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Sustainable Intentions in Tourism: An Empirical Analysis of European Residents

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Cite: Salamone, E. (2027). Sustainable Intentions in Tourism: An Empirical Analysis of European Residents. *PASOS. Revista de Turismo y Patrimonio Cultural*, 25(1), 202725009. <https://doi.org/10.25145/j.pasos.2027.25.009>

Recibido: 29/01/2026 · Reenviado: 20/04/2026 · Aceptado: 04/06/2026 · Sometido a evaluación por pares anónimos

Abstract: Using 22,503 observations from the EU Flash Eurobarometer, this study aims to identify three groups of tourists based on their level of sustainable intentions (primarily sustainable, secondarily sustainable, not sustainable), to analyse their differences in relation to individual characteristics and geographical context, and to assess the impact of different definitions of sustainable tourist on the empirical results. The analysis firstly employs a logit model to estimate the probability that a respondent declares sustainable intentions when choosing a destination. Secondly, a Multinomial logit model is applied to predict the characteristics of an individual within a sustainability category, using socio-demographic, cultural, and contextual variables. This classification represents an alternative contribution to mainstream research, highlighting group heterogeneity and the aspects overlooked by aggregate analyses. The results indicate that tourists from Western Europe, women, and older age groups are more likely to consider environmental issues, whereas frequent travellers are less likely to do so.

Keywords: Sustainable tourists; European tourists; Sustainable intentions; Regression analysis; Behavioural intentions.

Intenciones Sostenibles en el Turismo: Un Análisis Empírico de los Residentes Europeos

Resumen: Utilizando 22.503 observaciones del EU Flash Eurobarometer, este estudio busca identificar tres grupos de turistas según su nivel de intenciones sostenibles (principalmente sostenibles, secundariamente sostenibles y no sostenibles), analizar sus diferencias en relación con características individuales y contexto geográfico, y evaluar el impacto de definiciones de turista sostenible en resultados empíricos. El análisis emplea un modelo logit para estimar la probabilidad de que un encuestado declare intenciones sostenibles al elegir un destino. Posteriormente, se aplica un modelo logit multinomial para predecir las características de un individuo dentro de una categoría de sostenibilidad, utilizando variables sociodemográficas, culturales y contextuales. Esta clasificación representa una contribución alternativa a la investigación convencional, al destacar la heterogeneidad de grupos y aspectos no considerados en análisis agregados. Los resultados indican que los turistas de Europa Occidental, mujeres y personas mayores son más propensos a considerar los problemas ambientales, mientras que los viajeros frecuentes lo son menos.

Palabras Clave: Turistas sostenibles; Turistas europeos; Intenciones sostenibles; Análisis de regresión; Intenciones conductuales.

1. INTRODUCTION

In recent decades, sustainability is becoming a global concern influencing political, business, and individual choices (Bergin-Seers & Mair, 2009; Alonso-Almeida et al., 2024). Tourism, although not the primary contributor to global environmental pressures, can impact ecosystems, local cultures, and regional economies, especially in fragile areas or those with high tourist density (Alfaro Navarro et al., 2020; Campos-Soria et al., 2021; Gössling et al., 2024; Wang et al., 2024). According to the World Tourism Organization, sustainable tourism is oriented towards the management of resources that meet economic and social needs while maintaining cultural integrity, ecological processes, and biodiversity (Campos-Soria et al., 2021). This concept is generating increasing interest in the social sciences and economics, and there is a growing awareness of the need for tourism to be conducted in a sustainable manner (Fraguas & Larena, 2024; Hadinejad et al., 2025). Despite the growing interest in the “sustainable tourist”, recent research commonly focuses on specific aspects, such as tourist segments, destinations, tourism activities (Bergin-Seers & Mair, 2009; Filimonau et al., 2018; Holmes et al., 2021), or on the differences between attitudes and actual behaviour. Building on these strands of literature, this study considers multiple determinants in relation to sustainable travel intentions. For this reason, understanding the intentions of tourists is fundamental for designing tourism offerings in line with the sustainable expectations of consumers and guiding public policies and strategies towards responsible tourism (Liu et al., 2022).

Based on data from the EU Flash Barometer 499 (Attitudes of Europeans towards tourism), the purpose of this study is to contribute to the understanding of the determinants of sustainable tourism in Europe, with particular attention to the declared intentions of tourists prior to travelling. In this context, the main objective is to analyse the relationship between socio-demographic, cultural, and contextual factors of tourists and their propensity to declare sustainable travel intentions, thereby contributing to a more comprehensive understanding of global dynamics, which are fundamental for anticipating and interpreting future behaviours. To analyse the different nuances of sustainable intentions in tourism, this study adopts an alternative

approach aiming to: (i) define three distinct profiles of sustainable tourists based on declared intentions; (ii) examine how these profiles vary according to individual characteristics and geographical context; (iii) assess how different definitions of “sustainable tourist” influence empirical results. In this context, a “sustainable tourist” is someone who values the preservation of the natural environment by adopting eco-friendly practices at the destination, is willing to use low environmental impact transportation options to reach the destination, and prefers accommodation and attractions that hold sustainability certifications.

The data analysed include over 20,000 citizens from 27 EU countries and provide a solid basis for exploring sustainability aspects in tourism. A stepwise approach based on logit models is adopted, consistent with the nature of the variables: in the first stage, a Binary logit model estimates the probability of belonging to the different category of sustainable tourists; in the subsequent stage, a Multinomial logit model is used to account for the hierarchical structure of the dataset and to achieve greater accuracy of the results. The study contributes to the existing literature in several ways. Firstly, it proposes alternative operational classification of tourists, distinguishing between primarily, secondarily and not sustainable tourists, allowing for a more precise analysis of variations in sustainable intentions depending on the definitions adopted. Secondly, it adopts an integrated approach that draws on models of individual behaviour, together with socio-demographic, cultural, and contextual variables, to examine how these factors interact and influence sustainable travel intentions, thereby overcoming the limitations of mono-disciplinary approaches. Finally, the international representativeness of the sample and the use of econometric models increase the external validity of the results, facilitating their application across different tourism markets and enriching the literature by examining tourists with diverse socio-demographic backgrounds and contextual factors.

The structure of this study is as follows: Section two outlines the Theoretical Framework, Section three presents the Method, Section four presents the Results, including Robustness checks, Section five presents the Discussion and Section six concludes this study.

2. THEORETICAL FRAMEWORK

In recent decades, sustainability has become a central issue in tourism, encouraging research on responsible tourism (Wu et al., 2021). Growing attention towards the environmental, social and economic impact of tourism leads to the development of theories and conceptual approaches aimed at explaining the motivations, choices and practices of tourists in relation to sustainability (Mihalic, 2016).

In this context, the present study is situated within the theoretical debate developed in the literature to explain environmentally impactful attitudes. Together, these theories provide an integrated framework for understanding the motivations underlying the sustainable intentions of tourists. Although originating from different theoretical backgrounds, these theories intersect on multiple levels, providing complementary explanations of the decision-making process that leads to responsible intentions and taking into account both personal determinants and collective responsibilities towards the environment (Onwezen et al., 2013; Lupini et al., 2024).

The Theory of Planned Behaviour (TPB) (Ajzen, 1991) posits that attitudes, social norms, and perceived behavioural control influence intentions, which constitute the most immediate and relevant predictor of behaviour and the willingness to engage in specific attitudes (Wu et al., 2021). This approach originates from

the model of Fishbein and Ajzen (1975), according to which behaviour primarily derives from intentions, influenced by attitude towards the behaviour and the subjective norm, understood as a moral perception.

The Norm Activation Model (NAM) (Schwartz, 1977), used to predict pro-environmental behaviours, focuses instead on the role of personal norms, assignment of responsibility, and awareness of consequences. Personal norms form the core of the model and represent feelings of moral obligation that motivate concrete and everyday pro-environmental behaviours (Alonso-Almeida et al., 2024). Collectively, these factors increase the likelihood of engaging in environmental issues (Schwartz, 1977).

