



## INFLUENCE OF B2C SUSTAINABILITY LABELS IN THE PURCHASING BEHAVIOUR OF POLISH CONSUMERS IN THE OLIVE OIL MARKET

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### Abstract

This study investigates the influence of B2C sustainability labels on customer purchasing behavior in the olive oil market. Primary data was collected using an online survey (CAWI method) conducted among a sample of 234 residents of large cities (over 50.000 people) of the Mazowieckie voivodship who declared regular purchase of olive oil. A validated questionnaire containing an experimental part regarding willingness to pay (WTP) was used as a tool of study. Collected data showed that sustainability labels were not an important factor in olive oil choice. A large part of the studied group did not know the certificates and did not understand their meaning, or showed no motivation to look for such information on the product label. Most of this group also did not express any willingness to pay a higher price for certified olive oil. For other respondents, certificates regarding the idea of sustainable consumption were an added value; however, this added value differed among individual certificates, which was evident in the form of a varied level of WTP. The results of the study show that the sustainable consumption issue determines purchasing behavior only to a small extent. However, it can be expected that the dissemination of knowledge and pro-environmental awareness will lead to an increase of the importance of sustainable labels in making purchasing decisions in the food market.

## WPLYW CERTYFIKATÓW TYPU B2C ODNOSZĄCYCH SIĘ DO IDEI ZRÓWNOWAŻONEJ KONSUMPCJI NA ZACHOWANIA NABYWCZE POLSKICH KONSUMENTÓW NA RYNKU OLIIWY

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### Abstrakt

Celem badań była ocena wpływu certyfikatów poświadczających cechy produktów spożywczych właściwe zrównoważonej konsumpcji na zachowania zakupowe nabywców na rynku oliwy z oliwek. Wykorzystano dane pierwotne zebrane metodą CAWI wśród 234 mieszkańców dużych miast woj. mazowieckiego (powyżej 50 tys. ludności), którzy zadeklarowali regularne kupowanie oliwy. Narzędziem był walidowany kwestionariusz, zawierający część eksperymentalną dotyczącą akceptowalności ceny (WTP). W badanej grupie respondentów certyfikaty nie były ważnym czynnikiem wyboru oliwy. Znaczna część nie znała symboli, nie rozumiała ich znaczenia lub nie wykazywała motywacji do poszukiwania takich informacji na etykietach. Większość z tej grupy nie wyraziła również gotowości zapłacenia wyższej ceny za certyfikowaną oliwę. Dla pozostałych respondentów certyfikaty dotyczące idei zrównoważonej konsumpcji stanowiły wartość dodaną, różną dla poszczególnych certyfikatów, co widoczne było w postaci zróżnicowanego poziomu WTP. Wyniki badania wskazują, że aspekty zrównoważonej konsumpcji w niewielkim stopniu determinują zachowania nabywcze. Można jednak oczekiwać, że rozpowszechnianie wiedzy i świadomości prośrodowiskowej spowoduje wzrost znaczenia certyfikatów w podejmowaniu decyzji zakupowych na rynku żywności.

## Introduction

The production and consumption of food has a significant impact on the environment, and consumer choices are reflected in economic (e.g. energy consumption), environmental (incl. utilization, recycling) and social costs (i.e. health protection, combating poverty (Tobler *et al.*, 2001). Processes in the food chain, including consumer behaviour in households (food choice, dietary patterns and habits) affect greenhouse gas emissions, contribute to soil degradation, water use and food wastage. Responsible dietary choices consistent with the principles of sustainable food production and consumption are therefore essential for sustainable development (*Przekształcamy nasz świat...*, 2015).

More and more consumers declare that when choosing food, as in the case of other categories of products, sustainable consumption issues (i.e. environment protection, respect for human rights, animal welfare, support for local producers, organizations and products, etc.) are desirable and important (Lucas *et al.*, 2018; Jaros, 2016; van Dam & van Trijp, 2013; Brécard *et al.*, 2009). This should affect

the increase in demand, especially as the supply side of the market increases the offer of products that are more sustainable alternatives to products purchased so far. However, research shows that the declared positive attitudes towards sustainable development aspects do not translate into consistent consumer behaviour (Zander & Hamm, 2010; Vermeir & Verbeke, 2006).

