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The Impact of Economic and Socio-Demographic Factors on Consumer Typology and their Pro-Environmental Attitudes

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Abstract:

Purpose: *The aim of the study was to identify consumer behaviors, taking into account the relationships between socio-demographic characteristics and consumer typology according to their attitudes towards the natural environment, as well as to determine the perception of readiness to undertake pro-environmental behaviors.*
Design/Methodology/Approach: *This study is based on a survey conducted using a questionnaire. The research was carried out among residents of the Lubusz Voivodeship. The questionnaire was designed to collect demographic and socio-economic data. It also included questions regarding consumers' readiness to engage in pro-environmental behaviors and the percentage share of particular consumer types in terms of pro-environmental attitudes.*
Findings: *The results indicate that consumers are not a homogeneous group, and their attitudes towards new consumption trends are conditioned by economic and socio-demographic factors. Gender, place of residence, education, age, and monthly income significantly differentiate consumer typology. However, considering the strength of the relationships, it can be concluded that income and age exert a strong influence on consumer attitudes and behaviors, while the weakest relationship was observed for gender, and a moderate one for place of residence and education.*
Practical Implications: *The results concerning the relationships between economic and socio-demographic factors and consumer typology, defined on the basis of their attitudes towards the environment, may serve enterprises in adapting marketing strategies to specific consumer groups of a given product.*
Originality/Value: *The article presents the relationships between economic and socio-demographic characteristics and consumer typology defined on the basis of their attitudes towards the natural environment. These results were used to determine the percentage share of particular consumer types in terms of pro-environmental attitudes and subsequently became the basis for formulating recommendations for enterprises in the field of marketing policy.*

Keywords: *Consumer typology, pro-environmental attitudes, socio-demographic factors economic determinants, sustainable consumption.*

JEL Codes: *D12, Q56, M31.*
Paper type: *Research article.*

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1. Introduction

Consumer attitudes stem from personal experiences related to the perception of negative environmental changes and a high level of awareness of civilizational threats (Hamrol, Grabowska, and Starzyńska, 2025; Thøgersen and Zhang, 2025; Rickard, Yang, and Schuldt, 2016). Concern for the environment is a multidimensional phenomenon shaped by numerous factors resulting from consumers' economic and socio-demographic conditions (Jones and Dunlap, 1992; Michałowska and Kułyk, 2024), as well as concern for the natural environment (Bamberg, 2003).

Recently, growing interest has been observed among researchers, enterprises, and other social groups in analyzing consumer behavior in the context of pro-environmental choices. Consumers increasingly choose products and solutions that reduce the negative impact on the natural environment. Their choices often lean towards organic food. On the one hand, this is influenced by the belief that such food is healthier compared to conventional products, while on the other, it may result from the trend towards ecology, the adoption of an ecological lifestyle, or many other factors determining the purchase of organic food (Kułyk, Michałowska, Roszkowska and Hołysz, 2019).

Many researchers undertake studies aimed at identifying factors that determine consumers' pro-environmental behaviors (Simeone, Verneau, and Russo, 2025; Kieżel, 2012; Kułyk, Michałowska, and Roszkowska-Hołysz, 2019; Żurek, 2023; Barbu, Catană, Deselnicu, Cioca, and Ioanid, 2022).

Human consumption behavior is determined by demographic, economic, social, and psychological factors (Kieżel, 2012). Although social, psychological, and cultural aspects play an increasingly important role in explaining consumer behavior, demographic factors remain crucial, as they describe the consumer, define their needs, differentiate them, and may act as impulses or barriers in making market decisions (Kieżel, 2012).

Numerous studies show how consumer motivations influence decisions related to sustainable behaviors. According to Simeone, Verneau, and Russo (2025), sustainable consumption results from various motivations. Some focus primarily on environmental aspects, while others are driven by the need to lead a healthier or more natural lifestyle (Simeone, Verneau, and Russo, 2025).

Kułyk, Michałowska, and Roszkowska-Hołysz emphasize that the growing interest in organic food is conditioned by multiple factors. The health aspect constitutes one of the key determinants of consumers' purchasing decisions. The choice of organic food may also be motivated by concern for the well-being of loved ones, ensuring their food security, as well as by ecological trends, a preference for a pro-environmental

lifestyle, or other conditions influencing consumer behavior (Kułyk, Michałowska, Roszkowska, and Hołysz, 2019).

