

From Tourism to Sustainable Action: Understanding the Factors of Pro-Environmental Behaviour

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Abstract

Climate change is one of the greatest challenges facing society and the tourism sector. Therefore, understanding sustainable tourism behaviour has become increasingly important for the competitiveness, management, and governance of destinations. Central to these strategies is the emergence of tourists' conscious travel habits and pro-environmental behaviour. Data was collected from 432 tourists in Gipuzkoa (Spain) through an on-site intercept survey involving a structured questionnaire. The data was analysed using Structural Equation Model (SEM). This study has partially confirmed the proposed hypotheses. Thus, the positive and significant relationship between everyday behaviour and travel behaviour (both before and during a trip) has been confirmed, aligning with previous studies. However, the hypothesis results regarding the values construct are less consistent. The contribution and significance of the study lie in its holistic view of tourists' sustainable behaviour through the application of different theories. For effective tourism management, understanding the factors that influence tourists' pro-sustainable behaviour has important practical and societal implications. The profiling of tourists will allow tourist destinations to tailor their services, marketing strategies and infrastructures to meet the specific needs and preferences of the different tourist segments.

Keywords: *tourist behaviour, destination management, pro-environmental behaviour, Gipuzkoa, Structural Equation Model, climate change*

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1 INTRODUCTION

Climate change poses a significant challenge to the tourism sector, which both contributes to and is affected by environmental degradation (Scott & Gössling, 2022). As destinations strive to enhance competitiveness and sustainability, understanding tourists' pro-environmental behaviour has become critical for effective management and governance (Fauzi et al., 2023). Pro-environmental behaviour, defined as actions that consciously reduce negative environmental impacts (Lin et al., 2022), is shaped by a complex interplay of individual habits, values, and situational factors.

However, existing research often examines these factors in isolation, limiting a comprehensive understanding of how they interact across different travel phases—planning and on-site

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behaviour. Previous studies have primarily relied on single theoretical frameworks, such as the Theory of Planned Behaviour (Clark et al., 2019) or the Value-Belief-Norm (VBN) Theory (Demeter et al., 2023), to explain sustainable tourist behaviour. While these approaches offer valuable insights, they often overlook the dynamic relationship between habitual behaviours developed at home and those enacted during travel, as well as the role of personal values in bridging these contexts. While one strand of research argues that these approaches often fall short in tourism contexts, where individuals typically enter a hedonic state and abandon sustainable practices formed at home (Barr et al., 2010; Juvan & Dolnicar, 2014) due to the disruption of environmental cues. Another perspective holds that MacInnes et al. (2022) demonstrate that even environmentally committed individuals frequently disengage from pro-environmental behaviours during vacations, suggesting that the strength of habit—not values or beliefs alone—may be a crucial factor of behaviour in tourism settings.

This perspective aligns with the increasing call to re-evaluate the theoretical foundations of sustainability research in tourism. MacInnes et al. (2022) demonstrate that sustainable behaviours at home—such as towel reuse or waste separation—often diminish during travel, primarily due to the disruption of automatic, habitual routines. They argue that while value-based appeals are useful, habit-driven automaticity plays a more significant role in sustaining environmental behaviours on vacation, especially in the planning stage. Therefore, integrating habit as a core construct alongside values offers a more robust model for understanding sustainable behaviour across the travel experience.

Moreover, recent studies emphasize the importance of the broader tourism ecosystem in shaping pro-environmental conduct. Vicente (2024) highlights that tourists' behaviour and willingness to revisit destinations are influenced by green infrastructure, transport accessibility, and environmental quality. These contextual features reinforce the need to examine how pre-trip intentions (sustainable travel planning) and on-site opportunities interact to shape actual behaviour.

This study addresses these theoretical and practical gaps by integrating Habit Theory and VBN Theory to examine how everyday sustainable habits and environmental values influence tourists' pro-environmental behaviour during two key phases of the travel experience, the planning stage and the stay at the destination. In line with recent research that combines multiple theoretical frameworks to better explain environmentally responsible tourism behaviour (Atzori et al., 2018; Fauzi et al., 2024), this integrated approach contributes to a more holistic understanding of the motivational and behavioural dimensions involved in sustainable tourism choices.

The study is conducted in the province of Gipuzkoa (Spain), a destination experiencing steady growth in tourism but with limited implementation of sustainability initiatives in its accommodation sector (Gipuzkoa Turismo & Universidad de Deusto, 2023). The research aims to achieve two objectives: (1) to identify the extent to which daily sustainable habits shape travel planning and on-site behaviour, and (2) to explore how environmental values mediate these relationships. This integrated approach provides a novel contribution by synthesising habit formation and value-driven motivations, offering insights for destination management to foster sustainable tourism practices.

This paper is structured as follows. Section 2 reviews the literature on Habit Theory and VBN Theory and presents the hypotheses derived from the conceptual framework. Section 3 outlines the methodology, including the study context and data collection process. Sections 4 and 5 present the empirical results, discuss their implications for theory and practice, and conclude with recommendations for future research and sustainable destination governance.

2 TOURISTS' PRO-ENVIRONMENTAL BEHAVIOUR

Pro-environmental behaviour in tourism has been defined in various ways, often interchangeably using terms such as ecological, green, environmentally responsible, or sustainable behaviour (Lin et al., 2022; Tosun et al., 2023). At its core, such behaviour refers to conscious actions aimed at reducing environmental harm and enhancing sustainability during travel. Understanding the underlying drivers of this behaviour is key to promoting more responsible tourism practices, particularly in the context of climate change and increasing pressure on destinations (Scott & Gössling, 2022).

This study adopts an integrative framework based on Habit Theory and Value-Belief-Norm (VBN) Theory, which offer complementary insights into the mechanisms that drive sustainable behaviour. Habit Theory accounts for the automatic and routine aspects of pro-environmental actions, whereas VBN Theory explains how personal values and moral norms shape behavioural intentions and responses (Verplanken & Aarts, 1999; Stern et al., 1999). By combining these perspectives, this study contributes to a more holistic understanding of tourist behaviour across different phases of travel.

