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Can the "Euro-Leaf" Logo Affect Consumers' Willingness-To-Buy and Willingness-To-Pay for Organic Food and Attract Consumers' Preferences? An Empirical Study in Greece

Charalampia N. Anastasiou [1], Kiriaki M. Keramitsoglou [1], Nikos Kalogeras [2], Maria I. Tsagkaraki [1], Ioanna Kalatzi [1] and Konstantinos P. Tsagarakis [1,*]

[1] Business and Environmental Technology Economics Laboratory (BETECO), Department of Environmental Engineering, Democritus University of Thrace, 67100 Xanthi, Greece; anastasioux@gmail.com (C.N.A.); johnkiki@hol.gr (K.M.K.); mtsagk13@gmail.com (M.I.T.); joanna.an66@gmail.com (I.K.)

[2] Marketing and Consumer Behaviour Group, Department of Social Sciences, Wageningen University & Research, 6706 KN Wageningen, The Netherlands; nikolaos.kalogeras@wur.nl

* Correspondence: ktsagar@env.duth.gr; Tel.: +30-25410-79397

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Abstract: The "Euro-leaf" organic certification logo was adopted and made compulsory by the European Union (EU) a few years ago; the level of consumers' recognition of this logo has been explored. This paper provides important insights into the effectiveness of the logo in the Greek market. The "Euro-leaf" logo was compared with the two previous EU organic logos; i.e., the voluntary "Organic Farming" and the withdrawn "Bio". In total, 472 face-to-face interviews were conducted using actual presentations of five officially certified food products. The aim of this research was to investigate the consumers' willingness-to-buy (WTB), willingness-to-pay (WTP), and their preference towards each of the three logos used for the certification of organic products. Our analysis concludes that for the time being the new logo has failed to develop into a powerful instrument for affecting consumers' WTB and WTP. Furthermore, it was found to have been the least influential factor that determined their preferences. Design changes and improvements might be necessary in order to better communicate the organic food message.

Keywords: organic certification logos; preferences; willingness-to-buy; willingness-to-pay

1. Introduction

The organic label offers consumers access to information about the social and environmental performance of a food supply chain and the verifiable absence of genetically modified organisms (GMOs) from food items marketed under its name. In addition, the organic certification logo certifies that a set of standards have been maintained, thus attaching an image of quality to the certified food products, as compared to conventionally produced food items. However, consumers have grown skeptical and irresolute of organic claims because they have no means to verify them. When consumers are unable to validate the message behind the logo, they dismiss the importance of the message [1–5]. Moreover, mislabelling adversely influences consumers' trust in the labelling process, and ultimately decreases the likelihood that they accept organic foods [6,7]. Yet, the availability of organic products hardly meets the rapidly growing demand for organic food. Also, the number of fields reserved for organic cultivation has barely increased in Europe. Meanwhile, prices have fallen considerably [8]. For these reasons, skepticism rises with regard to the quality of organic food, and raise questions

concerning the standards meant to promote that quality. It is thus essential for the organic certification logo to be protected, since its loss would lead the organic market to failure [9,10].

The interest, hence, is centered on how to reinforce consumers to verify quality with organic logos, gain consumers' confidence in the information conveyed by organic logos, and ensure that a redesigned credence attribute still attracts and affects consumers' behaviour. The latter also results from the ambiguous evidence about the effect of credence on consumer behavioural intentions [11].

The certification organisation or institution plays an important role in verifying whether main criteria have been met and in affecting consumer preference [12–14]. The key criteria include: (i) the conceptual clarification of organic agriculture standards, (ii) transparency; the standards are available to the public, (iii) consistency; the same standards are applied to all organic food products, which is of utmost importance because consumers usually associate organic food with vegetables and fruit [15–17], (iv) independence; a lack of ties and financial interconnectedness between the logo user and the certification organisation, and (v) public participation in standards development, including farmers, retailers, food industry stakeholders, and consumers [18,19]; particularly when global and local partnerships have to interact [20], and local traditions to be supported [21]. Without doubt, European Union (EU) legislation has provided a positive framework to secure these criteria [22]; the question, then, is whether the relevant information can easily and effectively get across to the public. Previous research has shown that consumers did not take into consideration all the standards represented by the organic logo certification when it comes to buying a product. In addition, accurate and reliable information presented in a simple way could further contribute to the development of the organic food market [3,23–25].