An extension of the NAM is the Value-Belief-Norm (VBN) Theory (Stern et al., 1999), according to which pro-environmental behaviour stems from personal values that influence awareness of the actions of individuals, developing a sense of responsibility that leads to the formation of personal norms (Alonso-Almeida et al., 2024).

Despite the relevance of these theoretical frameworks, their empirical application would require the inclusion of psychological variables such as attitudes, personal norms, and environmental values, which are not directly observable in the dataset used in this study; consequently, these theories are employed as an interpretative framework, rather than being directly operationalised within the econometric model. The study therefore relies on socio-demographic, cultural, and contextual variables as indirect proxies, while acknowledging that these do not fully capture the complexity of the decision-making processes described by the theoretical frameworks; accordingly, the findings of this study should be interpreted with caution, taking into account the absence of psychological determinants consistent with the aforementioned theoretical frameworks.

In light of these theories, tourism is described in the literature not only as an economic resource, but also as a means of raising awareness and respect for the environment, as well as for historical and cultural heritage, thereby enhancing interactions among individuals and improving the quality of life of local populations (Mihalic, 2020; Holmes et al., 2021).

While tourism creates significant impacts in terms of economic growth, rural and urban development, cultural exchange and employment (de Nadae et al., 2025), tourists can threaten ecological balance, causing environmental damage and pollution; for this reason, environmental sustainability has become an increasingly central issue in the tourism sector (Bergin-Seers & Mair, 2009; Sun et al., 2022; Gössling et al., 2024). Since the early 1970s, the first alarming signs concerning the natural environment have emerged (Leonidou et al., 2015), and the concept of overall well-being has evolved, shifting attention not only to economic aspects (Andersson et al., 2018), but also to authentic and sustainable experiences (Leonidou et al., 2015).

Based on these premises, sustainable tourism aligns with the framework of the United Nations Sustainable Development Goals (SDGs), focusing on the appreciation of local cultures and territories (Carlsen & Bruggemann, 2022); it takes into account economic, social, and environmental impacts, addressing the needs of visitors, the industry, the environment and communities (Santos & Cândido, 2018; Zameer & Yasmeen, 2022), promoting sustainable consumption and recycling (Han et al., 2011; Çalık, 2022). Consequently, the intentions of the tourists reflect the emergence of the so-called “sustainable tourist”, oriented towards destinations that foster a balance between economic growth, the protection of natural resources and the well-being of local communities (Shafieisabet & Haratifard, 2020).

Most studies suggest that sustainable tourists are those who make choices aimed at reducing environmental impact (Bergin-Seers & Mair, 2009), both globally and at the destination level (Juvan & Dolnicar, 2017), by adopting Environmentally Responsible Behaviours (ERB), namely actions aimed at preventing or addressing environmental issues (Dolnicar, 2020; Wang et al., 2024).

Nevertheless, a key issue addressed in the literature concerns the dissonance between environmental attitudes and behaviours, which may induce individuals to change their actions when a behavioural alternative is available (Juvan & Dolnicar, 2017), highlighting how positive environmental attitudes and intentions do not necessarily translate into concrete actions (Wyss et al., 2022); this attitude-behaviour gap has attracted considerable attention among scholars and suggests that observable variables, such as socio-demographic characteristics, may have limited explanatory power in capturing the underlying drivers of sustainable intentions.

The sustainable tourist is characterised by explicit intentions and conscious choices aimed at providing a clear direction and reference (Gomes et al., 2023), thereby influencing daily actions in the pursuit of desired aims (Falk & Hagsten, 2019; Wang et al., 2024); such intentions can be expressed through the protection of the natural environment by means of eco-friendly practices at the destination (Liu et al., 2022), the use of low environmental impact transport to reach the destination (Franz & Cruz, 2025) and the preference for accommodation and attractions with sustainability certifications (Han et al., 2011).

Research on the role of social interactions in responsible environmental intentions of tourists remains limited (Wyss et al., 2022), and this study aims to clarify the factors shaping sustainable intentions prior to a holiday, considering that the literature has not yet established a clear tourist profile (Holmes et al., 2021).

Certain socio-demographic characteristics of tourists, namely gender, age, education and income, have a moderating effect, influencing the degree of adherence to sustainable attitudes (Leonidou et al., 2015); several studies (Zamparini et al., 2022) demonstrate that tourists who declare sustainable intentions are generally women, younger individuals, people with higher levels of education, and those with higher incomes. Furthermore, the influence of variables such as gender and age varies across countries (Alonso-Almeida et al., 2024) and also influences transport choices, as male and older tourists are more likely to use private vehicles (Masiero & Zoltan, 2013) and less inclined to use sustainable transport modes during their stay (Zamparini et al., 2022), unlike individuals with higher environmental awareness, who are more likely to travel by public transport (Hamidi & Zhao, 2020) and to strengthen intentions for sustainable purchases (Zameer & Yasmeen, 2022).

Among digital natives, factors such as environmental concerns, future outlook, quality and environmental benefits can influence their willingness to pay more for sustainable solutions (Gomes et al., 2023). In particular, young adults, especially men, show a greater propensity in this regard; similarly, the same applies to young people with a lower level of education but higher incomes. It can be stated that willingness to spend more on sustainable products is influenced by gender, age, education level and income (Gomes et al., 2023).

Other studies highlight that the choice of environmentally friendly destinations and the sustainable intentions of travellers depend significantly on nationality (Leonidou et al., 2015). However, there are differences between individuals from different backgrounds and demographic groups (Han et al., 2011), also related to individual characteristics; in more economically developed countries, typically in Western Europe, citizens tend to adopt post-materialist values, including environmental protection. However, some studies

reveal that tourists from these wealthier contexts, despite having access to resources and information, paradoxically display a lower level of environmental concern compared to tourists from Southern and Eastern Europe, who, despite being in a less advanced economic context, show greater sensitivity to environmental issues (Leonidou et al., 2015).

In conclusion, sustainable tourism is fundamental for understanding responsible tourists and for strengthening environmental awareness (Campos-Soria et al., 2018), considering the different stages of sustainable and social engagement of countries (Hagsten & Falk, 2024).

Considering the theories discussed and summarising the main findings from the literature on the sustainable intentions of tourists, the following hypotheses are proposed:

H1. *Sustainable intentions of tourists are related to Country of origin.*

This hypothesis draws on the literature which explains how behavioural intentions are influenced by individual and contextual factors. Therefore, based on previous studies (Leonidou et al., 2015), it is expected that tourists from Western Europe are more environmentally conscious than those from other country groups. This is interpreted in light of the Theory of Planned Behaviour (TPB), used as an interpretative framework.

H2. *Sustainable intentions of tourists are related to gender.*

This hypothesis draws on empirical evidence suggesting that tourists who perceive a negative impact of their environmental choices and feel responsible for these effects are more likely to consider sustainable aspects. Based on previous research (Campos-Soria et al., 2018), women tend to have more environmentally responsible intentions than men. This is interpreted in light of the Norm Activation Model (NAM), used as an interpretative framework.

H3. *Sustainable intentions of tourists are related to age.*

This hypothesis draws on the literature suggesting that socio-demographic characteristics, such as age, may influence sustainable intentions among tourists. Based on previous studies (D'Arco et al., 2023), it is expected that young tourists are more likely to express sustainable intentions compared to older age groups. This is interpreted in light of the Value-Belief-Norm (VBN) Theory, used as an interpretative framework.

H4. *Sustainable intentions vary across tourist profiles.*

This hypothesis draws on the observation that there are different levels of sustainable intentions among tourists and a more detailed classification that distinguishes between primarily sustainable and secondarily sustainable individuals allows for the emergence of differentiated results. Based on previous studies highlighting the heterogeneous nature of tourists (Del Chiappa et al., 2018), it is expected that the adoption of different operational definitions may influence the outcomes of the analysis.

