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**Sustainable Consumption: Eco-labelling and its impact
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Keywords: *green product; sustainable consumption; eco-labelling; consumer; ecolabel*

Abstract

Research background: Environmental pollution has led to a growing interest in protecting the environment of various stakeholder groups, especially consumers, who in their purchasing behavior point to eco-labels.

Purpose of the article: The purpose of the study is to analyze consumers attitudes towards eco-labels.

Methodology: The direct survey method was used. The survey was conducted from 1 December 2015 to 31 January 2016 among 390 consumers who are residents of south-eastern and southern Poland.

Findings & Value added: The study conducted confirms that consumers have positive attitudes toward eco-labels, but have overall and partial knowledge of them. Almost half of respondents (48.2%) buy eco-labels, but only a small group has knowledge of various eco-labels (24.9%). The recognition of EU eco-labels is declared by 43.4% of survey participants (national eco-label – 35.1%). One may notice an inconsistency in the test participant declarations. A large group of respondents believe that manufacturers use eco-labels for sales and image purposes (61%). Only one third (32.1%) have confidence in eco-labels products. Quite a large number of respondents (43.1%) are willing to pay a higher price for such products. Almost three quarters of respondents declared that they were buying products from reliable sources but without eco-labels (76.2%). This study is a valuable contribution to research and a discussion on consumer ecological behavior, and contributes to sustainable consumption research. It creates a deeper and more detailed analysis of attitudes towards eco-labelling. It gives guidance to manufacturers and retailers, especially in consumer communication strategies. The results of the study may help to increase the effectiveness of eco-labelling. The research implies some values to society and helps to solve environmental problems.

Introduction

The environmental debate has an influence on the behavior of various stakeholder groups, particularly consumers, who are more and more likely to include ecological criteria in their purchasing behavior. This situation is the result of increased consumer ecological awareness, which leads to an increase in demand for green products (Bednarova *et al.*, 2016). Eco-labelling is a factor that plays an increasingly important role in choosing a product (Barnard & Mitra, 2010).

Different green stickers are used to indicate that a product meets eco-friendly standards. Since 1989 the eco-labelling system in Scandinavian countries has been functioning. “Nordic Swan” is considered one of the most comprehensive and objective ecological packaging systems in the world. The Blue Angel, introduced in 1978 in Germany, is the oldest European initiative. The European Union has endeavored to harmonize eco-labelling. In 1991 it introduced the first EU Eco-label.

The purpose of the study is to characterize consumers' attitudes towards eco-labels and to try to answer the question of the importance of eco-labels in the buying decision process.

Eco-label is a sign of the company's commitment to environmental protection. The label is intended to provide information that the production and distribution processes do not adversely affect the environment (D'Souza *et al.*, 2006). Eco-labels have been designed as a policy tool that aims to signal the best options available to the market for those consumers who want to express their preferences by shopping for products (Harbaugh *et al.*, 2011). Consumers are willing to pay a higher price for eco-labels products (Moon *et al.*, 2002). The number of eco-labels has increased, and the differences between labeling schemes and systems have led to a lack of clarity between various eco-labels (Harbaugh *et al.*, 2011). The studies by Eden *et al.* (2008) show that consumers do not trust independent guarantee systems at all and suggest that consumer labeling gives consumers information about a product, but does not necessarily lead to a higher level of trust and a purchase. Consumers, on the one hand, are not fully aware of the certification and control process, which has the effect of raising their concerns about the authenticity of the green product but on the other they have some confidence in the organization i.e. they are willing to pay a higher price for their labeled products (Gerrard & Janssen, 2013). Consumer confidence is one of the most important factors in the success of the third-party certification program (Janssen & Hamm, 2012). Knowledge on labeling plays an important role in the identification of green products. Dočekalová & Straková (2011) show that Slovak and Czech consumers are not able to distinguish between true eco-labels and quasi eco-labels. Every country has a variety of eco-labels, which makes it difficult for consumers to distinguish

them. Large amounts of information make it difficult for consumers to filter the right and proper information (Nagypál *et al.*, 2015).

