Marketing i Zarządzanie
nr 2 (52) 2018, s. 7–15
DOI: 10.18276/miz.2018.52-01
ISSN: 1509-0507 | http://wnus.edu.pl/pl/miz/

Paweł Bryła

Uniwersytet Łódzki
Wydział Studiów Międzynarodowych i Politologicznych
e-mail: pbryla@uni.lodz.pl

Selected predictors of the evaluation of credibility of information on food packaging among processors and distributors

JEL codes: Q13, M31, D83, L66, L81

Keywords: health-related information, food labelling, health claims, nutritional claims, food marketing

Summary. The article aims to examine the issue of credibility of information placed on food packaging from the perspective of food processors and distributors in Poland. With the use of the CAWI methodology, 78 completed questionnaires were obtained. We used correlations, t-statistics, ANOVAs and simple and multiple regressions. In a multiple regression model, a series of predictors of the credibility were tested. We arrived at a model with 5 statistically significant independent variables. They include: 1) a conviction that the quantity of nutritional claims is appropriate; 2) the understandability of information on the packaging; 3) the share of products with health claims in the offer of the companies under study; 4) self-reported healthiness of one's nutrition and 5) the tenure of respondents in the examined companies. The perceived credibility increases with an increase in variables 1, 2, and 4 and falls with an increase in variables 3 and 5.

Introduction

Most food products can be classified as credence goods and regulations exist to provide consumers with a substitute for the lacking information and trust. Certain producers of low-quality food products benefit by cheating under a not fully credible regulation (Anania, Nisticò, 2004). Food labelling represents

a valuable tool to help consumers make informed decisions about their diet and lifestyle (Wills, Schmidt, Pillo-Blocka, Cairns, 2009). In fact, its importance should not be underestimated in the whole supply chain. There is a considerable number of studies dealing with consumer perceptions of food labels. However, there is a lack of research on the perceived credibility of food labels among processors and distributors.

This paper aims to examine the issue of the perceived credibility of information on food packaging among food processors and distributors in Poland. In a model of a multiple regression, we have identified 5 statistically significant predictors of this attitude.

Literature review

Country image exerts a significant influence on practitioners' credibility assessments of food standards. In a recent study (Wongprawmas, Padilla Bravo, Lazo, Canavari, Spiller, 2015), standards from the UK were perceived as the most credible whereas standards from China were perceived as the least credible. Consumers suffer from an information asymmetry on the healthy food market (Nestorowicz, 2014). There is a strong correlation between the perception of European quality signs and the attitude toward origin and organic food (Bryła, 2017). The adoption of a quality sign, which may be treated as a collective brand, contributes a tan increase in credibility and recognition of producer brands (Bryła, 2012). Among consumers, there is poor information about quality labels and a lack of confidence that certified products have declared characteristics (Velčovská, Del Chiappa, 2015). The credibility of PGI and PDO labels is influenced by their low familiarity (Velčovská, Sadílek, 2014). Divergence in consumer and regulatory interpretations of labelling creates a situation where labelling may be fully compliant with all relevant legislation and regulation, and still be perceived as misleading by consumers (Tonkin, Meyer, Coveney, Webb, Wilson, 2016). Highly educated consumers are more likely to distrust the information on food labels, and are more willing to use a device to validate food label content (Charlebois, Schwab, Henn, Huck, 2016).

Although small groups of consumers may be satisfied with a number of different eco-labelling schemes, the majority of them fall short of providing a credible quality assurance (Nilsson, Tunçer, Thidell, 2004). Consumer confidence is highest in countries with substantial state involvement in organic labelling (Sønderskov, Daugbjerg, 2011). Specific arguments consistently yield greater eco-label trust and positive attitudes toward the product and label source, but only with low-involvement products is source important, with corporate labels yielding more positive attitudes (Atkinson, Rosenthal, 2014). Knowledge does not lead to trust, but trust replaces knowledge, and consumers largely seek confirmation of their views when they have already made up their

minds about organics (Thorsøe, Christensen, Povlsen, 2016). The perceived authenticity of origin and organic food depends, among others, on labelling, in particular having a European quality sign (Bryła, 2015a; Bryła, 2015b; Bryła, 2016). Under appropriate third-party or governmental oversight, process labels can effectively bridge the informational gap between producers and consumers, satisfy consumer demand for broader and more stringent quality assurance criteria, and ultimately create value for both consumers and producers, but process labelling also can have serious unintentional consequences (Messer, Costaningro, Kaiser, 2017).