3. METHOD

The determinants of sustainable intentions of tourists are estimated by the logit approach, chosen for its interpretability and its suitability for modelling categorical variables. The consistency of the logit model in the analysis ensures methodological uniformity and facilitates the comparability of the estimated effects. In the first phase, a Binary logit model (Williams, 2016) estimates the probability that a respondent expresses sustainable intentions in destination choice, based on the characteristics under examination. The observed outcome is linked to the underlying characteristics X , where the probability of considering environmental

issues among the most important factors in the choice of a travel destination (*sustainable_choice*) is specified as follows:

$$P(\text{sustainable_choice}_i = 1 \mid X_i) = \frac{1}{1 + e^{-(\beta_0 + \beta^T X_i)}} \quad (1)$$

where β_0 is the constant term, β^T represents the coefficient associated with the independent variable X_i and the symbol T denotes the transpose of the vector β . Although the error term ε_i is not explicitly shown in the formula, it represents the random factors not captured by the model. The binary dependent variable *sustainable_choice* is expressed as follows:

$$\text{sustainable_choice}_i = \begin{cases} 1 & \text{if environmental questionnaires are considered in the choice} \\ 0 & \text{otherwise} \end{cases}$$

Subsequently, in order to identify differences across the three groups of tourists and to fully reflect the structure of the dataset, the initial dependent variable (*sustainable_choice*) is redefined with a more detailed classification of sustainable intentions. Specifically, tourists initially classified as “sustainable” (i.e. those for whom *sustainable_choice*=1) are further divided into two subgroups, based on their chooses for Q4a. If the environmental questionnaires are selected, the group is referred as primarily sustainable group. Otherwise, the group is secondarily sustainable group. In this way, the categorical dependent variable of the second model (*sustainability_class*) is divided into three mutually exclusive and unordered categories allowing for a more nuanced view of the intentions expressed by tourists: primarily sustainable (*primarily_sustainable*), secondarily sustainable (*secondarily_sustainable*) and not sustainable (*not_sustainable*).

To account for the multi-level categorical structure of the dependent variable, the Multinomial logit model (Williams, 2016) is employed, which allows for the classification of individuals into one of the nominal categories based on a set of predictor variables; the specification is enriched by a set of socio-demographic, cultural and contextual factors that define the “sustainable tourist”. Therefore, the probability of considering environmental aspects when choosing a destination is specified as a function of various socio-demographic, cultural and contextual factors X_i :

$$P(\text{sustainability_class}_i = j \mid X_i) = \frac{\exp(\beta_{j,0} + \beta_{j,1} \cdot \text{gender}_i + \beta_{j,2} \cdot \text{age}_i + \beta_{j,3} \cdot \text{eu}_i + \beta_{j,4} \cdot \text{frequent_traveller}_i + \beta_{j,5} \cdot \text{employed}_i)}{1 + \sum_{k=1}^{J-1} \exp(\beta_{k,0} + \beta_{k,1} \cdot \text{gender}_i + \beta_{k,2} \cdot \text{age}_i + \beta_{k,3} \cdot \text{eu}_i + \beta_{k,4} \cdot \text{frequent_traveller}_i + \beta_{k,5} \cdot \text{employed}_i)} \quad (2)$$

Where the dependent variable *sustainability_class*=[Y_i], indicates the sustainability category assigned to individual in 2021, with the following categories: $j=1$ (not sustainable), $j=2$ (secondarily sustainable) and $j=3$ (primarily sustainable, the reference category), where $j=J$ and $J=3$. $\beta_{j,0}$ and $\beta_{k,0}$ are the constant terms for categories j and k . β_j and β_k are vectors of coefficients associated with categories j and k , respectively. The dummy variable *gender* indicates whether the respondent is male or female; *age* denotes dummy variables for the age groups (15-34, 35-54, 55 and older); *eu* refers to a set of dummy variables for country categories (Northern, Southern, Eastern and Western Europe); dummy variable *frequent_traveller* captures whether the respondent travels frequently or not and dummy variable *employed* provides information about whether the respondent is employed or not (and, indirectly, having income). Although the error term ε_i is not explicitly

shown in the probability formula, it represents the influence of unobserved or random factors that are not captured by the explanatory variables.

A detailed description of the independent variables is provided in Table A1 of Appendix A.

3.1. Data and descriptive statistics

The data for this analysis originate from the Flash Eurobarometer 499 “Attitudes of Europeans Towards Tourism, Autumn 2021” and provide information on how Europeans perceive, experience, or respond to the phenomenon of tourism. The data collection took place in autumn 2021, a period still marked by the COVID-19 pandemic; due to the pandemic, the survey was changed to collect information on travel intentions rather than actual behaviour. Consequently, the results should be interpreted with caution, taking into account the potential divergence between intentions and actual behaviour.

Questions Q4a and Q4b (Appendix B), on which the analysis is based, assess the primary and secondary decision-making criteria influencing the choice of a tourist destination. Question Q4a, administered as a compulsory single-choice item, represents the primary choice made by the respondent, while question Q4b, allowing multiple answers, enables respondents to indicate secondary alternatives. The response options cover aspects related to sustainability, as well as cultural, environmental, economic and accessibility factors, capturing the primary dimension guiding destination choice.

For the purposes of this analysis, emphasis is placed on the response options associated with the environmental sustainability of the aforementioned questions, selecting three specific modalities of the variable:

- the promotion of eco-friendly practices at the destination (alternative 6);
- the possibility of reaching the location using low environmental impact transport (alternative 7);
- the sustainability certification of accommodation and attractions (alternative 8).

In the first part of the analysis, respondents expressing an intention to travel face two alternatives, which define the binary dependent variable (first model) as follows:

- i) considering environmental issues among the most important factors when choosing a destination to visit (questions Q4a-Q4b, alternatives 6-7-8);
- ii) not considering them (selecting the remaining responses).

In the second part, the structure of the survey is disregarded and responses to questions Q4a and Q4b are grouped. The dependent variable in the second model is based on three alternatives (groups), reflecting the sustainable intentions declared by European tourists in relation to environmental sustainability: the first group, defined as primarily sustainable (*primarily_sustainable*), is the reference group and includes those who demonstrate a consistent commitment to sustainability, by indicating a sustainable option as their primary choice (Q4a); they may also select up to two additional sustainable alternatives among their preferences (Q4b).

The second group, defined as secondarily sustainable (*secondarily_sustainable*), consists of those who do not initially express a sustainable preference, but select up to a maximum of three alternatives only among their secondary preferences (Q4b).

Finally, the third group, defined as not sustainable (*not_sustainable*), represents tourists who express no intention of choosing sustainable travel options, neither as a primary preference nor as a secondary alternative.

The grouping of participants is based on the level of priority assigned to sustainability, taking into account questions Q4a-Q4b, which are structured according to importance and the independent variables considered in the analysis include gender, age, area of residence, travel frequency and employment status.

The dataset is based on a representative sample of individuals aged 15 years and over in the 27 Member States of the EU and a total of 25,714 interviews were conducted by telephone (both landline and mobile). The sampling design follows a stratified approach to ensure representativeness across countries and socio-demographic groups; moreover, sample weights are provided and applied to adjust the population distribution and to ensure that the results are representative at both national and EU level, thereby strengthening external validity and the generalisability of the findings.

The final sample, used consistently across all empirical analyses, consists of 22,503 respondents after the exclusion of 3,211 observations (12.5% of the sample) due to missing values and non-substantive responses, thereby improving data consistency and completeness.

The data allow an understanding of the factors driving destination choice and the measurement of declared intentions towards sustainable tourism; approximately one third of European citizens consider eco-friendly practices at their destinations, low-impact modes of transport and accommodation and attractions with sustainability certifications, although only around 10% consider them as a primary factor before travelling. Among the priorities indicated in question Q4a, the natural environment, travel cost, and cultural offerings stand out, while options related to environmental sustainability are selected by a minority of participants. However, when the analysis is expanded to the multiple responses of question Q4b, it emerges that around a quarter of the sample (individuals who provide at least one response related to sustainability) consider these aspects important, even if not as a priority; finally, the not sustainable category encompasses the largest share of respondents. Analysing the smaller groups allows for a better understanding of the characteristics of those expressing sustainable travel intentions, and their heterogeneity and rarity offer significant insights into the motivations driving such choices. At the same time, the group comprising the majority of respondents represents an important point of comparison encompassing the entire sample.

