# GREEN MARKETING AS A FACTOR OF SUSTAINABLE RURAL TOURISM IN THE ĐURĐEVIĆA TARA NATIONAL PARK

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ARTICLE INFO

Original Article

Received: *11May 2025*

Accepted: *29 May 2025*

doi:10.59267/ekoPolj2502645O

UDC 339.138:502.131.1
338.48-44(497.11-22, Đurđevića Tara National Park)

***Keywords***:

*Green marketing, sustainable tourism, rural development, Đurđevića Tara National Park, tourist perception.*

***JEL**: Q01, Q26, M31*

ABSTRACT

This paper examines the role of green marketing in developing sustainable rural tourism, with Đurđevića Tara National Park as a case study. The aim was to assess how tourism stakeholders apply green marketing principles and how tourists perceive ecological aspects of the destination. The research identified two related but distinct dimensions linking perceptions of green marketing with sustainable rural development. Correlation and regression analyses confirmed statistically significant positive relationships between these variables. Key sustainability factors include cooperation with the local community and the use of renewable energy. A moderating effect of tourists' origin was observed: domestic tourists value education and nature preservation more, while international visitors prioritize economic and social benefits. These insights emphasize the need for an integrated approach to planning and the importance of adapting strategies to different visitor profiles to achieve long-term sustainability.

## Introduction

In the context of global climate change, growing ecological awareness, and increasing pressures on natural resources, the need for sustainable development models has become an imperative across all sectors of society, especially in tourism. As one of the fastest-growing sectors globally, tourism has a significant impact on the natural and social

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environment, but it also holds great potential for enhancing local communities through the preservation of natural and cultural heritage. In this light, sustainable tourism represents a balance between meeting the needs of modern tourists and preserving the potential of destinations for future generations.

Rural tourism holds particular importance in this context, as it often develops in areas rich in natural beauty and traditional lifestyles but faces challenges such as depopulation, infrastructural neglect, and limited economic opportunities. It is in such environments that green marketing emerges as a key strategic approach for promoting values that go beyond commercial goals (Pantović et al., 2025). Green marketing does not only imply environmentally friendly products and services but also encompasses a whole system of communication and resource management that reflects social responsibility, authenticity, and integrity.

Green marketing becomes a tool through which tourist destinations can clearly communicate their commitment to sustainability, in order to attract an increasing number of eco-conscious travelers. In this sense, it fits into the broader concept of value marketing and ethical marketing, aiming to establish a long-term relationship with consumers based on shared principles and goals.

Durmitor National Park, established in 1952, covers an area of 39,000 hectares and encompasses the Durmitor mountain range, the Tara River Canyon, as well as numerous glacial lakes and forest complexes. The Tara River Canyon, with a depth of up to 1,300 meters, is the deepest canyon in Europe and the second deepest in the world, after the Grand Canyon in the United States. The village of Đurđevića Tara, located near the famous bridge over the Tara River, has approximately 147 permanent residents (Durmitor National Park, https://nparkovi.me/uploads/2023/08/PU-Durmitor.pdf). The area's tourism offer includes more than 10 accommodation facilities, including motels, apartments, and rural households, as well as restaurants that serve traditional Montenegrin cuisine (Panacomp Wonderland, https://www.panacomp.net/motel-tara-mb-durdevica-tara). However, despite its natural beauty and potential for sustainable tourism development, the area faces challenges such as insufficient promotion of cultural and historical heritage, limited infrastructure for renewable energy sources, and the need to improve waste management systems.

Đurđevića Tara National Park, known for the spectacular Tara River Canyon - the deepest in Europe, pristine nature, rich biodiversity, and traditional rural households, represents a representative example of an area where natural potentials intersect with the challenges of developing sustainable tourism. Due to its ecological significance, the Park is under a special protection regime, but it also faces pressures resulting from the growth in tourist demand and urbanization.

The research presented in this paper aims to examine the role and effectiveness of green marketing in shaping the tourist product of Đurđevića Tara National Park, as well as the perception of tourists regarding the ecological aspects of the offer. The goal of the research is to identify existing marketing practices and strategies of local stakeholders,

determine the level of awareness and motivation of tourists concerning sustainable choices, and provide recommendations for improving the integrated approach to green marketing, in support of developing rural tourism that is economically profitable, socially responsible, and ecologically sustainable.

## Research Objectives

The research objectives are aimed at examining tourists' attitudes and perceptions regarding the application of green marketing in rural tourism at Đurđevića Tara National Park. Based on this, the study seeks to identify the connections between the components of green marketing and the dimensions of sustainable rural development and use these findings to improve future marketing practices.

The following hypotheses are tested:

- H1: The variables of green marketing and sustainable rural development represent two interrelated but theoretically distinct factors in tourists' perceptions.
- H2: The variables of green marketing have statistically significant relationships with the variables of sustainable rural development.
- H3: The origin of tourists has a moderating effect on the relationship between green marketing variables and sustainable rural development variables.

