

The Effects of Gross Monthly Income on Green (Environmentally Friendly) Consumption Patterns in Slovakia – A Pilot Study

Renáta Machová, Tibor Zsigmond*, Silvia Tóbiás Kosár and Enikő Korcsmáros

Faculty of Economics and Informatics. J. Selye University, Bratislavská cesta 3322, 945 01 Komárno, Slovakia, machovar@ujs.sk, zsigmond@ujs.sk, kosars@ujs.sk, korcsmarose@ujs.sk

* Corresponding author

Abstract: The topic of sustainability has occupied many researchers in recent years. In addition to the sustainable operation of companies, the consumption habits of individuals also require a lot of attention. The purpose of this research is to examine the impact of individual income on green consumer habits in Slovakia. A questionnaire survey was conducted to achieve the goals. The questionnaire and accompanying cover letter were prepared using Google Forms. In addition to closed questions, there were scaled questions in the questionnaire. The answers obtained using the Likert scale questions were treated as ordinal. Data were collected between 2024 January 8 and 2024 February 15. After data cleaning, 424 responses were finally included in the sample. During the research, two hypotheses were formulated. During the testing, Pearson Chi-square and Cramér's V were calculated. Based on the results of the first hypothesis, a significant relationship can be shown between the consumption of organic food, the persuasion of those living in the immediate vicinity of the respondents, and volunteering as an environmental awareness characteristic and the height of the average monthly net income. Based on the examination of the second hypothesis, it can be concluded that in the case of marketing tools that encourage environmental awareness, there is a significant relationship between the influence of TV or radio advertisements and other PR tools and the average monthly net income. The researchers had to rely on the honesty of the respondents. To mitigate the above issue, the researchers asked non-direct questions about the respondents' behavior. The willingness of the respondents to participate was another limitation, as the researchers had no funds to incentivize participation. Therefore, participation was entirely voluntary. Although the number of items in the research meets Crochran's criteria, the results should still be treated with caution. Some findings have not been previously confirmed, indicating a need for further empirical evidence from further studies. The results confirm the results of some previous research (the relationship between income and the proportion of purchasing green products and between that of income and volunteering). In addition, the results offer a suitable basis for further research, as so far, few correlations (with income and encouraging friends to make more environmentally friendly purchases; the relationship between income and individual marketing communication tools) have come to light.

Keywords: income, consumer, green consumption, marketing tools, Slovakia

1 Introduction

There are many known negative consequences of environmental pollution. The most dangerous is climate change itself [1-3]. In general, the impact of climate change on human society can be understood as the dynamic interaction between the environment and the economy, as well as society [4][5]. In this sense, the connection has existed for a long time, but thanks to its dynamic nature, the number of warning and often extreme signs and events that resulted in rapid changes in the natural system, mainly as a result of human activity, it has increased in recent decades [6]. According to Gubíniová et al. [7], the environmental effects on society as a whole are directly proportional to the increase in consumption. Most environmental problems are the responsibility of households, caused by their mindless purchases.

Many people doubt the phenomenon of climate change [8][9], but it has now become clear that the climate catastrophe is possibly inevitable [10][11], since the Earth's average temperature is obviously increasing [12]. Even if we were to eliminate the emission of carbon dioxide from fossil energy sources, we would not be able to avoid climate change even then. The fight against climate change can only be successful with a global solution. [11][13].

According to Garai-Fodor [14] and Yuan et al. [15], changes are also necessary from the side of production and consumption to address global environmental concerns. In recent years, many tools (regulatory, economic, social) have been created to promote sustainable consumption, however, the application of the tools can be very different in each country [16]. Individual countries also directly influence household decision-making on products and their ownership through restrictions or standards [17][18].

2 Theoretical Background

2.1 Environmentally conscious consumption

Since the achievement of sustainable development cannot be achieved solely as a result of government measures or corporate efforts, there is also a need for some kind of consumer awareness formation, to encourage environmentally conscious thinking and behavior [19-21]. All marketing activities that satisfy human needs or facilitate them can be called environmentally conscious marketing, which primarily takes into account the long-term interests of society and works with an environment-oriented goal system in order to improve the general quality of life. Environmentally conscious marketing is therefore nowadays environmentally conscious almost only

in name: a niche market tries to satisfy the needs of those concerned about the state of the environment and their own quality of life with the help of classic methods in order to make a profit [22-24].