Sustainability is an abstract and difficult to verify feature that cannot be seen, tried or easily checked. Its credibility is often communicated to the buyer using the logos of B2C (Business to Consumer/Customer) certification schemes placed on the product labels (Gracia & de-Magistris, 2016; Grunert, 2011). Certification schemes for agricultural products and foodstuffs provide assurance (through a certification mechanism) that certain characteristics or attributes of the product, including the production and processing methods are compliant with the specification (*Wytyczne UE dotyczące najlepszych praktyk...*, 2010). A survey by the European Commission identified 129 public and private sustainability-related food information schemes available at the EU or national levels. The objective of these schemes is to increase transparency along the food chain and inform the consumer in a way that can promote sustainable consumption (Grunert *et al.*, 2014).

The aim of this research was to assess the influence of olive oil sustainability labels on the purchasing behavior of customers. An attempt was made to clarify whether previous knowledge of selected certification scheme symbols would favor the purchase of certified olive oil. It was also checked whether sustainability labels would affect an increase in the added value of olive oil in the opinion of customers, which would be manifested in a willingness to pay (WTP) a higher price.

Taking into account that the idea of sustainable consumption concerns three main areas: environmental, economic and social; three sustainability labels appropriate for each of these areas were chosen for the research:

- EU organic farming logo, also called Euro-leaf, which assures that the product was produced with respect for the environment,
- Protected Geographical Indication (PGI), which indicates the support for regional producers and local communities; granted to products whose quality and reputation are related to the place of production; buying such products contributes to the sustainable development of the regions,
- Fair Trade, which indicates an economic system created for manufacturers from developing countries to ensure their worthy functioning and community development; this certificate scheme promotes social and economic justice as well as crop cultivation with respect for the environment.
- These certificates are used worldwide and can be considered the most widespread among all sustainability labels (*Consumer market Study...*, 2013).

The choice of olive oil as the subject of the research was deliberate. The offerings in the Polish extra virgin olive oil market include products labeled with these three certificate logos, and their retail prices vary widely (Barszczewski

& Kowrygo, 2011). In addition, the WTP method for the valuation of olive oil labeled with sustainability certification schemes has already been used in other studies, which created the possibility of comparing the results.

## Research methodology

Primary data were collected in 2016 through an online consumer survey using the CAWI (Computer Assisted Web Interview) method. The sample consisted of 234 participants aged 19-65 and living in the seven large cities (over 50,000 people) of the Mazowieckie voivodship. Respondents were selected using the quota method according to the criterion of number of inhabitants in these cities. Recruitment and data collection were conducted by a commercial market research agency, ARC Rynek i Opinia. The sampling panel was the internet database of this company. The criterion for participation in the study were regular consumption of olive oil and making decisions about purchasing at least half of the food products for the household. The socio-demographic characteristics of the study participants are presented in Table 1. The sample consisted mostly of women. The largest share of the sample constituted young people aged 19-35, and represented households consisting of more than two persons. Respondents declared an average financial situation with a higher level of education. In the case of education level, the sample occurred to be significantly better educated when compared to the average in the country (the percentage of people with higher education in 2017 amounted to 26.4%). This was determined by the assumed selection criteria of the respondents.

A validated, authorial questionnaire consisting of two sections was the tool for the research. The first part concerned shopping habits and consisted of closed-ended questions, including the 5-point Osgood semantic scale and the ranking method, with a random order of response presentation. The second part of the survey was experimental and concerned the readiness to purchase and the acceptability of price. To understand the importance of sustainability issues in food choice, several authors have applied experimental methods, such as the Choice Experiment (Janssen & Hamm, 2012; *Consumer market study...*, 2013; Erraach *et al.*, 2017), Conjoint Analysis (Rotaris & Danielis, 2011), and Contingent Valuation (Yang *et al.*, 2012). In the presented study, the Choice Experiment (CE) method was used to find consumer preferences and their willingness-to-pay (WTP) a higher price for products labelled with different B2C certificates. CE methods are based on Random Utility Theory assuming that the person who makes a choice from different alternatives strives for maximization of utility and therefore it is accurate in imitating a real-buying situation (Bredert *et al.*, 2006). Four Extra Virgin olive oil pictures were presented to the respondents on one screen in order to create the impression of online shopping. Three products

