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## ENVIRONMENTAL PRACTICES IN TOURISM AND TOURISTS' PRO-ENVIRONMENTAL BEHAVIOUR AS DRIVERS OF SUSTAINABLE RURAL DEVELOPMENT IN UKRAINE

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### Abstract

The article investigates the synergy between environmental practices implemented in rural tourism destinations and tourists' pro-environmental behaviour as interrelated determinants of sustainable development in rural areas of Ukraine. The study's relevance is underpinned by Ukraine's European integration trajectory, the growing role of domestic tourism as an instrument of socio-environmental resilience under wartime conditions, and the need to align the tourism sector with European Union principles of sustainable development. The aim of the research is to empirically identify and interpret the relationship between tourists' perceptions of environmental practices in rural tourism destinations and their pro-environmental behaviour. The methodological foundation comprises a questionnaire survey of 128 respondents who had visited rural tourism destinations in Ukraine within the last 12 months. Data analysis employed descriptive statistics, the aggregation of indicators into composite indices, Spearman's rank correlation analysis, and linear regression modelling. The findings indicate a high level of tourists' pro-environmental orientation and, overall, a favourable perception of destinations' environmental practices. Statistically significant positive associations were identified between perceived environmental practices, tourists' pro-environmental behaviour, and assessments of tourism's contribution to the sustainable development of rural territories. Demographic characteristics exerted a limited effect, whereas institutional and contextual determinants of tourism organization played a decisive role. The results substantiate that the combination of environmentally responsible destination management and conscious tourist behaviour creates important preconditions for the economic, social, and environmental resilience of rural communities. The study's practical recommendations may inform the development of policies for sustainable rural tourism in Ukraine in the context of post-war recovery and European integration.

### Aim

The aim of the study is to identify and interpret the role of environmental practices in rural tourism destinations and tourists' pro-environmental behaviour (PEB) in shaping the preconditions for the sustainable development of rural areas in Ukraine.

### Tasks

1. To characterize the level and principal manifestations of tourists' PEB during trips to rural tourism destinations in Ukraine, based on the results of a questionnaire survey.
2. To analyse tourists' perceptions of environmental practices implemented in rural tourism destinations.
3. To identify and empirically validate the relationship between tourists' perceptions of destinations' environmental practices and tourists' PEB, as interrelated elements in the formation of preconditions for sustainable rural development.
4. To interpret the findings through the lens of sustainable rural development and Ukraine's European integration context, and to develop practical recommendations for their implementation.

### Materials and methods

The study employed a quantitative research design, collecting primary data through a questionnaire survey of tourists. This approach enabled an empirical examination of the determinants of tourists' pro-environmental behaviour and an assessment of how environmental practices in rural tourism destinations shape the preconditions for the sustainable development of rural areas in Ukraine. The research is descriptive-analytical, combining the profiling of respondents' behavioural characteristics with an explanation of the relationships among the key variables. Empirical data were collected in January 2026 via an online survey administered through Google Forms. The sample structure spans diverse age groups, educational levels, and travel frequencies, providing the necessary data variability and enhancing the analytical value of the findings. Data analysis was conducted using descriptive and inferential statistical techniques. To examine associations between variables, Spearman's rank correlation was used, given the ordinal measurement scale and the absence of normality assumptions. To quantify the effect of age on tourists' PEB, a linear regression model was estimated with the composite PEI score as the dependent variable and respondents' age as a continuous numeric predictor. The regression analysis enabled an assessment of the direction and magnitude of the demographic effect on the formation of environmentally responsible behavioural patterns among tourists.

### Results

The synthesis of the socio-demographic characteristics of the 128 respondents enabled the development of a generalised profile of contemporary tourists visiting the country's rural areas. The key sample parameters are presented in Table 1.

