Buying organic food as sustainable consumer decision-making behavior: Cognitive and affective attitudes as drivers of purchase intentions toward environmentally friendly products

Elvira Nica¹,*

¹Faculty of Administration and Public Management, Bucharest University of Economic Studies, Piața Romană 6, Bucharest 010374, Romania

Abstract. We inspect the relevant literature on trust management in organic agriculture, providing both quantitative evidence on trends and numerous in-depth empirical examples. Our study adds to current research by analyzing environmentally sustainable consumer behavior, consumers’ perceptions, motivations, attitudes, trust, values, and purchasing intentions and decisions regarding organically produced foods, the credence characteristics of organic food and perception of and motives for buying it, and the link between consumer perceptions of certified organic products and pro-environmental food purchasing behavior. We define buying organic food as sustainable consumer decision-making behavior and identify cognitive and affective attitudes that act as drivers of purchase intentions toward environmentally friendly products. Using and replicating data from The Conference Board, Eurostat, FiBL-AMI, The Hartman Group, The Independent, indy100, Nielsen, Organic Trade Association, Pew Research Center, Statista, USDA, and USA Today, we performed analyses and made estimates regarding countries with the largest markets for organic food and with the highest per capita consumption, distinctions consumers make between organic and natural products, the percentages of people willing to pay 20% more or higher for organic groceries, and willingness to pay a premium (more than average price) for products that provide certain organic attributes or benefits. Data were analyzed using structural equation modeling.

1 Introduction

Sustainable eating means consuming meal items prepared with additive-free ingredients. The increasing concern in organic food is rooted in the conviction that a healthier and sustainable manner of living is possible. [1] Opposing imported goods, absence of taste, impediments in cooking, and insufficient information may be hindrances to shop for

* Corresponding author: popescu_elvira@yahoo.com

© The Authors, published by EDP Sciences. This is an open access article distributed under the terms of the Creative Commons Attribution License 4.0 (http://creativecommons.org/licenses/by/4.0/).
products originating from chemical-free agriculture. [2] Procedures to further sustainable behaviors in the public and private sphere may strengthen each other. [3] Approach, subjective standard, perceived behavioral control, and personal criteria [4-9] are drivers of purpose to select organic menu products, which in the final analysis result in consumers’ aim to frequent restaurants displaying organic menu products. [10]

2 Conceptual Framework and Literature Review
Organic food has numerous greater attributes for preparing a first-rate meal, e.g. finer taste, superior nutritional value, and no pesticides. [1] Premium price, absence of availability, poor product appearance, sporadic provision of additive-free goods in the retail outlet, scarcity of product category, distance to the store, paucity of details, and labels on the goods constitute the main hindrances toward buying organic food, influencing consumers’ disposition to pay more. [2] Age, prior experience, participation, and self-regard [11-15] are relevant in examining consumers’ readiness to spend more for green routines in restaurants. [16] Consumption represents a pertinent measure not misinterpreted as purchasing habits and indicates relevant involvement with the items, while the obstacles and impulses are as concrete as the products themselves [17].

3 Methodology and Empirical Analysis
Our study adds to current research by analyzing environmentally sustainable consumer behavior, consumers’ perceptions, motivations, attitudes, trust, values, and purchasing intentions and decisions regarding organically produced foods, the credence characteristics of organic food and perception of and motives for buying it, and the link between consumer perceptions of certified organic products and pro-environmental food purchasing behavior. We define buying organic food as sustainable consumer decision-making behavior and identify cognitive and affective attitudes that act as drivers of purchase intentions toward environmentally friendly products. Using and replicating data from The Conference Board, Eurostat, FiBL-AMI, The Hartman Group, The Independent, indy100, Nielsen, Organic Trade Association, Pew Research Center, Statista, USDA, and USA Today, we performed analyses and made estimates regarding countries with the largest markets for organic food and with the highest per capita consumption, distinctions consumers make between organic and natural products, the percentages of people willing to pay 20% more or higher for organic groceries, and willingness to pay a premium (more than average price) for products that provide certain organic attributes or benefits. Data were analyzed using structural equation modeling.