Nonetheless, while there is abundant research on what drives consumer beliefs, attitudes, and behaviour regarding specific health-related and quality-related labels compared to conventional ones [2,26–30], and the effect of brand redesigns on consumer attitudes and preferences [31–33], research is scarce about the effects of different types of organic labels (e.g., voluntary vs. mandatory) introduced over time in the same market by public competent authorities on consumer preferences and behavioural intentions. To the best of our knowledge, only the study that compares organic certification logos that were introduced by third-parties into certain countries is by Janssen and Hamm [32]. The authors show that consumers' willingness-to-pay (WTP) differed substantially between the selected old voluntary EU logos, governmental logos, private logos, and prefixes of "organic" without logos. The highest price premiums were mostly recorded for well-known and trusted logos. Yet, their study does not account for the comparison of the EU's mandatory newly introduced logo (i.e., the "Euro-leaf") with its preceding voluntary (optional) EU logos. Our contribution investigates this aspect in the context of the adoption and compulsory application of the "Euro-leaf" logo within the EU food retailing sector. By comparing only labels officially issued by EU competent authorities, we assume that there are no external effects related to trust in the credibility of agencies.

In this paper, we examine whether different types of EU logos (voluntary vs. mandatory) influence consumers' behavioural intentions and preferences. We recognise the complexity of consumers' choice behaviour often relying on cognitive and affective processes for information processing [34]. This consumer information is helpful to provide useful insights for policy-makers about food quality labelling and optimising public adoption. The objective of this paper is thus twofold. First, we examine whether the new "Euro-leaf" logo can affect consumers' willingness-to-buy (WTB) and WTP for five organic certified foods by comparing three EU organic certification logos to one another (the mandatory newly introduced "Euro-leaf" with two dismissed—voluntarily—logos: "Organic Farming" and "Bio"). Second, we explore whether the redesign of a label that certifies organic produce in the EU attracts consumer preferences. To address these objectives, we followed a deterministic research approach and conducted a large-scale survey in Greece.

1.1. Theoretical Approach and Hypotheses Development

Policy-makers and industry managers must appreciate how consumers recognise and evaluate the nutritional and health-related values of food labels, and, consequently, make food choices. The dual-process theories of information processing posit that individual market participants (e.g., consumers) often evaluate information in two ways [34]. The first way implies that thinking is fast. That is, consumers often rely on easily processed or obvious sources of information, such as heuristics, instincts, and emotions. Thereby, decisions are made intuitively. In contrast, the second way implies that thinking is slow. It involves deliberation and logic as well as greater volumes of information. Recent research recognises that in the case of the credence/external attributes of a product (e.g., price, regional or organic labelling) consumers may follow a dual-process pathway that allows them to evaluate just enough information of attribute cues, which represent external links of credence product attributes (e.g., certifications on product labels) [28,35]. The fast thinking resulting from the cognitive missing process and the slow thinking resulting in conscious decision-making over time (e.g., due to familiarity with the decision context), may enhance consumers' confidence. Consumers feel confident and perceive satisfaction about choosing products based on their search and credence attribute cues [36], and they feel that they are able to identify certified products at the point-of-sale [37]. Often, consumers feel familiar and seem to be able to verify whether or not a food product was produced according the promised processes, characteristics, and production system controls relying on the information demonstrated by a quality label/logo [7,38]. That is, the information asymmetry in the producer-consumer relationship may be diminished [32,39].

1.2. Background of Organic Labelling in the EU

Launched in the late 1990s, the first voluntary certification logo for organic products depicted the EU flag with an ear of wheat in the center and the statement "Organic Farming" in the official language of the EU member-states in question (Figure 1a). When the old Regulation (EEC) no 2092/91 was amended by regulation (EC) no. 834/2007, the logo was replaced by a new obligatory one [40,41]. However, the new logo (Figure 1b) was immediately withdrawn from the market, following a legal dispute with the German chain super market ALDI, for bearing significant similarities with the organic food logo the company used (Figure 1c). In addition, the fact that the prefix "bio" was not directly linked with organic production in English-speaking countries (where the term "organic" has wide currency) see for example [42,43], resulted in the withdrawal of this logo.

(**a**) (**b**) (**c**)

Figure 1. Organic logos: (**a**) the first voluntary European Union (EU) (Greek version); (**b**) the second EU mandatory and (**c**) the ALDI organic logo.

The increasing consumers' demands for food quality and safety, due, mainly, to the spread of food scares worldwide and the food scandals, led the EU to adopt various new policy measures and initiatives that will promote the growth of the organic sector, such as the redesign of the organic logo [44–46]. On 1 July 2010 the EU launched the new European logo, the "Euro-leaf" for organic food certification. The use of this logo is mandatory for pre-packaged food; however, it is employed

voluntarily in the case of loose and imported products [47]. The selection of the logo followed a broad participatory procedure: a total of 3422 art and design students took part in a competition for the creation of an organic logo; a jury of professionals evaluated the submitted designs, checked for infringements on copyright, and decided on three logos. Finally, EU citizens voted online in favour of one of the three candidates from December 2009 to January 2010. The "Euro-leaf" created by the German student Dušan Milenković, an idea based on the "marriage" between the EU flag and a green leaf symbolising organic production, won 63% of 130,000 votes (Figure 2) [48].