Table 1

Socio-demographic characteristics of the respondent sample ( $N=234$ )

Specification	Respondents	Familiarity of B2C certificates before the study: number and [%] of „yes” answers			None is known
	<i>n</i> [%]	Euro-leaf	PGI	Fair Trade	<i>n</i> [%]
Total	234 (100)	130 (55.6)	73 (31.2)	76 (32.5)	55 (23.5)
Gender					
Female	144 (61.5)	82 (63.1)	43 (58.9)	50 (65.8)	30 (54.5)
Male	90 (38.5)	48 (36.9)	30 (41.1)	26 (34.2)	25 (45.5)
Age (years)					
19-34	83 (35.5)	48 (36.9)	24 (32.9)	27 (35.5)	17 (30.9)
35-50	75 (32.1)	36 (27.7)	21 (28.8)	23 (30.3)	21 (38.2)
51-65	76 (32.5)	46 (35.4)	28 (38.4)	26 (34.2)	17 (30.9)
Education level					
Vocational and below	8 (3.4)	4 (3.1)	2 (2.7)	2 (2.6)*	2 (3.6)
Secondary	77 (32.9)	45 (34.6)	27 (37.0)	19 (25.0)*	20 (36.4)
Bachelor's degree	34 (14.5)	24 (18.5)	13 (17.8)	6 (7.9)*	5 (9.1)
Master's degree or above	114 (48.7)	56 (43.1)	31 (42.5)	49 (64.5)*	28 (50.9)
Refusal	1 (0.4)	1 (0.8)	-	-	-
Household size					
Up to 2 people	105 (44.9)	58 (44.6)	31 (42.5)	38 (50.0)	27 (49.1)
More than 2 people	129 (55.1)	72 (55.4)	42 (57.5)	38 (50.0)	28 (50.9)
Financial position					
Very bad or bad	16 (6.8)	8 (6.2)	4 (5.5)	3 (3.9)	4 (3.6)
Average	125 (53.4)	72 (55.4)	36 (49.3)	39 (51.3)	27 (29.1)
Good or very good	89 (38)	48 (36.9)	32 (43.8)	33 (43.4)	22 (30.9)
Refusal	4 (1.7)	2 (1.5)	1 (1.4)	1 (1.3)	2 (3.6)

\* – statistically significant at a significance level of  $p \leq 0.05$ .

Source: own research.

were labelled with the following sustainability certificate logos: Euro-leaf, PGI, Fair Trade, and a fourth bottle of olive oil always appeared without a certificate.

The order of the simultaneous presentation of photos on the screen was random to avoid the mistake of the first impression. At the beginning of the experiment, the same standard price was shown for each olive oil bottle (PLN 12.99 for a 500 ml), and participants were asked to choose the one they would buy while shopping in a store.

If the respondent chose a bottle of certified oil, then for the next choice the price of this product would increase by only 10%. Then the respondent could maintain the choice of a previously chosen olive oil at a higher price or choose another (with or without a different sustainability label), which was kept at a lower price. The price increase was carried out until the respondent changed preferences and selected the product without a certificate.

Statistical analysis of the results was carried out using SPSS software, version 1.0.0.1012. In the description of individual variables, frequency analysis and cross-tabulations (with the Pearson Chi-square independence test) were used to verify equal distributions between variables. The significance of the studied determinants in the ranking method was measured with the sum of ranks, Friedman's test. The strength of the relation between variables was determined at the level of significance  $p \leq 0.05$ .

## Familiarity of sustainability labels and their impact on purchasing decisions

After presenting the names and graphic symbols of the sustainability labels Euro-leaf, Protected Geographical Indication and Fair Trade, only 8.5% of respondents declared a familiarity with all three. Every fourth respondent (25.6%) admitted knowing two sustainability certificates, and 42.3% only one. The knowledge of these symbols in total was declared by 76.4% of respondents, and the share was 55.6% for Euro-leaf, 31.2% for PGI and 32.5% for Fair Trade. These data indicate a high level of familiarity of certificates, taking as a reference point the average for all EU Member States and for Poland (almost a thousand respondents) obtained in the DG Agri survey from 2017 (Tab. 2).