Method of the Research

The direct survey method was applied. The study was conducted from 1 December 2015 to 31 January 2016 in south-eastern and southern Poland. This study is a part of a wider research project: Attitudes and behavior of consumers towards socially and environmentally responsible behavior. The research sample consisted of 390 respondents over 18 years of age, characterized by the following socio-demographic characteristics: gender, education, place of residence, number of persons in the family and material situation (Table 1). There were 32 variables that were presented to participants in a 5-point Likert scale. The relationships between the individual variables were calculated using the Statistica 10.PL software. Three nonparametric tests were used for statistical inference: Mann-Whitney U Test, Kruskal-Wallis Anova Test and Spearman's Rank-Order Correlation (Table 2). The research was carried out at significance level $\alpha = 0,05$. The following hypotheses were made:

H1: Consumers connote positively marked environmentally friendly products, but have a general idea of eco-labels.

H2: The knowledge on eco-labels depends on age and education.

H3: The primary barrier not to buy ecologically labelled products the lack of trust and skepticism towards eco-producers.

H4: People who are familiar with green stickers read labels carefully, they are regular purchasers of eco-labels and trust producers' self-claims.

Table 1: Socio-demographic characteristics of respondents

| Demographics | Percent (N:390) |
|---------------------|---|
| Age | 18-24: 15, 25 - 29: 21, 30 - 39: 12, 40 - 49: 22, 50-59: 19, 60 and more: 11 |
| Gender | Female: 56 Male: 44 |
| Level of education | Primary: 3 Vocational: 26 Mean:34 Higher:37 |
| Financial situation | Bad: 8 Average: 33 Good: 45 Very good: 14 |
| Place of living | Village:57 Town below 200 thousand inhabitants: 24 City above 200 thousand inhabitants: 19 |

Findings

Consumers confer positively ecological products and connect them with health rather than environmental protection. A product impact on the environment is considered by a small group of respondents (32.1%). Price plays a significant role for the respondents (78%). A large group of participants

(42%) believe that they have a high level of knowledge about eco-labelling. They acknowledge that labels are an important way to communicate the different product characteristics and that eco-labels are a positive tool for information on environmental aspects. One third of the respondents (31%) read the labels correctly. Respondents have requirements regarding the information on the packaging. They want it to be accurate and understandable for them. A large group (28.5%) complains that they do not understand all the information on the label. However, a large group of respondents only have a general idea of eco-labels. For the statement "I think other people are poorly aware of eco-labels" 56.4% said of respondents answered "yes". The EU eco-labels are recognized by 43.4% of the survey participants and Polish eco-labels – 35.1% of respondents. The respondents declare that they are well-versed in eco-labels (46.7%), but think other people have poor recognition in eco-labels. A large group of respondents (74.6%) are lost in the mass of information about environment. Only 22.1% know how to produce and control green products.

Table 2: The results of Kruskal - Wallis Anova Test and Mann - Whitney U Test*

| Variables | Gender* | Age | Place of living | Education | Financial situation |
|---|--------------|--------------|-----------------|--------------|---------------------|
| | p –value | | | | |
| When buying a product I consider the impact on the environment | 0,230 | 0,775 | 0,004 | 0,001 | 0,161 |
| Ecological products help to protect the environment | 0,121 | 0,396 | 0,325 | 0,725 | 0,066 |
| It seems to me that other people are poorly aware of eco-labels | 0,450 | 0,125 | 0,018 | 0,034 | 0,541 |
| I regularly buy green products from eco-labels | 0,031 | 0,002 | 0,002 | 0,023 | 0,001 |
| When I buy I return to the eco-label | 0,022 | 0,006 | 0,541 | 0,016 | 0,824 |
| I read the labels carefully | 0,886 | 0,049 | 0,333 | 0,014 | 0,154 |
| I know ecological marks for different product groups | 0,066 | 0,074 | 0,244 | 0,001 | 0,544 |
| I know ecological marks of only organic food | 0,246 | 0,054 | 0,066 | 0,871 | 0,440 |
| Price is an important factor when choosing a product | 0,041 | 0,875 | 0,678 | 0,569 | 0,007 |
| Quality is the most important factor for me | 0,999 | 0,235 | 0,125 | 0,018 | 0,019 |
| I have a high level of knowledge on eco-labelling | 0,430 | 0,645 | 0,227 | 0,032 | 0,152 |
| If I do not have the knowledge about the green product I'm inclined to choose a product with an eco-label | 0,776 | 0,143 | 0,008 | 0,226 | 0,009 |

