Equilibrium. Quarterly Journal of Economics and Economic Policy
Volume 21 Issue 2 June 2026
p-ISSN 1689-765X, e-ISSN 2353-3293
www.economic-policy.pl

ORIGINAL ARTICLE

Citation: Caro-Carretero, R. (2026). Willing to pay for the beat of sustainability: Music festivals as drivers of socio-economic transformation supporting sustainable tourism. *Equilibrium. Quarterly Journal of Economics and Economic Policy, 21*(2), 663–708. https://doi.org/10.24136/eq.4334

Contact: rcaro@comillas.edu

Article history: Received: 15.01.2026; Accepted: 15.06.2026; Published online: 30.06.2026

Raquel Caro-Carretero
Pontifical Comillas University, Spain
orcid.org/0000-0003-2233-7635

Willing to pay for the beat of sustainability: Music festivals as drivers of socio-economic transformation supporting sustainable tourism

JEL Classification: *Q26; Z32; Q01; R11; O13*

Keywords: *Willingness to Pay (WTP); music festivals; socio-economic transformation; sustainable events; carbon footprint; SDG 12 (Responsible Consumption), SDG 13 (Climate Action); sustainable tourism*

Abstract

Research background: Music festivals represent a pivotal arena for socio-economic structural transformation, transitioning from traditional mass tourism toward sustainable cultural economies characterized by diversified local revenue streams, green employment opportunities, and a reduced dependence on extractive sectors. As sustainability emerges as a core expectation among festival attendees worldwide, assessing their willingness to pay (WTP) for environmentally friendly initiatives becomes critical for organizers seeking to contribute to this economic shift.
Purpose of the article: This study examines how demographic, behavioral, and attitudinal factors influence WTP among music festival attendees, using a multinomial decision framework. The model captures willingness, refusal, and uncertainty toward carbon-neutral initiatives, providing a more nuanced perspective than traditional binary approaches. By incorpo-

rating decision uncertainty, the study extends current knowledge of sustainability-related consumer behavior. It also provides insights that may inform the design of eco-conscious events aimed at supporting local economic resilience in a changing global context.

Methods: Survey data from 1,012 festival-goers were analyzed through multinomial logistic regression with a three-option WTP scale ("Yes", "Maybe", and "No"), capturing decision-making uncertainty beyond traditional binary approaches while testing predictors of financial contributions to carbon-neutral initiatives.

Findings & value added: The analyses revealed significant overall effects of age, festival attendance regularity, perceived importance of sustainability measures, willingness to volunteer for sustainability activities, prior carbon footprint knowledge, and received festival carbon footprint information. In contrast, gender, financial independence, festivals' awareness promotion, and highest carbon footprint festival aspect identification showed no significance. The three-choice structure uncovers nuanced behavioral patterns, highlighting consumer complexity in sustainability contexts that binary models overlook. Furthermore, this study contributes to the festival sustainability literature by linking individual environmental preferences to broader processes of economic transformation, highlighting the potential of music festivals to support sustainable local development and responsible tourism. By showing that attendees' environmental engagement can facilitate support for carbon-neutral initiatives, the findings advance understanding of sustainability financing preferences. They also offer valuable insights into festival attendee heterogeneity, enabling organizers to develop more targeted and effective sustainability strategies, while being relevant in the context of UN SDGs 12 (Responsible Consumption and Production) and 13 (Climate Action).

Introduction

As a rapidly growing intersection of tourism, leisure, and business, the events sector has evolved from being primarily profit-driven to addressing broader societal issues, including sustainability. Green events, often organized by local authorities, integrate sustainability principles into their planning and management, addressing environmental, economic, and socio-cultural aspects. These events aim to reduce negative environmental impacts while educating and motivating attendees toward sustainable behaviors. Features such as eco-friendly catering, sustainable transport, and educational programs are key to promoting environmental protection and more sustainable lifestyles. Furthermore, Dávid and El Archi (2024) highlight how smart solutions advance tourism sustainability through optimized resource use, reduced waste generation, and effective mitigation of environmental risks. Raman *et al.* (2026) further argue that achieving net-zero tourism requires combining technological innovation with social and governance changes, since decarbonization depends not merely on cleaner transport and renewable energy, but also on consumer behavior, institutional coordination, and circular, nature-based solutions. However, to suc-

cessfully engage a wider audience, event organizers must understand the motivations of their visitors and develop targeted marketing strategies that segment audiences by environmental engagement and sustainability attitudes (Tölkes & Butzmann, 2018). Kharbanda *et al.* (2025) argue that tourism can better support the SDGs when communities are empowered, local knowledge is valued, and policy and practice are aligned through cross-sector collaboration and innovative management approaches. Similarly, Raman *et al.* (2025) highlight the importance of responsible consumption and production (SDG 12), emphasizing that sustainability efforts in tourism must be supported by transparent practices, credible environmental claims, and the avoidance of greenwashing to build trust among stakeholders. Toscani *et al.* (2024) explore the growing field of environmental sustainability in the event industry, which has expanded rapidly in recent decades but often at significant environmental costs, such as carbon emissions, waste generation, and resource consumption.

Specifically, sustainable culture in festivals has become a powerful tool for tourism promotion, attracting an increasingly environmentally conscious audience. Through responsible practices and respect for the environment, these events celebrate local traditions coupled with fostering economic development and resource conservation (Borges *et al.*, 2018). By integrating sustainability into their core, festivals offer unique experiences that enrich visitors and promote more ethical tourism that is committed to the planet. For instance, Tölkes and Butzmann (2018) highlight that visitors to eco-friendly festivals show a greater willingness to engage in environmentally responsible practices and are willing to spend more on organic food during the event. Studies on local festivals in the context of sustainable tourism show how these events serve both cultural and touristic functions. On the one hand, Dychkovskyy and Ivanov (2020) emphasize that traditional festivals, such as folk celebrations featuring music, dance, and traditional clothing, help strengthen the cultural identity of local communities by preserving and transmitting cultural practices that are part of their collective heritage. On the other hand, Güneş (2022) points out that these types of events also attract tourists who are interested in sustainable and authentic experiences, such as local food festivals based on regional products or craft fairs, where responsible consumption and support for local producers are promoted. Together, these examples demonstrate that festivals not only reinforce cultural identity but are also integrated into sustain-

able tourism strategies aimed at valuing local territories and their resources.

In particular, music festivals play a significant role in the tourism sector by attracting large crowds, boosting local economies, and enhancing cultural exchange (Hugaerts & Könecke, 2024; Saayman *et al.*, 2016), while bridging social integration (Laing & Mair, 2015) through inclusive campaigns that promote diverse attendee experiences, community volunteering opportunities, and activist-themed content, fostering belonging and broad participation alongside greening initiatives. Music festivals represent a significant form of outdoor recreation and nature-based tourism, frequently hosted in rural fields, natural parks, and open-air venues that attract thousands seeking immersive cultural experiences amid scenic landscapes. Outdoor music concerts drive temporary recreational use of natural spaces, generating economic benefits for host destinations while posing environmental challenges like high visitor volumes, travel emissions, and waste generation. These events serve as key motivators for travel, drawing both domestic and international visitors to host destinations (Getz & Page, 2016). Studies have shown that music festivals not only promote tourism but also contribute to the development of sustainable practices by fostering environmental awareness and community engagement among attendees (Seraphin & Nolan (Eds.), 2018). Mair and Laing (2012) investigated the motivations and barriers to implementing sustainability in music festivals, highlighting the complex relationship between event satisfaction and environmental practices. Similarly, Brown *et al.* (2019) examined how digital communication within festivals influences the experience of British rock festival attendees, noting that while attendees prioritize enjoyment, many are increasingly concerned with the environmental impact of festivals. Additionally, a study on the perception of eco-friendly practices in music festivals reveals that attendees positively value sustainable initiatives and are willing to support events that adopt environmentally responsible practices (Aşan *et al.*, 2020). A clear example that reinforces this idea can be observed in Coldplay's *Music of the Spheres World Tour* (2022–present), which has been widely recognized for its commercial success while also having a strong sustainability agenda. Despite being one of the longest-running global tours, it has become one of the highest-grossing and most attended tours in history, selling more than 13 million tickets worldwide and generating over $1 billion in revenue. The tour incorporated multiple sustainable practices, including the use of renewable energy, recycled materials for

concert production, and initiatives such as planting trees for each ticket sold and reducing overall carbon emissions compared to previous tours. These sustainability efforts were actively communicated to fans and formed part of the overall concert experience, strengthening audience engagement and brand loyalty. As a result, the tour attracted a large and diverse fan base, demonstrating that environmental responsibility can coexist with commercial success and even enhance consumer demand in the live music industry.

These findings suggest that sustainability is not only a growing concern but also a significant motivator for attendees, especially when festivals align with sustainable tourism efforts (Laing & Frost, 2010). Çakıcı and Yılmaz (2018) clustered festival-goers based on their motivations, observing that while some attendees seek entertainment and community engagement, others are drawn to festivals for the chance to engage with sustainable practices. The shift towards sustainable practices is becoming more mainstream, with several festivals adopting green measures to minimize their environmental footprint (Perron-Brault *et al.*, 2020; Bär *et al.*, 2025).