Żurek (2023), who applied a bibliometric method, indicates that economic, demographic, and cultural factors significantly differentiate consumer behavior towards food, while demographic factors such as gender and education level additionally shape consumer typology (Żurek, 2023). She emphasizes that women are more likely to follow healthy eating principles, higher education fosters greater nutritional awareness and rationalization of choices, while income remains a key determinant differentiating consumption structure. Households with higher incomes more often choose high-quality products, whereas households with lower incomes increase their consumption of high-energy foods (Żurek, 2023).

Piao and Managi (2024) conducted research on the relationship between pro-environmental behaviors and the determinants of sustainable development of the natural environment, indicating that although this relationship is increasingly analyzed, it still remains ambiguous due to the diverse impact of individual factors. They demonstrated that, on average, there is a positive correlation between subjective well-being, ecological knowledge, level of education, life satisfaction, mental health, positive emotions, and engagement in pro-environmental behaviors (Piao and Managi, 2024).

Barbu, Catană, Deselnicu, Cioca, and Ioanid (2022) carried out a literature review on the economic and social determinants of purchasing organic products. As a result, they identified various factors influencing consumer behavior towards organic products, such as social norms, natural environmental orientation, perceived green image of the company, characteristics of ecological products, perceived risks and inconveniences associated with their purchase, perceived benefits, institutional trust, as well as socio-demographic characteristics and consumer trust (Barbu, Catană, Deselnicu, Cioca, and Ioanid, 2022).

As Witek (2014) noted, pro-environmental consumers may appear to be a homogeneous group; however, when considering the determinants of consumer behavior in the ecological market, it turns out that they are internally diverse. Among these determinants, the following can be distinguished (Witek, 2014):

1. Pro-environmental purchasing behaviors - choosing energy-efficient, biodegradable products and those in environmentally friendly packaging.
2. Environmental activism - seeking information about ecological products, cooperating with organizations, participating in protests.
3. Ecological knowledge - awareness of practices and phenomena such as the greenhouse effect or acid rain.

4. Environmental concern - worries related to pollution and environmental degradation.
5. Assessment of the effectiveness of individual actions - the belief that individual actions can contribute to solving environmental problems.
6. Resource conservation - reducing energy consumption and waste, preventing food waste.
7. Economic factor - willingness to pay higher prices or additional taxes related to environmental protection.
8. Skepticism towards pro-environmental claims – critical attitude towards company advertising and information about the ecological nature of products, packaging, or labeling.

In view of the above, it can be observed that pro-environmental consumers do not constitute a uniform group but differ from one another due to diverse behavioral determinants. These can be grouped into several categories: from practical purchasing choices and resource conservation, through activism, knowledge, and environmental concern, to economic factors and skepticism towards pro-environmental claims. This highlights the multidimensionality and complexity of attitudes in the ecological products market.

2. Materials and Methods

The aim of the study was to identify consumer behaviors, taking into account the relationships between socio-demographic characteristics and consumer typology based on their attitudes towards the natural environment, as well as to determine the perceived readiness to engage in pro-environmental behaviors. The survey was conducted among consumers from the Lubusz Voivodeship using a questionnaire method.

The questionnaire was designed to collect demographic and socio-economic data. It also included questions regarding consumers' willingness to adopt pro-environmental behaviors and the percentage distribution of consumer types according to ecological attitudes. The study also sought to examine whether there is a clear relationship between gender, place of residence, education, age, and monthly income per capita in the household and consumer typology based on environmental attitudes. The sample was selected randomly.

The characteristics of the research sample were as follows: among the 500 respondents, women accounted for 63.6% and men for 36.4%. In terms of place of residence, more than half of the respondents lived in rural areas (52.4%), while urban residents constituted 47.6%. With regard to education, the largest group consisted of individuals with higher education (52%), followed by those with secondary education

(45.2%), while only a small proportion had vocational education (2.8%). The age structure indicated that the largest groups were respondents aged 26-36 years (23.8%), 37-46 years (21.6%), and 47-56 years (22.2%). Respondents aged 19-25 years accounted for 16.6%, while those over 56 years represented 15.8%.