Nowadays, companies in the service sector also have the opportunity to operate in an environmentally conscious way, and through this to achieve a large competitive advantage [25][26]. In the eyes of environmentally sensitive consumers, environmental orientation can represent a distinctive value [27]. The means of differentiation can be environmentally conscious operation and its communication [28], as well as other forms of social responsibility [29][30].

Peattie [23] approaches the concept of the environmentally conscious consumer from the point of view of purchase. According to him, a green consumer is someone who consistently collects product and company information and applies environmental and social aspects in their purchasing behavior. Research by Bonini and Oppenheim [31] proves that consumers are ready to make environmentally conscious purchases in order to reduce their impact on the environment, but also supports that only until they reach the checkout. This is where their feelings for the Earth die. According to the authors [31], companies play a major role in the fact that consumers do not turn their words into actions. Further research [32][33] proves that the socially conscious customer strongly feels that he can do something about environmental pollution and tries to take into account the social effects. A green consumer can be identified as a person who avoids a product that can cause harm to any living organism, cause damage to the environment during the production process or during use, or consumes a large amount of non-renewable energy [34][35]. According to Garai-Fodor [14], green consumers prioritize health and environmental protection, the importance and size of which have been increasing in recent years.

Some products just go through the process of “greenwashing”, during which green PR or green marketing is unfairly used to create the impression in the consumer that a particular product - or a company producing a product - is environmentally friendly. This phenomenon mostly causes consumers' skeptical behavior towards green products [36][37].

2.2 Green consumption and price sensitivity

It sometimes happens, in the case of certain services, that consumers even choose the more expensive but environmentally friendly service due to environmental protection [38]. Various research studies have examined the relationship between price sensitivity and the purchase of green products. Husted et al. [39] used conjoint analysis, assessing the willingness to pay for environmental certification. This method is better than directly asking about prices the consumers would pay for goods and services. They came to the conclusion that "the higher the pro-environmental attitudes of consumers, the greater the willingness to pay a premium

for products with environmentally friendly attributes". Gomes et al. [40] and Li & Hassan [41] studied the behavior of Generation Z. Based on their results, it was also established that the presence of concern for the environment positively affects the willingness to pay for green products. According to Malik et al. [42], despite the fact that consumers claim to be concerned about the environment, they do not show environmentally conscious behavior in their purchases, since the prices of green products are higher than those of conventional products. Gomes et al. [40] also found that green future estimation and perceived green quality also positively influence willingness to pay. On the other hand, in the case of perceived green benefits, the authors revealed a negative relationship. This means that members of Generation Z are not willing to pay more for green products, even though they know their added value. This result is contrary to Yazdanpanah et al. [43] as well as with the results of Kovacs and Keresztes [44].

Based on Ruskova et al. [45], higher income social classes spend more on green products than lower income, lower social class individuals. Based on Hsu et al. [46], price sensitivity is of great importance in the field of organic cosmetics. Hahnel et al. [47], the phenomenon can also be observed during the purchase of durable goods. During the research of Kilbourne and Beckmann [48], 30% of the respondents showed a willingness to consume green products, but in reality only 3% did so. According to Yue et al. [49] results, as environmental concern increases, individuals with low price sensitivity are more likely to purchase green products than individuals with high price sensitivity. Despite all of this, later, according to the research of Cicia et al. [50], 78% of consumers are willing to spend more on agricultural organic products, if their price is a maximum of 20% higher than that of less environmentally friendly products. Disdier et al. [51] investigated how the opinions of individuals change regarding the purchase of products containing palm oil and those without palm oil. To do this, the individuals participating in the research were assessed several times how much they were willing to spend on the two types of products. During each "round", various information was shared with the subjects of the research about the harmful environmental effects of palm oil. Based on their results, consumers were willing to pay less and less for products containing palm oil as a result of the information provided. Based on the results of Fisher et al. [52], the relationship between the level of income and the use of green products, as well as the selection of garbage, can be discovered. In contrast, income has no effect on the use of reusable bags and energy-saving light bulbs. Furthermore, people with higher incomes do not necessarily turn off the lights after leaving a room in their apartment.

3 Methodology

The aim of our primary research was to examine the characteristics of environmentally conscious consumption among Slovakian respondents. In order to achieve this, online questionnaire research was carried out using Google Forms. Data were collected between 2024 January 8. – February 15. The questionnaire mostly included closed and scaled (Likert) questions. The results of the latter were treated as ordinal during data processing. We conducted our quantitative study among representatives of different age groups. To select the population included in the sample, we performed random sampling. The results of the study only describe the environmentally conscious consumption characteristics of the surveyed population. The general characteristics of the examined sample (n=424) are summarized in the following table.