Table 2

Data from the Eurobarometer survey presenting familiarity of selected sustainability labels among the population of the EU28 countries, including Poland, % of respondents

Familiarity	Euro-leaf	PGI	Fair Trade
EU28- average	27	18	37
Poland	29	15	9
Poland – own research*	56	31	32
The highest & country abbrev	58 LU, 54 SE	38 FR, 33 IT, 30 CZ	88 NL, 86 SE, 84 LU
The lowest & country abbrev	8 RO	6 NL, 6 UK, 7 DK	3 BG, 3 ES, 3 RO

Source: *Europeans, Agriculture and the CAP*. (2018) and \* own research.

Undoubtedly, this familiarity assessment should be linked to the socio-demographic characteristics of the respondents: residents of large cities of the Mazovia Region, including Warsaw, about 2/3 of the sample aged under 50, with a higher education level, and almost 40% with a good or very good financial situation.

It is worth mentioning that in comparison to 2012, the percentage of people declaring familiarity of sustainability certificates increased. In the case of the organic farming label, the average EU growth amounted to 3 percentage points,

the regional product to 4 percentage points, and Fair Trade (which has been well recognized by EU residents for many years) – one point (*Europeans, Agriculture and the CAP*, 2018).

In the presented own research, more than half of the respondents were aware of the impact of B2C sustainability labels on their purchasing decisions. This opinion was expressed by 54% of those declaring familiarity of the Euroleaf certificate, 64% – PGI and 54% – Fair Trade.

Again, it is worth pointing out that these declarations positively characterize the respondents in the context of the desirable implementation of the idea of sustainable consumption and are similar to the results (*Europeans, Agriculture and the CAP*, 2018) obtained in the study conducted for EU28 countries. On average, in the Community Countries, 66% of consumers declared that the symbol of organic farming is a food choice determinant during shopping. In the case of Poland, declarations came from as many as 80% of respondents and set Poland among the three countries with the highest declaration rate. The PGI label was important in the food choice of 77% of European consumers and was nearly the same percentage (76%) for Polish consumers.

In order to determine the influence of sustainability labels on olive oil choice, respondents were asked to indicate their rank (weight) among six other factors, usually determining food selection (Tab. 3). It turned out that the most important determinants were quality and price, and the certificate was the least important. None of the respondents recognized the sustainability label as the most important determinant of olive oil choice and only 3% of respondents indicated this factor as the second most important. Almost half of the respondents (47.9%) considered this attribute of oil as the least important (rank 6). The cultivation method was also of minor importance (second last), which confirms the fact that the certificates, in this case organic production, are not relevant for the respondents.

Table 3

Sum of ranks of individual olive oil choice factors ( $N = 234$ , the most important feature – rank 1, the least important feature – rank 6)

Food feature	Sum of ranks	Preference group
Quality	422	A
Price	686	B
Brand/Producer	829	C
Country of origin	857	C
Method of cultivation	938	C
Certificate	1,182	D

A, B, C, D – features that respondents identified as the most important. There were no statistically significant differences between factors classified in the same group (marked with the same letters). Between the features included in other groups (marked with other letters) there is a statistically significant difference ( $p \leq 0.05$ ).

Source: own research.

Similar results were obtained in 2016 in a study of 146 people, in which among the nine factors of food choice the least important were sustainable consumption determinants: certificate, country of product origin and method of cultivation/breeding (Kaczorowska *et al.*, 2018). The Eurobarometer survey (2018) also showed that only in the case of a small percentage of Polish consumers, certificates are a very important criterion for food selection, although several times more people declared them as a choice factor. In the case of both European labels (Euroleaf and PGI) it was 19% of responses (*Europeans, Agriculture and the CAP*, 2018). It should be added that among the groups of respondents who declared and denied the presence of sustainable labels, no significant differences in the ranking of the olive oil choice factors were noticed. Accordingly, 45 and 56% of them classified the certificate symbol as the least important choice determinant.