Figure 2. The "Euro-leaf" logo that received the highest number of votes.

After the new logo had been adopted, the following challenges arose for the European Commission and its member-states: (i) how quickly and easily could the new logo win consumers' recognition and trust, and (ii) whether it would cause a premium on organic foods. The first challenge depends on the promotion campaigns carried out by the Commission in order to explain what the new logo is supposed to communicate [49]. The second challenge could be considered quite difficult to meet; although the green colour and the leaf shape of the logo help people to easily perceive the high nutritional value of a food product [50,51], the absence of a phrase, such as the "Organic Farming" of the first logo or a prefix, obscures the information of 'organic', as this is rather implied and not directly referred to. Moreover, given the long time it takes to introduce and disseminate an obligatory organic certification logo in the EU due to unexpected obstacles, consumers need to both familiarise themselves with the new logo and learn to recognise and associate it with what it stands for, while they are expected to dismiss the old one, which was quite recognisable after several years of voluntary use in the market [52]. In respect to the second challenge, whether or not consumers associate an "added value" with the new logo remains an open question, as this subject has not been thoroughly researched yet [29].

Since the initiation of the new logo within two years of circulation, approximately a quarter of European consumers (24%) recognise the new organic food logo, with the highest proportion in Denmark (39%) and the lowest in Romania (10%), while in Greece the level of awareness reaches 17% [53]. However, the recognisability of organic certification in food has limited effect on consumers' behaviour [54]. Since only the logo's recognition has been explored as a determinant of its market success, consumers' WTB and WTP for organic foods certified with the new logo still remain un-researched topics.

1.3. Consumers' Label Preferences on WTB and WTP

Recent research in behavioural economics shows the importance of the information revealed through individual market participants' preferences [35,55,56]. Preferences are constructed, and hence driven, by variables that describe the environment, such as the competitive environment [57]. Consumers' preferences and decisions about whether to purchase or pay a premium for a product have been well-documented as measurements in welfare economics and marketing research [30,58–60]. Consumers that are willing to buy and pay for organic products are determined by the premise of an organic food premium price [61]. WTP for an organic product measures the additional price a consumer will pay for an organic product above the price that is asked for a comparable conventional product [35]. These price premiums may be good indicators of consumers' demand for certified food products [28].

Furthermore, the theory of planned behaviour clearly identifies the linkage among attitudes, behavioural intention, and actual behaviour. In particular, WTP may be well-connected to the concept of a behavioural intention [62,63]. The fact that consumers are willing to pay for a certified organic food product implies a good indicator of actual purchasing intention [2]. However, beyond consumers' heuristic purchasing decisions, previous research has found a strong correlation between moral considerations and WTP [62,64,65]. WTP for organic food reflects consumers' concern about the ethical production of food in terms of environmental friendliness, quality, and security, as well as trust in the certification regime [66,67]. Therefore, consumers' WTB and WTP for organic foods certified indicate their market success, because these concepts signify not only consumers' strong purchasing attitude towards these foods, but also the moral values they attribute to them and the trust they exhibit in the institutional and regulatory mechanisms and certification bodies [68–71].

A key role in enhancing consumers' trust in public institutions relies on effective communication, which accounts for spatial heterogeneity and local socio-economic conditions [72–75]. Since the adoption of voluntary organic logos, the EU has attempted to help consumers increase identification and awareness of organic food products that have benefited from quality registration [29]. Moreover, since the compulsory adoption and introduction, the EU has followed several public dissemination strategies by launching information campaigns concerning organic food products certified with the new logo in almost all member states. These campaigns aimed to make EU consumers aware of the meaning and symbols (logos) used in the EU policy designed to protect and add value to agricultural organic foodstuffs [68].

This public dissemination strategy aims to enhance the adoption of the new "Euro-leaf" logo that endorses the credibility of information regarding products' organic attributes and cues [10]. Consumers' confidence in this information may affect their purchasing intentions, and hence their WTB and WTP for organic food products certified with the new label/logo that conveys updated, accurate, and credible information [28,37,55]. Therefore, we hypothesise that WTB and WTP for organic food items are affected favourably by consumer preferences based on the information conveyed by the re-designed EU organic logo.

1.4. Consumers' Attractiveness for a Label's Cues

In light of the introduction of a new logo aiming to strengthen the organic market and easily disseminate the organic farming message, market actors and policy-makers should concern themselves about its effectiveness at local EU markets. Yet, this is a challenging task given the "cognitive-missing" decision-making structure of consumers across many cultures and environmental conditions. Consumers have shown a strong preference for domestic organic production and labelling containing fonts and signal words from native languages in several countries [70,76–81]. Consumers feel very familiar with their native fonts, and interpret the information displayed on local/native labels quickly and easily [28]. Additionally, consumers are more likely to select labels with clear indications, such as 'organic', because they communicate clearly and effectively the values of organic farming to consumers [76].