2.1. Habit Theory: The role of daily sustainable habits

Habit Theory posits that behaviours performed repeatedly in stable contexts become automatic and are triggered by contextual cues rather than conscious intention (Verplanken & Aarts, 1999; Wood & Rüniger, 2016). In the context of sustainability, habits such as recycling, reducing plastic use, or conserving energy are ingrained through frequent practice (Miller et al., 2015). These daily habits can influence behaviours in other domains, including tourism, through two mechanisms, direct transfer when contextual cues persist (e.g., taking public transport) and indirect transfer or spillover when habit strength affects intention or choice in a new stage (e.g., travel planning) (Holmes et al., 2021).

MacInnes et al. (2022) argue that habit is not merely a reflection of repeated behaviour, but a distinct psychological construct defined by automaticity. Their empirical findings reveal a substantial drop in sustainable behaviours from home to vacation settings, including towel reuse, food waste avoidance, and energy conservation. These declines are often not due to unwillingness, but because the cues that trigger sustainable habits at home are disrupted in the tourism environment. Tourists tend to "mentally disengage" and treat holidays as a break from their usual behavioural commitments (Juvan & Dolnicar, 2014; Pizzetti et al., 2024).

However, this behavioural disruption at the destination does not invalidate Habit Theory; rather, it underscores the importance of habit strength. An extremely strong habit may overcome contextual disruption and persist. More critically for this study, the frequency and automaticity of sustainable habits at home act as precursors to intention and choice in the tourism context, even if the final execution of the behaviour at the destination is hindered by situational factors (Wood & Rüniger, 2016). For instance, the automatization of selecting options in daily life

(habit) facilitates the planning of sustainable trips, such as the active selection of ecofriendly accommodations or low-impact transportation, where the influence of values is integrated with behavioural inertia (Bilynets & Cvelbar, 2022). In this way, daily habits are a driver that shapes pre-trip intentions and choices. Therefore, the positive effect postulated in H2 is interpreted as a transfer or spillover effect where the strength of a habit facilitates sustainable decision-making despite contextual disruptions that may occur during the trip (Holmes et al., 2021).

In this context, this study adopts habit as a key driver of sustainable behaviour in tourism, operationalised through frequency and automaticity of daily sustainable practices. We propose that habit strength facilitates transfer and shapes travel intentions. We hypothesise that:

H1. Sustainable habits in daily life positively influence sustainable travel planning.

H2. Sustainable habits in daily life positively influence sustainable behaviours at the destination.

2.2. Value-Belief-Norm Theory: The influence of environmental values

The Value-Belief-Norm (VBN) Theory, introduced by Stern (2000), is one of the most influential models for understanding pro-environmental behaviour. According to VBN, individuals' ecological actions are shaped by a sequential cognitive process: environmental values (e.g., biospheric or altruistic) influence beliefs about environmental consequences and personal responsibility, which in turn activate personal norms that guide behaviour.

In tourism contexts, VBN Theory has been widely applied to explain sustainable intentions and behaviours, such as the choice of eco-friendly accommodation or participation in low-impact activities (Lin et al., 2022; Atzeni et al., 2022). Tourists who hold strong biospheric values—prioritising environmental protection—tend to develop a heightened awareness of the consequences of their actions and feel morally obligated to act sustainably. This process is particularly evident during the planning phase, where tourists consider the environmental implications of their destination, transport, and accommodation choices (Demeter et al., 2023).

However, while values are central to forming environmental intentions, their translation into action is not always consistent, particularly in on-site contexts. Research suggests that the influence of environmental values may diminish in the face of situational barriers such as time constraints, lack of green infrastructure, or unfamiliar environments (Gössling et al., 2020; He et al., 2023). Wermelin (2022), for example, found that although values strongly predict daily sustainable habits, their direct effect on tourist behaviour at the destination is often mediated by norms, identity, or context-specific factors.

This theoretical limitation points to the need for integrative models that account for both motivational and habitual drivers. As noted by MacInnes et al. (2022), value-based appeals alone may not be sufficient to sustain pro-environmental actions during travel unless supported by strong habits or situational reinforcements. Nevertheless, VBN Theory remains crucial in identifying the moral and cognitive antecedents that inspire individuals to adopt sustainable lifestyles in the first place.

Beyond the Value-Belief-Norm framework, recent contributions by Barr and colleagues (Barr et al., 2010; Barr & Prillwitz, 2012; Barr, 2018) have proposed a context-sensitive approach to

understanding sustainable travel behaviour. Rather than decomposing values into specific orientations (biospheric, altruistic, egoistic), their work focuses on how individuals express pro-environmental concern through commitments to sustainable lifestyles and travel practices. This perspective has been influential in tourism and mobility studies, particularly in capturing how environmental values manifest in both every day and holiday contexts. In this study, we integrate Barr's approach to operationalise environmental values in a way that is empirically grounded and sensitive to the realities of travel behaviour. However, we acknowledge that this conceptualisation may not fully encompass the broader normative structure posited by VBN Theory, a point we return to in the methodological and discussion sections.

In this study, we extend VBN Theory by examining not only its direct effect on travel planning and on-site behaviour but also its relationship with sustainable habits. We hypothesise that individuals with strong environmental values are more likely to develop and maintain sustainable habits in their daily lives, which in turn may influence their behaviour during travel. The following hypotheses are proposed:

- H3.** Environmental values positively influence sustainable travel planning.
- H4.** Environmental values positively influence sustainable behaviours at the destination.
- H5.** Environmental values positively influence sustainable habits in daily life.

2.3. Synthesising Habit and VBN Theories

The Value-Belief-Norm (VBN) theory has been widely applied to understand environmental decision-making, particularly in the context of moral obligation and personal values (Bouhtati, Alla, & Ed-Daakouri, 2024). Recent work by Fauze et al. (2024) extended this framework by integrating VBN with the Theory of Planned Behaviour to examine tourists' intention to visit green hotels. Their study found that constructs such as environmental commitment, perceived moral obligation, and ascription of responsibility significantly influenced personal norms and behavioural intentions. While their focus was on accommodation choices, their methodological integration offers strong support for theory-driven models of tourist behaviour.

Our study builds on this foundation by grounding the analysis in VBN theory while extending it with Habit Theory to explore behavioural continuity across travel phases. Habit Theory adds an important dimension by capturing the automatic and context-driven nature of routine sustainable actions, which often bypass deliberate intention. In contrast, VBN Theory elucidates the motivational and normative drivers of behaviour based on internalized values and beliefs.