In terms of household income per capita, the largest proportion of respondents reported earnings in the range of 500-1000 PLN net (30%) and 1501-2000 PLN net (27.4%). The next groups included those earning 1001-1500 PLN net (24.2%) and 2001-2500 PLN net (8.6%). Incomes below 500 PLN net were declared by 5.6% of respondents, while the highest income bracket of 3001-3500 PLN net was reported by only 4.2%.

3. Research Results

In this part of the study, based on empirical data, the results of the conducted research are presented. The analysis focused on respondents' opinions regarding pro-environmental behaviors. Respondents were asked to evaluate the proposed types of behaviors by providing their assessment on a five-point Likert scale (definitely yes, rather yes, neither yes nor no, rather no, definitely no). The results of the analysis are presented in Table 1.

Table 1. *Perception of readiness for pro-environmental behaviors according to respondents' opinions.*

Type of behaviors	**Definitely yes**	**Rather yes**	**Neither yes nor no**	**Rather no**	**Definitely no**
I pay more attention to environmental protection issues	23.0%	49.2%	15.6%	8.6%	3.6%
I eat carefully, paying attention to what I consume	33.4%	37.8%	6.6%	13.4%	8.8%
I think about environmental protection issues, showing greater concern for biodiversity, animal rights, and the health of myself and future generations	26.2%	19.6%	43.2%	7.4%	3.6%
I pay attention to food being packaged in an environmentally friendly way	40.2%	39.0%	10.8%	6.8%	3.2%
I pay attention to products that help maintain good health	69.0%	22.0%	9.0%	0.0%	0.0%

I accept higher prices for ecological (environmentally friendly) products	26.4%	15.2%	24.0%	24.6%	9.8%

Source: *Own elaboration based on the conducted research.*

The conducted study shows that more than 72.2% of respondents (23.0% "definitely yes" and 49.2% "rather yes") declare that they pay greater attention to environmental protection issues, while approximately 12.2% of respondents show no interest in these matters and 15.6% remain neutral, selecting the response "neither yes nor no".

Considering the fact that they eat carefully, paying attention to what they consume, 71.2% of respondents (33.4% "definitely yes" and 37.8% "rather yes") admit that they care about their diet, 22.2% do not pay attention to this aspect, and 6.6% remain indifferent, as they did not choose either side, selecting "neither yes nor no".

In the case of the statement that they think about environmental protection issues, paying greater attention to biodiversity, animal rights, and the health of themselves and future generations, 45.8% of respondents (26.2% "definitely yes" and 19.6% "rather yes") declare concern for these issues, while as many as 43.2% remain neutral, and 11.0% show no interest.

Furthermore, more than 79.2% of respondents (40.2% "definitely yes" and 39.0% "rather yes") indicate that they pay attention to environmentally friendly food packaging, with 10.8% remaining neutral and 10.0% not attaching importance to this factor.

It is noteworthy that the vast majority of respondents – more than 91.0% (69.0% "definitely yes" and 22.0% "rather yes") - pay attention to whether products help maintain good health, while 9.0% remain neutral. None of the respondents selected a negative response.

In terms of the opinion that they accept higher prices for ecological (environmentally friendly) products, the results are as follows: 41.6% of respondents (26.4% "definitely yes" and 15.2% "rather yes") accept higher prices, 34.4% disagree, and 24.0% remain neutral.