Furthermore, in many countries across all continents, the introduction of Multiple Traffic Light (MTL) and Star labels provided interpretive formats that are more easily reviewed by consumers because they often display processed information using familiar heuristics [82,83]. Research in the marketing, psychology, and ergonomics disciplines show that colours, surrounding shapes, and framing effects strongly affect consumers' product choices because they are easily processed [82,84,85]. For instance, consumers are very familiar with star ratings from those used in other consumption domains, (e.g., accommodation). For example, a blue label and the combination of blue and green colours in a logo won consumers' preferences for organic products in Costa Rica, since blue is associated with truth, loyalty, and credibility and green with freshness [86,87]. Research also indicated an increase in the use of rounded logos; 68% of logos that had changed shape assumed a more rounded form [84]. Therefore, it is apparent that in order to design effective communication

strategies in a context-dependent manner, consumers have to be attracted not only by the message source and target (trust, credibility, and associated values to organic farming as discussed in the previous paragraph), but also by the message cues displayed on a label [82].

Recent research in marketing and psychology has examined the effects of message cues on product choices, and showed that consumers that are weakly committed to a label can accept its redesign far more easily [84,85,88,89]. Hence, consumers might respond positively and support changes in the design of a label, given that it has not yet been well-established in the market [90]. Consequently, consumers may be attracted increasingly by the redesign and new aesthetics of the new label that certifies organic food produce in the EU [88]. Therefore, we hypothesise that the (redesigned) new EU organic logo attracts consumer preferences.

2. Materials and Methods

A prominent decision context, wherein subjects (consumers) perceived food "quality" to be highly important, was selected. The choice for sampling consumers in Greece was considered relevant. Greece is a food producing country whose food produce and "diet" is strongly perceived as being of very high quality in terms of freshness, taste, healthiness, culture, and traditional methods of production by the majority of consumers within the country and abroad [35,91]. Thus, the preferences of Greek consumers for a credence attribute such as the landmark "quality" logos for organic food items in the history of the EU may allow us to gain representative and valuable insights on the effects of these logos on food behaviour and choices. Since our research aim is not limited to organic product buyers, all types of buyers of food products in Greece were targeted.

In order to empirically examine our research objectives (to compare the three important logos in the history of organic labelling in the EU by exploring their possible effects on purchasing attitudes and consumer behaviours), an experimental research design was conducted. Such a design requires the setting of certain conditions to ensure the retrieval of relevant and valuable information given a specific selection task that is assigned to subjects [92]. Firstly, the condition (criterion) for selecting the food products was their availability in the local market of four provincial cities in Greece. These products are typically included in the Greek diet or are easy to find as organically verified, which is essential for this research in order to have consumers be more familiar with prices and preferences. Normally, those products do not provide high price variability compared to others. Secondly, four sets of three series of five organic food packages were purchased (from two different local organic stores): each set consisted of three packages of 1 kg of sugar, three packages of 1 kg of flour, three packages of croissants, three packages of six eggs, and three packages of 500 g of spaghetti. This set was produced four times, so the four involved interviewers could run the experiment at the same time. Thirdly, a semi-structured questionnaire was designed. The labels of all of the products were reproduced professionally, and for each product three identical labels were designed apart from the organic logo, which was replaced by the three examined logos.

The first question of the survey aimed to explore the food consumption behaviour of the participants; whether they were used to purchasing sugar, flour, croissants, eggs, or spaghetti. Since an individual may not consume a kind of food due to personal preferences, a "no-buy" option was included. Then, the interviewer presented the package of each food to the subjects; its organic certification logo was indicated on the product label. Each consumer was exposed only to one logo for the food products he/she purchases. This action helps to test during the interview the subconscious effect of the logo presented five times (in the case where the consumer purchases all products) [93]. The WTB was explored on a four-point ordinal scale (from certainly not to certainly yes). An introductory piece of information about the average market price of each conventionally produced item was provided, together with an open question: "How much would you be willing-to-pay for each organic food?" followed.

Given that (i) we measure the dependent variable WTB on an ordinal-level scale and the WTP on continuous scale; (ii) the data collected for the three logos are independent of each other; and (iii) the

samples drawn from unrelated populations of four provincial cities are random, and do not affect each other, we can use the Kruskal–Wallis test [94,95] for the null and alternative hypothesis:

- H_o: no statistically significant difference exists in the consumers' WTB and WTP for products certified with the three EU logos in the population from which the sample is selected.
- H_A: statistically significant difference exists in the consumers' WTB and WTP for products certified with the three EU logos in favour of the "Euro-leaf" in the population from which the sample is selected.