This combined approach addresses a key gap in the literature: understanding how values and habits interact to influence pro-environmental behaviour. For instance, strong environmental values may reinforce the development of sustainable routines at home, which in turn shape travel-related decisions (Holmes et al., 2021). Conversely, habits may mediate the influence of values on behaviour, especially when tourists face barriers that hinder the activation of personal norms during their stay (Bilynets et al., 2022).

Recent findings by MacInnes et al. (2022) further support the need for this integration. Their study reveals that even individuals with strong environmental values often fail to maintain sustainable behaviour on vacation due to the disruption of habitual cues. They argue that habit strength—not values alone—is the most consistent predictor of actual behaviour in tourism contexts, highlighting the importance of accounting for both automaticity and moral motivation.

Unlike prior studies that often treat habits and values in isolation (e.g., Barr et al., 2010; Lin et al., 2022), our research proposes that their interaction is essential for predicting sustainable tourism behaviour. By considering both internal psychological factors (habits and values) and external contextual elements (such as destination infrastructure), this study offers a more nuanced and comprehensive understanding of how tourists translate environmental intentions into concrete actions across the travel experience.

2.4. Destination context and sustainable travel planning

The destination context plays a pivotal role in shaping pro-environmental behaviour. As outlined in the Theory of Planned Behaviour (Ajzen, 1991), behavioural intentions are more likely to translate into action when facilitating conditions—such as supportive infrastructure—are present. This aligns with findings by Vicente (2024), who shows that tourists' willingness to revisit eco-destinations is significantly affected by the tourism ecosystem, including elements like green-certified accommodations, walkability, clean public spaces, and reliable public transport. These infrastructural attributes directly influence how feasible it is for tourists to act on their sustainable intentions during their stay.

Building on this, we define sustainable travel planning as the set of pre-trip intentions and choices—such as selecting eco-friendly transport or low-impact lodging—that serve as precursors to environmentally responsible on-site behaviours (Bilynets & Cvelbar, 2022). When destinations offer enabling environments, tourists are more likely to maintain their commitment to sustainability throughout their travel experience. Thus, planning is not only an expression of intent but also a behavioural determinant, shaped by perceptions of destination readiness and sustainability.

The following hypothesis is proposed:

H6. Sustainable travel planning positively influences sustainable behaviours at the destination.

The conceptual model (figure 1) integrates daily sustainable habits, environmental values, and sustainable travel planning as predictors of pro-environmental behaviour at the destination. By grounding the model in Habit Theory and VBN Theory, this study addresses the interplay between automatic behaviours and value-driven motivations, offering insights for destination management to foster sustainable tourism practices.

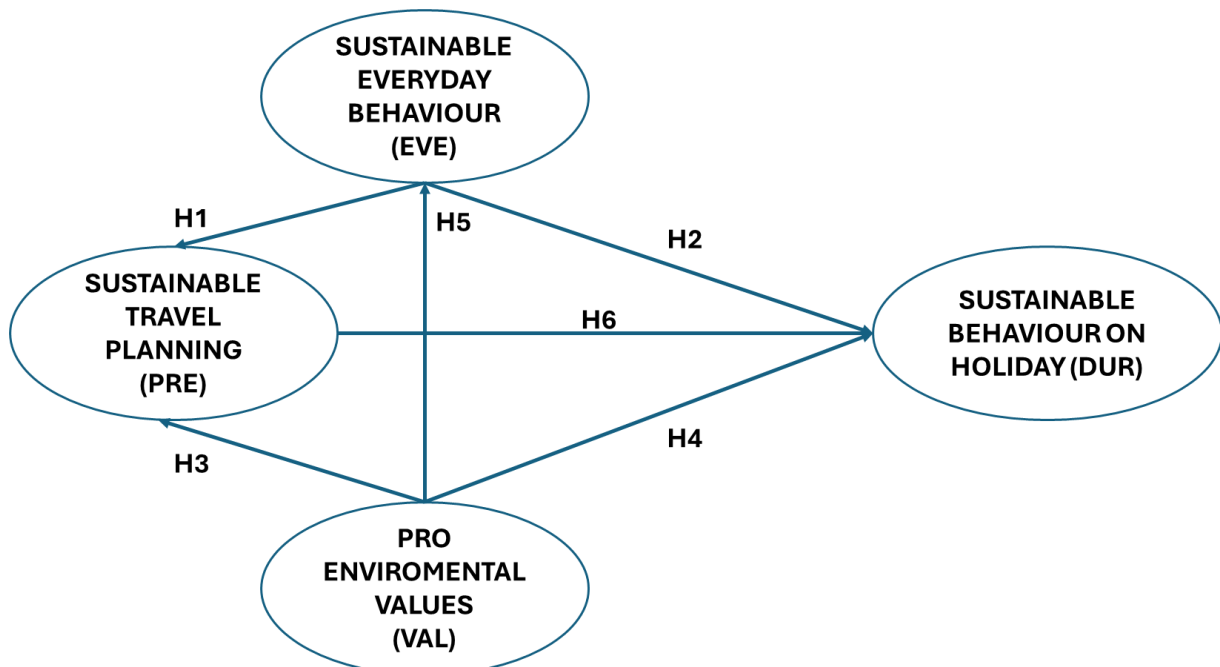


Figure 1. Empirical model. Source: Own research

The use of a modified multidimensional conceptual model to assess the relationship between independent and dependent variables is a unique aspect of this study.

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3 MATERIALS AND METHODS

3.1. Study location

This research was developed in Gipuzkoa, one of the three regions in the Basque Country. Gipuzkoa is in Northern Spain, strategically poised between France and Spain, the two most visited countries in the world. Notably, San Sebastián, the region's capital, is an internationally recognised tourist destination and winner of many awards, including the 2018 Experts' Choice Award for Best European Destination and the 2019 United Nations World Tourism Organisation Prize for Public Policy and Governance. Historically, tourism has been one of Gipuzkoa's most important economic sectors, particularly along the coast. There are several reasons that account for its popularity, the beauty of San Sebastian and the quality of the scenery, culture and services. However, climatic conditions can also have a direct influence on redistributing tourism flow and altering tourist development models. In recent years, tourism has gained significant economic importance for Gipuzkoa, evidenced by an increase in visitor arrivals, overnight stays, and spending, which has led to higher employment and greater offerings for tourists (Gipuzkoa Turismo and Universidad de Deusto, 2023).