Table 1
Demographic characteristics of the sample

Gender	Male	26.1%
	Female	73.9%
Age	18-35	74.6%
	36-60	21.2%
	60+	4.2%
Residence	Capital0	30.7%
	City/Town	40.5%
	Village	28.8%
Education	Elementary	1.5%
	Vocational/Technical school	8.0%
	High/Grammar school	45.8%
	College/University	44.7%

After the exclusion of incorrectly or incompletely completed questionnaires, the primary data was evaluated using univariate and multivariate functions. Mean, distribution, frequency were used as univariate statistical methods, and cross-tab analysis and relationship functions were used as multivariate analysis methods. Pearson's Chi-square [53] test was used to examine the hypotheses:

$$\chi^2 = \sum_{total\ cells} \frac{(f_0 - f_e)^2}{f_e} \quad (1)$$

where,

f_0 = observed values

f_e = expected values

Cramér's V indicator [54] was used to test the strength of the relationships:

$$V = \sqrt{\frac{\chi^2}{N(k-1)}} \quad (2)$$

where,

χ^2 = Pearson chi-square

N = sample size

k = the number of categories (the lesser chosen from dependent/independent)

Based on Cochran [55] the minimal sample size is needed to be stated:

$$n = \frac{Z^2 * p(1-p)}{e^2} \quad (3)$$

n = size of the sample

Z = z score, level of confidence (0.95)

e = margin of error (0.05)

p = sample proportion (0.05)

Based on the formula, in our case the size of the sample must consist of at least 385 elements. This was accomplished because the present research was made by analyzing the responses of 424 individuals. This item number only contains the remaining valid answers after data cleaning.

4 Results

Our study was based on the average monthly net earnings of the respondents. The survey population had the opportunity to indicate their typical income from among several options. The distribution of respondents with a permanent income is illustrated in the following figure according to their income.

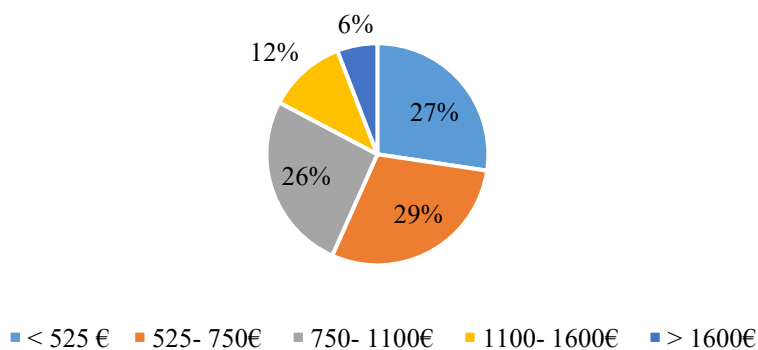


Figure 1

Distribution of people with a fixed income according to their income

Before analyzing the answers received, we made a brief overview of the development of average monthly nominal incomes in Slovakia. The salary range of employees working in the Slovak Republic usually ranges from EUR 894.00 (low wages, actual wages of employees may be even lower) to EUR 2,691.00 (high wages, actual wages may be even higher) in terms of monthly gross wages, which includes also the value of the tax bonus. The nature of the work, the position held, but also the place of work have an influence on the value of the monthly gross income. Based on the research conducted in 2023, several wage bands expressed in euros can be distinguished in Slovakia.

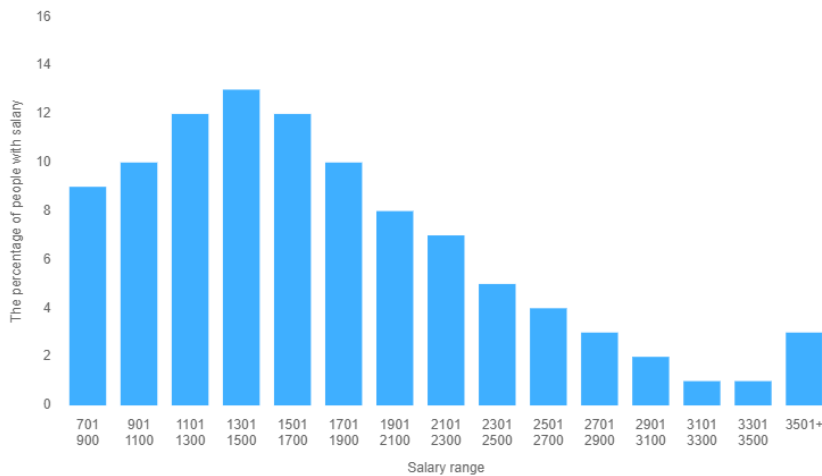


Figure 2

Distribution of employees in the Slovak Republic according to wage bands expressed in Euros