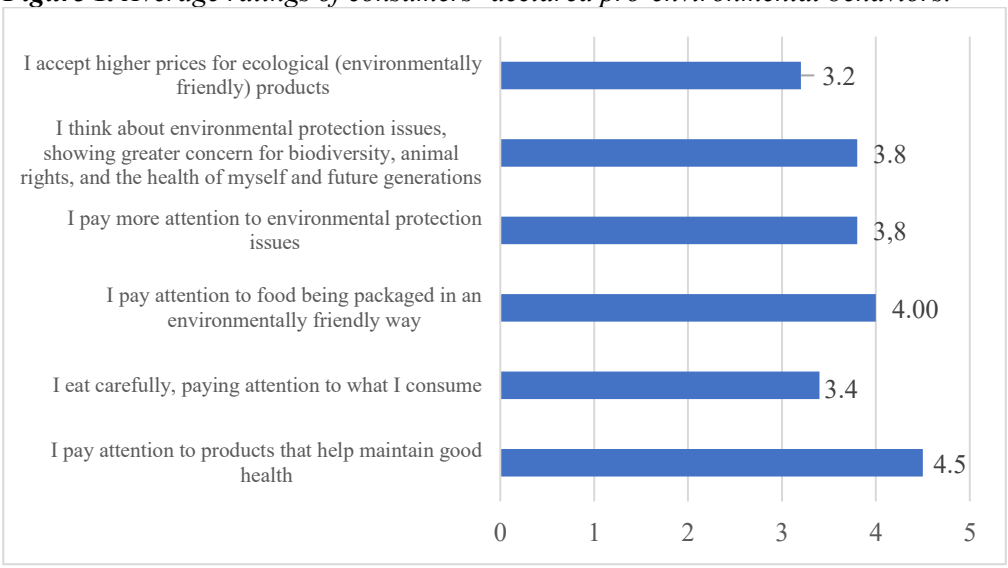
It turns out that the strongest support for pro-environmental actions is evident in products that support health – as many as 69.0% "definitely yes." High ecological awareness also appears in relation to environmentally friendly packaging (79.2% "yes" responses).

The study shows that the greatest diversity in consumer opinions occurs in the acceptance of higher prices for ecological products. More than 40% of consumers are willing to bear higher costs, treating environmentally friendly products as an

investment in their own health and that of future generations, while one-third of respondents do not accept higher prices. Such a distribution of responses may indicate that price is a key factor differentiating consumers. This differentiation may result from differences in income or ecological awareness. Undoubtedly, price is a crucial factor distinguishing consumers, as some are willing to pay more, while others consider ecological products too expensive. One in four respondents did not choose any option, which may indicate a lack of clear preferences or insufficient knowledge about the benefits of ecological products.

A graphical illustration of the perception of readiness for pro-environmental behaviors in respondents' opinions is presented in Figure 1, based on the average ratings of the declared behaviors.

Figure 1. *Average ratings of consumers' declared pro-environmental behaviors.*



Source: *Own elaboration based on the conducted research.*

The study shows that the highest average ranking score (4.5) was achieved for behaviors related to products supporting health. The lowest value (3.2) concerns the acceptance of higher prices for ecological products, which confirms that price is a factor to which consumers pay particular attention. The remaining behaviors oscillate around values of 3.4-3.8, indicating a moderately positive attitude.

The obtained data point to significant phenomena in consumer behavior that condition the adoption of a more sustainable consumption style. Although declarations do not always directly translate into the purchase of ecological products or into directing behaviors towards sustainable consumption, positive changes in society can be observed, along with increasingly clear shaping of pro-environmental attitudes.

4. Consumer Typology in the Market According to Their Attitudes Towards the Environment

Based on the adopted criterion of consumer typology presented in Table 2, respondents' attitudes towards the natural environment are shown, relying on the classification proposed by Meffert and Kirchgeorg (1998), including, among other aspects, the purchase or non-purchase of ecological products.

Table 2. *Consumer typology in the market according to pro-environmental attitudes in respondents' opinions*

Consumer Group	Behavioral Characteristics	Number of indications	Percentage of indications (%)
Group I - Actively Environmentally Engaged	• Shows strong interest in environmental protection issues and high ecological awareness; follows current environmental problems. • Willingly undertakes actions beneficial to nature, e.g., chooses products and solutions that reduce negative environmental impact; cares about the planet's future. • Accepts higher prices for environmentally friendly products, including organic food, treating them as an investment in health, the future, and environmental protection. • Expresses concern about environmental issues.	165	33.0
Group II - Environmentally Sensitive, Optimistically Perceives the Environment and the Future	• Believes that environmental problems can be solved through cooperation among policymakers, businesses, and scientific communities, provided that responsible ecological thinking and knowledge of nature conservation principles accompany such efforts.	72	14.4