This study is part of a project that examines how accommodation in Gipuzkoa is adapting to climate change. According to our previous research, not many local companies have implemented specific action plans to address sustainability or climate change. As a result, the accommodation sector in Gipuzkoa can be said to consist mainly of 'spectators' who are not actively pursuing sustainability goals and have only implemented the standard initiatives of their industry, with a small number of 'frontrunners' who have sustainability at the core of their proposition (EY and Booking, 2023). It would seem, therefore, that policy makers should develop specific interventions for each tourism segment, for supply and demand, and put in place specific action plans adapted to each profile.

3.2. Sampling, data collection and analytical methods

This study is based on primary data collected using a questionnaire-based survey of tourists staying overnight in Gipuzkoa for whatever reason (leisure, work, cultural visits, nature-based activities or any other purpose). The survey instrument contains closed-ended questions with answer categories that were determined based on a preliminary literature review (see Table 1). The survey instrument is segmented into two main sections, (1) travel planning behaviour, and (2) tourist behaviour during the trip. It also includes questions regarding demographics and trip characteristics, everyday sustainable behaviour and eco-centric values, and barriers or reasons for not maintaining pro-environmental attitudes on holidays (Whitmarsh, 2009). The analysis focuses on the first section in order to determine segmentation-based demand optimisation. Travel planning behaviour addresses concerns regarding the environmental impact of vacations (Juvan et al., 2016) and positive holiday environmental attitudes (Barr et al., 2010), while tourist behaviour focuses on daily travel practices (Whitmarsh, 2009) and cognizance of environmental responsibility as target behaviour (Demeter et al., 2023). Both sections use a five-point Likert scale ranging from 1 to 5, indicating [1] = Never and [5] = Always (adapted from Juvan et al., 2016).

Since the measurement instruments used were originally created in English, their adaptation was used with the methodological process called "translation and back-translation" to ensure these characteristics. If applicable, and according to this process, the original items were translated into Spanish. Next, we examined whether the terms, vocabulary and grammatical

expressions coincided with the original items in English, otherwise analyzing the degree of discrepancy existing from a semantic, interpretative and conceptual point of view.

Environmental values were measured using items adapted from Barr et al. (2010, 2012, 2018), focusing on respondents' attitudes toward environmental protection and their personal commitment to sustainable lifestyles and travel behaviours. This approach has been widely applied in studies of mobility and tourism, offering a pragmatic way to assess environmentally oriented dispositions in both home and holiday settings.

The questionnaire first includes a control question to verify that the participants stayed overnight in Gipuzkoa. To facilitate the respondents' participation in this study and avoid errors resulting from the possibility of language barriers, the questionnaire was published in Spanish, English, French and Basque. A pilot study was launched to ensure the questions formulated and the questionnaire's design were correctly understood. To improve the understanding of the questions, an explanatory paragraph clarifying the questions was included at the beginning of the main portion of the survey.

The survey, which was conducted in the field in August and September 2023, involved 499 personal interviews of which 432 were deemed suitable for analysis. The sample was taken at random at several tourist spots in San Sebastián. 69% of respondents answered the survey in Spanish, 28% in English and the remaining 3% in Basque and French.

Given that data were collected using self-reported measures via a structured questionnaire, the study accounted for the potential influence of common method bias (CMB). To assess CMB, Harman's single-factor test was conducted through an unrotated exploratory factor analysis. The results revealed that no single factor accounted for the majority of variance, indicating that CMB is not a significant concern in this study. Furthermore, procedural remedies were employed to mitigate CMB risk. These included ensuring respondent anonymity, using different scale anchors for distinct constructs, randomizing item order, and applying back-translation to maintain clarity across multiple languages. The survey design also involved separating measurements of predictor and criterion variables in the questionnaire to reduce response consistency effects. Collectively, these procedures help to minimize the likelihood of bias affecting the validity of the findings.

4 RESULTS

After editing and coding the questionnaires, the first stage of analysis used basic descriptive statistics for all the demographic items. In the second stage, the data were analysed using Exploratory Factorial Analysis (EFA) with SPSS 28.0 and Confirmatory Factorial Analysis (CFA) with AMOS 24.0. Sample error was 4.17% with 95% confidence interval. First, the descriptive statistics are presented to establish the respondents' socio-demographic profiles, trip characteristics and main motivations for visiting Gipuzkoa.

4.1. Descriptive statistics

Fornell & Larcker (1981) suggest a threshold above 0.5 for AVE. Bentler (1992) and Hayduk (1987) highlight that for CFA indicators, values above 0.7 are acceptable and values above 0.9 are considered good. Hair et al. (2004) states that a discrepancy divided by the degree of freedom (CMIN/DF) value of ≤ 5 indicates an acceptable fit. According to Garson (2012), Comparative Fit Index (CFI) and Tucker-Lewis Index (TLI) values equal to or greater than 0.9 indicate good fit indices (Tucker & Lewis, 1973). Finally, Structural Equation Modelling (SEM) was used to evaluate the study's hypotheses.

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This section is an analysis of the demographic characteristics of the respondents. The results showed that 69% of respondents answered the survey in Spanish, 28% in English, and 3% in Basque and French. More women (58.4%) than men (39.3%) responded, over half of which were under 30 years old. Regarding the nationality of the respondents, 55% were Spanish, 20% were French, and other smaller percentages accounted for the remainder, e.g. 6.5% from Portugal, 4.8% from the UK, among others.

Most respondents (62%) stayed overnight in Donostialdea, the area surrounding and including the capital, Donostia /San Sebastian, and the surrounding area, while others stayed on the coast (27%) and inland (7%). The most popular municipalities were Donostia (61%), Zarautz (10%), and Irun (6.7%). The types of accommodation included mainly hotels (40%), apartments (23.6%), and hostels (16.2%).

Two-thirds planned to stay for 2-5 days (67%), with 20% staying for 6-7 days. The majority arrived by car/motorbike (40%), plane (20%), bus (15%), and train (10%). The travel groups included families (30%), couples (30%), friends (23%), and solo travellers (12%). The main motivations were culture/events (16.9%), touring, gastronomy/wine tourism, and coastal tourism (around 15% each), city breaks (10.6%), nature/adventure (10%), and rural tourism (6%).