The Kruskal–Wallis test is the non-parametric alternative to ANOVA when parametric conditions are violated.

In the next question, consumers were asked to select the logo printed on a card that would be more suitable to certify organic food in the EU. Three versions of the card with the three logos in a different order were printed to avoid an order effect [92]. The order of the first version is presented in Figure 3, and the full range is presented in Figure S1 of the online supplementary data file. Finally, questions about the respondents' socio-economic profile, such as gender, age, number of children, and family income were included.

Figure 3. The first of the three printed cards with organic logos.

At the end of the survey, participating consumers were informed about the status of the organic labelling in the EU and the valid organic logo, and the products with the valid logos were demonstrated.

3. Results

In total, 472 valid questionnaires were collected with face-to-face interviews. The sample consisted of randomly selected consumers, their age ranging from 17 to 82 (Mean age = 42.01, standard deviation (*SD*) = 15.260), who were residents of four cities in Greece: Mytilene (N = 121), Heraklion (N = 111), Xanthi (N = 116), and Didimoticho (N = 124). The criteria for the selection of the cities included their location (northern, southern, island, and mainland) with diverse agricultural production, and their different socio-economic status (tourist destinations or less developed rural and urban regions).

3.1. WTB Food Products Certified with the Three EU Logos

Of the respondents, 14.1% were identified as non-buyers of sugar, 18.7% of flour, 42.1% of croissants, 22.5% of eggs, and 22.5% of spaghetti. According to the frequencies (for further details see Tables A1–A5 of the Appendix), and by adding the "probably yes" and the "certainly yes" responses, the "bio" logo came first in the consumers' preference rank for all foods, while the "euro-leaf" was second except for the case of sugar (Table 1). However, the Kruskal–Wallis test indicated no statistically significant difference among the respondents' WTB of the three logos tested for all food products (sugar: $\chi^2 = 1.925$, $p = 0.382$; flour: $\chi^2 = 0.069$, $p = 0.966$; croissants: $\chi^2 = 3.899$, $p = 0.142$; eggs: $\chi^2 = 1.184$, $p = 0.553$; spaghetti: $\chi^2 = 1.568$, $p = 0.457$).

Table 1. Consumers' willingness-to-buy (WTB) food certified with the three different logos of the EU (in percent).

Food	EU	BIO	OF	Preference Rank
Sugar	84.2 (*N* = 152)	88.5 (*N* = 156)	85.0 (*N* = 147)	
Flour	81.4 (*N* = 140)	84.1 (*N* = 139)	78.1 (*N* = 137)	
Croissant	55.2 (*N* = 105)	66.4 (*N* = 113)	51.0 (*N* = 100)	
Eggs	74.5 (*N* = 122)	83.3 (*N* = 120)	74.4 (*N* = 117)	
Spaghetti	83.2 (*N* = 149)	88.5 (*N* = 157)	78.9 (*N* = 147)	

OF, organic farming.

Based on the statistical comparison, concerning the data presented in Table 1, the null hypothesis is not rejected, and thus the consumers' WTB for the selected organic food products certified with the new logo is not ranked lower than the consumers' WTB for the organic food products certified with the (dismissed) voluntary logos.

3.2. WTP for Food Products Certified with the Three EU Logos

Table 2 (see also Figure S2 of the online supporting data file) presents the analysis of the consumers' responses as regards their WTP a price higher than €1.10 for 1 kg of sugar, €1.2 for 1 kg of flour, €0.4 for a piece of croissant, €2 for half a dozen eggs, and €1 for 500 g of spaghetti (these were the average market prices for the same conventionally produced foods which were included in our research). The interviewees were asked whether they were willing to pay a higher price for an organic product after they had been informed about the price of its conventionally produced counterpart). Moreover, the percentage of those who stated a WTP higher than the conventional price for organic food compared to those who stated a WTB the organic certified food is also presented in Table 2 (% N_{WTP}/N_{WTB}). It is obvious that on average, high percentages of consumers were willing-to-pay more for organic certified food (sugar: 85–87%; flour: 81–84%; croissants: 65–81%; eggs: 70–75%; spaghetti: 81–87%).

The WTP data do not follow the normal distribution according to the Shapiro–Wilk test ($p < 0.001$ for all products), with positive extreme values and outliers (see Figure S2). In this case, the equivalent to ANOVA, the Kruskal–Wallis non parametric test, is employed for median group comparisons.