## Literature Review

The green promotion strategy focuses on resource usage, where the local population would be directed towards creating their own products characteristic of the area (Apaza-Panca et al., 2024). The implications of green marketing are crucial for achieving green and sustainable tourism. Green tourism contributes to economic growth and the protection of the environment and culture of a specific tourist area (Nekmahmud & Fekete-Farkas, 2021). Green marketing holds great potential in addressing ecological problems that increasingly dominate society, politics, and the economy. It represents a tool for promoting resources, places, and destinations presented in the market as organizations dedicated to nature (Shi et al., 2022). The concept of green marketing is a contemporary response by companies to environmentally conscious consumers and has become a key condition for their survival in the market (Jevtić et al., 2023). Strategies for reducing the effects of accelerated climate change have led marketers to decide on more sustainable processes, products, and offers (Rust, 2020). By using green marketing, negative impacts on the environment are minimized, especially when it comes to the segment of offering tourist services (García-Capdevilla et al., 2021).

Research results (Chin et al., 2018) show that tools of green marketing, such as eco-branding, eco-labels, and ecological advertising, have a positive and significant statistical connection with green consumer behavior among tourists in rural tourist destinations. Research (Nekmahmud & Fekete-Farkas, 2021) shows that green marketing plays a significant and positive role in the development of sustainable tourism, as it encourages

investments, ecological awareness, and economic growth through providing tailored, sustainable tourist services. The research revealed that green marketing has a positive and significant effect on tourists' intention to contribute to the preservation of rural tourism sustainability. Key elements of green marketing that require special attention include physical evidence, products, promotional activities, and pricing policy (Cahyanti & Menanti, 2019). Rural green tourism is considered a promising branch of the tourism industry and a tool for enhancing the potential of rural areas (Gutkevych & Haba, 2020). In order to quickly adapt the tourism business, it is necessary to introduce innovative types of tourism that will attract more people and provide additional income through innovative offers and digital tools (Roman et al., 2024).

Sustainable rural development can be observed at the international, national, and local levels. The reason why sustainable rural development should be studied at the local government level lies in its diversity and the potential to create solutions tailored to local needs and opportunities (Rogelj et al., 2024). New technologies and economic incentives are used to provide social benefits, employment, revenue generation, natural resource management, and environmental protection in rural areas (Shahid et al., 2023). Sustainable rural development aims to create synergies between development factors such as energy, health, education, water, food, and economic growth (Hossain, 2017). Rural areas often lack adequate resources and certain external relationships that could provide rural innovators with access to knowledge and other resources to overcome ecological challenges more easily (Chaudhury et al., 2017; Dima et al., 2022; Franzen et al., 2024).

Green spaces and natural attractions form the basis of green tourism, and their sustainable use through strategic planning and cooperation among all stakeholders enables long-term economic benefits and environmental preservation (Ijatuyi et al., 2025). Community involvement in green initiatives, through active participation of local stakeholders and capacity building, is a key factor for achieving sustainable rural development (Muthalib, 2024). Solar panels and the Eco-Crowdinvesting platform help reduce operational costs, improve financing, and empower tourist facilities, making energy more accessible and stable. In line with national digital and green economy strategies, this program enables the tourism sector to access solar energy and innovative financing models, thus strengthening the economic resilience of tourist facilities, promoting environmentally responsible business practices, and raising ecological awareness among tourists and the local community (Prasetyo et al., 2024). The study showed that sustainable ecotourism brings significant socio-economic benefits to the local population, while the proposed development model with government support ensures the preservation of natural resources without jeopardizing the economic and social sustainability of the community (Baloch et al., 2023). Eco-cultural tourism supports the sustainable development of the local community and biodiversity conservation. Its promotion raises awareness about the importance of eco-cultural heritage and enables the population to generate additional income and improve their quality of life through authentic offerings (Prnjat, 2024). Understanding key barriers and developing

strategic responses through integrated planning and cooperation among stakeholders represents the basis for creating sustainable models of rural tourism that contribute to the development of local communities and the preservation of rural heritage (Mohamed Al Matris, 2023). The research established a statistically significant connection between the implementation of green projects and overall user satisfaction, with statistically significant differences between younger and older populations (Khmaaj et al., 2025).

## Materials and methods

For the purposes of this study, the authors independently constructed a structured survey instrument, grounded in relevant literature from the fields of green marketing and sustainable tourism, and specifically adapted to the context of Đurđevića Tara National Park. The survey contained two key thematic dimensions: green marketing in rural tourism and sustainable rural tourism development. Each of these dimensions included five variables, operationalized through three statements per variable. Respondents rated their agreement with each statement using a seven-point Likert scale, ranging from 1 (”strongly disagree”) to 7 (”strongly agree”). In addition to the evaluative items, the questionnaire included demographic questions related to gender, age, tourist origin (domestic or international), frequency of visits to rural tourist destinations, and main motivations for visiting Đurđevića Tara.