4.2. Evaluation of the Model Fitness

Exploratory Factorial Analysis (EFA) was used to validate the measurement scales and constructs. Based on the results, the proposed model was restructured by removing some of the observed variables. Confirmatory Factorial Analysis (CFA) was conducted for the proposed model to validate the measurement model and structural model for the modified conceptual framework (results in Annex I). The observation variables that did not have an acceptable loading level in the CFA (<0.5) were subject to removal (Bentler & Bonet,1980). Hence the model was deemed fit to conduct the subsequent analysis.

Validity of the model was assessed by average variance extraction (AVE) and reliability of the model was assessed by convergent reliability (CR). For all the constructs, Sustainable Everyday Behaviour (EVE), Sustainable Travel Planning (PRE), Pro-Environmental Values (VAL), Sustainable Behaviour on Holiday (DUR), the inter-construct correlations were above the 0.7 thresholds (Bentler, 1992; Hayduk, 1987), while the AVE(s) were above the 0.5 thresholds recommended by Fornell & Larcker (1981). Therefore, it was concluded with a good degree of confidence that the traits were well measured by their indicators. The validity and reliability results are presented in Table 1.

Table 1. AVE and inter-construct correlations. Source: Own research

	DUR	PRE	EVE	VAL	AVE
DUR	0.731				0.535
PRE	0.655	0.778			0.605
EVE	0.698	-0.322	0.725		0.525
VAL	0.567	-0.611	-0.687	0.809	0.655

Having satisfied the above model fitness evaluation criteria, the hypotheses of the study were evaluated using Structural Equation Modelling (SEM). Table 3 shows the direct hypothesised

association between the independent variables and the dependent variables through the standard regression weights.

In the note on Figure 3, the model-fit is shown with higher measurements than required. The NFI (normalised fit index) provides an indicator of the position of the proposed model between two extreme fit values, perfect fit (1) and poor fit (Bentler & Bonett, 1980), but it has certain limitations due to its sensitivity to sample size. Although values greater than 0.8 can be considered reasonable (Baumgartner & Homburg, 1996; Doll et al., 1994; Subhash, 1996), the resulting score (0.891) can be considered a good value because it is so close to 0.90, which is recommended as the minimum standard value for accepting a good fit.

The results revealed that Sustainable Everyday Behaviour (EVE) has a positive effect on Sustainable Travel Planning (PRE) ($\beta = 0.629$, p-value***) and on Sustainable Behaviour on Holiday (DUR) ($\beta = 0.651$, p-value***). These results led to the validation of H1 and H2, which posited that aspects such as Sustainable Everyday Behaviour have a powerful and affirmative association with travel behaviour, both before the trip – when planning and making decisions – as well as during the trip itself. So, in line with previous studies, the positive and significant relationship between everyday behaviour and travel behaviour (before and during) are confirmed.

The results also indicated that the factors supporting *Sustainable Travel Planning (PRE)* have a positive effect on Sustainable Behaviour on Holiday (DUR) since ($\beta = 0.265$, p-value***), thus validating Hypothesis 6.

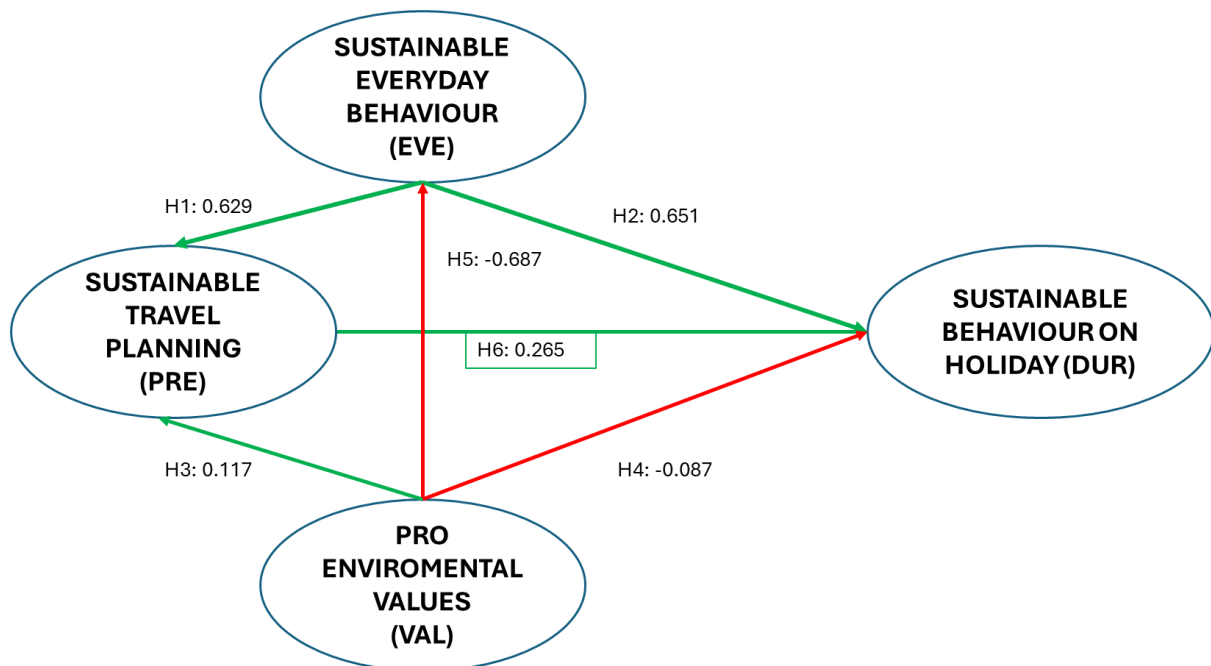


Figure 3. Results of SEM. Source: Own research

The results regarding the value construct are less clear, however. The results confirm that Pro-Environmental Values (VAL) have a significant effect on Sustainable Everyday Behaviour (EVE) ($\beta = -0.687$, p-value***). The leading hypothesis of H5 is therefore negative. This is explained by the approach of the survey’s items that are posed in the negative. In other words,

the items “are not conditioned by their environmental impact”, “I do not cause more environmental impact (...) so I do need to worry about...” and “I do not want to worry about climate change”. To perform a more accurate analysis reverse coding was applied, which may have affected the results. More specifically, the three items of the Pro-environmental values (VAL) variable were reverse-coded, in addition to the Travel Decision (DEC) variable item “I do not worry about the environment”.