According to the Kruskal–Wallis test ($\chi^2 = 7.998$, $p = 0.018$), the respondents stated their WTP more than €1.10 for the organic sugar with the "Euro-leaf" logo, demonstrating a statistically significant difference from the other two logos, while no statistically significant difference was found among the three logos for the rest of the food products (flour: $\chi^2 = 5.418$, $p = 0.067$; croissants: $\chi^2 = 1.831$, $p = 0.400$; eggs: $\chi^2 = 0.304$, $p = 0.859$; spaghetti: $\chi^2 = 0.323$, $p = 0.851$). A possible explanation may be that survey participants revealed a higher WTB for sugar (85.9%) compared to other products (Tables A1–A5). This provides also a higher variability in WTP or possible exposure of the sugar buyers to the new logo.

Overall, based on the statistical comparisons of the findings presented in Table 2, the null hypothesis is not rejected, and thus the consumers' WTP for four of the selected organic food products certified with the new logo is not ranked lower than the consumers' WTP for the organic food products certified with the (dismissed) voluntary logos.

Table 2. Analysis of willingness-to-pay (WTP) an added value on the market prices of conventionally produced foods for the three EU logos.

Food Product	Organic Logos	*N*	% N_{WTP}/N_{WTB} *	Mean	Std Dev	Min	Percentile 25	Median	Percentile 75	Max
Sugar	EU	132	87	1.50	0.34	1.15	1.30	1.50	1.50	3.00
	BIO	132	85	1.44	0.32	1.15	1.20	1.30	1.50	3.00
	OF	129	88	1.46	0.39	1.15	1.20	1.30	1.50	3.50
Flour	EU	118	84	1.57	0.31	1.25	1.40	1.50	1.60	3.00
	BIO	112	81	1.50	0.22	1.25	1.30	1.50	1.50	2.20
	OF	113	82	1.54	0.34	1.25	1.30	1.45	1.50	3.00
Croissants	EU	83	79	0.62	0.22	0.43	0.50	0.60	0.60	2.00
	BIO	91	81	0.62	0.21	0.45	0.50	0.60	0.60	1.60
	OF	65	65	0.61	0.22	0.45	0.50	0.50	0.60	2.00
Eggs	EU	91	75	2.59	0.45	2.10	2.20	2.50	2.90	4.00
	BIO	90	70	2.59	0.49	2.10	2.20	2.50	3.00	5.00
	OF	83	74	2.64	0.57	2.10	2.20	2.50	3.00	5.00
Spaghetti	EU	130	87	1.33	0.25	1.10	1.20	1.30	1.43	2.50
	BIO	127	81	1.35	0.28	1.10	1.20	1.30	1.50	3.00
	OF	119	81	1.33	0.27	1.10	1.20	1.30	1.40	3.00

* Ratio (% N_{WTP}/N_{WTB}) of respondents willing to pay (N_{WTP}) higher than the conventional price over the respondents willing to buy (N_{WTB})

3.3. Which Label Attracts the Consumers' Preference?

The majority of respondents (80%) would prefer the "Organic Farming" (41%) and "Bio" (39%) logos, and only 20% the new one as depicted in Figure 4. Table 3 shows that the direct comparison of the three logos ranked the official logo in the last position, with the maximum negative deviation (−62.3) from the expected votes (*N*expected = 157.3). The latter result is further supported by the chi-square test results ($\chi^2 = 37.199$, $df = 2$, $p < 0.001$). It seems that consumers are not attracted by the cues of the redesigned label that certifies organic produce in the EU. The new logo is less attractive, and not so efficient to raise additional awareness of organic farming compared to the previous ones. This finding also indicates the potential weakness of the new logo to communicate clearly and effectively the values of organic farming to consumers.

Table 3. Consumers' logo preferences (*N* = 472).

Logo	*N*	Expected *N*	Residual
EU	95	157.3	−62.3
BIO	185	157.3	27.7
OF	192	157.3	34.7

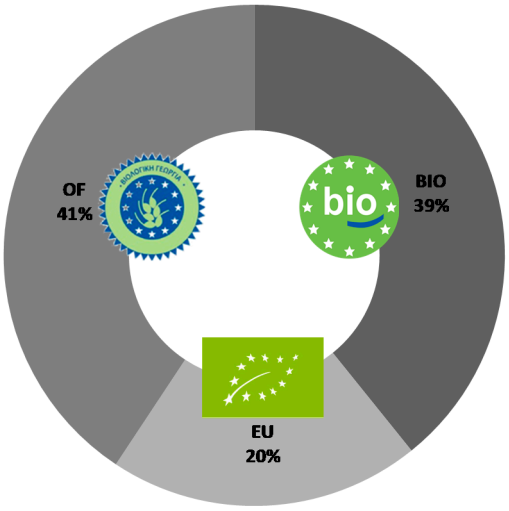

Figure 4. Consumers' label preferences.

4. Discussion

The current study indicates that a large number of consumers demonstrated willingness to purchase all the organic foods certified with the three logos. However, organic food labelled with the new EU logo did not affect consumers' WTB compared to the other examined logos. In fact, the other logos affected more positively the responses given, but not so much as to be statistically significant.