The small significance of sustainable consumption aspects when choosing food consistently translates into low activity and even a lack of consumer motivation to look for sustainability labels during grocery shopping. Only one fifth of the respondents declared such behaviors (often or always looking for a certificate on the packaging). Almost half (46%) admitted that they are not looking for any sustainability symbols or they do it very rarely, the others (33%) from time to time.

### **Willingness to buy and readiness to pay a higher price for certified olive oil**

A significant part of the respondents, 70% (164 people), declared a willingness to buy olive oil labeled with sustainability logos certificate schemes at the price of PLN 12.99 for a 0.5-liter bottle, i.e. as much as for oil without a sustainability label. Among them, 80% declared a previous knowledge of at least one of the three certificates considered in the study, thus the remaining (20%) declared not having this knowledge.

Statistical analysis did not show any significant differences in the structure of the responses regarding the knowledge of certificates among both respondent groups. Among those interested in buying a certified product, 45% chose the olive oil with the PGI certificate, 31% with the organic farming logo and 24% with the Fair Trade logo. Slightly less than half of those originally declaring the purchase of olive oil with each sustainability logo declared the readiness to purchase it again for a price higher by 10% (i.e. PLN 14.29). The amounts of the answer were 48, 47 and 35%, respectively (Tab. 4). The remainder of respondents changed their choice to a cheaper product with another certificate or without any sustainability label. It can be stated, therefore, that these buyers of olive oil were not aware that certified products must be more expensive due to higher producer costs and they resigned from the purchase. Among those who did not change their choice, the share of respondents declaring knowledge of certificates prior to the research slightly increased (up to 83%). It means that



they were more aware of the importance of certificate schemes and the resulting necessity to pay a higher price. There was a significant difference between these respondents and those who did not know the certificates ( $p = 0.026$ ). With each subsequent price increase, fewer and fewer consumers expressed their willingness to pay for certified olive oil. They resigned from buying it in favour of a product without a sustainability label. At the same time, as before, the share of respondents who knew the certificates prior to the study was larger among those who expressed the willingness to pay a higher price. Similar observations resulted from the research of Greek customers, because those who knew the idea of sustainable consumption accepted paying higher prices by two-thirds for organic olive oil and by one-third for regional ones (Vlontzos & Duquenne, 2014).

Table 4  
Number of people declaring readiness to buy olive oil with sustainability labels while increasing its price

Sustainability label	PRICE				Change of price max/stand.
	standard PLN 12.99	+10% PLN 14.29	+20% PLN 15.59	max PLN	
Organic farming	105	49 (-53%)*	26 (-75%)	38.99	3.0
PGI	100	48 (-52%)	26 (-74%)	77.99	6.0
Fair Trade	124	43 (-64%)	28 (-77%)	41.59	3.2

\*in brackets the percentage of respondents giving up their purchase.

Source: own research.

During the experiment, respondents 20 times accepted the increase of organic olive oil price, 22 times of the Fair Trade product and 50 times of regional olive oil. The data in the last column of Table 4 (the proportion of extreme prices) confirms that the respondents' willingness to pay a higher price depended on the type of certificate. The lowest willingness concerned organic olive oil, because respondents agreed to pay at most three times the standard price. A slightly higher willingness to pay was found in the case of the Fair Trade certificate, as the price changed 3.2 times. In the case of the olive oil with the Protected Geographical Indication certificate, the maximum acceptable price was 6 times higher than the initial price, which means that the product with this sustainability label was much more resistant to price increases than the products with other labels. The lowest rating of an organic certificate can be explained by the observation from surveys carried out among respondents from six EU countries (five so-called "old" and Poland). It was shown that at the general level, consumers express concern with environmental issues, but at the product-related level this concern diminishes and does not translate into a responsible food choice (Grunert *et al.*, 2014). Also from the Eurobarometer survey quoted above, it appears that Polish consumers perceive organic products primarily

through the prism of price (54% totally agreed that they are more expensive than conventional counterparts) and to a much lesser extent in the sustainable consumption issues (31-33% totally agreed that organic food products are of better quality, are produced using environmental practices, without pesticides, fertilizers or medical supplies) (*Europeans, Agriculture and the CAP*, 2018). Regional food products seem to be more unique for the Polish consumers, and therefore worth paying a higher price, not necessarily because they are perceived in terms of sustainable development. This may result, in part, from the active policy of promoting regional and traditional products, at the EU, national and local level, including the “Three Signs of Taste” campaign implemented in Poland in 2013-2015 and activities undertaken by the Polish Chamber of Regional and Local Products.