In this sense, it is interpreted that the result of the relationship measured in this hypothesis is negative in understanding the tourist that his behaviour is not positively reflected in the question’s approach, which points to a reading that his actual behaviour it is aligned with the pro-environmental and sustainability values. So, at home or in the daily life, green values would really have a positive impact on sustainable and responsible everyday behaviour, such as less use of plastic, eating organic food or recycling.

Contrary to H5 which predicted a significant effect, the test results suggest that H3 and H4 are not significant outcomes. The effect of Pro-Environmental Values (VAL), and both Sustainable Travel Planning (PRE) ($\beta = 0.117$, $p\text{-value} > 0.05$) and Sustainable Behaviour on Holiday (DUR) ($\beta = -0.087$, $p > 0.05$), at 5%, are insignificant. Thus, hypotheses H3 and H4 are not supported. More specifically, the three items of the Pro-environmental values (VAL) variable were reverse-coded, in addition to the Sustainable Travel Planning (PRE) variable item “I do not worry about the environment”.

Table 2. Results of structural model assessment. Source: Own research

Hypothesis	β	Standard error	t-value	p-value	Result
H1: EVE → PRE	0.651	0.059	11.003	***	Supported
H2: EVE → DUR	0.629	0.082	10.787	***	Supported
H3: VAL → PRE	0.117	0.055	2.331	0.114	<i>Not Supported</i>
H4: VAL → DUR	-0.087	0.079	1.861	0.086	<i>Not supported</i>
H5: VAL → EVE	-0.687	0.046	11.377	***	Supported
H6: PRE → DUR	0.265	0.073	4.904	***	Supported

Note: Goodness-of-fit statistics for the structural model: $\chi^2 = 750.077$, $df = 230$, $\chi^2/df = 3.261$, TLI = 0.906, IFI = 0.922, NFI = 0.891, CFI = 0.921, RMSEA = 0.074. *** $p\text{-value} < 0.001$

Abbreviations: β , standardised estimates

5 DISCUSSION

With a view to addressing existing research gaps, this study investigated the elements that drive sustainable behaviour in tourists, during both the travel planning stage before the trip, and during the actual stay at the destination. The present study has partially confirmed the proposed hypotheses.

The first hypothesis (H1) suggested that sustainable habits in daily life directly influence sustainable travel planning. The findings support this, demonstrating a clear link between daily

sustainable practices and the way tourists plan their travels. These results support the findings of the study carried out by Bergin-Seers and Mair (2009) which suggest that green consumers make along-side green choices during travel planning. This relationship is theoretically sound, as strong habits reduce the cognitive effort required for decision-making (Verplanken & Aarts, 1999). Therefore, the automaticity developed at home acts as a powerful precursor that biases the complex, multi-stage process of travel planning toward sustainable options, such as selecting eco-certified accommodation or researching public transport, before situational barriers at the destination arise. However, Barr and Prillwitz (2012) analysed the ways in which individuals frame travel mode choices in different contexts, concluding that holiday decision-making and its relationship to climate change may differ widely from everyday travel mode choices, particularly in terms of high-cost lifestyle behaviours, such as frequent and low-cost flying. It is worth noting that, as Carneiro *et al.* (2021) pointed out, as studies on the effects of everyday environmentally-friendly behaviour on travel planning are scarce, it is difficult to carry out a comparative analysis.

The second hypothesis (H2) was also supported, proving that individuals who practise sustainability in their everyday lives are more likely to maintain these habits during their travels, consistent with the findings of Juvan and Dolnicar (2014) and Holmes *et al.* (2021). However, these results contrast with those obtained in many previous studies. Wu *et al.* (2021) concluded that people tend to engage less in pro-environmental behaviour in sustainable environments when on holiday than at home. Some authors conclude that travel behaviour can be considerably more damaging to the environment and much more difficult to change than everyday habits, especially when they relate to modes of transport (Barr and Prillwitz, 2012). The support for H2 suggests that the strength and automaticity of deeply ingrained sustainable habits are sufficient to induce a positive spillover effect, transferring the behavioural propensity from the stable home environment to the novel tourism context (Wood & Runger, 2016). The literature often emphasizes the 'hedonic state' and the 'disruption of cues' that lead to behavioural decline (Dolnicar, 2010), but our findings indicate that the behavioural inertia of a strong habit creates an underlying propensity to act sustainably. Therefore, the decline in behaviour reported by others (Wu *et al.*, 2021; Orea-Giner and Fuste-Forne, 2023) is likely due to the powerful effect of situational constraints, such as the lack of appropriate infrastructure at the destination, financial constraints (Pulido-Fernandez and Lopez-Sanchez, 2016), or limitations in terms of time and budget, which are two of the main factors that condition sustainable behaviour. These external factors act as execution barriers that prevent the successful performance of the sustainable habit, regardless of the individual's positive behavioural propensity. Our study thus provides evidence that strong daily habits create the pre-condition for sustainable behaviour in destination (H2 supported), but the final behaviour is moderated by the destination's support infrastructure.

As might be expected given the results, both the weights and the significance of the hypotheses in relation to the values construct are not as consistent. Hypothesis 5 (H5), which indicates a direct association between people's daily habits and their values, was also validated in relation to ecological behaviour in the household and in daily habits. However, Hypotheses 3 (H3) and 4 (H4) were not substantiated, suggesting that there is no direct relationship between either sustainable travel planning or sustainable travel and values. These results are consistent with previous studies, such as the one conducted by Bergin-Seers and Mair (2009) suggested that being a "green traveller" is not an all-or-nothing issue but encompasses various "shades of green". Their findings indicate that, irrespective of their underlying values, consumers may show different levels of commitment to environmentally sustainable practices during their travels. This divergence highlights a critical gap in the Value-Belief-Norm (VBN) framework

when applied to high-effort, discretionary travel decisions. While values and biospheric concerns (H5 supported) are clearly related to general, low-effort daily habits (e.g., in the household), they appear insufficient to overcome the psychological distance and high costs associated with sustainable travel choices, particularly in the context of hedonic pursuits (Juvan & Dolnicar, 2014). Our findings suggest that the relationship between deep-seated values and context-specific behaviour is not direct but rather is mediated and often overridden by the automaticity of habits (H1, H2) or by perceived situational costs and benefits. The lack of support for H3 and H4 reinforces the idea that values are distal predictors, whereas habits are proximal and more robust predictors of sustainable behaviour in tourism settings.