Source: Platy [56]

Last year, the fast-growing inflation devalued the average monthly wage in Slovakia by 4.5%. Real wages for the past 2022 showed the sharpest decline in the past 22 years. The average monthly nominal salary of an employee in the Slovak economy reached 1,304 euros in 2022.

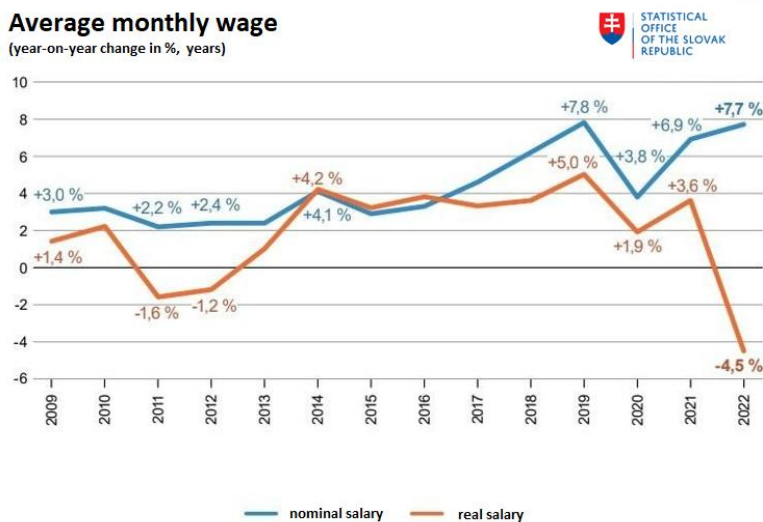


Figure 3
Average monthly wage in Slovakia (2009-2022)
Source: [57]

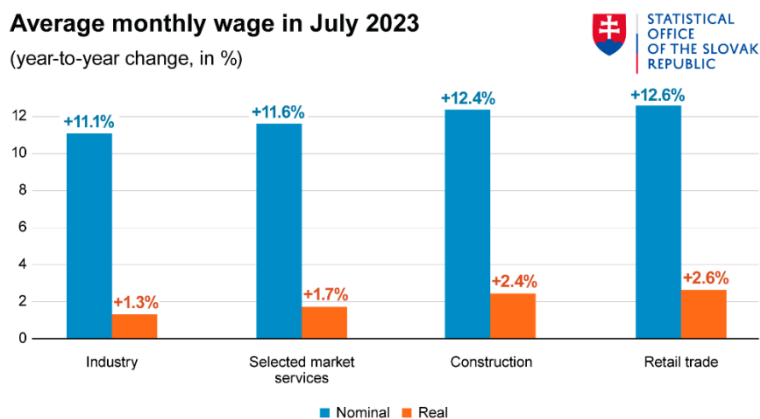


Figure 4
Average monthly wage in Slovakia - July 2023
Source: [58]

The nominal wage was 7.7% higher in 2022 than in 2021. Its growth rate accelerated by 0.8 percentage points on an annual basis. However, the real average wage decreased by 4.5%. The last time we experienced a decrease in real wages was immediately after the financial crisis, i.e. in 2011 and 2012 [57].