Health-related information is likely to be seen as a reminder or signal; consumers tend to be reluctant to accept food labels a source of new information about diet-disease relationships (Derby, Levy, 2001). Many nutrition and health claims are seen by consumers as advertising that could be misleading, deceptive or confusing (Chan, Patch, Williams, 2005). Incongruence regarding the level of fat in the product results in lower trust in the claim information but do not affect trust in the Nutrition Facts data (Garretson, Burton, 2000). There is a confirmatory bias to believe the functional food health claim on the part of more health conscious consumers (Naylor, Droms, Haws, 2009). A study in a group of 500 residents of Olsztyn, over 16 years old, recruited mainly in the shopping centres and popular public places in 2009–2010, demonstrated that age significantly differentiated respondents' opinions on perceiving the nutritional value as useful and important information. The influence of education on the perception of the nutritional value in the process of product choice was also observed (Staniewska, Panfil-Kuncewicz, Staniewski, Mieczkowska, 2010).

Material and methods

A survey was addressed to Polish food processors and distributors. The sample consisted of 78 companies. The predominant field of activity of 50 respondents was food processing and production and for 26 respondents, it was food distribution, in particular wholesaling; 2 respondents indicated another focus of their activities. The survey was carried out with the use of the CAWI (Computer Assisted Web Interview) methodology by the author himself. For the analysis of our results, we apply correlations, t-statistics, ANOVAs, and simple and multiple regressions. Our analyses are conducted in MS Excel and Statistica 12.0.

Results

The respondents were asked to assess the credibility of certain types of information on food labels (tab. 1). A 5-degree Likert scale was used. In the total sample of 78 companies, expiry date was evaluated as the most credible information type. It was followed by the list of ingredients and organic certificates.

Relatively, the lowest perceived credibility concerned health claims and quality signs. The distribution of answers in the subgroup of food processors was very similar as in the total sample. Only nutrition claims were considered less credible than quality signs in this group of respondents. Among food distributors, the first three positions were identical as among processors, and the lowest level of credibility was also attributed to health claims. There was a distinctive consistency in the pattern of answers provided by food processors and distributors regarding their evaluation of credibility of selected types of information on the packaging of food products. This consistency was confirmed by the lack of any statistically significant differences in particular evaluations of the information types. The mean evaluation for all the six analysed information types was calculated and it was fed into all subsequent analyses of correlations and regressions.

Table 1

The evaluation of credibility of selected types of information on food packaging

Information type	Information credibility				
	total sample	processors	distributors	P-D comparison	
				t	p
Expiry date	4.128	4.120	4.154	–0.173	0.863
List of ingredients	3.846	3.880	3.846	0.145	0.885
Organic certificate	3.615	3.600	3.769	–0.562	0.576
Nutrition claims	3.423	3.340	3.654	–1.452	0.151
Quality signs	3.282	3.360	3.231	0.557	0.579
Health claims	3.013	2.960	3.154	–0.784	0.435
Mean	3.551	3.543	3.635	–0.588	0.558

Source: own research.

We observed a statistically significant difference in the evaluation of credibility between men and women. Female respondents tended to assess it significantly higher than males (3.725 v. 3.417; **t = –2.130; p = 0.036**).

The mean evaluation of credibility of information on the food labels was taken as an input to correlation analyses with selected variables (tab. 2). 6 out of 11 linear correlations under study turned out to be statistically significant at the level of $p < 0.05$. The perceived credibility was correlated to the largest extent with: 1) the understandability of information placed on food labels; 2) the share of products with health claims in the offer of the company; 3) the age of the respondent. Statistically significant correlations with the evaluation of credibility were also observed for: the tenure of the respondent in the company under study, self-reported knowledge about healthy nutrition and self-reported healthiness of one's nutrition.