| | | | | | |
|---|--------------|--------------|--------------|--------------|--------------|
| I know the marks used by the manufacturers on the labels | 0,881 | 0,025 | 0,334 | 0,001 | 0,039 |
| I prefer to designate independent organizations than producers' self-claims | 0,009 | 0,004 | 0,823 | 0,400 | 0,198 |
| I have trust to certified green products | 0,041 | 0,023 | 0,188 | 0,006 | 0,036 |
| I know the EU ecological signs - Europaen Flower (green products) or Euro Leaf (green food) | 0,320 | 0,032 | 0,117 | 0,235 | 0,004 |
| I know the ecological mark given by the Polish Center for Testing and Certification | 0,776 | 0,006 | 0,429 | 0,833 | 0,021 |
| I know the differences between individual eco-labels | 0,540 | 0,992 | 0,162 | 0,028 | 0,365 |
| I am lost in the infoglut about environment | 0,772 | 0,452 | 0,343 | 0,008 | 0,433 |
| I produce green products myself | 0,002 | 0,010 | 0,012 | 0,032 | 0,015 |
| I protect the environment e.g. by segregation of waste, energy saving, gas etc. | 0,033 | 0,836 | 0,242 | 0,563 | 0,073 |
| I'm ready to pay a higher price for an eco-labeled product | 0,006 | 0,001 | 0,278 | 0,434 | 0,289 |
| Companies use eco-labels to create a green image and increase sales rather than protect the environment | 0,018 | 0,333 | 0,629 | 0,767 | 0,009 |
| Products marked with eco-label are of higher quality | 0,887 | 0,221 | 0,300 | 0,042 | 0,051 |
| I'm not sure whether the eco-label guarantees the ecological features of the product | 0,003 | 0,550 | 0,044 | 0,320 | 0,220 |
| I know how to produce and control green products | 0,665 | 0,244 | 0,334 | 0,007 | 0,338 |
| Green products are only for the rich | 0,211 | 0,218 | 0,768 | 0,016 | 0,049 |
| I prefer ecological products with an EU mark | 0,586 | 0,544 | 0,343 | 0,009 | 0,562 |
| I buy products from the so-called reliable source, but without eco-labels | 0,002 | 0,776 | 0,227 | 0,008 | 0,027 |
| Products marked as eco-label are healthier for me and my family | 0,021 | 0,003 | 0,019 | 0,324 | 0,264 |
| On the label I would like to find detailed and understandable product information for me | 0,033 | 0,660 | 0,220 | 0,228 | 0,009 |
| Product labels give enough information about their environmental impact | 0,211 | 0,766 | 0,189 | 0,071 | 0,046 |

*In the table there are test results of Kruskal – Wallis Anova Test for all cases except for gender, where the Mann – Whitney U Test was applied.

Almost half of respondents (48.2%) buy eco-labels, but only a small group recognizes them correctly (24.9%). A large group of respondents believe that manufacturers use eco-labels for sales and image purposes (61%). Over half (51%) are not sure whether the labeling guarantees the ecological features of the product. Only one third (32.1%) have confidence in eco-logos. Products with an eco-label are considered to be of higher quality (59.8%). A large group (23.8%) also argue that these are products for the rich. Only 24.4% of respondents buy regularly products with eco-labels. Quite a large number of respondents (43.1%) are willing to pay a

higher price for eco-labels. Almost three quarters of respondents declared that they were buying products from trusted sources but without eco-labels (76.2%).