	• Shows openness to purchasing environmentally friendly products, caring for the planet.		
Group III - Consumer Uncertain About the Future	• Feels anxiety about environmental threats and expects support and corrective actions from state institutions. • Chooses or refrains from purchasing ecological products – willingly buys them, but if unavailable, refrains from purchase or selects alternatives. • Pays particular attention to labels and symbols confirming that a product is environmentally friendly and meets ecological standards.	112	22.4
Group IV - Discouraged Consumer	• Displays skepticism and pessimism regarding the future of the natural environment. • Shows distrust towards state policy. • Chooses products based on taste qualities and comfort.	62	12.4
Group V - Tired Consumer	• Feels helpless in the face of environmental problems. • Distrustful of ecological products.	69	13.8
Group VI - Advocate of Rapid Economic Growth	• Supports intensification of economic development through the pursuit of economic goals. • Does not care about environmental problems or pollution, believing ecological issues can be easily solved. • Shows reluctance towards limiting consumption.	0	0,00
Group VII - Fatalist	• Shows no interest in environmental issues and does not engage in pro-environmental activities.	20	4.0

	• Does not consider environmentally friendly products when making purchases.		
Total		500	100.0

Source: *Author's own elaboration based on Meffert, Kirchgeorg, (1998).*

The conducted research (Table 2) shows that the first type of consumer, i.e., the actively environmentally engaged, obtained the highest percentage of indications - 33% (165 responses) among the participants. This group is characterized by a high level of ecological awareness and strong interest in environmental protection issues. In second place appeared the third group (112 responses), i.e., the consumer uncertain about the future, who feels anxiety about environmental threats and expects support and corrective actions from state institutions.

In third place was the second type of consumer - environmentally sensitive and optimistic about the environment and the future - accounting for 14.4%, i.e., 72 responses. This group is convinced that environmental problems can be solved through cooperation among policymakers, businesses, and scientific communities, provided that responsible ecological thinking and knowledge of nature conservation principles accompany such efforts.

Every twenty-fifth respondent declared a lack of interest in environmental issues, did not engage in pro-environmental activities, and did not consider environmentally friendly products when shopping. Consumers with such attitudes were classified as Group VII - Fatalists.

In this part of the study, based on empirical data, an examination was carried out to determine whether there is a clear relationship between gender, place of residence, education, age, and monthly household income per capita and consumer typology according to their attitudes towards the environment. For this purpose, the chi-square statistic was applied, and Pearson's correlation coefficient was used to assess the strength of the relationships between these characteristics.

To verify the relationships between gender, place of residence, education, age, and monthly income level and consumer typology according to their attitudes towards pro-environmental behaviors, a null hypothesis (H0) and an alternative hypothesis (H1) were formulated:

H0: There is no relationship between a given factor such as gender, place of residence, education, age, income and consumer typology ($\rho = 0$). H1: There is a relationship between a given factor such as gender, place of residence, education, age, income and consumer typology ($\rho \neq 0$).

The values of the chi-square statistics and Pearson's contingency coefficient (C) are shown in Table 3.

Table 3. *Chi-square statistics, critical values, and Pearson's contingency coefficient for the examined variables*

Variables for which the tests were conducted	**Value of χ^2 statistics**	**df**	**Critical value (α = 0.05)**	**Value of Pearson's contingency coefficient (C)**	**Strength of relationship**
Gender vs. consumer typology	80.07	5	11.07	0.37	Weak
Place of residence vs. consumer typology	151.42	5	11.07	0.48	Moderate
Education vs. consumer typology	186.82	10	18.31	0.52	Moderate
Age vs. consumer typology	436.23	20	31.41	0.68	Very strong
Monthly income level vs. consumer typology	575.28	30	43.77	0.73	Very strong

Source: *Own elaboration based on the conducted research.*

The analysis indicates that all variables are statistically significant (χ^2 > critical value), but they differ in the strength of their influence: from weak (gender), moderate (place of residence, education), strong (age), to very strong (income). Consequently, socio-demographic characteristics shape consumer typology and their attitudes towards new consumption trends and pro-environmental behaviors to varying degrees.

According to the analysis, gender has a weak effect, place of residence and education exert a moderate influence, age strongly differentiates approaches, while income proves to be the most important factor, determining readiness for alternative and pro-environmental choices.