The results of the presented study show that the individual certificates represented differing levels of added value for the respondents. The logo confirming the product relationship with a region had the highest added value. Similar results were obtained in a Canadian consumer survey, as they were willing to pay higher prices for PDO (Protected Designation of Origin) and PGI (Protected Geographical Indication) extra virgin olive oil compared to the product without a sustainability label. The results also indicated that consumers valued PDO-certified olive oil more than PDI-certified (Menapace *et al.*, 2011). Research among Italian consumers showed that both certificates of regional origin PDO and PDI, and organic farming positively affected the olive oil choice decision. Moreover, the willingness to pay a higher price increased when the certificate logo was accompanied by information about the importance of the scheme (Aprile *et al.*, 2012). Different price acceptability depending on the information and the certificate logo indicates that consumers have a different level of trust, and the valuation of certificates depends on their knowledge about European certification schemes for agricultural products and foodstuffs.

## Conclusions

Sustainability labelling is an important tool to communicate to the customers about the quality features of food and to guarantee the credibility of products (Aprile *et al.*, 2012). In the presented study, an assessment of Polish consumer knowledge on three fairly widespread B2C sustainability certificates, i.e. Euro-leaf, PGI and Fair Trade, was made. Their significance in olive oil choice was assessed using the WTP method.

It has been shown that the olive oil label with a B2C certificate motivates the purchase for a considerable group of consumers, but only on the condition that the price will not be higher than the standard one, even if they do not know what a given certificate means. It seems, therefore, that the symbols of certificates are perceived more as a marketing tool for manufacturers and

not as a determinant of responsible purchase behavior, as consumers will not accept a higher price for higher value added of the certified olive oil. On the other hand, it is worth noting that the increased price of a product is an important barrier for consumers, even if they declare knowledge and a positive attitude towards sustainable development. For consumers who knew the chosen B2C certificates before the study, they constituted a higher value added manifested in the tendency to accept higher prices compared to the products without certificates. Furthermore, a higher loyalty to certified olive oil was a feature of consumers who knew the B2C certificates before the study, because they accepted paying higher and higher prices.

To summarize, it can be concluded that sustainability labels have a high potential for shaping responsible food choices and promoting a sustainable consumption model. However, it is necessary to increase the consumer knowledge about certification schemes, so that they understand that premium prices for products that meet the sustainable consumption rules are justified. The issues of sustainable food consumption and production should become the subject of broad public debate, and educational activities should be undertaken by many stakeholders from the sphere of food and nutrition, including educational and scientific establishments, producers, decision makers or non-governmental organizations (some of them have already implemented activities in this field). It is worth noting that the Danish government is considering introducing the obligatory labeling of food products according to their environmental impact (Quackenbush, 2018). Understanding the link between the method of food production and the state of the environment and, as a consequence, the conditions and quality of life, seems to be a key factor for consumers to make responsible purchasing decisions. As a result, more conscious and sustainable purchasing behavior should improve the health of the population and the state of the environment, contributing to ensuring food security for the present and future generations.

Finally, it is important to acknowledge some limitations of the presented research. During the experiment, the sustainability certificate logo competed with the price, which is considered a key factor in food choice. In fact, the sustainability label must also compete with other product attributes, such as brand, quality, country of origin, etc. In addition, when buying food, consumers may be overwhelmed by too much information on the label and may deliberately ignore symbols in order to simplify their choice. In further research, the issue of visual attention (for example, using eye-tracking technology) in relation to sustainability certificate logos is worth exploring in order to gain insight into the actual decision making process during food choice, including the willingness-to-pay a higher price.

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