According to previous research, familiarity is the main factor that influences consumers' intention to buy organic food, while higher prices were paid for familiar trustworthy organic logos [32,96]. In terms of this argument, (i) the first logo applied on an optional basis was recognisable by 29% of the Greek consumers, not significantly higher than the 17% of those recognising the new mandatory one, given that the "Organic Farming" logo was present in the Greek market for a longer period of time [52,53], and (ii) the "bio" logo was completely unknown to Greek consumers as it never took effect in the local market. Moreover, Greek consumers might not have been familiar with the 'similar' "bio" logo used by the ALDI chain, since this food retailer exited the Greek market on 16 July 2010, following a very short term of operation: 38 branches operated in major urban centers only for two years [97]. Consequently, in our case, the factor of logo recognition had no significant influence on the participants' responses.

WTP was little affected by the certification logo, giving different preferences per product. Consumers appeared to be willing to pay statistically significant higher premiums, particularly for the organic sugar certified with the official EU logo. This finding has resulted only from those willing to pay more than conventional prices, and not for the whole sample. Nevertheless, it could be argued that (i) the new logo has not yet become well known among Greek consumers, since the complexity of the process consumers may follow to make a decision to purchase organic foods renders understanding their behaviour a thorny and difficult issue [98,99]; (ii) the attitudes, especially those of occasional consumers towards different organic food products, may vary [100]; (iii) when consumers trust a certification agent, the design of the logo may not play an important role in their choice; (iv) participants who stated they were willing to pay higher prices for the organic foods might have already been exposed to the new logo; and (v) consumers might be willing to pay higher prices for specific values of organic production such as sustainability, environmental friendliness, healthiness, food safety, high nutritional quality and taste, animal welfare, and particularly, the absence of GMOs. Emphasis on these values is likely to get across a clearer and more forceful message to concerned consumers of each of these organic values [69,71,81,101].

In addition, the comparison of the three EU logos revealed that the new logo has yet to gain Greek consumers' wide approval. When directly asked to choose one of the three logos, they did not express a strong preference for the official EU logo, since their responses placed this logo last in the rank.

A possible explanation for the "Organic Farming" logo assuming first place in the consumers' preference might be not so much the recognition as the Greek words standing for "organic farming" on the label. The latter, apart from the clear and effective communication of the organic message, might imply locality. Consumers have shown a strong preference for domestic organic production and labelling in several countries, and generally, particular emphasis is placed upon local products in the Mediterranean countries [70,76–80]. Nevertheless, it is doubtful whether all of the information about the country of origin of any of the ingredients included in an organic food product could be incorporated into a label.

Consumers often express concerns about the credibility of institutions involved in the certification process [66,68,70,102]. Given that all three logos represent the common EU certification agent—a fact easily recognisable because of the EU flag and the twelve stars depicted on all three logos—trust or lack of trust in the regulatory framework and the certification institution had no effect on the participants' statements. Previous and recent research has focused on testing different brand types, such as private, probiotic, local, global, organic or non-organic, and their possible impact on consumers' behaviour [31–33]. Hence, by comparing only labels of the EU, we excluded external effects related to trust in the credibility of agencies.

The redesign of the label that certifies organic food products in the EU did not seem to attract consumer preferences more than the design of the preceding organic labels. The use of the blue colour in the design of two labels apart from the green background, the white stars, and written indications of organic farming are likely to explain the reason why the "Organic Farming" and "Bio" logos attracted the respondents' preference and affected their WTB organic food more than the "Euro-leaf" logo [76]. The blue and white colours bear similar connotations across many cultures [86,87]. Furthermore, since blue is associated with truth, loyalty, and credibility, the blue logos obviously enhance the meaning and symbolism of environment, health, nature, and freshness of the green colour [103]. Additionally, the voluntary EU labels that were more round-shaped than the compulsory label of "Euro-leaf" were selected, confirming previous research reporting that roundness is generally more attractive and quite often associated with harmony, naturalness, and friendliness, while angularity is associated with toughness and strength [84]. These findings confirm past research results regarding the introduction of interpretive labels and logo formats that are more easily reviewed by consumers because they often display processed information using familiar heuristics [82,83].

However, we certainly do not argue that one label is better than the other in terms of aesthetics. Our findings indicate that even though Greek consumers feel ambivalent and uncertain about the three EU logos, it is clear that the new logo will not easily enjoy widespread popularity in the Greek organic market, because it communicates poor information and it is rather vague and not self-explanatory [29].

5. Conclusions

This work demonstrates the necessity to conduct research for efficient logos before they are launched by official or governing organisations in terms of WTB and WTP.