5. Discussion

The undertaken research on the impact of economic and socio-demographic factors on consumer typology and their pro-environmental attitudes highlights the complexity of determinants shaping consumer behavior in the face of growing concern for the future of our planet and the lives of present and future generations. This study correlates with research conducted using bibliometric analysis by Żurek, who observed that economic and demographic determinants not only influence the level

and structure of food consumption but also shape consumer attitudes towards healthy eating and product quality (Żurek, 2023).

Our findings indicate that the most important differentiating factors among contemporary consumers are age and income, which most strongly shape both consumer typology and readiness for pro-environmental behaviors. Other variables are also significant, but their impact is weaker or moderate. Therefore, the necessity of segmenting consumers according to socio-demographic characteristics becomes particularly important, as it allows for a better understanding of their needs and motivations.

A different perspective is presented by Akehurst, Afonso, and Martins Gonçalves (2012), who emphasize the greater importance of psychographic variables, especially perceived consumer effectiveness and altruism, over socio-demographic determinants in explaining pro-environmental consumer behavior.

Thus, our results are not fully consistent with the findings of Akehurst, Afonso and Martins Gonçalves (2012), who point to the stronger role of variables such as perceived consumer effectiveness and altruism compared to classical socio-demographic determinants.

In this context, the observations of Bamberg are also relevant. He notes that a direct empirical review of numerous studies analyzing the relationship between environmental concern and behavior shows that this relationship remains at a low to moderate level, confirming the limited strength of translating declared attitudes into actual consumer actions (Bamberg, 2003). Our results partially confirm this observation: although demographic factors differentiate consumers, they do not always translate into strong and consistent pro-environmental actions.

The findings of Piao and Managi (2024) indicate that a higher level of knowledge, education, well-being, and appropriate family structure foster greater engagement in pro-environmental activities. These results are therefore consistent with our conclusions regarding the role of socio-demographic and economic factors in shaping consumer attitudes.

Research by Barbu, Catană, Deselnicu, Cioca and Ioanid (2022) on literature review shows that despite the diversity of factors and motivations related to pro-environmental actions, particularly in the context of ecological product consumption, the common element across all analyses is the emphasis on the consumer perspective, i.e., consideration of customers' needs, expectations, and perceptions.

Therefore, regardless of whether studies focus on economic, socio-demographic, or psychographic factors, the consumer perspective remains of key importance.

6. Conclusions

The conducted research indicates that the key differentiating factors among consumers are age and income, which most strongly shape both consumer typology and readiness for pro-environmental behaviors. Other variables are also significant, but their influence is weaker or moderate.

This confirms the necessity of segmenting consumers according to economic and socio-demographic characteristics, which allows for a better understanding of their needs and motivations. Marketing strategies and educational activities should be tailored to different audience groups, considering age (younger and older consumers) as well as income, in order to effectively promote healthy and pro-environmental consumption patterns adapted to specific consumer segments.

Each enterprise should thoroughly analyze not only the economic, social, and demographic factors shaping consumer behavior in a given market segment, but also their attitudes, values, beliefs, and accepted norms of conduct. A comprehensive understanding of the principles guiding buyers is crucial to respond appropriately to changes in consumer behavior and to skillfully leverage them.

The proper functioning of enterprises requires adaptation to changes in consumer market behavior and the development of strategies in conditions of increasing competition, both domestic and international. Environmental analysis constitutes a key success factor in the process of developing an effective business strategy.

Naturally, neither employees nor managers are able to predict all changes occurring in the market. Continuous analysis of consumer behavior and the environment, along with rapid adaptation, is therefore essential. Enterprise development is linked to building an effective strategy that provides overall direction, reflecting how the company utilizes its current and potential capabilities. To adjust their offerings to customer needs, enterprises must systematically deepen their knowledge of consumer market behavior in the face of changing trends.

Future research should take into account differences between women and men, since, as noted by Kieżel (2012), while guided by the same need, women and men often act on entirely different motivations, which translates into differences in their decision-making processes.

The multitude of factors influencing consumer behavior, according to Mruk, makes it difficult to disagree with the statement that the consumer is a “Black Box”, in which various determinants, personal, psychological, social, and cultural, intersect and interact (Mruk, 2012). Therefore, a full understanding of consumer behavior requires a multi-faceted research approach that considers not only economic and demographic factors but also psychological and contextual ones.

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