The gender analysis shows an almost balanced distribution between men and women, with a slight female predominance, both in numerical terms and regarding declared sustainable intentions.

The age-group analysis divided respondents into three groups: 15-34, 35-54 (the majority of respondents), and 55 and older. Although the majority of individuals fall into the not sustainable group, the secondarily sustainable group has a higher percentage among younger respondents; in contrast, the primarily sustainable group records the highest percentage among individuals aged 55 and over, followed by the 35-54 age group and, finally, by the youngest.

The subsequent analysis is carried out across the 27 Member States of the EU, divided into four geographical groups: Northern, Southern, Eastern and Western Europe. This subdivision (Alonso-Almeida et al. 2024) facilitates the comparative analysis between areas with different socio-demographic, cultural and contextual characteristics and reveals that the majority of respondents, in all areas, belong to the not sustainable group; Western Europe, however, stands out for a higher share of tourists declaring sustainable intentions, both among the primarily and the secondarily sustainable groups, representing the highest percentage compared with the other country groups.

With regard to travel habits, it emerges that in both categories, frequent and occasional travellers, the majority of respondents belong to the not sustainable group. However, the percentage of secondarily sustainable tourists is similar among frequent and occasional travellers, while the share belonging to the primarily sustainable group tends to increase as travel frequency decreases. Finally, in terms of employment status, it is observed that in both categories, employed and unemployed, the not sustainable group accounts for approximately two-thirds of the sample. By contrast, among sustainable profiles, the secondarily sustainable group shows a slightly higher percentage among unemployed, as does the primarily sustainable group, while sustainable intentions are slightly less widespread among employed.

Appendix C presents Table C1, which contains the descriptive statistics of the variables included in the estimation models, as well as the graphs related to the independent variables and to the types of tourists.

4. RESULTS

The analysis results, divided by theoretical hypotheses, show that the likelihood of considering environmental issues among the most important aspects in choosing a destination depends significantly on a combination of socio-demographic, cultural, and contextual factors, such as area of residence, gender, age, travel frequency, and employment status of the travellers. H1, H2, H3 are tested in both models (Binary logit and Multinomial logit), while H4 relates exclusively to the second model, as it concerns the classification of tourists. The Binary logit model reveals that the country of residence is one of the most relevant factors in determining sustainable tourism intentions: tourists from Western Europe show a significantly higher probability of engaging in sustainable intentions compared to tourists from Southern Europe (reference group). Gender is also significant: women demonstrate a greater propensity towards environmental aspects than men. Finally, regarding age, young people do not stand out for higher sustainable intentions compared with those over 55.

Considering the Multinomial logit model, the distinction into three groups of tourists reflects differing levels of sustainable intentions: the primarily sustainable group assigns a clear and direct priority to sustainability, whereas the secondarily sustainable group demonstrates a secondary interest in sustainable practices. Based on the results, H1 and H2 are supported by the data and cannot be rejected; H3 does not receive sufficient empirical support and, therefore, cannot be verified. Finally, H4 is supported by the data and cannot be rejected, indicating that the classification of tourists based on different operational definitions can influence the analysis results. To provide a graphical representation, a plot of the odds ratios and their 95% confidence intervals is presented (Figure 1).

In detail, the results of the Binary logit model (Table 1) show that tourists from Western Europe (H1) exhibit a positive and highly significant effect ($\beta=0.433$, $p<0.001$, $OR=1.54$), indicating approximately a 54% higher likelihood of showing an environmentally oriented attitude compared to tourists from Southern Europe (reference group). Residents of Eastern Europe also display a positive and statistically significant coefficient ($\beta=0.132$, $p<0.01$, $OR=1.14$), indicating approximately a 14% more likely to express intentions to adopt sustainable behaviours compared with the reference group (Southern Europe); for residents of Northern Europe, however, the coefficient is not statistically significant.

Regarding gender (H2), the coefficient associated with the binary “gender” variable is negative and statistically significant ($\beta=-0.113$, $p<0.001$, $OR=0.89$).

Concerning age (H3), the 35-54 age group shows a negative and statistically significant coefficient ($\beta=-0.090$, $p<0.05$, $OR=0.91$) compared to respondents aged 55 and over (reference category), indicating a negative association with the likelihood of declaring sustainable intentions; whereas for the 15-34 age group, the coefficient is not statistically significant. Moreover, neither travel frequency nor employment status shows statistically significant associations with sustainable intentions.

Table 1. Binary logit model

sustainable_choice (reference category=not_sustainable)			
Variable	Coefficient	Z-stat	Odds_Ratio
(Intercept)	-0.751***	-17.97	0.47
gender	-0.113***	-3.88	0.89
age_15_34	-0.013	-0.33	0.99
age_35_54	-0.090*	-2.30	0.91
eu_north	-0.027	-0.65	0.97
eu_east	0.132**	3.26	1.14
eu_west	0.433***	10.11	1.54
frequent_traveller	-0.044	-1.50	0.96
employed	-0.045	-1.26	0.96
Observations: 22,503			
Nagelkerke R ² : 0.012			
Wald test: $\chi^2(8)=189.1$, $p<0.001$			
Likelihood Ratio Test $\chi^2(8)=187.86$, $p<0.001$			

Source: Flash Eurobarometer 499, “Attitudes of Europeans towards Tourism”, own elaborations.

Note: Reference groups: gender (female), age groups (55_and_over), country groups (eu_south), employed (non-employed), frequent_traveller (occasional traveller). Asterisks *** indicates $p<0.001$, ** indicates $p<0.01$, * indicates $p<0.05$ and . indicates $p<0.1$. Odds ratio: $OR>1$ indicates a higher probability of being classified in the outcome group compared to the reference group; $OR<1$ indicates a lower probability.

To better identify the level of sustainable intentions, a Multinomial logit model is applied, classifying tourists as primarily, secondarily, or not sustainable (Table 2). Significant results are determined by calculating z-values and p-values. The primarily sustainable group is the reference category, and a beta parameter indicates the likelihood of selecting an environmental issue in relation to differences in key factors compared to the reference group.

Considering the area of residence (H1), Southern Europe is the regional reference group. Respondents from Western Europe (Belgium, France, Germany, Luxembourg, the Netherlands, and Austria) have lower odds ($\beta=-0.463$, $p<0.001$, $OR=0.63$) of belonging to the secondarily sustainable group compared with the primarily sustainable group and tourists from Southern Europe. Moreover, Western Europe tourists have a significantly lower (logarithmic) probability, (around 53%) of being classified as “not sustainable” compared with the primarily sustainable group and residents of Southern Europe ($\beta=-0.745$, $p<0.001$, $OR=0.47$).

Eastern Europe (Bulgaria, Romania, Poland, Slovakia, Slovenia, the Czech Republic, and Hungary) is associated with a significantly lower probability (around 20%) of being classified as not sustainable

compared with the primarily sustainable group and residents of Southern Europe ($\beta=-0.229$, $p<0.001$, $OR=0.80$).

Finally, Northern European countries (Denmark, Estonia, Finland, Ireland, Latvia, Lithuania, and Sweden) record a negative coefficient for secondarily sustainable group ($\beta=-0.284$, $p<0.001$, $OR=0.75$), showing a lower probability (around 25%) of being classified in this category compared with the primarily sustainable group and residents of Southern Europe. For the not sustainable category, a negative coefficient is also observed ($\beta=-0.171$, $p<0.05$, $OR=0.84$), suggesting that Northern Europe residents have a lower probability (approximately 16%) of being not sustainable compared with Southern Europe citizens and the primarily sustainable group.

Regarding gender (H2), men have a lower (logarithmic) probability (approximately 12%) of being classified as secondarily sustainable compared with women and the primarily sustainable group ($\beta=-0.130$, $p<0.05$, $OR=0.88$), indicating a negative association between male gender and intermediate sustainable intentions, that is, not fully structured but still oriented towards sustainability.