Our findings contribute to the current literature by providing preliminary evidence for the effectiveness of the new EU organic certification logo. Given the low level of Greek consumers' familiarity with the three organic logos certified by the EU mechanism, we compared the consumers' WTB, WTP, and preferences for the new mandatory logo with the two previous ones for five food products in Greece. Interpreting findings from the present analysis, it can be reported that (i) the consumers' reliability and confidence in "Euro-leaf" is not higher than that of the previously used EU organic logos; (ii) the previous logos attract their preference; (iii) they would not be motivated by the new official logo to buy organic foods more than the previous ones; (iv) it is unclear whether they strongly support or distinguish one logo from the others when they have decided to pay

an "added value" for an organic food; and (v) the key design elements of the "Euro-leaf", such as colour, shape and the lack of a written indication of an "organic" prefix could be the reason for communicating a rather unclear message, thus rendering the new logo less attractive and insufficient to raise awareness of organic farming compared to the previous ones. These recommendations could help in decision- and policy-making in the organic sector. The EU's competent authorities and labelling organisations should invest more in marketing communications for increasing consumer awareness of the compulsory "Euro-leaf" logo, and hence form consumer behavioural intentions. Increasing consumer awareness for certified organic foods will result in the decrease of information asymmetries in the producer-consumer relationship.

Research is needed before launching improved labelling logos, so they have are greater chance to be better focused than their predecessors. Our study provides findings that for a rather small group of consumers (that nonetheless support organic practices), the new EU logo has not provided additional insights compared to the previous ones. This needs to be further investigated with institutional funding. There is also the matter of the question for investigation of whether the process followed for the selection of the new EU organic logo bears scientific elements (e.g., impression management) from marketing research, since, according to our knowledge, new and previous logos were not put under comparison that would provide evidence of the superiority of the new logo.

Our findings bear some limitation in terms of being able to generalise; further research is necessary so as to (i) test/generalise our findings also to other countries, including less durable foods, such as fruit, vegetables, milk and meat products, or raw vs. processed food; (ii) plan and implement proper promoting strategies for the new logo; and (iii) go ahead with design improvements so that the new logo becomes more effective and efficient with regard to claiming a bigger share of the market, and gaining higher premiums.

Supplementary Materials: The following are available online at www.mdpi.com/2071-1050/9/8/1450/s1, Figure S1: The three versions of the printed cards with organic logos, Figure S2: Willingness-to-pay for three EU logos for sugar, flour, croissant, eggs, and spaghetti.

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Appendix A

The frequencies of the responses given for the WTB each organic food product are shown in Tables A1–A5. The WTB column in all tables consists of the addition of responses given for probably yes and certainly yes. Data from these tables provide figures presented in Table 1 of the paper.

Table A1. WTB organic sugar (in percent).

Questionnaire Version	*N*	Certainly Not	Probably Not	Probably Yes	Certainly Yes	WTB
A EU	152	5.3	10.5	55.3	28.9	84.2
B BIO	156	3.8	7.7	53.2	35.3	88.5
C OF	147	8.2	6.8	51.0	34.0	85.0
Total	455	5.7	8.4	53.2	32.7	85.9

Table A2. WTB organic flour (in percent).

Questionnaire Version	*N*	Certainly Not	Probably Not	Probably Yes	Certainly Yes	WTB
A EU	140	7.1	11.4	50.0	31.4	81.4
B BIO	139	5.0	10.8	53.2	30.9	84.1
C OF	137	8.8	13.1	43.1	35.0	78.1
Total	416	7.0	11.8	48.8	32.5	81.3

Table A3. WTB organic croissant (in percent).

Questionnaire Version	*N*	Certainly Not	Probably Not	Probably Yes	Certainly Yes	WTB
A EU	105	13.3	31.4	36.2	19.0	55.2
B BIO	113	16.8	16.8	40.7	25.7	66.4
C OF	100	22.0	27.0	31.0	20.0	51.0
Total	318	17.3	24.8	36.2	21.7	57.9

Table A4. WTB organic eggs (in percent).

Questionnaire Version	*N*	Certainly Not	Probably Not	Probably Yes	Certainly Yes	WTB
A EU	122	6.6	18.9	35.2	39.3	74.5
B BIO	120	4.2	12.5	43.3	40.0	83.3
C OF	117	9.4	16.2	35.9	38.5	74.4
Total	359	6.7	15.9	38.2	39.3	77.5

Table A5. WTB organic spaghetti (in percent).

Questionnaire Version	*N*	Certainly Not	Probably Not	Probably Yes	Certainly Yes	WTB
A EU	149	4.7	12.1	47.0	36.2	83.2
B BIO	157	3.8	7.6	51.6	36.9	88.5
C OF	147	8.2	12.9	43.5	35.4	78.9
Total	453	5.5	10.8	47.5	36.2	83.7

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