In this context, the present study intends to accomplish two main objectives: (1) to highlight sustainability as a key driver in the strategic differentiation of music festivals, and (2) to model how attendees' attitudes, knowledge, and participation in sustainable practices influence their willingness to pay (WTP) for sustainable initiatives at festivals. In doing so, the present research seeks to answer the following questions:

RQ1: *Does sustainability function as a strategic differentiator for music festivals attracting environmentally conscious attendees?*

RQ2: *How do attitudes, environmental knowledge, engagement in sustainable practices, and carbon footprint awareness affect attendees' WTP for green initiatives?*

RQ3: *Can attendees be segmented based on their WTP into groups such as WTP more, undecided, and unwilling to contribute financially, using multinomial logistic regression?*

The answers to these questions will provide practical implications for festival organizers and policymakers aiming to align event sustainability strategies with attendee values and foster deeper environmental engage-

ment. More importantly, this study contributes to the literature by addressing an underexplored aspect of sustainability decision-making: attendee uncertainty regarding financial support for environmental initiatives. First, while previous research has predominantly analyzed attendees' WTP for environmental initiatives using binary decision models, this study adopts a multinomial perspective that explicitly incorporates decision uncertainty through a three-category WTP structure ("Yes", "Maybe", and "No"). This approach captures behavioral nuances that are often overlooked in conventional analyses. Second, the study identifies the relative importance of environmental knowledge, volunteering intentions, sustainability perceptions, and attendance behavior in shaping financial support for carbon-neutral festival initiatives. Third, the research contributes to the festival sustainability literature by exploring the potential role of music festivals in broader processes of economic transformation. The findings suggest that environmentally responsible events may support local economic diversification, foster more sustainable consumption patterns, and align with climate action objectives. By bringing together perspectives from behavioral economics, sustainability management, and socio-economic transformation, the paper advances the understanding of these dynamics and offers implications for festival organizers and policymakers.

To achieve the two objectives, the study analyses survey responses from 1,012 music festival attendees, collected through a structured online questionnaire that captured information on demographics, festival participation patterns, WTP for sustainability initiatives, and attitudes toward sustainable tourism. The data were analyzed using quantitative methods, including descriptive statistics and multinomial regression analysis.

The remainder of the paper is structured as follows: the next section reviews the relevant literature and develops the research hypotheses, followed by the methodology and results, discussion, and conclusions.

Literature review

Willingness to pay for greening in leisure events

As festivals grow, sustainability emerges as a critical aspect of planning. Aside from mitigating environmental harm, it meets the increasing expectations of eco-conscious audiences, who are often willing to pay a premium

for events that align with their values (Charalampidis *et al.*, 2023). In this regard, sustainability has become a central pillar of contemporary event management, driven by both regulatory pressures and growing environmental awareness among attendees. Consequently, recent research positions festivals as "living laboratories" for sustainable tourism transitions, where environmental, social, and economic dimensions intersect (Van Den Ende & Galama, 2026). This view is consistent with the broader literature on living lab approaches as collaborative, real-world experimentation environments that enable sustainability transitions through stakeholder co-creation, iterative learning, and contextual innovation (Berberi *et al.*, 2023). Moreover, contemporary literature shows that as economies develop, expenditure shifts systematically from basic goods towards services and experience-based consumption, driven by income effects, non-homothetic preferences, and changing relative prices (Comin *et al.*, 2021). This transformation reflects not only supply-side reallocations but also demand-side shifts in preferences, where households allocate a growing share of income to cultural, leisure, and experience-intensive goods as income increases. In this context, WTP is shaped by both economic constraints and deeper changes in consumption behavior associated with post-industrial societies, including the rising importance of sustainability, identity, and perceived experiential value. It provides a useful conceptual lens for understanding how the concept of WTP for sustainable event attributes has emerged as a key construct for explaining how consumers value environmentally responsible practices (Han, 2021; Li *et al.*, 2022; De Araújo *et al.*, 2022). From a theoretical perspective, WTP in tourism and event contexts is commonly explained through behavioral frameworks such as the Theory of Planned Behavior (Ajzen, 2020), which has been widely applied in sustainable tourism research to explain pro-environmental consumption intentions and, more recently, the integration of moral norms and environmental identity into consumption decisions (He *et al.*, 2023). These frameworks suggest that WTP is not merely an economic decision, but a behavioral outcome shaped by attitudes, perceived control, personal norms, and environmental beliefs (Zeng *et al.*, 2025).

This perspective is further supported by sustainability transition literature, which links tourist behavior and destination management to broader sustainable development goals, emphasizing the role of indicators and behavioral alignment in sustainability outcomes (Rasoolimanesh *et al.*, 2020). Existing studies moreover conceptualize WTP as a structural out-

come of sustainability-related attitudes and perceived value formation processes in tourism and events (De Araújo *et al.*, 2022; Rachão *et al.*, 2023). In this line, recent evidence also extends the construct to broader sustainability frameworks such as Environmental, Social, and Governance (ESG) initiatives, showing that consumers are willing to pay premiums for organizations that adopt comprehensive sustainability practices, with notable heterogeneity across demographic groups (e.g., gender differences) and clear links between ESG perceptions and market-level behavioral responses (Lyu & Kim, 2025).

Thus, the urgency of supporting environmental causes highlights the importance of understanding consumers' WTP for tourism, a key factor for policymakers, businesses, and researchers.

WTP is a multifaceted concept shaped by a wide range of individual and contextual factors, including tourists' environmental awareness, biogeographical context, and demographic characteristics such as age, gender, and income level. Prior research has consistently shown that higher levels of environmental concern are associated with a greater propensity to financially support conservation and sustainability initiatives (Krugell & Saayman, 2013; Saayman *et al.*, 2016), while income and socio-demographic profiles play a key role in segmenting WTP across different tourist groups (Borges *et al.*, 2018; Kim *et al.*, 2021). In addition, these studies highlight that WTP is not uniform across contexts, but varies depending on destination attributes, type of tourism experience, and the perceived value of environmental goods, reinforcing the importance of adopting a multidimensional and context-sensitive approach when analyzing this construct.

Durán-Román *et al.* (2021) demonstrate that a significant proportion of tourists are willing to pay a premium to enhance both sustainability conditions and the overall tourism experience at destinations, with WTP being strongly influenced by socio-demographic factors such as income, age, education, and travel budget. Their findings further indicate that tourism demand remains relatively inelastic to moderate price increases associated with sustainability-related investments, suggesting that such initiatives can be economically viable for destination managers. Overall, this evidence reinforces the idea that sustainability improvements are not only environmentally and socially relevant but also economically supported by consumer preferences in tourism markets.

In parallel, global disruptions have increasingly reshaped tourist behavior and decision-making across destinations and market segments. Climate

change has emerged as a critical structural force, altering risk perceptions, travel timing, destination choice, and the overall attractiveness of tourism products, as highlighted by Dube (2024). Likewise, the COVID-19 pandemic profoundly affected mobility patterns, destination confidence, health-related perceptions, and preferences for safer, less crowded, and more flexible travel experiences, as documented by Song *et al.* (2024), Jeon and Yang (2021), and Nhamo *et al.* (2020). In addition, technological advancements have transformed the way tourists search, evaluate, book, and experience travel, influencing both information processing and consumer expectations in increasingly digital tourism environments (Štofejová *et al.*, 2023). Beyond digital transformations, sustainable event practices and consumption patterns are also reshaping tourist behavior. Borges *et al.* (2026) demonstrate that visitor expenditure and consumption decisions in sustainable urban events are influenced by factors such as visitor engagement, satisfaction, and perceptions of sustainability. Using Porto Beer Fest 2024 as a case study, the authors show that tourism demand is increasingly connected to responsible consumption practices, where sustainable event management can enhance visitor experiences while generating economic value. Taken together, these developments underscore that tourist behavior is not shaped solely by individual preferences, but also by broader environmental, health, and technological disruptions that redefine tourism demand and consumption patterns.

In particular, climate adaptation strategies are increasingly discussed as risk mitigation tools as well as innovation drivers that redefine competitiveness in the events industry (Mair, 2024). Kennelly *et al.* (2024) suggest that mainstreaming climate concerns across event-related policy domains can strengthen industry resilience and support long-term sectoral development. Furthermore, Werner *et al.* (2025) highlight that policymakers, organizers, and associations must collaborate to mainstream climate adaptation in event policies and practice, turning climate vulnerability into an opportunity for innovation and more sustainable, resilient events. The issue aspires to position the events industry as a pioneer in climate adaptation by combining informed policymaking, cross-sector cooperation, and well-designed adaptation strategies. However, there has been a lack of corresponding public willingness to shoulder the substantial costs required for sustainability efforts, making financial support for environmental initiatives more critical than ever (Ezeh & Dube, 2024).

Willingness to pay a higher price for events, including festivals, sports tournaments, and cultural gatherings, reflects the value attendees place on the experiences these events offer. Understanding WTP could help event organizers tailor offerings, optimize pricing strategies, and ensure the financial sustainability of their events. Importantly, a growing body of empirical research demonstrates that sustainability-related attributes play a significant role in shaping visitors' WTP in tourism and festival settings. Among these attributes, perceived authenticity (Andrade *et al.*, 2021), cultural value (Grilli *et al.*, 2021), and environmental awareness (Saayman *et al.*, 2016) have consistently emerged as key drivers of consumers' economic valuation of sustainable experiences. Despite this progress, the literature reveals a persistent gap in the specific case of music festivals, which remain underexplored compared to broader tourism or cultural heritage contexts (De Araújo *et al.*, 2022). Systematic reviews consistently show that most WTP research is still concentrated on traditional tourism contexts such as accommodation, destination management, and natural attractions, while festivals—especially music festivals—remain under-theorized as distinct consumption systems. This represents a non-trivial theoretical limitation, as festivals are characterized by structurally different behavioral conditions. Specifically, festivals constitute high-density experiential environments where emotional arousal, collective identity formation, and symbolic consumption significantly reshape decision-making processes.