The analysis of the Spearman rank correlations showed a significant correlation between the declared eco-label and five purchase preferences: accurate label reading, eco-label trust, higher eco-label prices, eco-labels distinction, perceived high quality of eco products – labels. The correlation coefficient between the knowledge about ecolabelling variable and the variable B is the mean but statistically significant relationship (Table 3).

Table 3. Spearman rank correlations between the environmental knowledge variable ("I know the ecological labels for different product groups") and variables A, B, C, D, E, F, G, H, I, J, K.

| I know ecological marks for different product groups | Spearman R | p-value |
|--|------------|----------|
| A. I have trust to certified green products | 0,52 | 0,000000 |
| B. I regularly buy green products from eco-labels | 0,32 | 0,000000 |
| C. I know the differences between individual eco-labels | 0,56 | 0,000000 |
| D. I know how to produce and control green products | 0,03 | 0,480933 |
| E. I'm ready to pay a higher price for an eco-labeled product | 0,48 | 0,000000 |
| F. Products marked with eco-label are of higher quality | 0,54 | 0,000000 |
| G. Green products are only for the rich | 0,21 | 0,078027 |
| H. I prefer to designate independent organizations than producers' self-claims | 0,28 | 0,230067 |
| I. If I do not have the knowledge about the green product I'm inclined to choose a product with an eco-label | 0,15 | 0,562398 |
| J. I read the labels carefully | 0,67 | 0,000000 |
| K. When buying a product I consider the impact on the environment | 0,22 | 0,340967 |

Conclusions

This study shows that consumers have a positive attitude towards eco-labels. However, they do not consistently follow consumer behavior. Partial and general knowledge of eco-labels, poor identification of differences between them and a lack of confidence in producers' self-claims limit the choices for certified green products. Green product are seen as expensive products that only rich people can afford.

The large number of marks placed on the packaging by the manufacturer causes confusion and chaos, which makes the consumer unable to distinguish true reliable guaranteed from greenwashing. This weakens the power of eco-labels. There are doubts as to whether eco-labels actually make purchasing decisions easy or difficult. Consumers are faced with the need to identify the criteria for individual eco-labels and the effectiveness of their enforcement. This can contribute to consumer skepticism and lack of trust in green products, as they cannot directly verify whether the labeled products are ecologically green.

An increase of consumer confidence and recognition for eco-labelling has an impact on the development of the green market. For this purpose manufacturers need to provide truthful, clear and easily understandable labels. Difficulties in the identification of the indications clearly indicate the need to undertake promotional activities that bring out the specifics of ecological products, the role of ecolabelling and the principles of control and certification. Consumer skepticism is a great challenge for manufacturers (Witek, 2015). Consumers will not pay more for a product with eco-labels unless they believe the products are truly ecological. Moreover, in the Poland for many years there was a socialist system where ecological education was not concerned (Hall & Witek, 2016).

In Poland, the processes of consumer development of environmentally friendly products are running slowly. The causes of this phenomenon are related both with producers and sellers and with consumers. Information asymmetries arise in transactions at various stages in the value chain where participants do not have information on environmental benefits, cost savings and business opportunities (Taufique *et al.*, 2014). In the Polish market there is an additional phenomenon, namely consumers themselves organize ecological products through prosumption or they buy products from reliable sources but without certificates (Witek & Hall, 2016). In future research one needs to draw attention to the in-depth explanations of this phenomenon, whether indeed in developing countries economic factors are causing this or distrust.

My study allows to understand consumer attitudes towards eco-labelling, but do not provide an in-depth analysis of all aspects. Hence, there is a need for qualitative research in the future. It seems interesting to take ethnocentrism into account when purchasing eco-labels. Perhaps a higher degree of ethnocentrism influences greater trust in national eco-labels. An in-depth analysis of barriers to the purchase of eco-labeled products, in particular the question of consumer confidence in national, EU and international eco-labels, seems to be important.

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