Sustainable development behavior of consumer

Cristina Bălăceanu1, Victoria Gonta2, Violeta Radulescu3 Tarabeih Mahdi

1Department of Economics and Economic Policies, Bucharest Dimitrie Cantemir Christian University, Splaiul Unirii, No. 176, code 010271, Bucharest, Romania,

e-mail: movitea@yahoo.com;

2Faculty of Psychology and Socio-Human Sciences, American University of Moldova,

200, Stefan Cel Mare Blvd, Chisinau, Republic of Moldova

e-mail: victoriagonta1@gmail.com

3Department of Economics and Economic Policies, Bucharest University of Economic Studies, Calea Dorobantilor 15-17, Bucharest 010552, Romania;

e-mail: [vioradulescu@yahoo.com](mailto:vioradulescu@yahoo.com);

Mahdi Tarabeih RN PhD

Senior lecturer, Faculty of Nursing Sciences, Tel Aviv-Jaffa Academic College, Jaffa 6818211, Israel

E-mail: tarabeih1969@gmail.com

**Abstract:** Changing the functioning mechanisms of markets by focusing on clean technologies and reducing consumption of non-renewable resources is an objective of Europe- 2020 Strategy of the European Commission and achieving it requires not only a more restrictive legislation for heavy polluting industries and technologies, with harmful effects on the environment, but also the introduction of new models of consumption oriented towards "green" products. Stimulating consumers ‘preferences for non-polluting products, needs credible and persuasive marketing instruments, as the European Eco-label. This is a structural, conceptual and even civic mutation in modern consumer's behavior: consumers' preference for environmentally friendly products and services.

**Keywords:** behavior, consumers, green marketing, Eco-label, clean technologies, sustainable development;

1. Introduction

In today's society, marked by deep changes in the environment and in consumer's attitude towards the environment and social issues, organizations have to adopt a responsible behavior, to be directed to a sustainable marketing, to make marketing decisions that limit the consumption of resources as much as possible, but also to try to change consumer's behavior towards sustainable development.

Consumers do say they prefer the taste of Eco-friendly food over ordinary food products. Calling a product ‘‘Eco-friendly’’ is enough to make people believe it tastes better than an objectively identical alternative, and consumers are willing to pay more for this kind of products. The carried studies show that an Eco-label tends to enhance the taste sensory evaluation of consumable products. Label effects arise even if there is no reasonable relation between the product label and what is being evaluated about the product. The preference bias for Eco-labeled products over objectively identical but conventionally labeled alternatives could be caused by similar expectation processes modulating the actual sensory experiences [1].

**2. Green marketing concept into the circular economy perspective**

Implementation of sustainable development principles into contemporary economic thinking has led to conceptual remodeling in order to express the new mechanisms of economic functioning. Thus, the circular economy concept meets the needs of theoretical representing an economic system oriented towards reusing waste as raw materials and towards limiting the apparition of waste that can’t return in the economic circuit. A circular economy is one that involves right in its functioning concept the recovery and the regeneration, as possible, of resources aiming to keep, at the highest level, the value and utility of products, components and raw materials, differentiating the biological and the technical cycles. In this way, there can be found solutions for two major issues that nowadays affect the economy: the limited nature of resources and the pollution generated by the waste resulted from economic activities. In *The circular economy- a wealth of flows,* Ken Webster [2] shows that the economic reality of the XXI-st century makes necessary the shift from “take-make and dispose” paradigm, appropriate for economic mechanisms of the XXI-st century, to the organizational models of businesses specific to a regenerative economy that reflect he feedback-rich flows. At this point, the human civilization faces the need to more responsibly approach the issue of waste generated by economic activities; these must be reintegrated in economic flows and to finally become growth factor. It is outlined a new vision on the economic advantage that is oriented towards both the projection of waste and streamlining access to those who own them. Also, a circular economy leads to changes in the occupational structure of human resources and requires new tax policies, both at community level and globally.

Nowadays, there are over 400 Eco-labels [3] meant to tell the consumer messages about the fact that the product/services that have them are environmental-friendly. According to a recent study [4] carried within 26 countries worldwide, 86% consumers are concerned of the impact of climatic changes and 71% consumers avoid buying goods that are brought from far away. According to other studies [5] over half of the consumers want to bay Eco products or take into consideration social or environmental-protection factors then they decide to buy a product. However, the consumer is confused because of the multitude of labels / brands of environmental protection and faces the difficulty of deciding which the organic label that he can trust is.