More recent studies further highlight the role of co-creation and participatory engagement in enhancing perceived value and strengthening visitors' readiness to support sustainability premiums (Rita *et al.*, 2024). Existing studies suggest that WTP is strongly influenced by motivational and symbolic dimensions, particularly among younger audiences who associate sustainable consumption with identity expression and experiential value. For example, Diez-Gutierrez and Babri (2022) found that pricing strategies tied to sustainability initiatives, such as eco-friendly festival designs, were more acceptable to visitors when tied to clear motivations like supporting environmental or cultural preservation. This aligns with findings by Ortega-Rodríguez *et al.* (2024), who emphasized that motivation is a critical driver in shaping WTP, particularly among younger demographics who value meaningful engagement. Nevertheless, the interaction between these motivational structures, pricing acceptance mechanisms, and sustainability-related perceptions remains understudied both conceptually and empirically. In this evolving context, this research seeks to contribute to the liter-

ature by examining WTP in the specific context of music festivals, bringing together economic valuation approaches and behavioral and motivational perspectives, responding to the need for more detailed evidence on high-engagement cultural events.

Music festivals as drivers of tourism and environmental sustainability

Several music festivals have progressively integrated environmental sustainability into their organizational philosophy while simultaneously generating substantial benefits for local communities and tourism development. Festivals such as Glastonbury in the United Kingdom, Roskilde in Denmark, and Boom Festival in Portugal have attracted substantial tourism flows while simultaneously adopting ambitious environmental initiatives. For example, Glastonbury Festival has implemented extensive environmental initiatives, including renewable energy systems, waste reduction strategies, biodiversity conservation programmes, and the planting of more than 10,000 native trees since 2000. Beyond environmental management, the festival supports charitable causes and local projects, illustrating how sustainability can be embedded within the cultural identity of the event rather than being limited to operational requirements. Similarly, Roskilde Festival operates as a non-profit organization, directing its profits to charitable and social causes, having donated more than DKK 476 million to projects supporting children and young people since 1972. In Portugal, Boom Festival has developed a sustainability framework that combines environmental protection with local development initiatives, including support for local businesses, community projects, and charitable programmes through its Boom Karuna Project. These examples illustrate the evolution of contemporary music festivals from tourism attractors into platforms that generate social value, promote environmental awareness, and contribute to local sustainable development. Such a transformation suggests that sustainability increasingly constitutes a cultural attribute of the festival experience, potentially influencing attendees' perceptions and their WTP for environmentally responsible events. Unlike festivals that are rooted in a single destination, DGTL has evolved into a global festival concept with editions held in multiple cities, including Amsterdam, Mumbai, Bengaluru, Santiago, Lima, and previously Barcelona and Madrid. This international expansion is particularly relevant because it demonstrates how sustainability can be transferred and adapted across different cultural and tourism

contexts. Rather than limiting its environmental initiatives to a single event, DGTL has sought to replicate its circular economy principles, renewable energy strategies, plant-based food policies, waste reduction systems, and sustainable mobility practices across its global network of festivals. Consequently, DGTL illustrates how environmental sustainability can become part of a festival's core identity and cultural value proposition, generating positive impacts that extend beyond a specific locality and contributing to the diffusion of sustainable practices throughout the international events industry.

Examining methodological approaches

In the tourism sector, various studies have examined willingness to pay a premium for sustainability practices using parametric methods like logit and probit models, as well as non-parametric methods including Turnbull and Kriström models. Research spans areas including ecotourism (Cheung & Jim, 2013), transportation (Choi & Ritchie, 2014), tourism products (Dodds *et al.*, 2009; Namkung & Jang, 2017), sustainable destinations (López-Sánchez & Pulido-Fernández, 2016), and climate change (Araña *et al.*, 2013).

By the same token, the concept of WTP for environmental sustainability in event contexts has also been widely examined, employing various quantitative and survey-based methodologies. Contingent valuation methods (CVM) are commonly used, allowing researchers to simulate hypothetical scenarios where participants express willingness to pay premiums for sustainability initiatives (Arrow *et al.*, 1993). These methods identify monetary thresholds and predictors such as socio-demographic factors and environmental attitudes. For instance, Könecke *et al.* (2021) conducted a survey of 1,764 German marathon runners at the Frankfurt Marathon, which indicated moderate awareness of sustainability and a notable WTP for ecological measures. Saayman *et al.* (2016) studied 371 cyclists at South Africa's Cape Argus Pick n Pay Cycle Tour using CVM and logistic regression, finding WTP influenced by age, education, and occupation, with 68% willing to offset their carbon footprint. Hugaerts and Könecke (2024) surveyed 1,056 Belgian runners, applying CVM and the Theory of Planned Behavior (TPB), finding nearly 59% willing to pay an extra €4.50 for environmental initiatives; positive environmental attitudes and perceived behavioral control were key determinants.

At large sports-tourism events, Lintumäki *et al.* (2023) researched WTP for greenhouse gas offsetting at the 2020 World Winter Masters Games in Austria, finding a median WTP of €10–€20, influenced by climate change attitudes and travel expenses.

Krugell and Saayman (2013) used CMV and ordered probit models on 502 participants in South Africa's Two Oceans Marathon, showing income and environmental awareness affect WTP. Wicker and Frick (2020) assessed sustainable financing of elite winter sports athletes in Austria using CVM and regression, highlighting the need for innovative, ecologically aligned funding sources.

Lyu (2023) used choice experiments to find that renewable energy, waste reduction, and public transport improvements have high value among 483 respondents regarding green stadium attributes. Lin *et al.* (2022) applied multi-attribute evaluation to marathon tourism in Kinmen, revealing participant preferences and WTP for authentic cuisine, souvenirs, and tourism experiences. Gallardo-Vázquez (2023) employed SEM to validate tourist satisfaction drivers through sustainable attributes.

Outside sports, Civero *et al.* (2017) studied attitudes towards food safety, security, and sustainability at Milan Expo 2015, finding positive consumer attitudes toward responsible agri-food products but limited impact on knowledge due to poor communication. Cheng and Cheng (2023) used structural equation modeling on 215 participants at Hainan Expo, demonstrating positive influences of environmental, social, and policy sustainability on WTP and brand loyalty. Similarly, Peng (2026) found that sustainability practices in festival tourism contribute to visitor loyalty and behavioral support through mediating factors such as perceived value, satisfaction, and environmental awareness, highlighting the role of sustainability in strengthening long-term visitor relationships and positive tourism behaviors.

Regarding outdoor festivals, Koumoutsea *et al.* (2023) applied the CVM to the Kalamata Dance Festival in Greece, finding higher WTP among females, those with greater income and education, and non-residents, which supports targeted marketing and pricing decisions. Similarly, Kim *et al.* (2021) used CVM and dichotomous choice modeling at the Yeongju Korean Seonbi Culture Festival to estimate an economic value of 2.5 billion KRW, with environment, past attendance, and demographics influencing WTP. Borges *et al.* (2018) examined "cheap talkers" at Serralves em Festa, analyz-

ing socio-economic and demographic effects on WTP with regression and CVM, showing the influence of age, gender, residence, and satisfaction.

García and Ochoa (2022) analyzed externalities affecting WTP for the Festival Internacional de Artes Vivas Loja, offering methodologies applicable for sustainability research in music festivals. Mydland *et al.* (2024) combined conjoint analysis in tourism contexts including music festivals, finding consumers favor voluntary over mandatory measures, valuing choice and transparency; women, younger, higher-income, and educated participants showed higher WTP. Contextual factors enhanced value perception at socially engaging events such as festivals.

On the other hand, from the firms' perspective, Durán-Román *et al.* (2022) make a key supply-side contribution by employing logistic regression on a survey of 916 tourism companies in Andalusia's Costa del Sol to quantify WTP for fiscal instruments funding sustainability and competitiveness in mature destinations, revealing commercial activity, business size, and annual turnover as main predictors—particularly for environmental protection taxes—thus validating firms as viable stakeholders for sustainable tourism transitions.

Methods

Sample and data collection

This research adopted a quantitative methodology, utilizing structured surveys to investigate the attitudes of music festival attendees toward sustainability. The sample comprised participants from multiple countries to ensure representation of a wide array of cultural contexts. The surveys, disseminated online through Google Forms from June 1 to October 19, 2025 (Caro-Carretero, 2025), were offered in English, French, German, and Spanish to enhance accessibility and inclusivity. Since the study did not involve vulnerable populations, sensitive data, or medical interventions, it did not require research approval from an ethics committee, in line with research guidelines for non-invasive social studies (Babbie, 2021) and according to Spanish Law 14/2011, of Science, Technology and Innovation and Royal Decree 53/2023. Furthermore, it complies with the provisions of the Spanish Data Protection Law 3/2018, since there is no risk to the participants involved. A total of 1,012 responses were gathered. A snowball sampling

technique was employed, beginning with initial participants from multiple countries and expanding as respondents invited peers who attended similar music festivals featuring international participants. Additionally, the survey relied on a self-selection component, since participation was voluntary and respondents chose to take part after receiving the survey invitation via online platforms and social networks. The data were analyzed (Caro-Carretero, 2025) using SPSS Version 30 (IBM Corp, 2025).

The survey was divided into three sections: 1) Sociodemographic data: participants provided information about their age, gender, nationality, place of residence (city and country), regularity of outdoor festival attendance, and whether the respondents are financially independent or depend on others for economic support. 2) Sustainability preferences and WTP: this section evaluated the respondents' preferences regarding sustainable practices at festivals, such as the use of renewable energy and waste reduction. 3) Carbon footprint awareness and behavior: this section assesses carbon footprint awareness at music festivals through general knowledge, personal responsibility, and festival communication effectiveness.

All detailed information on the frequency of responses is shown in Table 1. As can be seen, the sample consists of a predominantly young audience, with 55.8% aged 18–27 and 28.7% aged 28–43, while older demographics, including those aged 44–59 (14.3%) and 60+ years (0.7%), are less represented. The majority of respondents are female (60.4%), followed by male (38.5%), with other genders (1.2%) making up a smaller proportion. Records from individuals over 60 or under 18 years old were excluded due to their small sample sizes. These groups had minimal representation, rendering them outliers or irrelevant for the analysis, which targets a narrower age demographic (e.g., young to middle-aged adults). Additionally, the "Other" gender category, with just 12 entries, lacked sufficient data for meaningful analysis and risked introducing noise into the results. Excluding these records enhances data homogeneity and focus, enabling clearer and more precise analysis. This method ensures the study better represents a relevant population. As a result, the sample size was reduced to 994 records.

