Ekonomicznego w Poznaniu, Poznań 2010
14. Wrześniewska-Wal I.: Żywność funkcjonalna – aspekty prawne, Przemysł Spożywczy, 1/2009

## Streszczenie

Na rynku żywności, między podmiotami reprezentującymi stronę podaży i popytu, występuje asymetria informacji. Poziom tej asymetrii jest zróżnicowany w zależności od kategorii produktów. W artykule skupiono uwagę na żywności bioaktywnej, funkcjonalnej, czyli na segmentach, w których asymetria jest szczególnie widoczna, ponieważ właściwości (głównie prozdrowotne) tych produktów żywnościowych mogą ujawnić się dopiero po konsumpcji. W rozważaniach wskazano na wzajemne relacje między poziomem wiedzy konsumentów a poziomem asymetrii informacji na rynku żywności produktów funkcjonalnych, bioaktywnych. Na podstawie wyników przeprowadzonych badań przedstawiono wpływ asymetrii wiedzy i asymetrii informacji na preferencje konsumentów.

**Słowa kluczowe:** asymetria informacji, asymetria wiedzy, żywność bioaktywna, funkcjonalna, preferencje konsumentów na rynku żywności

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