Table 2

The correlations of the evaluation of credibility of information on the label with selected variables

Variable	r	p
Understandability of information on the label	**0.410**	**< 0.001**
Agreement with opinion 1	–0.152	0.185
Agreement with opinion 2	–0.198	0.082
Share of products with health claims (a)	**–0.367**	**0.001**
Share of products with nutrition claims (a)	–0.071	0.537
Number of employees of the company	0.022	0.847
Age of the company under study	0.107	0.353
Age of the respondent	**–0.300**	**0.008**
Tenure of the respondent in the company	**–0.254**	**0.025**
Self-reported healthiness of one's nutrition	**0.233**	**0.040**
Self-reported knowledge about healthy nutrition	**0.247**	**0.029**

Note: opinion 1 – the use of unreliable health claims is a serious problem in Poland; opinion 2 – the use of unreliable nutrition claims is a serious problem in Poland; a – in the offer of the company under study

Source: own research.

The perceived credibility turned out to differ according to the evaluation of the quantity of information put on food packaging (tab. 3). In order to examine the variance, we applied ANOVAs. Those who assessed the quantity of information as appropriated evaluated the perceived credibility higher than those who claimed that the quantity of information was excessive. Statistically significant differenced were observed for nutrition claims and quality signs.

Table 3

The relationship between the evaluation of the quantity of selected types of information on the packaging of food products and the perceived credibility (ANOVAs)

Information type	Information quantity				
	too much	appropriate	too little	F	p
Health claims	3.356	3.638	3.604	1.415	0.249
Nutrition claims	3.167	3.711	3.422	**4.832**	**0.011**
Quality signs	3.312	3.707	3.717	**3.749**	**0.028**

Source: own research.

A serious of additional analyses did not confirm statistically significant impact on the perceived credibility of a number of other variables. For instance, engaging in online sales did not influence the perceived credibility in a significant way (3.618 v. 3.533; $t = 0.474$; $p = 0.637$). Offering certain types of products (diet supplements, organic food, functional food, and fair trade products) also did not affect significantly the perceived credibility. The strongest impact was observed for offering organic food, but it did not reach statistical signifi-

cance (3.667 v. 3.457; t = 1.425; p = 0.158). Additional ANOVAs enabled us to discard the influence of: the location of the companies under study by city size (F = 1.189; p = 0.317), the industry branch structure of the companies (F = 1.378; p = 0.222), the level of education of the respondent (F = 2.216; p = 0.116), and the position of the respondent in the company under study (F = 0.885; p = 0.478).

Those variables that indicated statistically significant influence in the above reported analyses were tested in simple regressions in which the mean perceived credibility was the dependent variable. Taken separately, the following independent variables turned out to have a statistically significant impact on the perceived credibility of information put on food packaging: sex (for being a woman β = 0.237; Standard Error (SE) = 0.111; **t = 2.130; p = 0.036**), age of the respondent (β = –0.300; SE = 0.109; **t = –2.745; p = 0.008**), tenure of the respondent in the company under study (β = –0.254; SE = 0.111; **t = –2.288; p = 0.025**), self-reported healthiness of one's nutrition (β = 0.233; SE = 0.112; **t = 2.088; p = 0.040**), self-reported knowledge about healthy nutrition (β = 0.247; SE = 0.111; **t = 2.222; p = 0.029**), share of products with health claims in the offer of the company under study (β = –0.366; SE = 0.107; **t = –3.431; p < 0.001**), conviction that the quantity of nutrition claims is appropriate (β = 0.315; SE = 0.109; **t = 2.891; p = 0.005**), conviction that the quantity of quality signs is appropriate (β = 0.237; SE = 0.111; **t = 2.130; p = 0.036**), and the understandability of information on food packaging (β = 0.409; SE = 0.105; **t = 3.913; p < 0.001**).

Variables that were statistically significant in simple regressions were used to construct a multiple regression model serving to explain the perceived credibility of information on food packaging (tab. 4).

Table 4

Selected predictors of the perceived credibility of information on food packaging among processors and distributors (a multiple regression model)

Independent Variables	β	SE	t(72)	p
Quantity (a)	0.360	0.093	**3.887**	**< 0.001**
Understandability (b)	0.311	0.096	**3.229**	**0.002**
Share (c)	–0.197	0.096	**–2.053**	**0.044**
Healthiness (d)	0.198	0.094	**2.118**	**0.038**
Tenure (e)	–0.229	0.091	**–2.521**	**0.014**

Notes: a – a conviction that the quantity of nutrition claims is appropriate; b – of information on the packaging; c – of products with health claims in the offer of the companies under study; d – self-reported healthiness of one's nutrition; e – of respondents in the examined companies; N = 78, $R^2 = 0.417$, p < 0.00001.