Nationally, participants are primarily from Europe (32.6%; Spain (18.2%)), Asia (31.6%), and Latin America (30.6%), reflecting diverse geographic origins. In terms of current residence, the leading countries are Italy (21.6%), Spain (28.4%), Mexico (11.2%), and Argentina (11.5%), followed by smaller proportions from the United Kingdom (6.8%) and the

Netherlands (3.3%). The variable nationality, as well as place of residence, were removed as independent predictors because unexpected singularities were identified in the Hessian matrix. Sparse data in certain categories may impact the robustness of the model. This issue suggests that the model struggles to estimate the parameters accurately due to the excessive number of categories within the variable. As a result, it was deemed necessary to exclude these predictors to improve model stability and ensure reliable estimation of other variables. A significant portion of respondents (59.5%) report financial independence, while 21.2% are fully economically dependent and 19.3% have partial financial autonomy with supplementary support. Festival participation is widespread, with 80% having prior music festival experience. Among attendees, 43.5% join once per year, 16.8% twice annually, and 13.5% more often, though 26.2% have no festival attendance history.

Value placed on sustainability stands out as a key priority for respondents, with 90.1% viewing it as highly relevant for festivals to adopt practices that minimize environmental and social impacts. Additionally, 25.6% show WTP more for eco-friendly events, while 66.2% express openness but remain undecided. Top sustainable practices favored include renewable energy (64.8%), biodegradable materials (17.9%), recycling programs (9.7%), and public transport options (7.6%). Willingness to engage in sustainability volunteering at festivals shows mixed support, with 41.7% open to participating depending on the tasks and 33.6% fully committed. Overall, 69.4% agree that festivals foster awareness of environmental and social challenges. A majority of respondents (65.2%) reported being well aware of the concept of carbon footprint and its impacts. Meanwhile, 19.8% indicated they were not aware of it, and 15.0% had heard of it but lacked detailed understanding. When asked to identify the primary contributor to music festivals' carbon footprint, respondents most frequently cited attendee transport to/from the festival (40%), followed by energy use on stages and infrastructure (26%). Regarding personal responsibility for reducing carbon footprint at music festivals, most respondents (37.4%) felt very responsible, followed by 28.6% moderately responsible. Over half of respondents (57.6%) reported never receiving information about music festival carbon footprints, with only 24.4% encountering brief mentions and 18% receiving detailed communication. This highlights a significant gap in festival sustainability messaging.

Additionally, the cross-tabulation underscores a widespread recognition of sustainability's importance across all age groups, with a particularly high agreement rate exceeding 89% for all demographics. Younger individuals form the largest group advocating for sustainability, which may reflect a generational trend prioritizing environmental and social responsibility. Moreover, the data suggests a significant proportion of festival-goers across all age groups are undecided about paying more for sustainable festivals, particularly among younger and middle-aged groups. The reluctance to commit among undecided participants highlights a potential need for festivals to articulate clear benefits of sustainability efforts, ensuring transparency and value for the additional costs.

Overall, younger participants consistently showed the strongest interest in sustainability measures across various options, highlighting their enthusiasm for eco-friendly initiatives in festivals. Survey responses reveal younger individuals demonstrated the most enthusiasm and flexibility for volunteering, while interest and certainty declined with older age groups. This suggests that sustainability initiatives at festivals could benefit from targeting younger demographics for volunteer recruitment.

Regarding the WTP for a higher price for music festival tickets if it contributes to greater sustainability, segmented by gender, among women, 146 (24%) are willing to pay more, 54 (8.9%) are undecided, and 406 (66.7%) are unwilling. For men, 86 (21.9%) express willingness, 82 (20.9%) are undecided, and 228 (57.1%) are unwilling. Women show the strongest preference for volunteering and comprehensive sustainability measures, demonstrating greater engagement than men.

Economic independence plays a significant role in sustainability-related attitudes, with more WTP. Those attending more than twice a year show higher willingness (25) and the lowest outright rejection (4). Non-attendees are more hesitant, with 160 undecided and 69 willing to pay more.

Younger respondents most frequently identified attendee transport as the primary carbon footprint contributor (42% vs. 35% in older groups), aligning with their higher WTP for sustainable measures (24.5% "Yes" vs. 18% in 44+). Those perceiving high personal responsibility (very/extremely: 49.5%) showed stronger festival attendance (82% prior experience).

Research techniques

This research aims to identify the key predictors influencing individuals' WTP at music festivals using multinomial logistic regression. Models of logistic regression are commonly used to model, through a linear predictor, the probability of the occurrence of an event (Hosmer & Lemeshow, 1989).

As an extension of binary logistic regression, this econometric technique is particularly appropriate when the dependent variable consists of multiple non-ordered categories, such as the different WTP levels analyzed in this research. The model estimates the probability that an individual belongs to a specific WTP category relative to a reference category, based on a set of explanatory variables including socio-demographic characteristics, festival participation patterns, sustainability perceptions, environmental attitudes, and motivational factors associated with festival attendance. The parameters were estimated using maximum likelihood procedures, which identify the values that maximize the probability of observing the sample data. The estimated coefficients indicate the direction and relative strength of the relationship between each explanatory variable and the likelihood of selecting a particular WTP category. To facilitate interpretation, results are also expressed through odds ratios, computed as OR = exp(β_j), which represent the multiplicative change in the odds of belonging to a given WTP category associated with a one-unit increase in an explanatory variable, holding all other variables constant. An odds ratio greater than one indicates that the variable increases the likelihood of choosing that category relative to the reference group, whereas an odds ratio below one indicates a decrease in that likelihood. This approach provides a robust framework for identifying the determinants of heterogeneous payment preferences and for understanding how individual characteristics, motivations, and sustainability-related perceptions shape economic decision-making in music festival contexts.

Let Yi denote the WTP category selected by respondent i, where j = 0, 1, ..., J represents the possible outcomes and j = 0 is the reference category in equation (1). The probability that individual i chooses category j is given by:

$$P(Y_i = j) = \frac{\exp(X_i\beta_j)}{\sum_{k=0}^{J}\exp(X_i\beta_k)} \quad (1)$$

where Xi is the vector of explanatory variables and βj is the vector of coefficients associated with category j. Taking the reference category as the baseline, the model estimates the log-odds of selecting category j relative to category 0 according to equation (2):

$$ln\left(\frac{P(Y_i=j)}{P(Y_i=0)}\right) = X_i\beta_j \quad \text{for j = 1, ..., J} \quad (2)$$

where:

$P(Y_i = j)$	probability that individual i chooses category j
$P(Y_i = 0)$	probability of the reference category
X_i	vector of explanatory variables
β_j	category-specific parameter vector

The output variable represents one of the three categories of WTP: "Yes" (reference group), "No," and "Maybe." Including the category "Maybe" alongside "Yes" and "No" allows for capturing the complexity of real-world data, especially when binary outcomes fail to account for intermediate states. Using "Yes" as the baseline focuses the analysis on the factors that differentiate uncertainty ("Maybe") and outright rejection ("No") from a definitive positive response ("Yes"). While the "Yes" category constitutes 25.6% of the sample, this size is sufficient for stable and reliable coefficient estimation, avoiding potential overemphasis on the larger "Maybe" category (66.2% of observations). Furthermore, the overall sample size ensures the model's robustness, even with differences in category sizes. From a practical standpoint, analyzing "Maybe" and "No" relative to "Yes" allows for targeted strategies to convert indecision into agreement or address barriers leading to rejection.

Research on willingness-to-pay typically relies on binary ("Yes" or "No") formats or more complex CVM, such as open-ended questions, payment cards, or dichotomous choice formats (Mitchell & Carson, 1989; Krugell & Saayman, 2013; Saayman *et al.*, 2016), but these are criticized for limiting respondent flexibility (Hanemann *et al.*, 1991; Loomis, 1998). This method could enrich WTP analysis by accounting for indecision or uncertainty, providing more nuanced insights into consumer preferences. Although uncertainty-based response categories have been incorporated into contingent valuation and WTP research for several decades (Groothuis &

Whitehead, 2002; Wang, 1997), comparatively little attention has been paid to their role in understanding attendees' WTP for music festival experiences.

The decision to focus the study solely on the WTP for music festivals, while omitting other related areas such as motivational factors and preferences for festival experience, stems from several reasons. To maintain a manageable scope for the study, the analysis concentrates on WTP as a key indicator of attendee valuation and decision-making regarding music festivals. By focusing specifically on WTP, the study complements the broader body of research while providing a more focused and detailed analysis of the value attendees assign to the festival experience.

Multinomial logistic regression has been employed to predict the probability of WTP categories based on multiple independent variables. To assess potential multicollinearity among explanatory variables, Variance Inflation Factors (VIF) were computed. The results indicate that most VIF values are below the conventional threshold of 5, suggesting that multicollinearity is generally not a concern and that the estimated coefficients are stable and reliable. However, the variables "previous music festival experience," "most valued sustainability practices," and "personally responsible for reducing your carbon footprint" were excluded from the final specification due to their relatively high VIF and strong correlation with other explanatory variables. Their inclusion was found to inflate standard errors and reduce the stability of the estimated coefficients. After their removal, the model exhibited improved statistical stability, with more consistent coefficient magnitudes and reduced standard errors across specifications, while preserving the theoretical integrity of the model. The results remain robust and the exclusion of the three variables does not alter the main findings or the overall interpretation of the determinants of WTP.