Regarding age (H3), young individuals (15-34 years) have a significantly higher probability (around 17%) of belonging to the secondarily sustainable group compared with the primarily sustainable group and individuals aged 55 and over ($\beta=-0.161$, $p<0.05$, $OR=1.17$). Conversely, in the not sustainable category, the 15-34 age group ($\beta=0.123$, $p<0.05$, $OR=1.13$) indicates that young people tend to have a higher (logarithmic) probability of being classified as not sustainable compared with the primarily sustainable group and individuals aged 55 and over (approximately 13%). By contrast, the 35-54 age group is not statistically significantly associated with the probability of being classified as secondarily sustainable or not sustainable compared with the reference category, due to relatively small and non-significant coefficients.

Frequent travellers show a coefficient of 0.103 for the not sustainable category ($p<0.05$, $OR=1.11$), indicating a positive association with the probability of being classified as not sustainable compared with the primarily sustainable group and occasional travellers (around 11%). Finally, employment status, distinguishing between employed and unemployed individuals, does not show statistically significant associations with the probability of belonging to the sustainability categories.

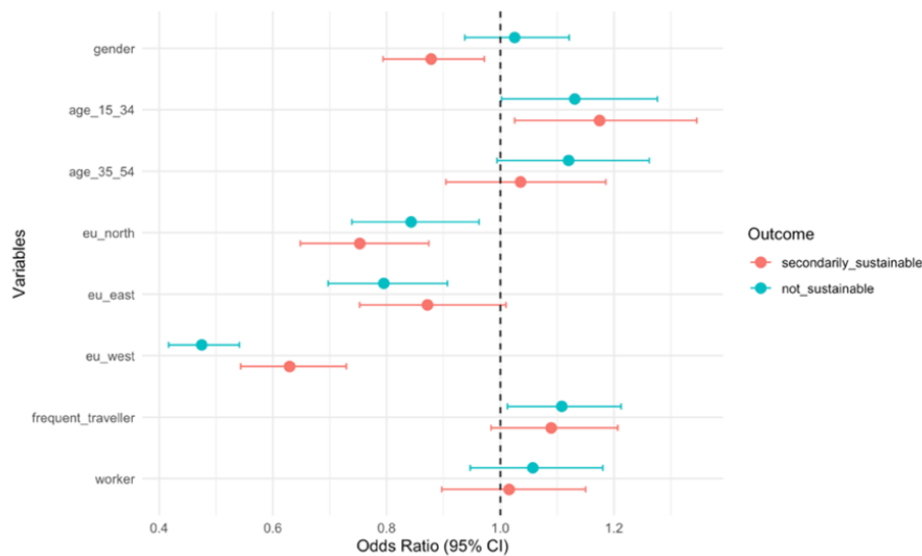
Table 2. Multinomial logit model

sustainability_class (reference category=primarily_sustainable)						
	Outcome	=	secondarily_sustainable	Outcome	=	not_sustainable
Variable	Coefficient	Z-stat	Odds_Ratio	Coefficient	Z-stat	Odds_Ratio
(Intercept)	0.921***	12.18	2.51	2.010***	29.80	7.46
gender	-0.130*	-2.51	0.88	0.025	0.55	1.03
age_15_34	0.161*	2.32	1.17	0.123*	1.99	1.13
age_35_54	0.035	0.51	1.04	0.113	1.86	1.12
eu_north	-0.284***	-3.72	0.75	-0.171*	-2.53	0.84
eu_east	-0.137	-1.83	0.87	-0.229***	-3.41	0.80
eu_west	-0.463***	-6.17	0.63	-0.745***	-11.18	0.47
frequent_traveller	0.086	1.65	1.09	0.103*	2.23	1.11
employed	0.015	0.24	1.02	0.056	0.99	1.06
Observations: 22,503						
Nagelkerke R ² : 0.014						
Wald test: $\chi^2(16)=252.8$, $p<0.001$						
Likelihood Ratio Test: $\chi^2(16)=248.78$, $p<0.001$						

Source: Flash Eurobarometer 499, “Attitudes of Europeans towards Tourism”, own elaborations.

Note: Reference groups: gender (female), age groups (55_and_over), country groups (eu_south), employed (non-employed), frequent_traveller (occasional traveller). Asterisks *** indicates $p<0.001$, ** indicates $p<0.01$, * indicates $p<0.05$ and . indicates $p<0.1$. Odds ratio: $OR>1$ indicates a higher probability of being classified in the outcome group compared to the reference group; $OR<1$ indicates a lower probability.

Figure 1. Odds Ratio and Confidence Intervals for Sustainability Categories



Source: Flash Eurobarometer 499, “Attitudes of Europeans towards Tourism”, own elaborations.

Note: Reference groups: gender (female), age groups (55_and_over), country groups (eu_south), employed (non-employed), frequent_traveller (occasional traveller). Number of observations: 22,503. Odds ratio: OR>1 indicates a higher probability of being classified in the outcome group compared to the reference group; OR<1 indicates a lower probability.

4.1. Robustness check

Robustness checks, performed by estimating the Generalised Ordered logit model, analyse ordinal dependent variables by relaxing the proportional odds assumption and permitting coefficients to vary across the thresholds of the response variable, ordered from the lowest to the highest level of sustainability; a positive coefficient indicates a higher probability of belonging to a higher category of the dependent variable, and vice versa (Williams, 2016). The use of this model allows verification of whether the previously obtained results remain valid under an ordered structure and whether the parallel-lines assumption is satisfied, thereby increasing the reliability, flexibility, and robustness of the results.

The analysis highlights that an important factor in interpreting sustainable intentions is the adoption of specific operational definitions of “tourist”; for this purpose, the dependent variable sustainability_class is divided into three ordered categories: not_sustainable, secondarily_sustainable, and primarily_sustainable, with the latter used as the reference category. The full robustness check analysis is available in Table D1 of Appendix D, and based on the Generalised Ordered logit model, interaction effects are analysed, as reported in Tables 3-4 of the text. Non-significant variables at the 5% level are not reported for clarity of presentation. The interaction (Table 3) between age group and geographical area (Alonso-Almeida et al., 2024) shows that the most significant association concerns individuals aged 35-54 residing in Western Europe; although this age group is associated with a lower probability of declaring sustainable intentions compared with older individuals, the interaction analysis shows a higher cumulative probability of belonging to higher sustainability categories compared with the reference group (aged 55 and over residing in Southern Europe). The delta method analysis confirms the interaction effect. The results show that, with the exception of the specific association for the 35-54 age group in Western Europe, the overall interaction is not statistically significant (Wald test: $\chi^2(12)=18.0$, $p=0.12$).

Table 3. Generalised Ordered logit model=age*geographic area interaction

Equation 1 (cutpoint 1)				Equation 2 (cutpoint 2)		
sustainability_class (reference category=primarily_sustainable)						
Variable	Coefficient	Z-stat	Odds_Ratio	Coefficient	Z-stat	Odds_Ratio
(Intercept)	-0.720***	-12.89	0.49	-2.361***	-25.49	0.09
age_15_34:eu_north	-0.133	-1.23	0.88	-0.328 .	-1.88	0.72
age_35_54:eu_north	0.008	0.08	1.01	-0.251	-1.63	0.78
age_15_34:eu_east	-0.027	-0.26	0.97	-0.214	-1.23	0.81
age_35_54:eu_east	0.048	0.50	1.05	-0.076	-0.49	0.93
age_15_34:eu_west	0.152	1.39	1.16	0.033	0.20	1.03
age_35_54:eu_west	0.259**	2.60	1.30	0.044	0.29	1.05
Observations: 22,503						
Nagelkerke R²: 0.015						
Wald test: $\chi^2(12)=18.0$, p=0.12						
Likelihood Ratio Test: $\chi^2(28)=267.66$, p<0.001						

Source: Flash Eurobarometer 499, “Attitudes of Europeans towards Tourism”, own elaborations.

Note: Reference groups: age groups (55_and_over), country groups (eu_south). Asterisks *** indicates $p<0.001$, ** indicates $p<0.01$, * indicates $p<0.05$ and . indicates $p<0.1$. Odds ratio: $OR>1$ indicates a higher likelihood of being in a higher sustainability category (relative to that threshold); $OR<1$ indicates a lower likelihood.