Source: own research.

Step by step, insignificant variables were removed. As a result, we arrived at model with 5 independent variables. The model is highly significant (**p < 0.00001**) and explains over 40% of the variance of the dependent variable. The perceived credibility increases with an increase in the conviction that the quantity of nutrition claims on food labels is appropriate, an increase in the perceived understandability of information placed on food labels, and an increase in the self-reported healthiness of one's nutrition. The perceived credibility is negatively affected by an increase in the share of products with health claims in the offer of the companies under study and an increase in the tenure of respondents in the analysed companies.

Conclusions

To the best of our knowledge, this is the first study to examine the perceived credibility of information placed on food labels among processors and distributors. Previous studies focussed only on the perspective of consumers. We tried to identify certain factors influencing the evaluation of credibility of such information in a sample of Polish food processors and distributors. We obtained a statistically significant model with five independent variables. The trust in food labels depends on: 1) a conviction that the quantity of nutrition claims is appropriate; 2) the understandability of information on the food packaging; 3) the share of products with health claims in the offer of the companies under study; 4) the self-reported healthiness of one's nutrition among the respondents, and 5) the tenure of respondents in the companies under study. Factors 1, 2 and 4 exert a positive influence on the perceived credibility of food labels, while predictors 3 and 5 diminish the perceived credibility.

Our research study was funded by the National Science Centre within an Opus research grant no. 2015/17/B/HS4/00253.

Bibliography

Anania, G., Nisticò, R. (2004). Public regulation as a substitute for trust in quality food markets: What if the trust substitute cannot be fully trusted? *Journal of Institutional and Theoretical Economics*, *160* (4), 681–701.

Atkinson, L., Rosenthal, S. (2014). Signaling the green sell: The influence of eco-label source, argument specificity, and product involvement on consumer trust. *Journal of Advertising*, *43* (1), 33–54.

Bryła, P. (2012). Charakterystyka marketingu regionalnych produktów żywnościowych we Francji – wyniki badania. *Zeszyty Naukowe Uniwersytetu Szczecińskiego*, *709*. *Problemy Zarządzania, Finansów i Marketingu*, *23*, 143–159.

Bryła, P. (2015a). *Marketing regionalnych i ekologicznych produktów żywnościowych – perspektywa sprzedawcy i konsumenta.* Lodz: Lodz University Press.

Bryła, P. (2015b). The role of appeals to tradition in origin food marketing: a survey among Polish consumers. *Appetite*, *91*, 302–310.

Bryła, P. (2016). Organic food consumption in Poland: motives and barriers. *Appetite*, *105*, 737–746.

Bryła, P. (2017). The perception of EU quality signs for origin and organic food products among Polish consumers. *Qualityn Assurance and Safety of Crops & Foods*, *9* (3), 345–355.

Chan, C., Patch, C., Williams, P. (2005). Australian consumers are sceptical about but influenced by claims about fat on food labels. *European Journal of Clinical Nutrition*, *59*, 148–151.

Charlebois, S., Schwab, A., Henn, R., Huck, C. (2016). Food fraud: An exploratory study for measuring consumer perception towards mislabeled food products and influence on self-authentication intentions. *Trends in Food Science and Technology*, *50*, 211–218.

Derby, B., Levy, A. (2001). Do food labels work? In: Bloom, P., Gundlach, G. (eds.), *Handbook of Marketing and Society.* Thousand Oaks: Sage.

Garretson, J., Burton, S. (2000). Effects of nutrition facts panel values, nutrition claims, and health claims on consumer attitudes, perceptions of disease-related risks, and trust. *Journal of Public Policy & Marketing*, *19* (2), 213–227.

Messer, K., Costaningro, M., Kaiser, H. (2017). Labeling food processes: The good, the bad and the ugly. *Applied Economic Perspectives and Policy*, *39* (3), 407–427.

Naylor, R., Droms, C., Haws, K. (2009). Eating with a purpose: Consumer response to functional food health claims in conflicting versus complementary information environments. *Journal of Public Policy & Marketing*, *28* (2), 221–233.