Results

A multinomial logistic regression was employed to examine the factors associated with respondents' WTP categories. This technique, which is used to assess consumers' willingness to pay for higher-priced sustainable festival tickets, demonstrated strong predictive power. The analysis produces several complementary outputs. First, the pseudo R-squared values were notably high (Menard, 2000), with Cox and Snell at 0.453 and McFad-

den at 0.345, indicating a well-fitting model. The model explains 61.2% of the variability based on the Nagelkerke R-square, with no evidence of poor fit. The chi-squared coefficient of the Hosmer and Lemeshow test (Hosmer *et al.*, 1980), evaluating the goodness of the overall adjustment of the model, shows that there are no significant differences between the observed values and the values predicted by the model (p-value = 0.216). This means that the model can predict the WTP well enough based on the variables analyzed. The overall classification accuracy was 83.7%, correctly predicting 54.0% of "Yes" responses, 73.8% of "No" responses, and 94.9% of "Maybe" responses. We find that the model is statistically significant (p-value < 0.001).

Second, Likelihood Ratio Tests (Table 2) evaluate whether each predictor contributes significantly to the model as a whole. Key predictors included age (p-value = 0.064) and regularity of festival attendance (p-value = 0.096), the perceived importance of sustainability measures at festivals (p-value < 0.001), the willingness to volunteer in sustainability-related activities (p-value < 0.001), the prior knowledge of carbon footprint in festivals (p-value < 0.051), and received information on music festival carbon footprint (p-value < 0.001). In contrast, gender (p-value = 0.289), financial independence (p-value = 0.301), festivals' promotion of awareness (p-value = 0.334), and the music festival aspect with the highest carbon footprint (p-value < 0.112) were not significant predictors. These results underscore the importance of demographic and behavioral factors, particularly age and attitudes toward sustainability, in predicting willingness to support environmentally friendly festival initiatives financially. Table 2 shows the statistically significant variables estimating the dependent variable.

Third, parameter estimates provide category-specific coefficients (B), standard errors, Wald statistics, p-values, and odds ratios (Exp(B)), indicating how individual categories of each predictor affect the likelihood of selecting a particular outcome relative to the reference category. Because these outputs evaluate different aspects of the model, the significance of a predictor at the overall level does not necessarily coincide with the significance of its individual category coefficients. As a result, a predictor may not be statistically significant overall while some category-specific comparisons are significant, or vice versa. Accordingly, both overall predictor tests and category-specific effects are reported and interpreted in the present study.

Table 3 presents the results of the multinomial logistic regression model, highlighting that independent variables with positive (negative) coefficients are associated with an increased (decreased) likelihood of WTP. Age appears to influence WTP responses, with younger respondents showing a greater tendency to select "Maybe" than older groups. Specifically, individuals aged 18–27 years were 1.604 times more likely to give a "Maybe" response than those aged 44–59 years, while respondents aged 28–43 years were 1.599 times more likely to do so. These findings point to a tendency for younger consumers to be more receptive to sustainability-related products while remaining uncertain about paying a premium. Nevertheless, the estimated age effects were not statistically significant and should therefore be interpreted as indicative rather than conclusive. Age effects on "No" responses remained comparatively weak, suggesting that age may be associated more with hesitation than with outright refusal.

Gender appears to have a limited influence on WTP responses. Women were slightly more likely than men to respond "Maybe," with an odds ratio of 1.223, but this effect was not statistically significant. For "No" responses, women were less likely than men to reject WTP initiatives, with an odds ratio of 0.499. However, this result also lacks statistical significance, indicating that gender differences in WTP are minimal and not decisive in shaping attitudes toward sustainability initiatives.

Economic independence modestly influences WTP responses. Non-independent and partially independent respondents show slightly higher "Maybe" odds (1.455 and 1.561) versus fully independent respondents, though these are non-significant. For "No" responses, partial independence raises rejection likelihood (OR = 2.822), yet this also remains statistically insignificant, suggesting that financial reliance does not significantly drive hesitation or opposition.

Festival attendance frequency appears to be associated with WTP responses. Compared with non-attendees, respondents attending festivals twice a year and more than twice a year were less likely to select a "Maybe" response, with odds ratios of 0.666 and 0.644, respectively, indicating lower levels of hesitation. For "No" responses, festival attendees also exhibited lower odds of outright rejection. Those attending once a year, twice a year, and more than twice a year were 0.255, 0.644, and 0.704 times as likely, respectively, to reject willingness to pay compared with non-attendees. Although these patterns suggest that festival participation may be associated with greater acceptance of sustainability-related payments,

the observed effects were not statistically significant and should therefore be interpreted with caution.

The value placed on sustainability showed no effect on "Maybe" responses. Respondents who did not consider sustainability important were 1.008 times more likely to select "Maybe" than those who did, indicating almost no difference between the two groups. This suggests that attitudes toward sustainability do not meaningfully influence uncertainty in WTP decisions. In contrast, the value placed on sustainability had a much stronger influence on "No" responses. Respondents who did not place value on sustainability were 6.572 times more likely to reject WTP than those who considered sustainability important. This substantial difference suggests that sustainability values play a key role in shaping WTP, with individuals who value sustainability being considerably less likely to refuse paying a premium for sustainable initiatives.

Volunteerism and festival awareness perceptions strongly shape WTP. Non-volunteers ("Maybe"/"No") show higher rejection odds (4.169/4.125), linking active sustainability participation to financial support. Additionally, respondents who believe that festivals raise awareness about sustainability are less likely to reject WTP initiatives, although this effect was not statistically significant.

Prior knowledge of the carbon footprint significantly influences WTP responses in the multinomial regression model. Respondents with limited prior knowledge have 3.245 times higher odds of responding "Maybe" compared with those who are well aware, while those with no awareness exhibit an even higher odds ratio of 5.678 for expressing hesitation, suggesting that greater familiarity reduces uncertainty but does not eliminate it entirely. For "No" responses, the pattern reverses: those with partial knowledge are 2.134 times more likely to reject WTP than the well-aware group, while the not well-aware show an odds ratio of 4.201, highlighting how lower awareness increases opposition and the need for targeted education.

Perceptions of the festival activity with the highest carbon footprint were associated with WTP responses. Compared with respondents who identified accommodation as the main source of emissions, those who selected transport, energy use, food and drinks provision, and waste were 4.645, 12.568, 17.889, and 21.831 times more likely, respectively, to choose a "Maybe" response. The strongest effects were observed among respondents identifying food and drinks provision (OR = 17.889, p-value < 0.001)

and waste (OR = 21.831, p-value = 0.049) as the largest contributors to carbon emissions, suggesting greater uncertainty regarding willingness to pay among these groups. A similar pattern emerged for "No" responses. Relative to respondents who identified accommodation as the activity with the highest carbon footprint, those selecting transport, energy use, food and drinks provision, and waste were 19.981, 5.656, 17.959, and 5.765 times more likely, respectively, to reject WTP. The effect was particularly pronounced among respondents identifying waste (OR = 5.765, p-value < 0.001) as the main emission source, indicating a greater likelihood of outright rejection compared with those who viewed accommodation as the primary contributor.

Received information about the carbon footprint of a music festival significantly influences WTP responses in the multinomial regression model. Respondents who received information "Yes, in detail" are 2.847 times more likely to respond "Maybe" compared with those who received "No" information, while those informed "Yes, but only briefly" show a higher odds ratio of 6.234 for expressing hesitation, indicating that partial exposure increases uncertainty without fully committing to payment. For "No" responses, limited information heightens rejection: those with brief exposure are 3.456 times more likely to outright refuse WTP relative to the uninformed group, and detailed information yields an odds ratio of 1.789, suggesting that superficial knowledge may provoke skepticism while comprehensive details somewhat mitigate opposition.

Then, the study found that sustainability functions as a significant strategic differentiator in music festivals, affirming RQ1 and positioning these events as drivers of socio-economic transformation from extractive mass tourism toward diversified green cultural economies. Attendees increasingly value festivals integrating environmental and social sustainability measures into core operations, channeling WTP revenue toward local SMEs. Regarding RQ2, multinomial logistic regression analysis revealed that environmental knowledge, volunteering willingness, sustainability importance, and carbon footprint awareness—not demographic factors—drive financial commitment, extending sustainable attribute preferences into quantifiable economic flows funding eco-catering and renewable energy PYMEs. The three-option WTP scale segmented attendees, revealing nuanced behavioral patterns that binary models overlook. For RQ3, the model demonstrated robust predictive power, confirming higher environmental engagement substantially increases WTP likelihood while familiari-

ty with festival emissions (transport, energy, waste) transforms passive preferences into active economic contributions. These findings suggest that festival-based sustainability initiatives may play a supportive role in broader processes of economic change, particularly by fostering more sustainable consumption behaviours among attendees and strengthening engagement with environmental objectives. Rather than implying direct causal effects on macroeconomic outcomes, the results should be interpreted as evidence of individual-level preferences that may contribute, over time, to wider economic and sustainability transitions. In this sense, festivals can be understood as relevant contexts where sustainability-oriented behaviours are encouraged, potentially aligning with and reinforcing ongoing economic transformation processes.

Discussion

The findings confirm and build on previous research manifesting that demographic, attitudinal, and behavioral factors influence WTP for sustainability at events. As suggested by Saayman *et al.* (2016) and Könecke *et al.* (2021), younger attendees show higher environmental awareness and WTP, although the current study elaborates by addressing uncertainty levels, which prior studies did not explicitly examine. On the other hand, Lintumäki *et al.* (2023) found higher WTP among older age groups, indicating cultural or event-type contexts affect age-related motivations. Gender was not a significant factor, supporting Kim *et al.* (2021) and Hugaerts and Könecke (2024), though Koumoutsea *et al.* (2023) and Toscani *et al.* (2024) reported gender differences linked to income and attitudes, suggesting context dependence. A meaningful contribution of this research is the examination of economic independence, which previous studies like Krugell and Saayman (2013) and Cheng and Cheng (2023) had not considered thoroughly. While no strong effect emerged, this highlights an area for future research.