The reliability of the measurement instrument was assessed using Cronbach’s alpha coefficient for each analyzed variable individually. The validity of the instrument was considered from two aspects. Content validity was ensured by carefully selecting and formulating items based on the theoretical framework and examples of best practices in sustainable and green tourism, with particular emphasis on the characteristics of rural tourism in protected natural areas such as Đurđevića Tara National Park. Construct validity, although preliminarily confirmed by the logical alignment of theoretical constructs and items, was further tested through exploratory factor analysis, enabling a deeper verification of the instrument’s structure and the validity of the theoretical dimensions it measures.

The research model includes a total of ten composite variables - five representing green marketing (eco-friendly products and services, green promotion, waste management, renewable energy sources, and local community cooperation) and five representing sustainable rural development (nature conservation, tourist education, support for the local economy, tourist number limitation, and sustainable infrastructure). Each variable is measured through three Likert-scale items, forming a total of 30 evaluative statements.

The variables of green marketing and sustainable development within this study were operationalized through specific statements reflecting particular aspects of the tourist offer at Đurđevića Tara National Park. The variable ecological products and services measures the extent to which the tourist offer contributes to nature conservation through the use of environmentally friendly materials and technologies, as well as the provision of sustainable activities that do not harm the natural environment. Green promotion

refers to the availability of information about ecological practices and sustainable tourism, the use of ecological certifications, and the impact of promotional campaigns on environmentally responsible tourist behavior. Waste management encompasses the presence of recycling infrastructure, encouraging visitors to reduce waste, and the involvement of local institutions in ecological waste management. The renewable energy sources variable assesses the application of sustainable energy solutions, such as solar panels, and awareness of the importance of transitioning to renewable energy sources in tourism. Collaboration with the local community measures the extent to which locals are involved in the development of the tourist offer and how much the local economy benefits from tourism through the use of local products and services.

Within the dimension of sustainable development, the nature conservation variable assesses the effectiveness of measures to protect the natural environment, including rivers, forests, and wildlife, as well as ecological awareness among visitors and the impact of tourism activities on the ecosystem. Tourist education measures the availability of educational content on ecology and sustainability through promotional materials, guides, and organized tours. Support for the local economy refers to tourism's contribution to the income of local entrepreneurs, the presence of traditional products and crafts, and the employment of local residents. The tourist number limitations variable examines the existence of measures to control visitor numbers and regulate access to natural sites to reduce negative impacts on resources. Finally, sustainable infrastructure includes the presence of eco-trails and cycling routes, as well as the application of energy efficiency principles and ecological construction in accommodation and infrastructure facilities, allowing tourists to enjoy nature with minimal ecological footprint.

Data analysis was carried out using IBM SPSS Statistics 25. Four statistical techniques were applied: descriptive statistics to summarize variable characteristics, Principal Component Analysis (PCA) to confirm construct validity and reduce dimensionality, Pearson correlation to assess relationships among variables, and multiple regression analysis to determine the influence of green marketing dimensions on sustainable development, with additional testing of the moderating effect of tourist origin.

## Results

The research was conducted from June to October 2024, involving a sample of 267 respondents. The survey was administered via an online questionnaire. The sample included 51,7% (138) male respondents and 41,6% (111) female respondents, while 6,7% (18) of participants chose not to disclose their gender. Regarding age structure, 51,7% (138) of respondents were younger than 40 years, while 48,3% (129) were older than 40. A majority of respondents, 64,1% (171), were international tourists, while 35,9% (96) identified as domestic tourists from Serbia.

An analysis of the frequency of visits to rural tourist destinations shows that most visitors to the Đurđevića Tara National Park exhibit continuity in such travels. Occasional tourists, who visit rural destinations one to two times per year, make up the largest group, 42,7% (114) of respondents. Following this are those who frequently

visit rural areas (more than three times per year), comprising 32,6% (87) of the sample. Interestingly, 24,7% (66) of respondents were visiting such a destination for the first time, indicating growing interest and potential for attracting new market segments.

In terms of main motivations for visiting Đurđevića Tara National Park, adventure tourism (rafting, hiking) was the most commonly cited reason, mentioned by 35,2% (94) of respondents. This was followed by relaxation and recreation, identified by 33% (88), indicating a dual nature of the offering - both active and passive tourism. Ecotourism, involving nature, hiking, and cycling, was noted by 14,8% (39) of respondents. Business reasons were cited by 9,1% (24), while the least frequent motivation, at 8%, was cultural-historical tourism, reported by 21 respondents. These results suggest that Đurđevića Tara National Park primarily attracts tourists seeking physical activity and direct contact with nature. At the same time, the significant number of new visitors presents an opportunity to develop personalized and targeted marketing strategies within green marketing. On the other hand, the low representation of cultural-historical tourism indicates a need for improved interpretation and promotion of local cultural heritage within the context of sustainable destination development.

For a more comprehensive understanding of the green marketing phenomenon in the context of sustainable rural development, a descriptive analysis of the key variables covered in the study was conducted. This analysis provides insight into the basic statistical characteristics of the respondents' attitudes and perceptions, including mean values, standard deviations, and the range of results. The presented results offer a foundation for identifying dominant patterns of behavior and attitudes towards green marketing practices and their role in promoting sustainable development in rural communities.