This study reinforces the idea that while personal habits influence sustainable tourism behaviour, values alone are insufficient motivators. Instead, external constraints, psychological barriers, and situational factors play a crucial role in shaping behaviour. Future research should explore strategies to bridge the gap between values and actions, such as behavioural nudges, improved infrastructure, and policy-driven incentives for sustainable travel.

One possible explanation for the non-significant or weaker-than-expected effects of environmental values lies in the operationalisation of the construct. While our theoretical framework adopted the Value-Belief-Norm model, our empirical approach followed the method proposed by Barr et al. (2010, 2012, 2018), which focuses primarily on biospheric concerns and sustainable lifestyle commitments. Although this measurement strategy is well established in tourism and mobility research, it may not fully capture the complex cognitive and normative elements that underlie pro-environmental personal norms in the VBN framework. Future studies should consider employing multidimensional value inventories (e.g., Schwartz Value Survey or NEP scale) in combination with context-specific measures to improve construct validity and explanatory power.

Hypothesis 6 (H6), which suggests a direct link between sustainable travel planning and sustainable behaviour at the destination, is also supported; however, it needs to be said that no previous studies on the topic exist that would allow for comparisons. This finding means that when travellers engage in sustainable practices during the planning phase of their trips, such as choosing eco-friendly transportation and accommodation, they are more likely to continue exhibiting sustainable behaviours once they reach their destination. This can include actions like minimising waste, and conserving water and energy. The support of this hypothesis highlights the importance of promoting sustainable travel planning as a strategy for fostering environmentally responsible behaviour throughout the entire travel experience.

Taken together, these findings contribute to theory by demonstrating that tourists' sustainable behaviours are best understood through an integrated framework that combines internal factors (values, attitudes, habits) with external ones (norms, incentives, social context). This holistic perspective moves beyond fragmented theoretical approaches and helps explain why sustainable behaviours develop and persist. For practice, the results underline the need for tourism managers to design destination strategies that align with tourist profiles and behavioural drivers.

6 CONCLUSIONS

6.1. General conclusion and main findings

This study highlights climate change as one of the tourism sector's most pressing challenges, emphasising the importance of understanding sustainable behaviours across the tourism value chain. By adopting a multidimensional framework that integrates individual values, everyday practices, and travel-related decisions, the research addresses a significant gap in the literature regarding the drivers of tourists' pro-environmental behaviour. The findings provide a synthesised perspective on behavioural drivers, specifically confirming the dominant role of habit over values in predicting travel behaviour.

Pro-environmental behaviour is undoubtedly a topic of major concern in the tourism sector, revealed in many studies that have been published in the last few years (Esfandiar *et al.*, 2022). And it will become even more important in the future because of climate change. Researchers have used several different theories to explore tourists' pro-environmental behaviour. Gössling and Dolnicar (2023) used the theory of planned behaviour (TPB), the theory of environmentally significant behaviour (ESB), and the theory of nudging to explain sustainable behaviours from different perspectives. Demeter, Fechner, and Dolnicar (2023) added the theory of interpersonal behaviour, habit theory, value-belief-norm theory, and the theory of normative conduct, emphasising the role of social influences, habits, and norms. Han (2021) utilised the theory of reasoned action and TPB to explain tourists' behaviours and demonstrated their predictive capability. These theories, while distinct, interact to shape and encourage promote sustainable behaviours among tourists, illustrating how habits and social norms can influence pro-environmental actions. Nevertheless, prior single-theory approaches often fail to provide a deep understanding of the subject.

6.2. Theoretical contributions

This research offers substantial theoretical contributions to the field of sustainable tourism behaviour, addressing the need for integrated explanatory frameworks. The primary theoretical contribution is that it provides a holistic, integrated view of tourists' sustainable behaviour by combining Habit Theory and VBN Theory, clarifying the relative influence of automaticity versus core values.

We resolve the long-standing contradiction in the literature regarding habit abandonment on vacation. The study demonstrates that the strength of daily sustainable habits generates a positive spillover effect (H2), creating an elevated psychological propensity toward sustainable actions even in the hedonic, cue-disrupted tourism environment. This distinction reframes the behavioural decline observed by others as a function of situational execution barriers, such as lack of infrastructure or time constraints, rather than the complete loss of the underlying habit. Furthermore, the findings establish Habit as a stronger, more proximal predictor of sustainable travel behaviour (H1, H2 supported) compared to Environmental Values (H3, H4 rejected). This suggests that sustainable tourism interventions should prioritise mechanisms that foster automaticity over appeals targeting abstract values alone. Finally, the research contributes an integrated model that successfully links habitual practices from the home environment to both the planning phase (H1) and the on-site behaviour phase (H2, H6), providing a more comprehensive understanding of the entire tourism experience compared to single-phase studies.

6.3. Practical Contributions

Beyond theoretical insights, this research lays the groundwork for effective destination strategies and tourism governance. Destination managers and policymakers should leverage the power of habit. Strategies should focus on reducing friction and providing familiar cues to support the existing positive behavioural propensity established at home: examples include

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standardized recycling systems and integrated public transport options that mimic daily routines. The strong link confirmed by H1 and H6 highlights the critical role of the pre-trip planning phase. Destination Marketing Organizations should target tourists when they are actively making decisions by providing clear, accessible, and certified sustainable options, as the planning phase acts as a gateway where intentions established by strong habits can be effectively converted into specific choices. The findings implicitly underline that successful habit execution is dependent on the supply side. Destination management must prioritize investment in green infrastructure (e.g., efficient public transport, comprehensive waste management) to remove the situational constraints (execution barriers) that currently cause tourists' strong sustainable habits to fail in the destination context. Finally, identifying the extent to which tourists' daily habits transfer to travel behaviour allows for the creation of tailored service and marketing campaigns, enabling the adaptation of services, marketing, and infrastructure based on verifiable sustainable tourist profiles, promoting sustainability in line with the principles of smart tourism destinations.