Table 1

Socio-demographic characteristics of the sample (n = 128)

	Category	Count (n)	Percentage (%)
Gender	Female	82	64.1
	Male	43	33.6
	Prefer not to say	3	2.3
Age	Up to 25 years	44	34.4
	26–35 years	22	17.2
	36–45 years	23	18.0
	46–55 years	26	20.3
	over 55 years	13	10.1
Education	Secondary	25	19.5
	Vocational	14	10.9
	Higher education	66	51.6
	Academic degree	23	18.0
Travel frequency	Once a year	49	38.3
	2–3 times a year	50	39.1
	4 or more times a year	29	22.6
Trip duration	1 day	46	35.9
	2–3 days	54	42.2
	4–7 days	23	18.0
	More than a week	5	3.9
Preferred type of rural tourism	Rural green homesteads	37	28.9
	Eco-farms / farm enterprises	13	10.1
	Nature-based tourism (mountains, forests, protected areas)	77	60.2
	Other	1	0.8

The gender distribution of respondents indicates a predominance of women, who constitute 64.1% of the sample, whereas men account for 33.6%; a further 2.3% of participants preferred not to disclose their gender. In terms of age, the most strongly represented group comprises respondents under 25 years (34.4%), suggesting high levels of youth participation in rural and nature-based tourism. With respect to educational attainment, respondents with higher education dominate (51.6%), which is particularly pertinent for research on tourists' PEB, as educational level is commonly associated with environmental awareness and a greater propensity for responsible consumption of tourism services.

The analysis of travel characteristics shows that most respondents prefer short trips of 2–3 days' duration (42.2%), consistent with the domestic rural tourism format as a form of recreational and psychological 'reset'. Regarding preferences for rural tourism types, the nature-based segment (mountains, forests, protected areas) is predominant, selected by 60.2% of respondents. This corroborates the idea that direct contact with natural environments is a key motive for visiting rural destinations in Ukraine and that these destinations provide conditions conducive to the development of tourists' pro-environmental behavioural patterns.

The next stage of analysis involves assessing the integrated measures reflecting perceptions of destinations' environmental practices, the level of tourists' pro-environmental behaviour, and their views on tourism's contribution to sustainable rural development. To this end, the relevant composite indices (EPI, PEI, and SRDPI) were calculated, and their mean values are presented in Figure 1.

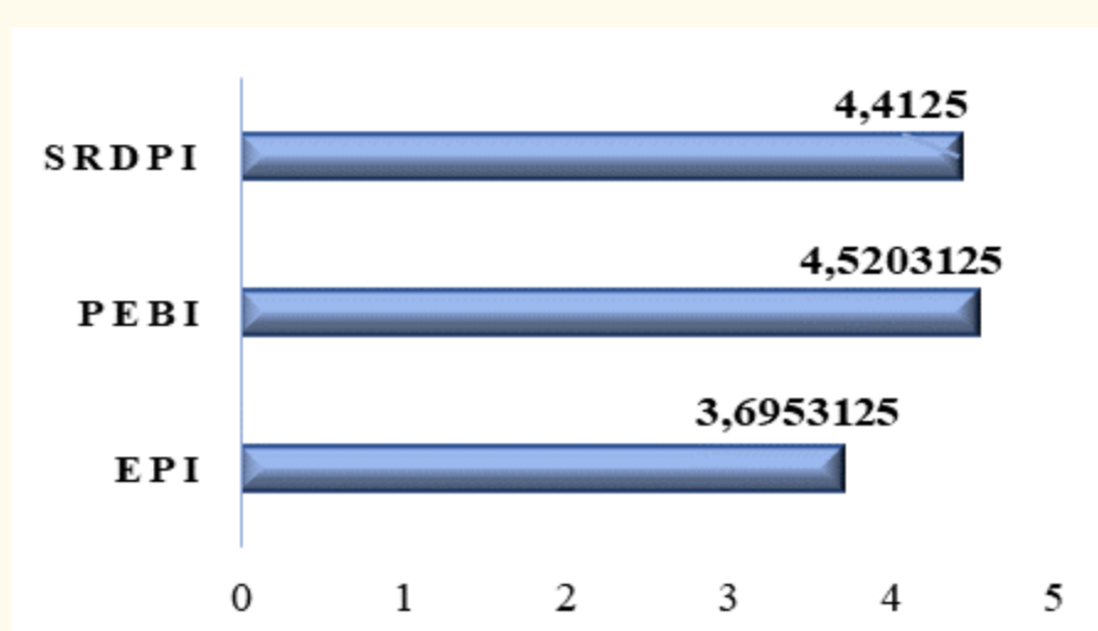


Fig. 1. Mean values of indicators of environmental practice perception, tourists' PEB, and the impact of tourism on sustainable rural development

The results indicate a relatively high level of respondents' pro-environmental orientation. The highest mean value is observed for the PEI (4.52), suggesting that tourists are willing to comply with environmental norms, use resources sparingly, minimise waste, and support local products when travelling to rural destinations.