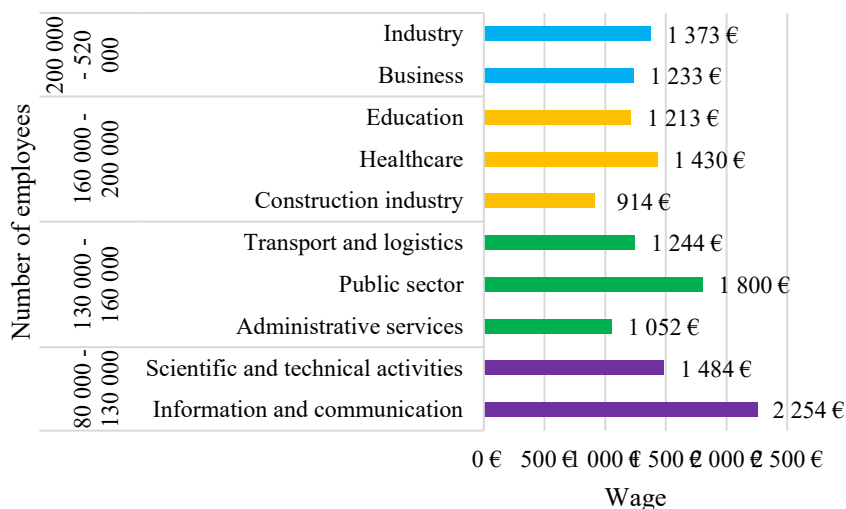


Figure 5

Average monthly wage in Slovakia – different economic sectors (2022)

Source: [59]

Average incomes increased nominally year-on-year in all examined sectors of the economy, but none of them could withstand the rate of inflation. Last year, as in previous years, it exceeded the average wage only in the Bratislava district (Bratislavský kraj) (1,599 euros). In all eight districts, the gross average earnings increased year by year and in the first year reached 1,000 euros on an annual basis in all eight districts. At the same time, wages higher than 1,200 euros were registered in 4 districts throughout the year. However, the district with the lowest average wage (1,011 euros) in Slovakia remained the Prešov district (Prešovský kraj). Real wages decreased the least in the district of Banská Bystrica (Banskobystrický kraj) (by 3.3%) and in the district of Prešov (Prešovský kraj) (by 6.2%) the most [59].

In the light of the secondary data related to the nominal wage, we aggregated the net incomes of our examined population into three main groups:

1. People with a low net monthly income - people with a maximum net monthly income of 750 euros.
2. People with an average net monthly income - people with an average net monthly income of 750 to 1,100 euros.
3. People with a high average net monthly income - people with an average net monthly income of more than 1,100 euros

The following figure (6.) shows the distribution of the income of the population with a constant income in the sample in the groups we aggregated.

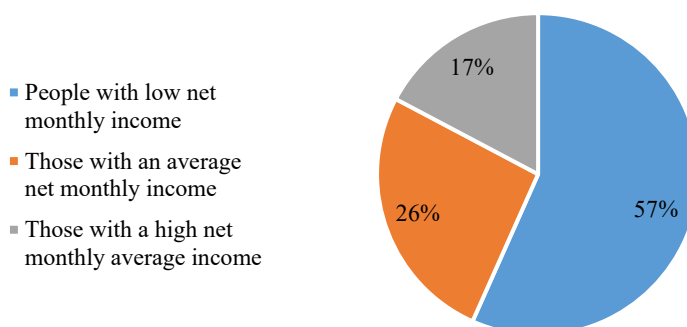


Figure 6

Distribution of people with permanent income according to total income

Source: [59]

During our primary investigation, we analyzed the extent of the respondents' environmentally conscious thinking/commitment by marking different statements. In our first hypothesis, we used a cross-tabulation analysis to determine whether there is a correlation between average monthly net income and the characteristics of environmental awareness. In order to better analyze the objectives, we narrowed the five-choice scale variables of the Likert scale to three categories, where the option "Less typical and not typical" was replaced by the option "No", and the option "Very typical and typical" was marked "Yes". The "Indifferent/Can't decide" option remains unchanged. Among the possible statistical solutions for the analysis, we chose Pearson's Chi-square. The results are summarized in the following table.

Table 2

Chi-square test between environmentally conscious characteristics and average net monthly income

Environmental awareness	Chi-square	Sig.	Cramér's V
Bio food	32.224	0.001	0.159
Convincing people in the environment	22.582	0.031	0.133
Volunteering	28.801	0.004	0.150
Reduction of climate change effects	7.21	0.843	0.075
Social media influence	10.886	0.539	0.093
New environmentally conscious products	4.669	0.968	0.061

Based on the data in the table, it can be concluded that there is not always a connection between the characteristics that increase environmental awareness and the average monthly net income of the respondents. Based on the Pearson Chi-square analysis of the relationship, a significant relationship can be shown between the consumption of organic food, the persuasion of those living in the immediate environment of the respondents, and volunteering as a feature of environmental

awareness and the height of the average monthly net income ($p < 0.05$). Cramér's coefficient V was used to examine the effect size of the Chi-square independence test. Based on these, the relationship shown between the elements of environmental awareness and the average net monthly earnings assumes a significant but weak relationship.