It is often hard for consumers to verify, markets for many “green” products rely one co-label programs to certify such claims. Typically, these programs certify-in exchange for a fee-that a firm's product meets a given environmental-performance standard determined by the program, and then allow the firm to feature the program's Eco-label on its packaging or advertising materials [6].

Adopting ecologic strategies or creating initiatives consistent with the requirements of sustainable development should help increase the company's performance [7], but the company's performance is conditional upon support from management, a calendar very well done and the commitment of resources [8].

The purpose of this research is to induce the modern consumer a sustainable behavior, to identify the levels through which consumption becomes compatible to nature, to its capacity to regenerate itself. By manifesting propensity towards the consumption of goods with high content when it comes to the capacity of regenerating, economies can become sustainable.

As a consumer, it is often difficult to tell if the production or properties of a certain product are environmentally friendly. Eco-labels thus help to inform consumers of information on the potential impacts on the environment based on the product or service’s life-cycle considerations [9].There are several factors to take into account when depicting consumers’ preferences. First of all, the individual decision-making process can be influenced by psychological, moral and cultural factors [10]. Frey and Stutzer [11] associate economic and psychological approaches in order to study “environmental morale and motivation.” They argue that individuals are driven by altruism, social norms and reciprocal fairness, internalized norms (related to high principles inducing self-evaluations) and intrinsic motivation (i.e. the willingness to pursue an activity for the welfare it induces in itself). Individual decisions depend on ethical values and beliefs, customs, culture and several kinds of social, political and moral values, and also on institutional settings which are likely to shape such attitudes by encouraging or discouraging some behaviors and attitudes [12].

The consumer should no longer prioritize his preferences depending on the persuasion of marketing campaigns, but especially on their reduced impact on the environment. Therefore, it is produced an axiological-type of mutation in the modern consumer's decisive mechanism, sustainable development projects into the value system of the modern man. Eco-label is an efficient green marketing tool that links sustainable production to sustainable consumption.

Individuals' economic behavior regarding environmental issues is also justified by their civic values. The representation of consumers' environmental preferences through their utility functions should also reflect more or less accurately these multiple non-economic determinants [13].

In order to achieve more ambitious targets in terms of promoting sustainable development principles, the EU Eco-label should be supported by more complex instruments to determine the impact of products and services on the environment. Identifying the environmental footprint of products (Product Environmental Footprint) is not just a more precise tool for measuring the environmental impact of economic activities but also a solution for promoting a single market for green products. Both producers and consumers need easy recognizable criteria to identify and compare products and services according to their impact on the environment, and policies and programs developed within the European Union can have a significant effect on medium and long term in developing a sustainable economy.

3. Materials and Methods

The research methodology involves a quantitative analysis based on the collection of data from 234 respondents, legal entities from Romania. The first stage of the research, the documentation, consisted of the accumulation of new information by studying the literature and the structuring of the current knowledge in the researched field as well as the collection of data regarding the possibility of implementing the eco-label in Romania. The second stage of the research, the synthesizing of data and their grouping consisted of the use of the data gathered formally. The third step, the processing and analysis of the data obtained in the documentation stage, involves the use of the econometric tool in order to identify statistical correlations validating the research objectives. At the same time, the level of economic performance generated by the implementation of the eco-label among the Romanian producers is analyzed.

*3.1 Sampling*

In order to identify the system of norms that set the basis for ecolabel principles in business, we used the results of research based on 234 people interviewed on business ethical behavior in ecolabel in the context of methodology established in connection with scientific issues. Scientific research is based on relevant aspects to the outcome of research, as principles of ecolabel, legislation on ecolabel, sustainability and environment protection.