Nestorowicz, R. (2014). Aktywność informacyjna konsumentów na rynku żywności prozdrowotnej – wybrane aspekty. *Marketing i Rynek*, *11* (CD).

Nilsson, H., Tunçer, B., Thidell, Å. (2004). The use of eco-labeling like initiatives on food products to promote quality assurance – is there enough credibility? *Journal of Cleaner Production*, *12* (5), 517–526.

Sønderskov, K., Daugbjerg, C. (2011). The state and consumer confidence in eco-labeling: organic labeling in Denmark, Sweden, The United Kingdom and The United States. *Agriculture and Human Values*, *28* (4), 507–517.

Staniewska, K., Panfil-Kuncewicz, H., Staniewski, B., Mieczkowska, M. (2010). Postrzeganie informacji żywieniowej przekazywanej za pomocą różnych form przekazów komercyjnych. *Zeszyty Naukowe Szkoły Gospodarstwa Wiejskiego w Warszawie. Ekonomika i Organizacja Gospodarki Żywnościowej*, *86*, 117–127.

Thorsøe, M., Christensen, T., Povlsen, K. (2016). "Organics' are good, but we don't know exactly what the term means!" Trust and knowledge in organic consumption. *Food, Culture & Society*, *19* (4), 681–704.

Tonkin, E., Meyer, S., Coveney, J., Webb, T., Wilson, A. (2016). The process of making trust related judgements through interaction with food labelling. *Food Policy*, *63*, 1–11.

Velčovská, Š., Del Chiappa, G. (2015). The food quality labels: Awareness and willingness to pay in the context of the Czech Republic. *Acta Universitatis Agriculturae et Silviculturae Mendelianae Brunensis*, *63* (2), 647–658.

Velčovská, Š., Sadílek, T. (2014). The system of the geographical indication – important component of the politics of the consumers' protection in European Union. *Amfiteatru Economic*, *16* (35), 228–242.

Wills, J., Schmidt, D., Pillo-Blocka, F., Cairns, G. (2009). Exploring global consumer attitudes toward nutrition information on food labels. *Nutrition Reviews*, *67* (suppl. 1).

Wongprawmas, R., Padilla Bravo, C., Lazo, A., Canavari, M., Spiller, A. (2015). Practitioner's perceptions of the credibility of food quality assurance schemes: Exploring the effect of country of origin. *Quality Assurance and Safety of Crops and Foods*, *7* (5), 789–799.

Wybrane uwarunkowania oceny wiarygodności informacji na opakowaniach żywności wśród przetwórców i dystrybutorów

Słowa kluczowe: informacje, opakowanie, etykietowanie żywności, oświadczenia zdrowotne, oświadczenia żywieniowe, marketing żywności

Streszczenie. Celem artykułu jest zbadanie problemu wiarygodności informacji umieszczanych na opakowaniach produktów żywnościowych z perspektywy przetwórców i dystrybutorów żywności w Polsce. Z wykorzystaniem metodyki CAWI uzyskano 78 wypełnionych kwestionariuszy. Posłużono się korelacjami, statystykami t, analizami ANOVA oraz prostymi i wielorakimi regresjami. W modelu regresji wielorakiej przetestowano serię predyktorów wiarygodności. Otrzymano model z pięcioma statystycznie istotnymi zmiennymi niezależnymi. Obejmują one: 1) przekonanie, że liczba oświadczeń żywieniowych jest odpowiednia; 2) zrozumiałość informacji na opakowaniu; 3) udział produktów z oświadczeniami zdrowotnymi w ofercie badanych przedsiębiorstw; 4) samoocenę zdrowotności własnego sposobu odżywiania się i 5) staż pracy respondentów w badanych firmach. Zauważono, że postrzegana wiarygodność wzrasta wraz ze wzrostem wartości zmiennych 1, 2 i 4, a spada przy wzroście zmiennych 3 i 5.

Translated by Paweł Bryła

Cytowanie

Bryła, P. (2018). Selected predictors of the evaluation of credibility of information on food packaging among processors and distributors. *Marketing i Zarządzanie*, *2* (52), 7–15. DOI: 10.18276/miz.2018.52-01.