**Table 1.** Descriptive Statistics of Green Marketing Variables and Sustainable Rural Development Variables

| Variable | Mark | N | Min | Max | Mean | Standard Deviation | Cronbach's Alpha |
|---|---|---|---|---|---|---|---|
| Eco-friendly Products and Services | GM1 | 267 | 1 | 7 | 5,37 | 1,262 | 0,723 |
| Green Promotion | GM2 | 267 | 1 | 7 | 5,56 | 1,165 | 0,675 |
| Waste Management | GM3 | 267 | 1 | 7 | 5,22 | 1,310 | 0,788 |
| Renewable Energy Sources | GM4 | 267 | 1 | 7 | 4,77 | 1,343 | 0,717 |
| Collaboration with Local Community | GM5 | 267 | 1 | 7 | 5,74 | 1,175 | 0,767 |
| Nature Conservation | RSD1 | 267 | 1 | 7 | 4,87 | 1,155 | 0,776 |
| Tourist Education | RSD2 | 267 | 1 | 7 | 5,21 | 1,210 | 0,820 |
| Support for Local Economy | RSD3 | 267 | 1 | 7 | 5,86 | 1,219 | 0,797 |
| Limiting Tourist Numbers | RSD4 | 267 | 1 | 7 | 5,17 | 1,059 | 0,756 |
| Sustainable Infrastructure | RSD5 | 267 | 1 | 7 | 4,95 | 1,166 | 0,747 |

*Source:* Author's research

In Table 1, the results of the descriptive statistics for the analyzed variables of green marketing and sustainable development within the Đurđevića Tara National Park are presented. All analyzed variables achieved high average values, indicating a generally positive attitude of the respondents towards the analyzed variables. Among the green marketing variables, the highest scores were given to GM5 - cooperation with the local community and GM2 - green promotion, while the lowest-rated variable was GM4 - renewable energy sources. This suggests a significant presence of information about ecological practices and sustainable tourism in Đurđevića Tara National Park, as well as adequate cooperation with the local community in terms of engaging local residents and including local products and services in the tourism offer. According to the respondents' opinion, more attention should be given to the use of renewable energy sources and other green technologies to reduce pollution in this tourist destination.

Among the highest-rated variables concerning rural sustainable development are RSD3 - support for the local economy, specifically employment of local population and offering traditional products and crafts of the region. The variable RSD2 - tourist education also achieved a high average value, indicating that significant attention is being paid to providing adequate information on sustainable tourism and the ecological values of Đurđevića Tara National Park. The lowest-rated variable, RSD1 - nature protection, suggests that activities related to the preservation of the natural ecosystem in the region, as well as raising awareness among visitors about behavioral rules during their stay in the national park, need to be improved.

The reliability of the measurement instrument was assessed using Cronbach's alpha coefficient for each individual variable. The obtained results indicate a satisfactory to high level of internal consistency, with alpha coefficient values ranging from 0,675 to 0,820. These reliability coefficient values (Cronbach's α) indicate the internal consistency and scalability of the measurement instruments.

Factor analysis was applied to identify the underlying latent dimensions structuring the variables within green marketing and sustainable rural development. This analysis allows the reduction of a large number of individual items to a smaller number of factors, which represent interrelated concepts and facilitate the interpretation of complex relationships among the variables. Through factor analysis, the aim was to determine whether the items group into coherent sets that reflect the key aspects of perception and practice in the context of sustainable rural development through green marketing activities.

The results of the analysis show a high suitability of the data for factor analysis. The KMO index was 0,903, which is considered an excellent value, while the Bartlett's test of sphericity was statistically significant ($\chi^2 = 1748{,}321$; $df = 45$; $p < 0{,}001$), confirming the presence of sufficient correlation among the items. Based on the latent value criterion (Eigenvalue > 1), two factors were extracted, which jointly explain 69,18% of the total variance. The results are presented in Table 2.

**Table 2.** Total Variance Explained

| Component | Initial Eigenvalues | | | Extraction Sums of Squared Loadings | | | Rotation Sums of Squared Loadings[a] |
|---|---|---|---|---|---|---|---|
| | Total | % of Variance | Cumulative % | Total | % of Variance | Cumulative % | Total |
| 1 | 5,881 | 58,807 | 58,807 | 5,881 | 58,807 | 58,807 | 5,373 |
| 2 | 1,037 | 10,373 | 69,180 | 1,037 | 10,373 | 69,180 | 3,963 |
| 3 | ,763 | 7,632 | 76,812 | | | | |
| 4 | ,532 | 5,321 | 82,133 | | | | |
| 5 | ,463 | 4,632 | 86,765 | | | | |
| 6 | ,360 | 3,596 | 90,361 | | | | |
| 7 | ,321 | 3,209 | 93,569 | | | | |
| 8 | ,258 | 2,584 | 96,154 | | | | |
| 9 | ,206 | 2,056 | 98,210 | | | | |
| 10 | ,179 | 1,790 | 100,000 | | | | |

Extraction Method: Principal Component Analysis.
a. When components are correlated, sums of squared loadings cannot be added to obtain a total variance

*Source:* Author's research

The first factor, which includes the items GM1, GM2, GM3, GM5, and partially RSD3, explains 58,81% of the variance and conceptually corresponds to the green marketing dimension. The second factor, which explains an additional 10,37% of the variance, includes the items RSD1, RSD2, RSD4, RSD5, and GM4, and reflects the sustainable development dimension.