Another interaction (Table 4) concerns age and employment status (Gomes et al., 2023), and the results show that younger employed individuals (15-34 years) have a significantly lower cumulative probability of expressing sustainable intentions compared with unemployed individuals aged 55 and over (reference category). Even more markedly, employed individuals aged 35-54 show a significantly lower cumulative probability of belonging to the more sustainable categories compared with unemployed individuals aged 55 and over, indicating that employment in this age group is associated with a lower propensity towards sustainable intentions prior to travelling. The delta method analysis confirms the interaction results. The Wald test ($\chi^2(4)=13.4$, $p=0.0094$) shows that, although employment status considered in isolation is not statistically significant, its interaction with age reveals differences that do not emerge when the variables are analysed separately. In this case, the robustness check shows that, among young and middle-aged individuals, being employed is associated with a lower propensity towards sustainable intentions, compared with older unemployed individuals (reference group).

Table 4. Generalised Ordered logit model=age*employed interaction

Equation 1 (cutpoint 1)				Equation 2 (cutpoint 2)		
sustainability_class (reference category=primarily_sustainable)						
Variable	Coefficient	Z-stat	Odds_Ratio	Coefficient	Z-stat	Odds_Ratio
(Intercept)	-0.788***	-17.61	0.46	-2.355***	-33.30	0.10
age_15_34:employed	-0.170*	-2.13	0.84	-0.109	-0.89	0.90
age_35_54:employed	-0.168 .	-1.74	0.85	-0.429**	-3.09	0.65
Observations: 22,503						
Nagelkerke R ² : 0.014						
Wald test: $\chi^2(4)$ =13.4, p=0.0094						
Likelihood Ratio Test $\chi^2(20)$ =262.41, p<0.001						

Source: Flash Eurobarometer 499, “Attitudes of Europeans towards Tourism”, own elaborations.

Note: Reference groups: age groups (55_and_over), employed (non-employed). Asterisks *** indicates $p<0.001$, ** indicates $p<0.01$, * indicates $p<0.05$ and . indicates $p<0.1$. Odds ratio: $OR>1$ indicates a higher likelihood of being in a higher sustainability category (relative to that threshold); $OR<1$ indicates a lower likelihood.

5. DISCUSSION

This study shows that sustainable intentions are influenced by several factors; however, not all explanatory variables are statistically significant, suggesting that such intentions may also depend on additional unobserved factors not captured by the survey data.

With regard to the area of residence, a positive association emerges between residence in Western Europe and sustainable intentions, consistent with H1 and previous studies highlighting greater environmental awareness in these countries (Leonidou et al., 2015); this result can be interpreted in light of the Theory of Planned Behaviour. In this sense, the Western European context may foster more sustainable intentions thanks to more advanced public policies, favourable infrastructure, and greater exposure to sustainability-related issues. Eastern Europe, by contrast, shows a more moderate positive association with sustainability, indicating an ongoing evolution that has not yet fully aligned with the levels observed in Western Europe. Overall, this suggests a geographical differentiation in sustainable intentions reflecting structural differences across socio-economic contexts.

Although Northern Europe is considered a leading context in environmental practices, no significant results emerge regarding sustainable intentions in the binary specifications. This finding may indicate that, in contexts that are already highly sustainable, differences in intentions tend to diminish or become less visible in aggregate measurements. In other words, sustainability may be so deeply internalised that it no longer appears as an explicit difference in declared responses, but rather as an embedded element, perhaps due to cultural or self-perception factors that make sustainability a natural, habitual, and facilitated choice. However, more complex specifications reveal more nuanced effects, suggesting that binary measurement may mask relevant heterogeneity (Williams, 2016). These results confirm the cross-country differences

highlighted in the literature (Alonso-Almeida et al., 2024) and reinforce the importance of country of residence as a relevant explanatory factor.

Regarding gender, the results suggest that, all else being equal, men are less likely to declare sustainable intentions than women, in line with H2 and the existing literature (Campos-Soria et al., 2018). This finding confirms the relevance of socio-demographic differences in sustainable intentions and may be interpreted in light of the Norm Activation Model, considering that women tend to exhibit greater environmental sensitivity and responsibility.

A particularly relevant finding concerns age, which shows a counterintuitive pattern not fully consistent with previous research (D'Arco et al., 2023), highlighting the complexity of socio-demographic determinants of sustainable intentions; this result may be interpreted in light of the Value-Belief-Norm Theory. In particular, younger individuals may express high environmental values and sustainable intentions that, however, do not always materialise, probably due to limited financial resources, lower decision-making autonomy, or a limited understanding of the issue. The result does not fully support H3, suggesting that the relationship between age and sustainable intentions is not linear, but rather mediated by structural constraints and contextual factors (Leonidou et al., 2015; Alonso-Almeida et al., 2024).

Finally, among frequent travellers, a potential contradiction emerges between high mobility and perceived sustainability, although no robust and systematic relationship is found between travel frequency and sustainable intentions. This contributes to the literature on the complexity of sustainable tourist profiles and their propensity towards sustainability.

Although the dataset concerns the most important aspects influencing holiday choices in 2021, the results provide relevant insights on sustainable intentions of tourists, since the survey focuses on intentions expressed prior to travel; the relatively low level of environmental concern observed further reinforces this interpretation.

This study contributes to the existing literature by showing how analytical results may vary depending on the operational definition adopted for tourists with sustainable intentions. By adopting an alternative and previously unexplored approach, this classification highlights tourist heterogeneity and can influence empirical outcomes, consistent with H4 and previous literature (Del Chiappa et al., 2018).

6. CONCLUSIONS

This study analyses the characteristics of “sustainable tourists” in Europe, namely those who consider environmental issues important, promoting eco-friendly practices at the destination, willing to use low-impact modes of transport to reach the destination and preferring accommodation and attractions that hold sustainability certifications. The main purpose is to explore the relationship between a set of socio-demographic, cultural and contextual characteristics and the propensity of tourists to declare sustainable intentions, which represent a fundamental first step in understanding future actions. The large, international, and representative dataset, together with the approach based on segmenting tourists into three distinct groups, represents an alternative contribution to the literature, demonstrating how different classifications of tourists can influence analysis results and offer new interpretative perspectives compared with traditional approaches.

For European tourists, considering sustainability aspects before travelling is moderately relevant: among the primarily sustainable, only around 10% take them into account; however, one in five considers them

secondary, while the majority do not declare environmentally friendly travel intentions. Initially, a Binary logit model estimates the probability that a respondent declares sustainable intentions when choosing a destination. The results show that Western European citizens give greater importance to sustainable elements; men show a significantly lower preference than women, while middle-aged individuals are less interested in environmental issues before travelling compared with older adults.

Subsequently, three groups of tourists (primarily, secondarily, and not sustainable) are outlined to classify sustainable intentions more thoroughly and better capture the nuances of tourists, overcoming the simplifications of binary classifications in the literature. For methodological continuity, a Multinomial logit model is used, allowing the complexity of sustainable intentions to be captured by estimating the probability of belonging to one of the three categories based on socio-demographic, cultural, and contextual factors. According to the results, Western European tourists show the highest propensity towards sustainable aspects, probably due to strict environmental regulations and a more deeply rooted sustainable culture which positively influence the sustainable thinking and intentions of their citizens. Men are less likely to be sustainable than women, while younger individuals are less likely to be primarily sustainable compared with older individuals, possibly reflecting differences in environmental awareness and life experience across socio-demographic groups. Overall, these findings confirm the relevance of socio-demographic and cultural factors in explaining the declaration of sustainable intentions when choosing a travel destination, with the theoretical frameworks serving as an interpretative lens.