4 Results and Discussion
An impeding determinant for organic consumers is a premium price for organic goods, but consumers prefer to pay for it as they are related to healthier lifestyles. [2] Consumers instinctively link organic ingredients to first-rate food quality and consequently develop more appreciative frames of mind in relation to restaurants that employ organic ingredients in contrast to ones adopting conventional ingredients [1] Individuals having an intense inclination to spend more for green routines had more significant perceptions of environmentally friendly brand image than persons who do not tend to pay additionally. [16] Nearly all consumers’ access to the organic food market are items typified by low perceived expenses in the consumers’ particular setting and are among the most fashionable goods in that market. The disposition of the ensuing acceptance of supplementary organic products is driven considerably by their associated vogue in the market [18]. Retailers
represent the lookouts between consumers and organic items, thus shaping green shopping behavior. [19] (Tables 1–8)

**Table 1.** Organic farming area worldwide from 2010 to 2019 (in million hectares)

| Year | Area (million hectares) |
|------|-------------------------|
| 2010 | 35.14                   |
| 2011 | 37.20                   |
| 2012 | 37.50                   |
| 2013 | 43.09                   |
| 2014 | 43.70                   |
| 2015 | 50.90                   |
| 2016 | 57.82                   |
| 2017 | 69.84                   |
| 2018 | 76.22                   |
| 2019 | 81.44                   |

Sources: Statista; our 2019 estimates.

**Table 2.** Global organic market: Distribution of retail sales value by country (%)

| Country      | Sales Value (%) |
|--------------|-----------------|
| USA          | 47              |
| Germany      | 12              |
| France       | 9               |
| China        | 6               |
| Canada       | 5               |
| Italy        | 3               |
| UK           | 3               |
| Switzerland  | 2               |
| Other        | 14              |

Sources: FiBL-AMI; our 2019 estimates.

**Table 3.** U.S. adults who say they or someone in their households … within the past 30 days … (%)

| Activity                                      | Several times/About once | Never | Not sure |
|-----------------------------------------------|--------------------------|-------|----------|
| Bought locally grown products                 | 76                       | 8     | 16       |
| Decided to buy based on ingredients, nutrition label | 73                       | 16    | 11       |
| Bought organic food                           | 63                       | 28    | 9        |
| Bought food labelled GMO-free                 | 39                       | 30    | 31       |

Sources: Pew Research Center; our survey among 4,600 individuals conducted February 2019.

**Table 4.** Organic food categories in the USA (percentage of total food sales)

| Category                  | Percentage |
|---------------------------|------------|
| Fruits and vegetables     | 35.1       |
| Dairy                     | 15.8       |
| Packaged/Prepared foods   | 15.2       |
| Beverages                 | 13.3       |
| Breads and grains          | 11.8       |
| Snack foods               | 5.4        |
| Condiments                | 2.5        |
| Other                     | 0.9        |

Sources: Organic Trade Association; our 2019 estimates.
Table 5. Total organic farming area in EU countries

| Country            | Area (ha) |
|--------------------|-----------|
| Spain              | 1,988,682 |
| Italy              | 1,576,445 |
| France             | 1,376,373 |
| Germany            | 1,084,672 |
| Poland             | 594,886  |
| Austria            | 557,662  |
| Sweden             | 521,045  |
| UK                 | 498,614  |
| Czech Republic     | 481,345  |
| Greece             | 411,451  |

Sources: Eurostat; indy100; The Independent; Statista; our 2019 estimates.