The mean level of perceived tourism contribution to SRDPI (4.41) is also high. This indicates that tourists recognise the broader socio-economic role of tourism in the development of Ukraine's rural areas.

At the same time, the index capturing perceptions of destinations' environmental practices (EPI = 3.70) is moderately high but lower than the indices for behaviour and perceived sustainable development impacts. In other words, tourists appear to demonstrate a higher degree of environmental responsibility than the destination's infrastructure and management practices currently match.

The next stage of the analysis is aimed at testing the statistical relationships between perceptions of destinations' environmental practices, the level of tourists' PEB, and assessments of tourism's contribution to sustainable rural development. To this end, Spearman's rank correlation analysis was applied, and the results are presented in Table 2.

Table 2 Results of the correlation analysis (Spearman's rho)

Variables	1	2	3
1. Perceived destination environmental practices	1.000		
2. Tourists' pro-environmental behaviour	0.38**	1.000	
3. Perceived tourism contribution to sustainable rural development	0.42**	0.44**	1.000

Note:  
\* p < 0.05 (significant)  
\*\* p < 0.01 (highly significant)  
p ≥ 0.05 (not significant)

The results indicate statistically significant positive associations among all variables ( $p < 0.01$ ). The strongest correlation was observed between tourists' pro-environmental behaviour and their perceived contribution to sustainable development ( $\rho = 0.44$ ). This result supports the notion that tourists with higher levels of environmental responsibility tend to evaluate tourism's contribution to rural development more positively, including in terms of employment, cultural preservation, and environmental protection.

To quantify the effect of age as a potential determinant of tourists' pro-environmental behaviour, a linear regression model was estimated. The dependent variable was PEI (scale 1–5), and the independent variable was respondents' age, coded as a numeric predictor based on age categories.

The regression results indicate that the model has low explanatory power ( $R^2 = 0.019$ ) and is not statistically significant ( $F(1,126) = 2.45$ ;  $p = 0.120$ ). The coefficient for the 'age' variable is negative ( $B = -0.077$ ), suggesting a slight tendency for PEI to decrease as age increases; however, this effect does not reach statistical significance ( $p = 0.120$ ).

To visualise the results, a scatterplot with an overlaid linear regression line was constructed (Fig. 2), showing a weak linear trend between respondents' age and their pro-environmental behaviour.