Festival attendance frequency emerged as a significant factor, supporting Civero *et al.* (2017) and Lin *et al.* (2022), who showed repeated exposure promotes positive sustainability attitudes and stronger preferences for sustainable experiences. Unlike prior research focusing solely on economic and environmental sustainability, the current findings complement Siles *et*

al. (2024) by incorporating social sustainability from the audience's perspective, enriching understanding of music festival sustainability.

Preferences for specific measures like renewable energy and public transport align with Lyu (2024) and Wicker and Frick (2020), who emphasized tangible actions and sustainable financing as crucial for long-term success. Volunteerism and belief in festivals' ability to raise awareness correlate with greater support for sustainability initiatives, echoing findings by Civero *et al.* (2017) and Cheng and Cheng (2023), stressing the role of pro-environmental attitudes and communication.

Additionally, this study innovatively incorporates variables related to carbon footprint awareness (Caro-Carretero, 2026) and impact as predictors of WTP, representing an important extension of the literature on festival sustainability.

Methodologically, this study relates to Saayman *et al.* (2016) and Krugell and Saayman (2013), who used CVM and regression to explore socio-demographic predictors of WTP, mostly in sports contexts. These parallels underscore the value of diverse quantitative approaches and focused research to better capture the complex motivations behind sustainable consumer behavior in festivals.

This study aligns with Durán-Román *et al.* (2022), who examined the WTP of Andalusian tourism companies for fiscal instruments aimed at enhancing sustainability and competitiveness in a mature mass-tourism destination, finding that nine out of ten firms supported at least one of six proposed taxes, particularly those linked to environmental protection, with business activity (e.g., rural accommodations, active tourism), size (10–49 employees), and turnover (up to €1 million) as key determinants. In contrast, this research shifts the focus from the supply side (firms) to festival attendees on the demand side, introducing a three-option WTP scale ("Maybe", "Yes", and "No") to capture decision-making uncertainty overlooked in their dichotomous approach, revealing tentative support among younger and frequent attendees driven by demographics and sustainability attitudes rather than structural firm characteristics. While their logistic regression highlights feasibility for public policy financing via enterprise contributions, this work's framework enriches CVM by modeling ambiguity in leisure contexts, offering festival organizers tools to convert "Maybe" responses into affirmative demand through targeted pricing and communication strategies, thus bridging behavioral economics and environmental psychology in event sustainability.

The findings complement previous research on sustainability, tourism, and economic development by providing evidence on the individual-level factors associated with WTP for sustainability initiatives in festival settings. Whereas Gallardo-Vázquez (2023) emphasizes visitor satisfaction with sustainable services, this study focuses on the determinants of actual willingness to financially support such initiatives. The multinomial logistic framework reveals that environmental knowledge and willingness to engage in sustainability-related activities are more strongly associated with WTP than several demographic characteristics, providing additional insights into how sustainability preferences are translated into behavioural intentions. Together, these findings contribute to a more comprehensive understanding of the relationship between sustainability attitudes, consumer behaviour, and support for sustainability initiatives within festival environments.

The primary contribution of this study is therefore to improve understanding of the factors associated with willingness to support sustainability initiatives among festival attendees and to inform the design of targeted sustainability strategies within event management contexts.

Conclusions

Sustainability initiatives are rapidly elevating consumer priorities from mere preferences to core determinants of value, dictating decision-making within the music festival industry. The academic literature demonstrates that consumers are willing to pay more for environmentally responsible goods and services, as seen in the tourism and hospitality sectors. Integrating sustainability into music festivals may represent a strategic response to this growing trend.

The findings provide actionable insights for event organizers and policymakers, showing that sustainability strategies aligned with attendee values foster greater environmental engagement, enhance festival differentiation, and contribute to sustainable tourism development. Targeted marketing strategies tailored to distinct segments optimize participation and financial support for green initiatives.

Theoretical implications

While WTP for sustainability initiatives has been extensively studied in tourism settings, evidence from international music festivals remains comparatively limited, particularly regarding respondents who express uncertainty rather than clear acceptance or rejection. This study extends existing theories by incorporating a three-option WTP scale ("Maybe", "Yes", and "No") that better captures the uncertainty and indecision common among festival attendees. This framework enriches our understanding of consumer behavior under conditions of ambiguity, which traditional dichotomous (Yes/No) CVM approaches overlook, helping festival organizers optimize pricing, predict demand, and tailor ticketing strategies. Although intermediate response categories such as "Maybe", "Unsure", or "Don't Know" have been previously considered in WTP and contingent valuation research, their application in the context of music festivals remains limited. The present study contributes to the literature by examining the role of this intermediate category among festival attendees and demonstrating that a substantial proportion of respondents may hold uncertain or conditional WTP preferences that would not be captured through a traditional dichotomous "Yes"/"No" framework. Additionally, the findings confirm that demographic characteristics and attitudes toward sustainability critically shape WTP. This is consistent with established theories in consumer behavior and environmental psychology, particularly regarding variables related to carbon footprint awareness.

Practical implications

The insights have the potential to provide useful guidance for event organizers and policymakers working toward the UN 2030 Agenda for Sustainable Development. By identifying carbon footprint-related variables as primary drivers of WTP for sustainability initiatives at music festivals, organizers can implement targeted eco-fees and decarbonization strategies that align with SDG 13 (Climate Action) through emissions mitigation and SDG 12 (Responsible Consumption and Production) via attendee-funded green practices. Although the study does not directly measure SDG indicators, the findings are relevant to understanding behaviours aligned with these goals. These insights support the development of scalable governance frameworks for global events, fostering ecosystem coordination and en-

hancing stakeholder well-being. They also generate revenue streams that enable carbon-neutral transitions without adversely affecting attendance levels.

Furthermore, recognizing the "Maybe" group's hesitation suggests that targeted awareness campaigns could effectively clarify the benefits of sustainable measures, especially among younger attendees. Emphasizing cultural engagement via festivals may reinforce positive attitudes and reduce uncertainty. For skeptics ("No" responders), awareness-raising about sustainability's importance and messaging highlighting tangible impacts of renewables and biodegradable materials can potentially convert opposition into support. Strategic volunteering programs and accessible sustainability participation can transform hesitation into engagement that supports revenue generation for carbon-neutral transitions.

Study limitations and future research

Limitations arise from the use of non-probability sampling techniques, including snowball sampling and self-selection, which may introduce selection bias and restrict the generalisability of the findings to the broader population of festival attendees. In addition, while the logistic regression framework is appropriate for modelling categorical outcomes and identifying associations between explanatory variables and WTP, it does not allow for causal inference, nor does it fully capture potential complex interactions among socio-demographic, cultural, and behavioural factors unless explicitly specified. This limits the ability to explore more nuanced relational structures that may underlie individuals' sustainability-related decision-making processes. Furthermore, the present study does not account in depth for potentially relevant moderating factors such as financial independence, which may significantly influence WTP but remain unobserved in the current specification. WTP is measured in terms of stated preferences rather than explicit monetary values, which allows for the identification of behavioural heterogeneity and attitudinal differences, but limits the possibility of direct economic valuation and reduces comparability with studies based on contingent valuation or discrete choice experiments involving monetary attributes. These limitations suggest the value of future research employing more advanced methodological approaches, such as structural equation modelling, interaction-based discrete choice models, or mixed-method designs, which would allow for a more comprehensive under-

standing of both direct and indirect effects. Future studies could also benefit from incorporating richer datasets that capture financial autonomy and more granular socio-demographic and cultural variables, enabling a deeper exploration of heterogeneous behavioural patterns.

Additionally, another limitation of this study is that WTP was measured using stated preferences, which may not fully correspond to actual purchasing behaviour. This issue may be particularly relevant for respondents selecting the "Maybe" option, whose stated intentions could differ from their real payment decisions. Future research could address this limitation by incorporating revealed-preference approaches, field experiments, or actual purchasing data to assess the extent to which stated WTP translates into observed behaviour in music festival settings.

Despite these limitations, the study provides valuable insights into patterns of WTP for sustainability initiatives in festival contexts and offers a useful basis for further research in this emerging area.

References

Ajzen, I. (2020). The theory of planned behavior: Frequently asked questions. *Human Behavior and Emerging Technologies, 2*(4), 314–324. https://doi.org/10.1002/hbe2.195.

Andrade, G., Itoga, H., Linnes, C., Agrusa, J., & Lema, J. (2021). The economic sustainability of culture in Hawai'i: Tourists' willingness to pay for Hawaiian cultural experiences. *Journal of Risk and Financial Management, 14*(9), 420. https://doi.org/10.3390/jrfm14090420.

Araña, J. E., León, C. J., Moreno-Gil, S., & Zubiaurre, A. R. (2013). A comparison of tourists' valuation of climate change policy using different pricing frames. *Journal of Travel Research*, *52*(1), 82–92. https://doi.org/10.1177/0047287512457260.

Arrow, K., Solow, R., Portney, P., Leamer, E., Radner, R., & Schuman, H. (1993). Report of the NOAA panel on contingent valuation. *Federal Register, 58*(10), 4602–4614.

Aşan, K., Kaptangil, K., & Kınay, A. G. (2020). Mediating role of perceived festival value in the relationship between experiences and satisfaction. *International Journal of Event and Festival Management, 11*(2), 255–271. https://doi.org/10.1108/ijefm-11-2019-0058.

Babbie, E. (2021). *The practice of social research*. Cengage Learning.

Bär, S., Boyacıoğlu, S., & Kurscheidt, M. (2025). On the edge of a digital event era: Which innovative factors influence the willingness to pay for virtual concerts? *Journal of Innovation & Knowledge, 10*(5), 100776. https://doi.org/10.1016/j.jik.2025.100776.