Table 6. Willingness to pay a premium (more than average price) for products that provide the following attributes or benefits (%)

| Attribute                                                                 | Willingness |
|---------------------------------------------------------------------------|-------------|
| Has high quality/safety standards (organic, antibiotic-free, hormone-free, non-GMO) | 42          |
| Provides superior function of performance (sulphate-free, hormone-free, minerals) | 39          |
| Contains organic/all-natural ingredients (organic, all-natural, no artificial ingredients, preservative-free, paraben-free) | 38          |
| Contains environmentally friendly/sustainable materials (BPA-free, teracycle certified, compostable or plantable packaging, reusable) | 36          |
| Offers/Does something no other product on the market provides (upcycled, made from waste/recycled products, edible packaging) | 34          |
| Delivers on social responsibility claims (free-range, pasture-raised, humane) | 32          |

Sources: The Conference Board; Nielsen; our survey among 4,600 individuals conducted February 2019.

Table 7. Organic price premiums, relative to conventional prices (%)

| Product                  | Premium |
|--------------------------|---------|
| Spinach                  | +11     |
| Granola                  | +19     |
| Carrots                  | +24     |
| Potatoes                 | +25     |
| Apples                   | +27     |
| Baby food (junior)       | +28     |
| Bread                    | +29     |
| Baby food (strained)     | +29     |
| Soup                     | +31     |
| Celery                   | +39     |
| Coffee                   | +40     |
| Yogurt                   | +43     |
| Spaghetti sauce          | +49     |
| Canned beans             | +50     |
| Salad                    | +54     |
| Milk                     | +66     |
| Eggs                     | +74     |

Sources: USDA; Nielsen; our 2019 estimates.
Table 8. The percentages of people willing to pay 20% more or higher for organic groceries

| Product                | Percentage |
|------------------------|------------|
| Fresh vegetables       | 49         |
| Chicken/Turkey         | 41         |
| Fresh fruits           | 40         |
| Beef                   | 36         |
| Frozen fruits          | 35         |
| Dairy milk             | 32         |
| Yogurt                 | 29         |
| Cheese                 | 26         |
| Pork                   | 24         |
| Granola/Cereal bars    | 19         |

Sources: The Hartman Group; USA Today; our survey among 4,600 individuals conducted February 2019.

5 Conclusions and Implications

A rise in organic production is a necessity along with the decrease in output and trading expenses, which may bring about a lowering in sale prices and a boost of additive-free goods consumption. [2] A premium price may deter consumers to shop for organic food products, but employing organic food ingredients tend to offer a more cost-effective advantage to first-rate dining restaurants in contrast to casual eating out, although they demand considerably higher charges for organic items [1] Organic is compatible with the green food label with regard to image and disposition in the market [20]. Retailers may exert influence on consumers’ visual interest [21-25] and maximize the green premium via diverse practices, e.g. supplying important information, directing consumers inside the retail outlet, and providing an organic product assortment. [19]

References

1. L. Lu, D. Gursoy, Does offering an organic food menu help restaurants excel in competition? An examination of diners’ decision-making. *International Journal of Hospitality Management* **63**, 72-81 (2017)
2. R. Nandi, W. Bokelmann, N.V. Gowdru, G. Dias, Factors influencing consumers’ willingness to pay for organic fruits and vegetables: Empirical evidence from a consumer survey in India. *Journal of Food Products Marketing* **23**, 430-451 (2017)
3. T. Mørk, T. Bech-Larsen, K.G. Grunert, G. Tsalis, Determinants of citizen acceptance of environmental policy regulating consumption in public settings: Organic food in public institutions. *Journal of Cleaner Production* **148**, 407-414 (2017)
4. A. Androniceanu, I.-V. Drăgulănescu, Survey on the buyers’ eco-responsibility and the urban white pollution. *Environmental Engineering and Management Journal* **15**, 481-487 (2016)
5. A. Gill-Cox, Consumer health applications, machine learning, and systems neuroscience: The use of artificial intelligence algorithms in clinical medicine and healthcare delivery. *American Journal of Medical Research* **5**, 46-51 (2018)
6. G. Lăzăroiu, M. Kovacova, J. Kliestikova, P. Kubala, K. Valaskova, V.V. Dengov, Data governance and automated individual decision-making in the digital privacy General Data Protection Regulation. *Administratie si Management Public* **31**, 132-142 (2018)
7. A. D. Meilă, Sustainable urban mobility in the sharing economy: Digital platforms, collaborative governance, and innovative transportation. *Contemporary Readings in Law and Social Justice* **10**, 130-136 (2018)