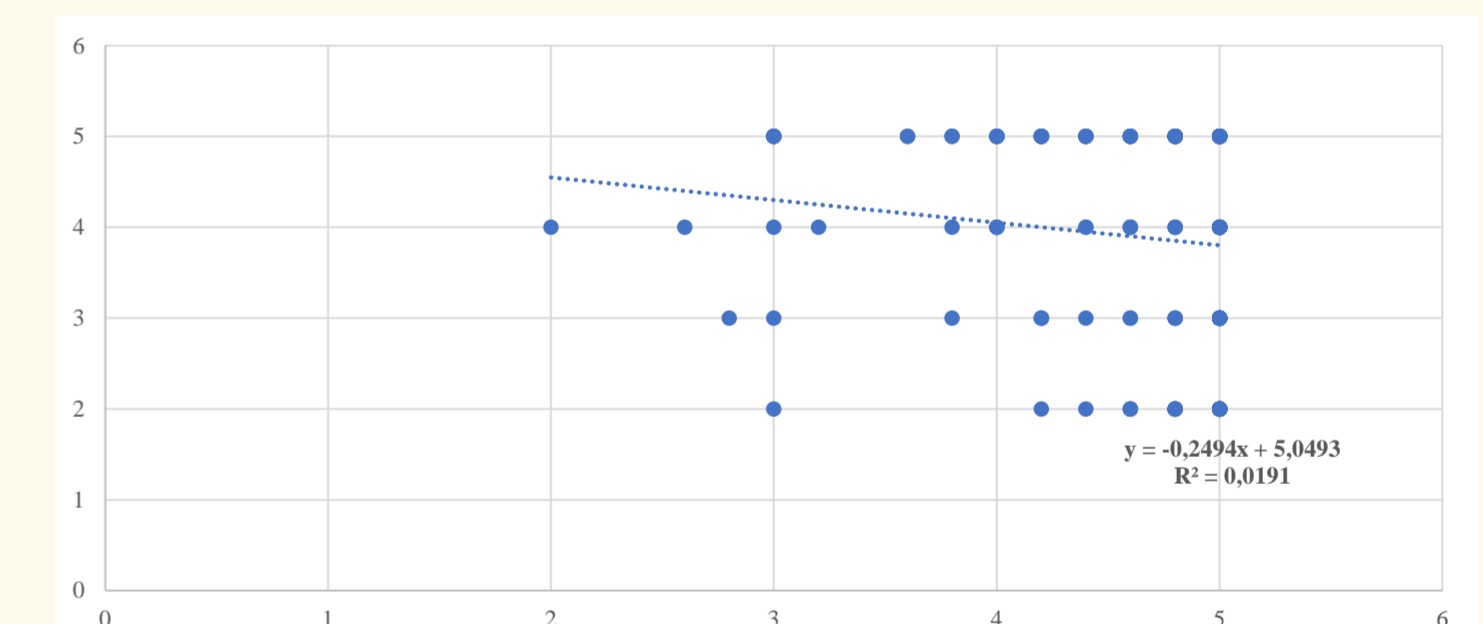


Fig. 2. Relationship between tourists' pro-environmental behaviour and age

The findings indicate that, within the studied sample, age is not a decisive factor in shaping tourists' PEB. Only around 2% of the variance in PEI is explained by age-related characteristics, confirming the limited role of this demographic determinant. This conclusion is consistent with contemporary research in sustainable tourism, which emphasises that tourists' PEB is increasingly driven not by socio-demographic attributes, but by cognitive and contextual factors – particularly environmental awareness, value orientations, and perceptions of destinations' environmental practices.

In the context of Ukraine, experiencing a full-scale war and anticipating post-war reconstruction, these results acquire additional strategic significance. The recovery of rural areas is increasingly understood not merely as an infrastructural endeavor, but as a socio-environmental task. Tourism can act as a catalyst within this process, stimulating economic activity, safeguarding natural capital, and strengthening local community identity. Under such conditions, tourists' pro-environmental orientation is shaped less by age and more by the extent to which destinations embed sustainability principles in post-war development models and effectively communicate them to visitors.

### Conclusion

1. A high level of pro-environmental orientation among contemporary tourists visiting rural destinations in Ukraine was identified. The calculated Pro-Environmental Behaviour Index (PEI) indicates respondents' established readiness for prudent resource use and for supporting local ecosystems. This suggests that Ukraine already possesses behavioural potential that can serve as a foundation for sustainable rural tourism development.
2. The results show that tourists assess tourism's contribution to sustainable rural development positively, associating it with the economic activation of communities, the preservation of cultural heritage, and the protection of natural resources. At the same time, the Environmental Practices Index (EPI) was lower than the level of tourists' behavioural readiness. This points to a gap between tourists' environmental intentions and the actual extent to which environmental solutions are implemented in rural destinations in Ukraine.
3. Statistically significant positive relationships were empirically confirmed between perceived destination environmental practices, tourists' PEB, and assessments of tourism's contribution to sustainable rural development. This indicates that environmentally oriented destination governance not only affects environmental outcomes directly but also shapes tourists' behavioural patterns, which, in turn, amplify the effects of sustainable development at the community level.
4. The regression analysis challenges the stereotype of age-determined environmental responsibility, as demographic characteristics explain only around 2% of the variance in PEI. This supports the view that environmental responsibility in tourism is increasingly shaped not by age, but by cognitive, motivational, and contextual factors – particularly by how destinations implement and communicate their environmental practices.