We have created a set of 11 questions that were addressed to the 234 interviewed economic agents in order to identify trends in the opportunity of implementing the Eco label in their own businesses (see Table 1):

**Tabel 1**. The sample structure

|  |  |  |  |
| --- | --- | --- | --- |
| |  | | --- | | **Characteristics** | | **Share in the Sample** |  |
| **Age groups of Entrepreneur** | 18-24 years  25-34  35-44  35-54  55-64  Over 64 | 1.20%  5.83%  18.31%  66.30%  8.24%  0.12% |
| **Residence** | Urban area  Rural area | 63.67%  26.33% |
| **Company\*\*** | ›micro  small  middle | 5.25%  78.34%  16.41% |

*3.2 Data collection*

The collection of data was carried out on a sample of 234 people, active members of the Romanian business community who are doing business in the field of sustainable economy. The questionnaire used in the survey contains 11 general questions about the use of the eco-label, EU rules and Romanian legislation on the implementation of the eco-label, actions of the eco-label on the sustainable development of business. The business environment will have new development opportunities if it addresses and incorporates the eco-label among the means of product promotion and labeling, impacting on the level of consumer knowledge and security, respecting the principles of sustainable development.

The Survey questions and measurement scales are presented in Table 2.

**Table 2.** Survey questions and measurement scale

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| |  |  | | --- | --- | | |  | | --- | | **Questions in Our Survey** | | | **Measurement** | **Results** | | |
| In the business partnerships that you develop are you guided by the values that do not affect the environment? | Very often  Often  Seldom  Very seldom  Never | 0.61  0.25  0.12  0  0.02 | | |
| Does the EU legislation on Eco label have a major influence on your business ethical behavior? | Very often  Often  Seldom  Very seldom  Never | 0.46  0.34  0.12  0.05  0.03 | | |
| Do you consider that there is a degree of convergence between the EU legislation in Eco label and national legislation in Eco label? | Very often  Often  Seldom  Very seldom  Never | | 0.37  0.35  0.13  0.08  0.07 |
| How often do you come in contact with the following (consumers/local business partners /foreign business partners/ others) who believe that the use of the eco-label is an opportunity? | Very often  Often  Seldom  Very seldom  Never | 0.42  0.38  0.10  0.08  0.07 | | |
| Do you consider that eco-label encourages businesses to market goods and services with low environmental impact? | Very often  Often  Seldom  Very seldom  Never | 0.47  0.30  0.12  0.06  0.05 | | |
| Do you consider that eco-label helps people easily identify organic products and services? | Very often  Often  Seldom  Very seldom  Never | 0.63  0.23  0.08  0.04  0.03 | | |
| Do you consider that eco-label promotes products that have a low environmental impact? | Very often  Often  Seldom  Very seldom  Never | 0.52  0.30  0.09  0.02  0.03 | | |
| Are you subjected to pressures by EU to accept the principles of eco label? | Very often  Often  Seldom  Very seldom  Never | 0.28  0.25  0.24  0.05  0.06 | | |
| Do your partners respect your ethical principles of environment protection? | Very often  Often  Seldom  Very seldom  Never | 0.40  0.40  0.11  0.04  0.05 | | |
| Do you respect nature in all fields? | Very often  Often  Seldom  Very seldom  Never | 0.30  0.33  0.22  0.06  0.09 | | |
| Do you think that the excessive consumption of goods tends to be seen as a possible danger for the nature because it can lead to the degeneration of environment? | Very often  Often  Seldom  Very seldom  Never | 0.62  0.20  0.09  0.05  0.04 | | |

4. Results and Discussion

The research is based on identifying the interest of respondents in the implementation of the eco-label, as a measure to protect the environment in the direction of sustainable economic growth. Thus, three research objectives have been established to verify the extent to which the interviewed economic agents are interested in implementing the Eco label:

* H1: analyse and description of principles of Eco labels;
* H2:identification of [the effect of Eco](#_Toc375491646) labels above sustainable development;
* H3: identification of [the effect of Eco](#_Toc375491646) labels above firms performance;

The H1 objective was identified in all 11 questions proposed for interviews among the 234 respondents. Thus, a significant number of respondents appreciate that they are very often and often interested in the application of the eco-label principles from the point of view of their own economic performance, but also from the perspective of a sustainable development of the economy. Environmental care is transposed into the corporate social responsibility, which equates to the production and promotion of environmentally labeled products among consumers.

In the Dendogram presented as a result of the statistical model achieved, the H1 objective is found in the Q3 model, which corresponds to a maximum concentration level of the endogenous variables.