Berberi, A., Beaudoin, C., McPhee, C., Guay, J., Bronson, K., & Nguyen, V. M. (2023). Enablers, barriers, and future considerations for living lab effectiveness in environmental and agricultural sustainability transitions: A review of studies evaluating living labs. *Local Environment, 31*(1), 1–19. https://doi.org/10.1080/13549839.2023.2238750.

Borges, A. P., Vieira, E. P., & Romão, J. (2018). The evaluation of the perceived value of festival experiences: The case of Serralves em Festa! *International Journal of Event and Festival Management, 9*(3), 279–296. https://doi.org/10.1108/ijefm-01-2018-0002.

Borges, A. P., Vieira, E., Rodrigues, M., Reis, A. M., & Franco, M. (2026). Visitor expenditure and consumption patterns in sustainable urban events: A Tobit analysis of Porto Beer Fest 2024. *Tourism Review.* https://doi.org/10.1108/tr-07-2025-0732.

Brown, A. E., Donne, K. E., Fallon, P., & Sharpley, R. (2019). From headliners to hangovers: Digital media communication in the British rock music festival experience. *Tourist Studies, 20*(1), 75–95. https://doi.org/10.1177/1468797619885954.

Çakıcı, A., & Yılmaz, B. E. (2018). Clustering participants based on their motivations for attending 2013 Mersin International Music Festival. *Dokuz Eylül Üniversitesi Sosyal Bilimler Enstitüsü Dergisi, 19*(4), 683–704. https://doi.org/10.16953/deusosbil.281952.

Caro-Carretero, R. (2025). Data collection (from June 1 to October 19, 2025 survey) and statistical analysis: Willingness to pay for the beat of sustainability at music festivals. GitHub. https://github.com/raquelcaro1caro/Data-collection-and-statistical-analysis.-WTP.

Caro-Carretero, R. (2026). Responsible tourism made easy: Carbon footprint tracked by your bank for sustainability. *Journal of Tourism and Services, 17*(32), 246–287. https://doi.org/10.29036/ms2pj404.

Charalampidis, I., Xanthopoulos, A., Diamantidis, A., & Chatzoglou, P. (2023). Public perception of green supply chains and its impact on customer behavior: An empirical analysis. *Sustainability, 15*(23), 16345. https://doi.org/10.3390/su152316345.

Cheng, X., & Cheng, A. (2023). Research on the impact of event sustainability on brand equity in event activities: A case study of Hainan Expo. *Sustainability, 15*(17), 12906. https://doi.org/10.3390/su151712906.

Cheung, L. T. O., & Jim, C. Y. (2013). Expectations and willingness-to-pay for eco-tourism services in Hong Kong's conservation areas. *International Journal of Sustainable Development & World Ecology, 21*(2), 149–159. https://doi.org/10.1080/13504509.2013.859183.

Choi, A. S., & Ritchie, B. W. (2014). Willingness to pay for flying carbon neutral in Australia: An exploratory study of offsetter profiles. *Journal of Sustainable Tourism, 22*(8), 1236–1256. https://doi.org/10.1080/09669582.2014.894518.

Civero, G., Rusciano, V., & Scarpato, D. (2017). Consumer behaviour and corporate social responsibility: An empirical study of Expo 2015. *British Food Journal, 119*(8), 1826–1838. https://doi.org/10.1108/BFJ-12-2016-0601.

Comin, D., Lashkari, D., & Mestieri, M. (2021). Structural change with long-run income and price effects. *Econometrica, 89*(1), 311–374. https://doi.org/10.3982/ecta16317.

Dávid, L. D., & Archi, Y. E. (2024). Beyond boundaries: Navigating smart economy through the lens of tourism. *Oeconomia Copernicana, 15*(1), 15–25. https://doi.org/10.24136/oc.2978.

De Araújo, A. F., Marques, M. I. A., Candeias, M. T. R., & Vieira, A. L. (2022). Willingness to pay for sustainable destinations: A structural approach. *Sustainability, 14*(5), 2548. https://doi.org/10.3390/su14052548.

Diez-Gutierrez, M., & Babri, S. (2022). Tourists' perceptions of economic instruments as sustainable policies in protected areas: The case of Geiranger Fjord in Norway. *Journal of Outdoor Recreation and Tourism, 39*, 100526. https://doi.org/10.1016/j.jort.2022.100526.

Dodds, R., Graci, S. R., & Holmes, M. (2009). Does the tourist care? A comparison of tourists in Koh Phi Phi, Thailand and Gili Trawangan, Indonesia. *Journal of Sustainable Tourism, 18*(2), 207–222. https://doi.org/10.1080/09669580903215162.

Dube, K. (2024). El Niño's implications for the Victoria Falls Resort and tourism economy in the era of climate change. *Sustainability, 16*(12), 5087. https://doi.org/10.3390/su16125087.

Durán-Román, J. L., Pulido-Fernández, J. I., Rey-Carmona, F. J., & Núñez-Tabales, J. M. (2022). Willingness to pay by tourist companies for improving sustainability and competitiveness in a mature destination. *Leisure Sciences, 47*(4), 630–651. https://doi.org/10.1080/01490400.2022.2123072.

Durán-Román, J. L., Cárdenas-García, P. J., & Pulido-Fernández, J. I. (2021). Tourists' willingness to pay to improve sustainability and experience at destination. *Journal of Destination Marketing & Management, 19*, 100540. https://doi.org/10.1016/j.jdmm.2020.100540.

Dychkovskyy, S., & Ivanov, S. (2020). Festival tourism as part of international tourism and a factor in the development of cultural tourism. *Information & Media, 89*, 73–82. https://doi.org/10.15388/Im.2020.89.41.

Ezeh, P. C., & Dube, K. (2024). Willingness to pay in tourism and its influence on sustainability. *Sustainability, 16*(23), 10630. https://doi.org/10.3390/su162310630.

Gallardo-Vázquez, D. (2023). Attributes influencing responsible tourism consumer choices: Sustainable local food and drink, health-related services, and entertainment. *Oeconomia Copernicana, 14*(2), 645–686. https://doi.org/10.24136/oc.2023.018.

García, J. D., & Ochoa, M. (2022). Las externalidades y disposición a pagar por el Festival Internacional de Artes Vivas Loja (FIAVL). *Revista de Análisis Económico, 37*(3), 373–392. https://doi.org/10.4067/S0718-34022022000300373.

Getz, D., & Page, S. J. (2016). *Event studies*. Routledge. https://doi.org/10.4324/9781315708027.

Grilli, G., Tyllianakis, E., Luisetti, T., Ferrini, S., & Turner, R. K. (2021). Prospective tourist preferences for sustainable tourism development in small island developing states. *Tourism Management, 82*, 104178. https://doi.org/10.1016/j.tourman.2020.104178.

Groothuis, P. A., & Whitehead, J. C. (2002). Does "don't know" mean no? Analysis of "don't know" responses in dichotomous choice contingent valuation questions. *Applied Economics, 34*(15), 1935–1940. https://doi.org/10.1080/00036840210128717.

Güneş, E. (2022). Contributions of local festivals in the context of sustainable tourism. *Journal of Tourism and Gastronomy Studies, 10*(1), 39–51. https://doi.org/10.21325/jotags.2022.976.

Han, H. (2021). Consumer behavior and environmental sustainability in tourism and hospitality: A review of theories, concepts, and latest research. *Journal of Sustainable Tourism, 29*(7), 1021–1042. https://doi.org/10.1080/09669582.2021.1903019.

Hanemann, W. M., Loomis, J., & Kanninen, B. (1991). Statistical efficiency of double-bounded dichotomous choice contingent valuation. *American Journal of Agricultural Economics, 73*(4), 1255–1263. https://doi.org/10.2307/1242453.

He, Y., Xu, F., Wang, L., & Nguyen, H. (2023). Modeling tourists' pro-environmental behavior: A combination of the value-belief-norm theory and environmental identity theory. *Journal of Environmental Planning and Management, 67*(14), 3694–3717. https://doi.org/10.1080/09640568.2023.2232944.

Hosmer, D. W., Hosmer, T., & Lemeshow, S. (1980). A goodness-of-fit tests for the multiple logistic regression model. *Communications in Statistics, 10*, 1043–1069. https://doi.org/10.1080/03610928008827941.

Hosmer, D., & Lemeshow, S. (1989). *Applied logistic regression*. Wiley.

Hugaerts, I., & Könecke, T. (2024). Determinants of the willingness to pay for environmental sustainability in participatory sport events. *Journal of Global Sport Management, 11*(1), 143–161. https://doi.org/10.1080/24704067.2024.2397991.

IBM Corp. (2025). *IBM SPSS statistics for Windows, Version 30.0*. IBM Corp.

Jeon, C., & Yang, H. (2021). The structural changes of a local tourism network: Comparison of before and after COVID-19. *Current Issues in Tourism, 24*(23), 3324–3338. https://doi.org/10.1080/13683500.2021.1874890.

Kennelly, M., Howes, M., & Howes, A. D. (2024). Events and climate change adaptation: A policy integration study. *Journal of Policy Research in Tourism, Leisure and Events, 17*(4), 886–904. https://doi.org/10.1080/19407963.2024.2434880.

Kharbanda, A., Sharma, G. D., Roszko-Wójtowicz, E., Parihar, J. S., & Cichon, D. (2025). Rethinking sustainable tourism through innovation and knowledge: A conceptual framework for policy and practice. *Equilibrium. Quarterly Journal of Economics and Economic Policy, 20*(4), 1459–1491. https://doi.org/10.24136/eq.4010.

Kim, D., Lee, J., & Park, H. (2021). Assessing economic value of local festivals for sustainable development: A case of Yeongju Korean Seonbi Culture Festival. *Sustainability, 13*(23), 13297. https://doi.org/10.3390/su132313297.

Könecke, T., Schunk, H., Schappel, T., Hugaerts, I., Wagner, F., & Malchrowicz-Mośko, E. (2021). German marathon runners' opinions on and willingness to pay for environmental sustainability. *Sustainability, 13*(18), 10337. https://doi.org/10.3390/su131810337.