In the course of our further hypothesis, we analyzed the relationship between average net monthly earnings and the influence of marketing communication tools. The degree of influence of marketing communication tools (in our analysis, TV/radio advertising, social media platforms, PR, personal selling and point-of-sale advertising tools) was measured on a five-point Likert scale. In order to make the analysis clear, we decided to combine the scales here as well. The options "Less typical" and "Not typical" were replaced by the option "No", and the options "Very typical" and "Typical" were marked with "Yes", and the option "Indifferent/I don't know" did not change.

Table 3

Chi-square test between marketing communication tools and average net monthly income

Marketing communication tools	Chi-square	Sig.	Cramér's V
TV/Radio advertising	26.411	0.009	0.144
Social media	19.378	0.08	0.123
PR	22.386	0.033	0.133
Personal sale	14.983	0.242	0.109
Point of sale advertising	16.351	0.176	0.113

Based on the dependency tests, it can be established that in the case of marketing tools that encourage environmental awareness, there is a significant relationship between the marketing communication tools and the average monthly net income ($p < 0.05$) in the case of advertisements broadcast on TV or radio, as well as the influence of other PR tools.

5 Discussion

The aim of our research was to examine the relationship between the income of Slovak individuals and green consumption. More specifically, we investigated whether individual environmental awareness factors and related activities depend on the gross monthly income of individuals.

Based on the results, income level has a significant effect on the consumption of organic food. Respondents with higher incomes indicated that they purchase organic food in a higher proportion. This finding is consistent with Ruskova et al. [45], who proved that social classes with higher incomes spend more on organic

and bio foods. Previous studies also show that price sensitivity affects the purchase of green cosmetics [46] and green durable goods [47].

Our research also confirmed that individuals with higher incomes are more likely to persuade people around them to make more environmentally friendly purchases. During the review of the theoretical background, we did not find previous research that specifically investigated this relationship. Therefore, this finding can be considered a research gap, and we hope that the present study will draw attention to its importance. However, further research is needed to clearly demonstrate the strength and nature of this relationship.

Schmukle et al. [60], examining the results of previous research, concluded that findings on the relationship between volunteering and income level are contradictory. In their own research, they found that wealthier individuals are more likely to participate in voluntary activities. Our research results confirm this statement. According to Garai-Fodor et al. [61], Varga and Csiszárík-Kocsir [62], and Bakó and Szeberényi [63], young adults are more likely to engage in voluntary activities when these activities support personal fulfilment, self-development, and the extension of their skills.

It is evident that consumers with higher incomes spend more per month. At the same time, we did not find previous research that examined the relationship between income and the impact of individual marketing communication tools. In this respect, the results of our research can be considered novel. In the course of our research, we examined various items, as presented in Table 3. The results showed that respondents with higher incomes are more influenced by advertisements broadcast on TV or radio, as well as by other PR tools. However, in the case of other items, namely social media, personal selling, and point-of-sale advertising, no significant relationship with income was found.

Among the limitations of our research, the main drawback of self-administered questionnaires should be mentioned. In this case, researchers must rely on the sincerity of respondents. In order to reduce this limitation, we tried to ask consumers non-direct questions about their own behavior. Another limitation of the research is related to respondents' willingness to participate, which we could not influence due to the lack of financial resources. Therefore, participation in the survey was completely voluntary. Although the sample size of our research meets Cochran's criteria, the results should still be interpreted with caution. Since some of the results have not been proven in previous studies, further research is needed to confirm the findings presented in this paper.

6 Conclusions

The present study examined the relationship between income and green consumption among Slovak consumers. The results indicate that income plays an

important role in certain aspects of environmentally conscious consumer behavior. Individuals with higher incomes are more likely to purchase organic food, persuade others to make environmentally friendly purchases, and participate in voluntary activities. In addition, higher-income consumers appear to be more influenced by traditional marketing communication tools, especially TV and radio advertisements, as well as PR tools.

The findings contribute to the literature by confirming some previous research results and by identifying new relationships that have not yet been widely examined. In particular, the relationship between income and the tendency to encourage others to make environmentally friendly purchases represents a potential research gap. Similarly, the connection between income and the influence of different marketing communication tools provides a novel contribution to the field.

Despite limitations, the study provides useful insights into the role of income in green consumption and environmentally conscious behavior. Future research should repeat the investigation, while considering additional factors that may influence green consumption. Furthermore, an international comparative study would be valuable, as it could reveal differences between consumers from different countries and provide a broader understanding of the relationship between income and sustainable consumer behavior.

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