From the perspective of public policy implications, the results suggest the need for differentiated strategies to attract visitors with distinct characteristics, whose interest in sustainability varies for geographical, economic, and temporal reasons. Policymakers could strengthen the promotion of sustainable tourism through targeted campaigns aimed at groups with lower levels of such intentions, while for more sustainability-oriented groups the objective could be to encourage specific attitudes. At the same time, accommodation providers and tourism marketing operators could improve communication before travel by providing clear information on sustainable practices in order to guide the choices of tourists. This study presents certain limitations: it is based on cross-sectional data, and the absence of panel data prevents the observation of units over time and the inference of dynamic causal relationships between the variables analysed. Another limitation is the potential effect of social desirability bias (Zhu et al., 2024), which can occur in surveys where participants may exaggerate or conceal their actual behaviour or intentions. However, considering the questionnaire format and the generally low level of environmental concern, this effect is assumed to be limited, although it cannot be entirely ruled out, particularly in relation to self-reported variables. Finally, the dataset does not include the income of the respondents, which could influence sustainable tourism intentions and be addressed in future research; its absence may therefore have reduced the explanatory power of the model. There are several avenues for future research: using longitudinal or panel data to compare declared sustainable intentions with actual behaviour over time; providing separate estimates for each country, thereby significantly improving the scope of the analysis; and collecting attitudinal and norm-based data through validated TPB, NAM or VBN scales in order to better capture the psychological determinants such as attitudes, personal norms, and environmental values within the empirical analysis.

Acknowledgements

This work was developed within a joint research project between Kore University of Enna and Södertörn University during a research stay in Sweden. The author gratefully acknowledges the academic support of Södertörn University and expresses gratitude to Professors Raffaele Scuderi, Eva Hagsten, Xiang Lin and Martin Thomas Falk for their guidance, valuable feedback, and supervision throughout the preparation of this paper.

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APPENDIX A

Table A1. Independent variables

Description of independent variables	
Variables	Description
<i>Contextual</i>	
frequent_traveller	Indicate dummy variables for how frequently one travels: one for frequent traveller, zero for occasional traveller.
<i>Socio-Demographic</i>	
gender	Dummy variable equal to one for men, zero for women.
<i>Age groups</i>	
age_15_34	Age category: 15-34 years.
age_35_54	Age category: 35-44 years.
age_55_and_over	Age category: from 55 years (reference category).
employed	Dummy variables indicating the occupation and indirectly also the income level of the tourist: one for employed individuals, zero for non-employed.
<i>Cultural</i>	
<i>Group of country</i>	
eu_north	Dummy variables: indicate whether the respondent comes from a Northern European country (Denmark, Estonia, Finland, Ireland, Latvia, Lithuania, Sweden).
eu_east	Dummy variables: indicate whether the respondent comes from an Eastern European country (Bulgaria, Romania, Poland, Slovakia, Slovenia, Czech Republic, Hungary).
eu_west	Dummy variables: indicate whether the respondent comes from a Western European country (Belgium, Germany, France, Luxembourg, Netherlands, Austria).
eu_south	Dummy variables: indicate whether the respondent comes from a Southern European country (Italy, Spain, Greece, Portugal, Malta, Rep. of Cyprus, Rep. of Croatia) (reference category).

Source: Flash Eurobarometer 499, “Attitudes of Europeans towards Tourism, Autumn 2021”, own elaborations.

APPENDIX B

Question Q4a and Q4b

Extract from Flash Eurobarometer 499 “Attitudes of Europeans towards Tourism, Autumn 2021”

https://data.europa.eu/data/datasets/s2283_499_eng?locale=en :

Q4a When you choose a destination to visit, which of the following are most important? Firstly?

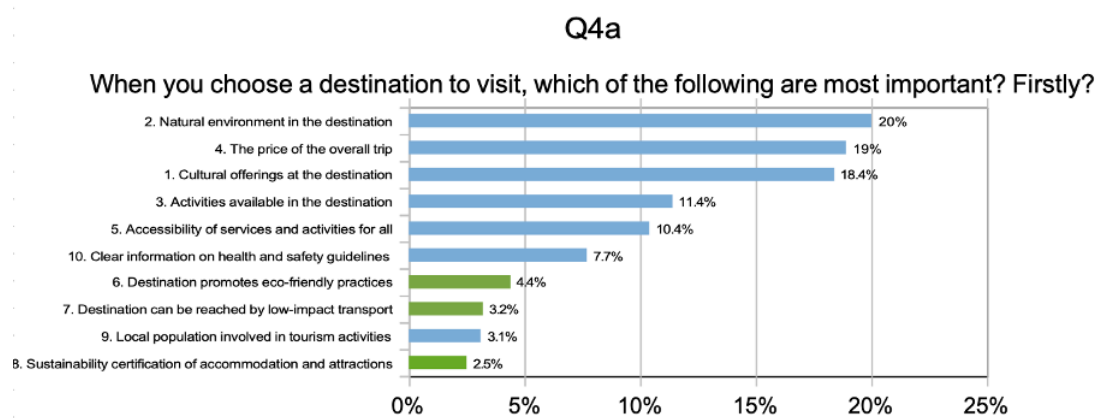
- Destination (city, region) promotes eco-friendly practices (alternative 6).
- Destination can be reached by low-impact transport (alternative 7).
- Sustainability certification of accommodation and attractions (alternative 8).

Q4b And then?

- Destination (city, region) promotes eco-friendly practices (alternative 6).

- Destination can be reached by low-impact transport (alternative 7).
- Sustainability certification of accommodation and attractions (alternative 8).

Figure B1. Question Q4a



Source: Flash Eurobarometer 499, “Attitudes of Europeans towards Tourism, Autumn 2021”, own elaborations.

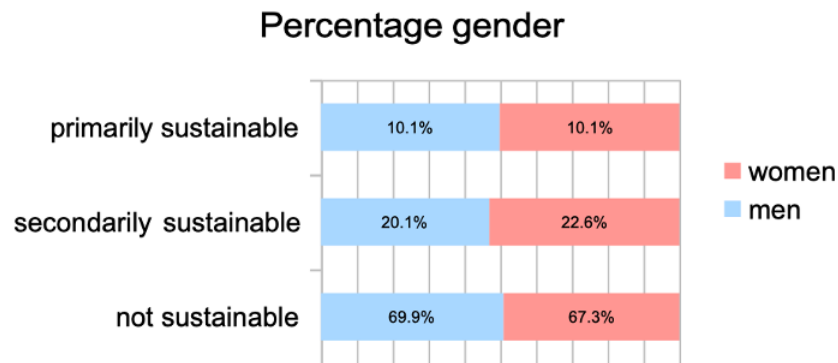
APPENDIX C

Table C1. Descriptive statistics

Variables	N	Min	Max	Mean
gender	22,503	0	1	0.49
age_15_34	22,503	0	1	0.27
age_35_54	22,503	0	1	0.41
age_55_and_over	22,503	0	1	0.32
eu_north	22,503	0	1	0.27
eu_south	22,503	0	1	0.25
eu_east	22,503	0	1	0.29
eu_west	22,503	0	1	0.20
frequent_traveller	22,503	0	1	0.56
employed	22,503	0	1	0.69

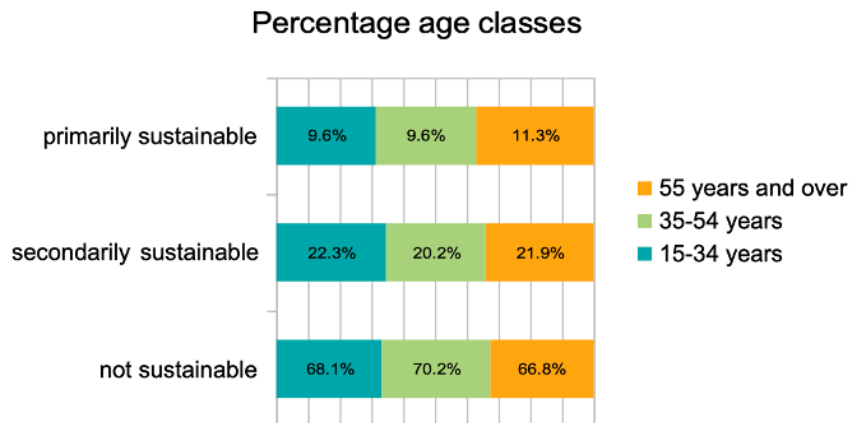
Source: Flash Eurobarometer 499, “Attitudes of Europeans towards Tourism, Autumn 2021”, own elaborations.