The pattern matrix presents the standardized regression coefficients (factor loadings) of each item on the latent factors, where each coefficient reflects the unique relationship between the item and the specific factor, independent of the influence of other factors. The rotation was performed in seven iterations and resulted in a two-component solution. The results of the pattern matrix are provided in Table 3.

**Table 3.** Pattern Matrix[a]

| MARK | Component | |
|---|---|---|
| | 1 | 2 |
| GM1 | ,965 | |
| GM5 | ,891 | |
| GM2 | ,856 | |
| RSD3 | ,786 | |
| RSD2 | ,579 | ,348 |
| GM3 | ,532 | ,307 |
| GM4 | | ,937 |
| RSD5 | | ,730 |
| RSD4 | ,442 | ,499 |
| RSD1 | ,455 | ,490 |
| Extraction Method: Principal Component Analysis. Rotation Method: Oblimin with Kaiser Normalization. | | |
| a. Rotation converged in 7 iterations. | | |

*Source:* Author's research

Factor 1, which represents green marketing, includes the following items: GM1, GM2, GM3, GM5, and RSD3, which relate to the promotion of ecological values and sustainable practices in the tourism offering. These items show high saturations, especially GM1 (0,965), GM5 (0,891), and GM2 (0,856), indicating their strong association with this factor. Factor 2 represents sustainable development and encompasses items GM4, RSD1, RSD2, RSD4, and RSD5, which refer to aspects of education, environmental protection, and local community involvement. The highest saturation is observed for GM4 (0,937), indicating that this item most accurately measures this factor. Some items (e.g., RSD2, RSD4, RSD1) exhibit significant saturations on both factors, but a dominant relationship can be identified for each. For example, RSD2 has a higher saturation on Factor 1 (0,579) than on Factor 2 (0,348), which is enough to classify it within the first factor, though some overlap is recorded.

The results of the Pattern and Structure matrices confirm a clear distinction between the factors, with dominant saturations within each factor. Additionally, the factors are moderately positively correlated (r = 0,532), which validates the use of oblimin rotation and suggests that they represent related, but conceptually distinct theoretical constructs.

Based on the obtained findings, Hypothesis H1 is confirmed: the dimensions of green marketing and sustainable development constitute two interrelated, yet theoretically distinct factors in the perception of tourists, thus confirming the construct validity and theoretical consistency of the measurement dimensions.

The mutual influences and relationships between the analyzed variables of green marketing and sustainable rural development were determined through correlation analysis, and the results are presented in Table 4.

**Table 4.** Correlation Between Green Marketing Variables and Sustainable Rural Development Variables

| | GM1 | GM2 | GM3 | GM4 | GM5 |
|---|---|---|---|---|---|
| RSD1 | ,544** | ,573** | ,548** | ,531** | ,505** |
| RSD2 | ,566** | ,584** | ,479** | ,505** | ,607** |
| RSD3 | ,598** | ,604** | ,471** | ,389** | ,678** |
| RSD4 | ,525** | ,605** | ,535** | ,554** | ,606** |
| RSD5 | ,387** | ,461** | ,508** | ,488** | ,413** |

**. The correlation is significant at the 0,01 level (2-tailed).

*Source:* Author's research

The correlation analysis was conducted using Pearson's correlation coefficient to examine the relationships between items measuring the perception of green marketing and sustainable development. All correlations were statistically significant at the significance level $p < 0,01$, indicating significant mutual relationships between the analyzed variables.

The highest correlation values and statistically significant mutual relationships were observed for the variable GM5 - collaboration with the local community with the

variables RSD3 - support for the local economy, RSD2 - tourist education, and RSD4 - tourist number restrictions. This suggests that within the framework of NP Đurđevića Tara, a good relationship with the local community is being developed, primarily concerning the employment of the local population and the offering of traditional products from the region, contributing to the increased income of local entrepreneurs. Additionally, a positive relationship with the local community is confirmed when it comes to educating tourists about the ecological values of this national park and providing information about sustainable tourism, including measures for limiting the number of visitors during the day and managing their movement.

The variable GM2 - green promotion achieved positive and statistically significant correlation values with the variables RSD4 - tourist number restrictions and RSD2 - support for the local community. This further confirms the importance of promotion and the accessibility of information for the number of tourists and local development, particularly regarding ecological practices and sustainable tourism in NP Đurđevića Tara. A high correlation value was also achieved between the variables GM1 - ecological products and services and RSD3 - support for the local community, suggesting that an adequate offer of accommodation and tourist facilities that support environmentally friendly materials, as well as sustainable tourist activities, promotes the development of the local economy through increased revenue and local employment.