8. D. Popescu Ljungholm, Sharing economy, regulatory arbitrage, and urban governance: How city space shapes economic growth and innovation. *Geopolitics, History, and International Relations* **10**, 174-180 (2018)

9. G. Sion, How artificial intelligence is transforming the economy. Will cognitively enhanced machines decrease and eliminate tasks from human workers through automation? *Journal of Self-Governance and Management Economics* **6**, 31-36 (2018)

10. Y.H. Shin, J. Im, S.E. Jung, K. Severt, The theory of planned behavior and the norm activation model approach to consumer behavior regarding organic menus. *International Journal of Hospitality Management* **69**, 21-29 (2018)

11. T. Blanton, Convolutional neural networks, analytical algorithms, and personalized health care: Embracing the massive data analysis capabilities of deep learning artificial intelligence systems to complement and improve medical services. *American Journal of Medical Research* **5**, 52-57 (2018)

12. T. Grossman, The rise of an automated jobless society: Do cutting-edge technologies expel workers swifter than the economy can identify new jobs for them? *Psychosociological Issues in Human Resource Management* **6**, 62-67 (2018)

13. A.D. Meilă, Regulating the sharing economy at the local level: How the technology of online labor platforms can shape the dynamics of urban environments. *Geopolitics, History, and International Relations* **10**, 181-187 (2018)

14. R. Mihăilă, E. Gregova, K. Janoskova, J. Kolencik, A.M. Arsene, The instrumental function of gendered citizenship and symbolic politics in the social construction of labor rights for migrants. *Journal of Research in Gender Studies* **8**, 127-136 (2018)

15. A. Rădulescu, Users’ social trust of sharing data with companies: Online privacy protection behavior, customer perceived value, and continuous usage intention. *Contemporary Readings in Law and Social Justice* **10**, 137-143 (2018)

16. Y. Namkung, S. Jang, Are consumers willing to pay more for green practices at restaurants? *Journal of Hospitality & Tourism Research* **41**, 329-356 (2017)

17. B. Chekima, A.I. Oswald, S.A.W.S.K. Wafa, K. Chekima, Narrowing the gap: Factors driving organic food consumption. *Journal of Cleaner Production* **166**, 1438-1447 (2017)

18. H.J. Juhl, M.H.J. Fenger, J. Thogersen, Will the consistent organic food consumer step forward? An empirical analysis. *Journal of Consumer Research* **44**, 519-535 (2017)

19. H. Guyader, M. Otosson, L. Witell, You can’t buy what you can’t see: Retailer practices to increase the green premium. *Journal of Retailing and Consumer Services* **34**, 319-325 (2017)

20. H. Hasimu, S. Marchesini, M. Canavari, A concept mapping study on organic food consumers in Shanghai, China. *Appetite* **108**, 191-202 (2017)

21. A. Drugău-Constantin, Is consumer cognition reducible to neurophysiological functioning? *Economics, Management, and Financial Markets* **14**, 9-14 (2019)

22. E. Hardingham, J. Vrbka, T. Kliestik, J. Kliestikova, Will cognitive technology-driven automation lead to economic growth? *Journal of Self-Governance and Management Economics* **6**, 13-18 (2018)
23. A. D. Meilă, The social structure of cities: The multidimensional nature of urban inequality. *Psychosociological Issues in Human Resource Management* 6, 115-120 (2018)

24. C.-O. Mirică (Dumitrescu), The behavioral economics of decision making: Explaining consumer choice in terms of neural events. *Economics, Management, and Financial Markets* 14, 16-20 (2019)

25. Q. Shang, W.-H. Liu, Y. Yin, The impact of within-household relative income on happiness: Does gender identity matter? *Journal of Research in Gender Studies* 8, 55-63 (2018)