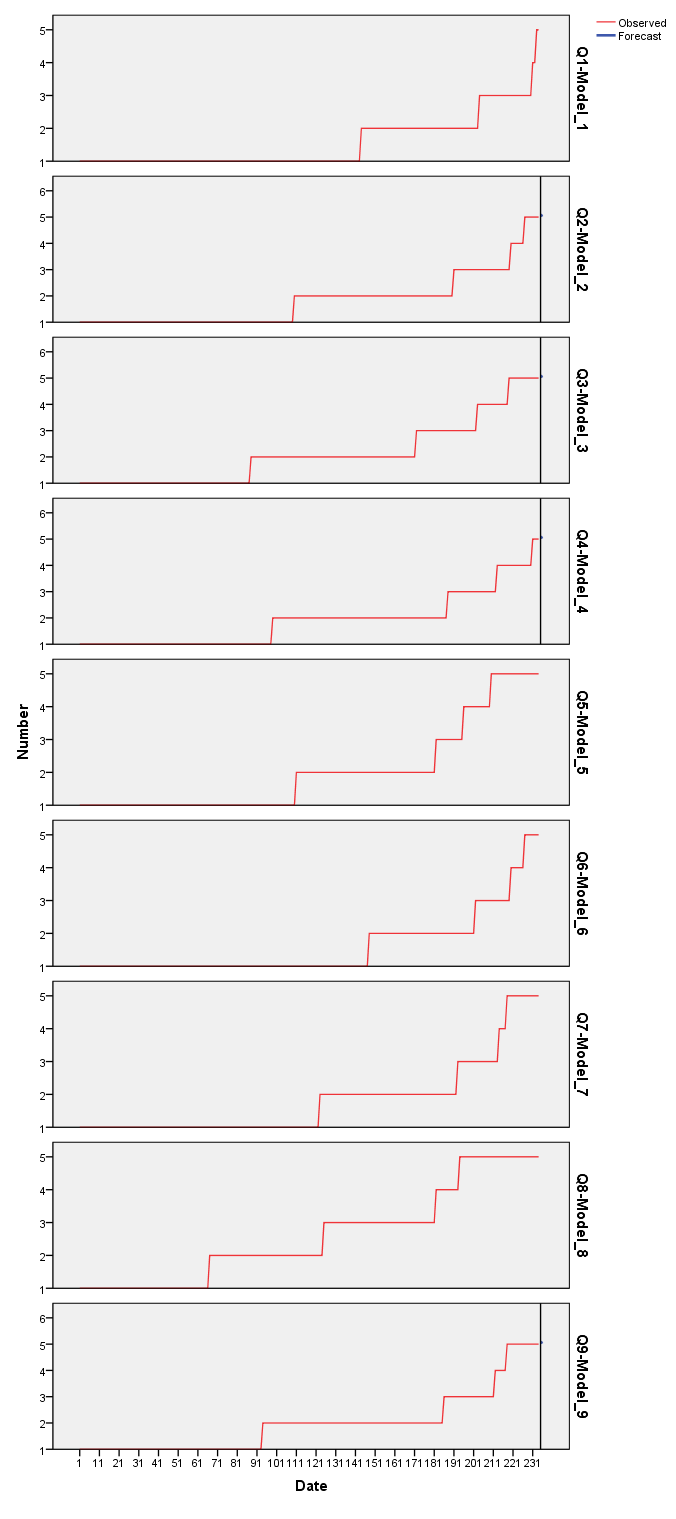
The H2 objective is mainly identified in the 11 questions addressed to the interviewees, which denotes their interference for the environment as a result of the efficient use of natural resources confirmed by the implementation of the eco-label. Thus, the interviewed economic agents capture, through the assumed behavior, through the decision to implement the eco-label, ethical, rational behavior, based on social responsibility.

The results of the research model confirm the positive attitude of the economic agents towards the eco-label principles in all the resulting Q1-Q9 models, found by the high number of predicates, 18 and presented in the Dendogram.

The H3 objective is identified in all respondents' questions, which shows that economic agents consider the eco-label to have an effect on global demand. The performance of a company is directly determined by the quality of the products made, in accordance with the principles of sustainable development.