Among the weaker, though still statistically significant, correlation values, relationships were found between the variable GM1 - ecological products and services and RSD5 - sustainable infrastructure, and the variable GM4 - renewable energy sources and RSD3 - support for the local community. These relationships suggest that tourist facilities must support ecological standards and energy efficiency principles. Furthermore, local community support must raise awareness about the importance of transitioning to sustainable energy sources in tourism, the development of eco-trails, and the creation of infrastructure that allows tourists to enjoy nature with minimal environmental impact.

Given that all achieved correlation values were positive and statistically significant, regression analysis was performed to determine the impact of the independent variables of green marketing on the dependent variables of rural sustainable tourism. The results of the regression analysis are presented in Table 5.

**Table 5.** Regression Model of the Impact of Independent Variable of Green Marketing on the Dependent Variable of Sustainable Rural Development (only variables that achieved statistical significance are shown)

| Dependent | Independent | β | t | Sig. | $R^2$ | F | Sig. |
|---|---|---|---|---|---|---|---|
| RSD1 | GM1 | ,193 | 2,537 | ,012 | ,494 | 50,994 | ,000 |
| | GM3 | ,155 | 2,550 | ,011 | | | |
| | GM4 | ,333 | 6,673 | ,000 | | | |
| RSD2 | GM1 | ,190 | 2,563 | ,011 | ,521 | 56,883 | ,000 |
| | GM4 | ,319 | 6,587 | ,000 | | | |
| | GM5 | ,312 | 5,145 | ,000 | | | |

| Dependent | Independent | β | t | Sig. | $R^2$ | F | Sig. |
|---|---|---|---|---|---|---|---|
| RSD3 | GM1 | ,171 | 2,334 | ,020 | ,534 | 59,773 | ,000 |
| | GM4 | ,166 | 3,465 | ,001 | | | |
| | GM5 | ,434 | 7,251 | ,000 | | | |
| RSD4 | GM2 | ,188 | 2,545 | ,011 | ,556 | 65,490 | ,000 |
| | GM4 | ,338 | 7,247 | ,000 | | | |
| | GM5 | ,317 | 5,422 | ,000 | | | |
| RSD5 | GM3 | ,250 | 3,692 | ,000 | ,374 | 31,236 | ,000 |
| | GM4 | ,302 | 5,452 | ,000 | | | |

*Source:* Author's research

The results of the multiple regression analysis show a significant relationship between the green marketing variables and the dimensions of sustainable development in the context of rural tourism. All regression models have been established, shedding light on predictive relationships between independent and dependent variables. All regression relationships are statistically significant, as confirmed by the high values of the F-coefficient (ranging from 31,236 to 65,490) with significance at $p < 0,001$, indicating that the effects of the independent variables cannot be attributed to chance.

In the model for RSD1 - Nature Protection, three green marketing variables (GM1, GM3, and GM4) significantly contribute to explaining the variance, with renewable energy sources (GM4) having the highest individual impact ($\beta = 0,333$, $t = 6,673$, $p < 0,001$). The total explained variance is $R^2 = 0,494$, with an F-coefficient of 50,994, indicating a very good model.

For RSD2 - Tourist Education, the strongest individual contributions come again from GM4 ($\beta = 0,319$) and GM5 ($\beta = 0,312$), with a significant contribution from GM1. The total model explains 52,1% of the variance ($R^2 = 0,521$), with an F-coefficient of 56,883, confirming the high reliability of the model.

In the case of RSD3 - Support for the Local Economy, the variable GM5 - Collaboration with the Local Community has the strongest impact in the entire analysis ($\beta = 0,434$, $t = 7,251$, $p < 0,001$). This shows that connecting with the local population significantly contributes to economic sustainability. The model has $R^2 = 0,534$ and $F = 59,773$, making it one of the strongest in the analysis.

The model for RSD4 - Tourist Number Restrictions shows the highest explained variance ($R^2 = 0,556$) and the highest F-coefficient value ($F = 65,490$), meaning this model is the strongest and statistically most reliable. Here, GM4 ($\beta = 0,338$) and GM5 ($\beta = 0,317$) play leading roles, while GM2 - Green Promotion also makes a significant contribution ($\beta = 0,188$).

For the variable RSD5 - Sustainable Infrastructure, two variables are significant: GM3 - Waste Management ($\beta = 0,250$) and GM4 - Renewable Energy Sources ($\beta = 0,302$). Although this model has a slightly lower explained variance ($R^2 = 0,374$) and $F = 31,236$, the results are still statistically significant, indicating the importance of these factors.

In conclusion, the most frequent and strongest influencing variables across all models are GM4 - Renewable Energy Sources and GM5 - Collaboration with the Local Community, with GM5 having the largest individual impact in the overall analysis (β = 0,434 in the RSD3 model). These results confirm the importance of strategic community engagement and the use of renewable resources in achieving sustainable development for rural destinations through green marketing.

The model for SD4 (tourist number restrictions) shows the highest predictive power of all analyzed models ($R^2$ = 0,548), indicating that green marketing most contributes to shaping the perception of the need for controlled and sustainable management of tourist flows in the destination.