Figure C1. Percentage of gender by group.



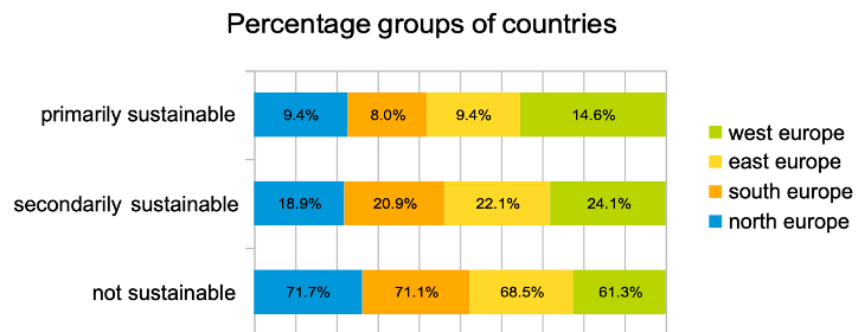
Source: Flash Eurobarometer 499, “Attitudes of Europeans towards Tourism, Autumn 2021”, own elaborations.

Figure C2. Percentage of age classes by group.

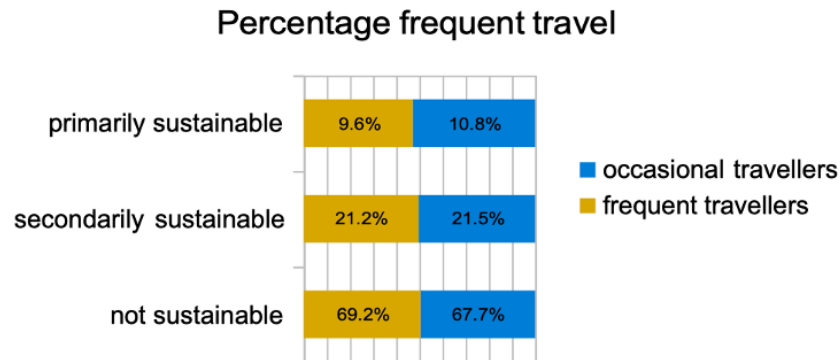


Source: Flash Eurobarometer 499, “Attitudes of Europeans towards Tourism, Autumn 2021”, own elaborations.

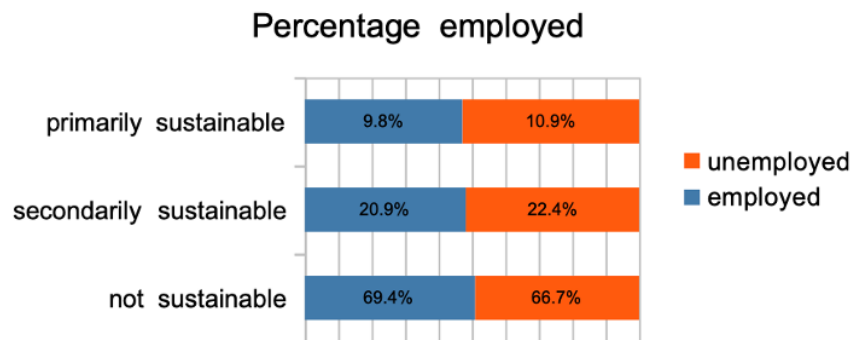
Figure C3. Country group percentages by group.



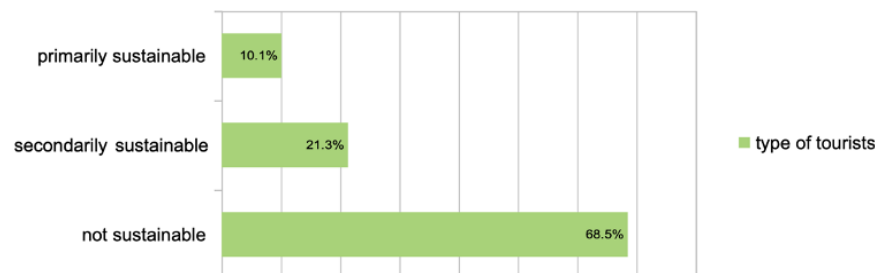
Source: Flash Eurobarometer 499, “Attitudes of Europeans towards Tourism, Autumn 2021”, own elaborations.

Figure C4. Percentage of frequent travel by group.

Source: Flash Eurobarometer 499, “Attitudes of Europeans towards Tourism, Autumn 2021”, own elaborations.

Figure C5. Percentage of employed by group.

Source: Flash Eurobarometer 499, “Attitudes of Europeans towards Tourism, Autumn 2021”, own elaborations.

Figure C6. Types of tourists

Source: Flash Eurobarometer 499, “Attitudes of Europeans towards Tourism, Autumn 2021”, own elaborations.

APPENDIX D

The full robustness checks analysis is conducted using the generalised ordered logit model and the results indicate that variables such as gender, age, geographical area, and travel frequency significantly influence the likelihood of belonging to the different categories of sustainable tourists (Table D1). In particular, the main findings indicate that respondents from Western Europe and, to a lesser extent, from Eastern and Northern Europe show a significantly higher cumulative probability of being classified as more sustainable, compared to the reference group (Southern Europe). This suggests a marked territorial difference in the prevalence of PASOS. Revista de Turismo y Patrimonio Cultural. ISSN 1695-7121

sustainable intentions. Gender is also associated with the degree of perceived sustainability. Female gender shows a higher cumulative probability of belonging to the higher sustainability categories, demonstrating a greater propensity towards sustainable intentions compared to the male gender, who are more likely to be in the not sustainable category.

Another relevant factor concerns age. Specifically, younger individuals (15–34 years) have a higher cumulative probability of belonging to the lower sustainability categories (not sustainable or secondarily sustainable) compared to older individuals. Furthermore, the 35–54 age group has a higher cumulative probability of belonging to the “not sustainable” category compared to the age group of 55 and over age group. These results suggest that older age is associated with a greater propensity towards sustainable intentions. Finally, frequent travellers tend to have lower sustainable intentions, confirming the role and importance of sociodemographic, cultural and contextual variables in shaping attitudes related to environmental sustainability.

Table D1. Generalized Ordered Logit model

Equation 1 (cutpoint 1)				Equation 2 (cutpoint 2)		
sustainability_class (reference category=primarily_sustainable)						
Variable	Coefficient	Z-stat	Odds_Ratio	Coefficient	Z-stat	Odds_Ratio
(Intercept)	-0.751***	-17.98	0.47	-2.296***	-34.61	0.10
gender	-0.113***	-3.88	0.89	0.014	0.30	1.01
age_15_34	-0.013	-0.32	0.99	-0.139*	-2.30	0.87
age_35_54	-0.090*	-2.29	0.91	-0.104 .	-1.74	0.90
eu_north	-0.027	-0.65	0.97	0.198**	2.97	1.22
eu_east	0.133**	3.27	1.14	0.211**	3.19	1.24
eu_west	0.433***	10.11	1.54	0.676***	10.33	1.97
frequent_traveller	-0.045	-1.52	0.96	-0.100*	-2.21	0.91
employed	-0.045	-1.26	0.96	-0.050	-0.90	0.95
Observations: 22,503						
Nagelkerke R²: 0.014						
Wald test: $\chi^2(16)= 253.5$, p<0.001						
Likelihood Ratio Test $\chi^2(16) =249.61$, p<0.001						

Source: Flash Eurobarometer 499, “Attitudes of Europeans towards Tourism, Autumn 2021”, own elaborations.

Note: Reference groups: gender (female), age groups (55_and_over), country groups (eu_south), employed (non-employed), frequent_traveller (occasional traveller). Asterisks *** indicates $p<0.001$, ** indicates $p<0.01$, * indicates $p<0.05$ and . indicates $p<0.1$. Odds ratio: OR>1 indicates a higher likelihood of being in a higher sustainability category (relative to that threshold); OR<1 indicates a lower likelihood.