The results of the research model confirm the interest of economic agents in the use of eco-labels in terms of performance indicators in all the Q1-Q9 results, especially in the Q3 model. In the study, the objectives aim at extending the issue of sustainable development to the business environment by developing and building a statistical model whose variables establish a coherence of the deterministic relations between the business environment, the sustainable development, the ethics principles, by investigating a number of 234 economic agents.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Model Statistics** | | | | | | |
| Model | Number of Predictors | Model Fit statistics | Ljung-Box Q(18) | | | Number of Outliers |
| Stationary R-squared | Statistics | DF | Sig. |
| Q1-Model\_1 | 1 | 1.008 | 2.832 | 18 | 1.000 | 0 |
| Q2-Model\_2 | 0 | 2.776E-015 | 1.879 | 18 | 1.000 | 0 |
| Q3-Model\_3 | 0 | 4.219E-015 | 2.163 | 18 | 1.000 | 0 |
| Q4-Model\_4 | 0 | 2.998E-015 | 2.002 | 18 | 1.000 | 0 |
| Q5-Model\_5 | 1 | 1.008 | 8.536 | 18 | 0.970 | 0 |
| Q6-Model\_6 | 2 | 1.468 | 21.361 | 16 | 0.165 | 0 |
| Q7-Model\_7 | 1 | 1.031 | 2.501 | 18 | 1.000 | 0 |
| Q8-Model\_8 | 1 | 1.046 | 9.495 | 18 | 0.947 | 0 |
| Q9-Model\_9 | 0 | 3.220E-015 | 2.069 | 18 | 1.000 | 0 |



Within this model, the variable Q1 is the dependent variable and from the obtained results we can identify Q1-Q3 as being representative of the model. Stationary R-squared indicator compares the stationary part of the model to a simple mean model. This measure is preferable to ordinary R-squared when there is a trend or seasonal pattern [33]. Stationary R-squared Positive values of Stationary R-squared mean that the model under consideration is better than the baseline model. From the results, we can see that variant 3 has the highest positive value: Stationary R-squared=4.219E-015. R-Squared indicator determines the goodness-of-fit measure of a linear model, sometimes is called the coefficient of determination. It is the proportion of variation in the dependent variable explained by the regression model. It ranges in value from 0 to 1. In this model the values close to 1 that indicates that the model fit the data well. Column DF lists the degrees of freedom for each of the tests of the coefficients. There is one degree of freedom for each predictor in the model. In this example, we have between 16-18 predictors.

The purpose of the research was presented in advance, incorporating the principles of eco-label, sustainable development in general in a business model of a company, as an innovative vision of the performance system. The research method provides a representation of the theoretical acquisitions in the field of study.

5. Conclusions

The EU Eco-label is not only a tool of sustainable development, but also a redoubtable green marketing strategy for promoting the most developed technologies of informational society. Basically, the Eco-label is an application which gives common sense to the two development directions, and increasing the market share of products and services which obtain it will simultaneously stimulate the technological process and the sustainable development.

Both at micro and macroeconomic level, a new vision of economic efficiency should be promoted linking investment in sustainable production with reduced costs for managing the generated waste [14].

Sustainable consumption and production can be stimulated by legislative changes at EU level to encourage green public procurement. From this perspective, there are extremely useful the tools for identifying how any product / service relates to the clear criteria of environmental protection, and EU Eco-label becomes an European project to promote sustainable development principles and a modern tool for implementing green marketing.

Decoupling economic growth from environmental degradation and the use of non-renewable resources involves not only the implementation of legislation aimed at empowering and penalizing polluters, but also of tools that stimulate production and consumption of environmentally friendly products, ecological if possible, through marketing mechanisms. The EU Eco-label expresses a new vision in approaching the economic competitiveness issue from the perspective of the principles and values of sustainable development.

Eco-labels with sustainability claims are now emerging worldwide. In order for the Eco-label to be effective as a marketing tool for sustainable, it is necessary that the criteria for the label are strategically developed, i.e. the objectives for those processes being clearly defined and strategies to reach these objectives being laid out within criteria development processes. The criteria development processes and the clarity in communication of such are the core elements of effective Eco-labeling programs. The criteria are what tell the producers what is required and should guide improvements. There is also a need for future labeling programs that include and communicate all aspects related to sustainability in the processes [14].

The research highlights the benefits of using the eco-label at the level of a group of business (234) highlighted in the sustainable approach of the production cycle. The study may present limits in terms of designing a production strategy to delimit the level of budget allocated to the implementation of the eco-label. At the same time, the study can focus on the positive externalities highlighted by the implementation of the Eco label at the enterprise level: rational use of resources, sustainable business development, increasing the number of consumers.

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