**Table 6.** Correlation Values Between Green Marketing and Sustainable Rural Development Variables, from the Perspective of Domestic and Foreign Tourists

| | | GM1 | GM2 | GM3 | GM4 | GM5 |
|---|---|---|---|---|---|---|
| Foreign tourists | **RSD1** | ,537** | ,562** | ,616** | ,650** | ,536** |
| | **RSD2** | ,600** | ,585** | ,545** | ,604** | ,657** |
| | **RSD3** | ,663** | ,676** | ,539** | ,500** | ,698** |
| | **RSD4** | ,634** | ,696** | ,606** | ,678** | ,680** |
| | **RSD5** | ,512** | ,520** | ,574** | ,583** | ,458** |
| | **N** | 171 | 171 | 171 | 171 | 171 |
| Domestic tourists | **RSD1** | ,577** | ,586** | ,449** | ,191 | ,538** |
| | **RSD2** | ,494** | ,578** | ,334** | ,306** | ,517** |
| | **RSD3** | ,460** | ,466** | ,275** | ,211* | ,614** |
| | **RSD4** | ,239* | ,359** | ,334** | ,219* | ,418** |
| | **RSD5** | ,101 | ,319** | ,346** | ,274** | ,322** |
| | **N** | 96 | 96 | 96 | 96 | 96 |

**. The correlation is significant at the 0,01 level (2-tailed).

*.Correlation is significant at the 0,05 level (2-tailed).

*Source:* Author's research

The results of the correlation analysis indicate significant differences in the patterns of association between green marketing variables and sustainable rural development variables, observed through the lens of respondents' origin-domestic and foreign tourists (Table 1).

Among foreign tourists, the strongest correlation was recorded between the variable GM5 - cooperation with the local community and the variable RSD3 - support for the local economy (r = 0,698; p < 0,01). This result suggests that foreign tourists particularly value tourism offers that include local products, engage the local population, and directly contribute to community development. Furthermore, a strong positive correlation between the variable GM2 - green promotion and RSD4 - limitation of tourist numbers (r = 0,696; p < 0,01) indicates that access to information about ecological practices and sustainable visitor limits significantly influences foreign tourists' perceptions of responsible visitor management in the Đurđevića Tara National Park.

On the other hand, weaker correlations were observed between the variable GM5 - cooperation with the local community and RSD5 - sustainable infrastructure ($r = 0,458$; $p < 0,01$), as well as between GM4 - renewable energy sources and RSD3 - support for the local economy ($r = 0,500$; $p < 0,01$). These values suggest that foreign tourists are less likely to associate energy efficiency and the use of renewable sources with economic benefits for the local community, and they do not perceive cooperation with the local population as a key factor in infrastructure development.

Among domestic tourists, the strongest correlation was observed between the variable GM2 - green promotion and RSD1 - nature protection ($r = 0,586$; $p < 0,01$). This high correlation indicates that domestic tourists who recognize the importance of nature conservation also appreciate green promotion, i.e., information about ecological practices and sustainable tourism. Moreover, the strong correlation between the variable GM2 - green promotion and RSD2 - tourist education ($r = 0,578$; $p < 0,01$) suggests that domestic tourists interested in ecological values show a strong interest in education regarding sustainable tourism and environmental practices.

Although statistically significant, weaker correlations were found between GM1 - ecological products and services and RSD5 - sustainable infrastructure ($r = 0,101$; $p < 0,01$), as well as between GM5 - cooperation with the local community and RSD4 - limitation of tourist numbers ($r = 0,191$; $p < 0,05$). These values suggest that domestic tourists do not strongly associate environmentally friendly products and services with sustainable infrastructure, nor do they associate cooperation with the local population with measures for regulating tourist numbers in the Đurđevića Tara National Park.

The correlations highlight significant differences in the perception of ecological and sustainable practices between domestic and foreign tourists. Foreign tourists exhibit stronger associations between cooperation with the local community and community economic support, while domestic tourists place greater value on green promotion and nature protection. These differences indicate divergent attitudes and priority interests between tourist groups, implying that strategies for promoting sustainable tourism in the Đurđevića Tara National Park should be tailored to the specific needs of both domestic and foreign tourists.

## Discussions

The results of the factor analysis clearly confirm that the variables related to green marketing and sustainable rural development group into two separate but interrelated latent dimensions. The first factor encompasses variables associated with the promotion of ecological values and practices in the tourism offer (e.g., GM1, GM2, GM3, GM5), while the second factor includes variables reflecting broader aspects of sustainable development, such as education, environmental protection, and local community engagement (e.g., SD1, SD2, SD4, SD5, and GM4). These factors are clearly distinguished in the pattern matrix, with high and conceptually consistent variable loadings within each factor. Although there is a moderate positive correlation

between the factors (r = 0,532), indicating a degree of relatedness, the correlation is not strong enough to justify their treatment as a single dimension. This confirms the theoretical validity of considering them as distinct constructs. Based on the results of the factor analysis, the first hypothesis (H1) - that green marketing variables and sustainable rural development variables represent two interrelated but theoretically distinct factors in tourists' perceptions-can be considered confirmed. The two identified factors-green marketing and sustainable development - constitute separate but related dimensions within tourists' perception of sustainable tourism practices in rural areas. This distinction highlights the need for an integrated approach in tourism planning, where marketing strategies focused on ecological values are complemented by broader sustainable development concepts. Green marketing strategies play a crucial role in shaping tourist behavior and promoting sustainable development in rural tourism by integrating ecological practices that address environmental, social, and economic dimensions. (Chin et al., 2018).