6.4. Limitation and prospects

Several limitations should be acknowledged. Firstly, the study was conducted in Gipuzkoa, which limits its generalisability. Different study scenarios would therefore provide a better understanding of pro-environmental tourist behaviour. Future studies could include all phases of the trip. Secondly, our analysis covered the planning and on-site phases of travel, but not the phase after the trip. Including the post-trip phase could provide further insight into pro-environmental behaviours.

Our data were collected exclusively from tourists, without incorporating the perspectives of other stakeholders, such as residents, destination managers or service providers. This means that our understanding of the dynamics shaping sustainable tourism behaviour is incomplete. Another limitation concerns the representativeness of our sample. While the study does not aim to be fully generalisable, French and Spanish tourists are overrepresented. This is partly explained by the geographical context, as Gipuzkoa is located on the border between Spain and France, and statistical data from August 2023 confirm that Spanish and French tourists account for more than 60% of total visitors (Eustat, 2023). Nonetheless, we recognise the importance of achieving greater international diversity in order to enhance the external validity of the findings. To strengthen the explanatory power of the model and allow for more robust conclusions about pro-environmental behaviour across different contexts, broaden the scope of respondents by incorporating multiple stakeholders and more diverse tourist profiles.

While effective for capturing general pro-environmental concern, this operationalisation does not reflect the full theoretical construct defined by the VBN model, which includes altruistic and egoistic values, ecological worldview, awareness of consequences, and ascription of responsibility. We recognise this as a limitation in construct validity, which may help explain the limited or unexpected influence of environmental values observed in our results.

Future research should build on the limitations of this study by refining and extending the proposed framework. For instance, longitudinal data would capture behavioural change over time, while incorporating multi-stakeholder perspectives could provide a more systemic understanding of sustainability in tourism. Testing the framework in culturally diverse contexts would also clarify the influence of social and cultural norms on sustainable behaviour. Furthermore, advancing research on the determinants of tourists' pro-sustainable behaviours will be crucial for enhancing tourism management and destination competitiveness. Identifying distinct tourist profiles can support the design of tailored services, marketing strategies, and

infrastructure, thereby promoting sustainability in line with the principles of smart tourism destinations, which leverage data, technology, and innovation to foster responsible behaviour and optimise resource use.

In this regard, emerging technologies such as artificial intelligence (AI) and machine learning offer powerful tools to leverage data, optimise resource use, and foster responsible behaviour, thus creating new opportunities for sustainability and competitiveness in tourism. AI-driven data analysis can predict visitor behaviour, promoting collective pro-environmental actions and long-term behavioural change. As noted by Rezapouraghdam et al. (2021), encouraging collective pro-environmental behaviour is key for fostering sustainable behaviours during visits and promoting long-term behavioural change. Furthermore, Tussyadiah (2020) highlighted AI as a primary research priority in tourism, particularly in how machine learning and deep learning can be utilised to achieve sustainable tourism. Further research is needed to explore AI's role in improving environmental governance, optimising destination management, and enhancing the overall competitiveness of sustainable tourism destinations

Finally, a key research avenue is the interaction between supply and demand in sustainable tourism. While developing eco-friendly products and services is crucial, their success depends on tourist demand and willingness to engage. Destinations that effectively encourage responsible behaviours can differentiate themselves, improve their reputation, and create a more sustainable and competitive tourism offering. Future studies should explore how destination operators can foster responsible behaviours, enhance local well-being, and strengthen tourist-resident relationships to gain a competitive edge.

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ANNEX I. Measurement model

Constructs and items	λ	α	AVE	CR
<i>Everyday behaviour (EVE)</i>		0.771	0.525	0.844
Taking holidays and short breaks is important to me	0.864			
Problems like climate change are a threat to me and my family	0.602			
I turn off lights at home and at work, if I am not using them	0.602			
I recycle items such as waste, glass...	0.679			
I try to reduce plastic use	0.794			
I try to buy organic food	0.641			
<i>Sustainable Travel Planning (PRE)</i>		0.827	0.605	0.913
If I knew that my holiday is not environmentally friendly, I would not go even if it is the holiday of my dreams	0.547			
I am unlikely to change my holiday plans in response to issues like global climate change	0.684			
I do not worry about the environment when I make choices concerning my holiday travel	0.517			
I am willing to travel less or closer to home	0.737			
I have actively looked for information about the environmental impact of a holiday	0.815			
When I plan my holidays, the decision is influenced by a "low environmental impact"	0.756			
I think about how I can reduce environmental damage when I go on holiday	0.684			
I prefer to avoid highly polluting forms of transport like air travel when I go away	0.616			
I like to use public transport when I am on holidays	0.762			
<i>Values (VAL)</i>		0.850	0.655	
In general, my decisions both in my daily life and when I am on holiday, are not conditioned by their environmental impact	0.751			
I do not cause more environmental impact when I am on holiday than at home, so I do not need to worry about environmental impact when I travel	0.805			
I rarely have time to relax, so when I am on holidays do not want to worry about the climate change or other global problems	0.752			

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<i>Behaviour on holiday (DUR)</i>		0.827	0.535	
I choose and stay in environmentally friendly accommodation	0.620			
I book with eco-certified travel agencies and tour operators	0.676			
I reuse towels	0.694			
I recycle as much as I can	0.751			
I try to walk or cycle in my destination	0.609			
I switch off the appliances and lights when I am not using them	0.552			
I reuse bed linen	0.671			
I try not to waste food	0.584			
I try to reduce air conditioning use	0.557			
I do not use individual bath amenities	0.588			
I reduce plastic use (bag use, water bottles...)	0.661			
I pick up and do not drop litter	0.596			
I try to use reusable and recyclable things (takeaway box, napkins...)	0.691			
I reduce the amount of food taken from the buffet	0.711			

Note: CFA of the measurement model: $\chi^2 = 707.813$, $df = 226$, $\chi^2/df = 3.132$, TLI = 0.911, IFI = 0.928, NFI = 0.897, CFI = 0.927, RMSEA = 0.072.

Abbreviations: α , Cronbach's Alpha; λ , Factor loading; AVE, Average Variance Extracted; CR, Construct Reliability

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