The results of the correlation analysis indicate the presence of statistically significant and positive relationships between all variables measuring the perception of green marketing and the dimensions of sustainable rural development. Particularly strong correlations were found between the variable GM5 (cooperation with the local community) and the items related to support for the local economy (RSD3), tourist education (RSD2), and limits on the number of tourists (RSD4). This confirms the centrality of ecotourism principles in shaping sustainable rural destinations. Ecotourism, as the purest form of sustainable tourism, links the return to nature with environmental protection and the preservation of cultural heritage (Stefanica & Vlavian-Gurmeza, 2010). This confirms that cooperation with the local community plays a key role in strengthening the sustainability of the destination, both ecologically and socio-economically. Additional support for Hypothesis H2 is provided by the results of the multiple regression analysis, which show that green marketing variables statistically significantly predict all analyzed dimensions of sustainable rural development. The greatest individual contributions to the models come from the variables GM4 (renewable energy sources) and GM5 (cooperation with the local community), indicating their key role in building a sustainable tourism environment. The model for RSD4 (limits on the number of tourists) demonstrates the highest explained variance ($R^2 = 0,556$) and the strongest statistical reliability, further confirming that green marketing significantly contributes to awareness of the need for controlled management of tourist flows in rural destinations. Based on these findings, Hypothesis H2 can be considered confirmed: Green marketing variables have statistically significant relationships with sustainable rural development variables. This points to the necessity of integrating green marketing activities into rural tourism development strategies in order to achieve ecological balance, support local communities, and preserve the destination's natural heritage.

Based on the presented correlation analysis results, Hypothesis H3 is also confirmed - namely, that tourist origin moderates the relationship between green marketing variables and sustainable rural development variables. The results clearly indicate

significant differences in the patterns of association between the observed variables among domestic and foreign tourists. While foreign tourists show a stronger connection between cooperation with the local community and economic benefits for the local population, domestic tourists place greater value on green promotion in the context of nature conservation and education about sustainable practices. This insight echoes findings by (Chan & Chau, 2021), who reported cultural differences in eco-conscious behavior between local and foreign tourists in Southeast Asia. These differences reveal distinct priorities between the two groups: Foreign tourists respond more strongly to economic and infrastructural aspects of green marketing, whereas domestic tourists demonstrate greater sensitivity to information and ecological values. Accordingly, the findings confirm that tourist origin influences the strength and direction of the relationships between the variables, validating the existence of a moderating effect. This insight holds important practical implications for the management of protected areas such as the Đurđevića Tara National Park-sustainable tourism promotion strategies must be differentiated according to tourist profiles. For domestic visitors, the focus should be on education, information, and nature conservation, while for foreign tourists, the priority should be on local integration, economic contribution, and the social responsibility of the destination.

## Conclusions

This research provides a significant contribution to the understanding of the role of green marketing within the context of sustainable rural development, by analyzing the perceptions of both domestic and international tourists. By confirming the moderating effect of tourists' origin, the study highlights the need for strategically differentiated approaches to sustainable tourism. The practical implications lie in the ability to create more targeted marketing strategies and development policies that align with the specific interests and value orientations of distinct tourist segments.

Future studies could focus on a qualitative exploration of tourists' attitudes to gain deeper insights into their motivational factors, as well as on expanding the sample to include other national parks and rural tourist destinations. Longitudinal research is also recommended in order to track changes in tourist perceptions and behavior over time, along with the inclusion of additional variables such as age, education level, and environmental awareness.

Based on the findings of this study, the need for integrating green marketing into broader strategies for sustainable destination management becomes evident, with particular attention to demographic and cultural differences among tourists. It is especially important for decision-makers and tourism stakeholders to design flexible, inclusive, and educational campaigns that emphasize the preservation of natural resources and the active involvement of local communities. Such approaches not only stimulate economic development in rural areas but also foster responsible tourist behavior that contributes to the long-term sustainability of destinations.

Moreover, this research sets a foundation for evidence-based policy-making and interdisciplinary collaboration, encouraging tourism planners, environmental experts, and marketing professionals to jointly develop resilient models of rural tourism. In an era of growing ecological challenges, embedding green marketing into the core of tourism strategies is no longer optional but essential for ensuring balanced growth and preserving heritage for future generations.

## Acknowledgements

This research is supported by the Ministry of Science, Technological Development and Innovation of the Republic of Serbia by the Decision on the scientific research funding for teaching staff at the accredited higher education institutions in 2025 (No. 451-03-137/2025-03/200375 of February 4, 2025).

## Conflict of interests

The authors declare no conflict of interest.

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