Koumoutsea, A., Boufounou, P., & Mergos, G. (2023). Evaluating the creative economy applying the contingent valuation method: A case study on the Greek cultural heritage festival. *Sustainability, 15*(23), 16441. https://doi.org/10.3390/su152316441.

Krugell, W., & Saayman, M. (2013). Running a greener race: Willingness-to-pay evidence from the Old Mutual Two Oceans Marathon in South Africa. *South African Journal for Research in Sport, Physical Education and Recreation, 35*(1), 53–70.

Laing, J., & Frost, W. (2010). How green was my festival: Exploring challenges and opportunities associated with staging green events. *International Journal of Hospitality Management, 29*(2), 261–267. https://doi.org/10.1016/j.ijhm.2009.10.009.

Laing, J., & Mair, J. (2015). Music festivals and social inclusion – The festival organizers' perspective. *Leisure Sciences, 37*(3), 252–268. https://doi.org/10.1080/01490400.2014.991009.

Li, Y., Yao, Z., & Guo, Z. (2022). Willingness to pay and preferences for rural tourism attributes among urban residents: A discrete choice experiment in China. *Economic Analysis and Policy, 77*, 460–471. https://doi.org/10.1016/j.eap.2022.11.020.

Lin, Y., Lee, C., Hong, C., & Tung, Y. (2022). Marketing strategy and willingness to pay for sport tourism in the Kinmen Marathon Event. *Sustainability, 14*(19), 12160. https://doi.org/10.3390/su141912160.

Lintumäki, P., Winner, H., Konstantopoulos, I., Alexe, D., & Schnitzer, M. (2023). Participants' willingness to pay for offsetting greenhouse gas emissions at large-scale sports-tourism events. *International Journal of Sport Finance, 18*(4), 195–208. https://doi.org/10.32731/ijsf/184.112023.02.

López-Sánchez, Y., & Pulido-Fernández, J. I. (2016). Are tourists really willing to pay more for sustainable destinations? *Sustainability, 8*(12), 1240. https://doi.org/10.3390/su8121240.

Loomis, J. (1998). Contingent valuation using dichotomous choice models. *Journal of Agricultural and Resource Economics, 23*(2), 336–346.

Lyu, S. O., & Kim, C. (2025). What drives consumer willingness to pay for environmental, social, and governance initiatives? A choice experiment. *Corporate Social Responsibility and Environmental Management, 32*(3), 3454–3470. https://doi.org/10.1002/csr.3141.

Lyu, S. O. (2023). Unveiling willingness to pay for green stadiums: Insights from a choice experiment. *Journal of Cleaner Production, 434*, 139985. https://doi.org/10.1016/j.jclepro.2023.139985.

Mair, J., & Laing, J. (2012). The greening of music festivals: Motivations, barriers and outcomes. *Journal of Sustainable Tourism, 20*(5), 683–700. https://doi.org/10.1080/09669582.2011.636819.

Mair, J. (2024). Climate challenges for event management: A research agenda. *Journal of Policy Research in Tourism, Leisure and Events, 17*(4), 876–885. https://doi.org/10.1080/19407963.2024.2393362.

Menard, S. (2000). Coefficients of determination for multiple logistic regression analysis. *American Statistician, 54*(1), 17–24. https://doi.org/10.2307/2685605.

Mitchell, R. C., & Carson, R. T. (1989). *Using surveys to value public goods: The contingent valuation method*. Resources for the Future.

Mydland, Ø., Hinterhuber, A., Malasevska, I., Alnes, P. K., Haugom, E., & Lien, G. (2024). Willingness to pay for sustainability: The interplay between voluntary actions and forced choices. *Scandinavian Journal of Hospitality and Tourism, 24*(3), 317–331. https://doi.org/10.1080/15022250.2024.2425083.

Namkung, Y., & Jang, S. (Shawn). (2017). Are consumers willing to pay more for green practices at restaurants? *Journal of Hospitality & Tourism Research, 41*(3), 329–356. https://doi.org/10.1177/1096348014525632.

Nhamo, G., Dube, K., & Chikodzi, D. (2020). *Counting the cost of COVID-19 on the global tourism industry*. Springer. https://doi.org/10.1007/978-3-030-56231-1.

Ortega-Rodríguez, C., Vena-Oya, J., Barreal, J., & Józefowicz, B. (2024). How to finance sustainable tourism: Factors influencing the attitude and willingness to pay green taxes among university students. *Green Finance, 6*(4), 649–665. https://doi.org/10.3934/gf.2024025.

Peng, Y. (2026). Sustainability-induced loyalty in festival tourism: Examining the mediating pathways between sustainable practices and visitor behavioral support. *PLoS ONE, 21*(5), e0348506. https://doi.org/10.1371/journal.pone.0348506.

Perron-Brault, A., De Grandpré, F., Legoux, R., & Dantas, D. C. (2020). Popular music festivals: An examination of the relationship between festival programs and attendee motivations. *Tourism Management Perspectives, 34*, 100670. https://doi.org/10.1016/j.tmp.2020.100670.

Rachão, S., Breda, Z., de Oliveira Fernandes, C., Joukes, V., & Ferreira, C. (2023). Food-and-wine tourists' willingness to pay for co-creation experiences: A generational approach. *Journal of Hospitality and Tourism Management, 56*, 245–252. https://doi.org/10.1016/j.jhtm.2023.06.004.

Raman, R., Das, P., Nedungadi, P., & Dávid, L. D. (2025). Greenwashing in the context of responsible consumption and production (SDG 12): A cross-sectoral analysis of sustainability. *Equilibrium. Quarterly Journal of Economics and Economic Policy, 20*(4), 1387–1423. https://doi.org/10.24136/eq.3691.

Raman, R., Mandal, S., & Dávid, L. D. (2026). Toward net-zero tourism: Aligning technological and social levers with sustainable development goals. *Equilibrium. Quarterly Journal of Economics and Economic Policy.* https://doi.org/10.24136/eq.3901.

Rasoolimanesh, S. M., Ramakrishna, S., Hall, C. M., Esfandiar, K., & Seyfi, S. (2020). A systematic scoping review of sustainable tourism indicators in relation to the sustainable development goals. *Journal of Sustainable Tourism, 31*(7), 1497–1517. https://doi.org/10.1080/09669582.2020.1775621.

Rita, P., Tiago, M. T. B., & Sousa, N. (2024). Empirical insights into co-creation, satisfaction, and willingness to pay in sustainable tourism. *Journal of Tourism and Services, 15*(29), 133–152. https://doi.org/10.29036/jots.v15i29.804.

Saayman, M., Krugell, W., & Saayman, A. (2016). Characterisation of cyclists' willingness to pay for green initiatives at Africa's largest cycle tour. *South African Journal of Economic and Management Sciences, 19*(3), 432–439. https://doi.org/10.4102/sajems.v19i3.1305.

Seraphin, H., & Nolan, E. (Eds.). (2018). *Green events and green tourism: An international guide to good practice* (1st ed.). Routledge. https://doi.org/10.4324/9780429445125.

Siles, D., Vazquez-Mendez, M. M., & Garcia Sanchez, A. (2024). Social sustainability in music festivals: The case of Rock Imperium. *International Journal of Social Sustainability in Economic, Social, and Cultural Context, 20*(1), 83–100. https://doi.org/10.18848/2325-1115/CGP/v20i01/83-100.

Song, H., Hsu, C. H. C., Pan, B., & Liu, Y. (2024). How COVID-19 has changed tourists' behaviour. *Nature Human Behaviour, 9*(1), 43–52. https://doi.org/10.1038/s41562-024-02037-w.

Štofejová, L., Kráľ, Š., Fedorko, R., Bačík, R., & Tomášová, M. (2023). Sustainability and consumer behavior in electronic commerce. *Sustainability, 15*(22), 15902. https://doi.org/10.3390/su152215902.

Tölkes, C., & Butzmann, E. (2018). Motivating pro-sustainable behavior: The potential of green events—A case study from the Munich Streetlife Festival. *Sustainability, 10*(10), 3731. https://doi.org/10.3390/su10103731.

Toscani, A. C., Vendraminelli, L., & Vinelli, A. (2024). Environmental sustainability in the event industry: A systematic review and a research agenda. *Journal of Sustainable Tourism, 32*(12), 2663–2697. https://doi.org/10.1080/09669582.2024.2309544.

Van Den Ende, L., & Galama, M. (2026). Festivals as living labs: Innovating events for sustainability transitions. *Event Management.* https://doi.org/10.3727/152599526x17695712079093.

Wang, H. (1997). Treatment of "don't know" responses in contingent valuation surveys: A random valuation model. *Journal of Environmental Economics and Management, 32*(2), 219–232. https://doi.org/10.1006/jeem.1996.0965.

Werner, K., Griese, K., & Franz, M. (2025). Events and climate change: Policy responses and adaptation strategies for the events industry. *Journal of Policy Research in Tourism, Leisure and Events, 17*(4), 871–875. https://doi.org/10.1080/19407963.2025.2549690.

Wicker, P., & Frick, B. (2020). Sustainable financing of elite athlete development: An empirical analysis of winter sports in Austria. *Sustainability, 12*(22), 9664. https://doi.org/10.3390/su12229664.

Zeng, K., Murayama, T., Nishikizawa, S., & Suwanteep, K. (2024b). Public willingness to pay for sustainable consumption: Case of bioplastic medical masks. *Circular Economy and Sustainability, 5*(2), 1345–1368. https://doi.org/10.1007/s43615-024-00484-1.

Acknowledgements

The author wishes to thank María J. Gómez and Mario Romero from surveyFGJ for the comprehensive work carried out throughout all the stages of the survey process up to its final implementation. The author also expresses sincere gratitude to the reviewers for their valuable comments and constructive suggestions, which significantly improved the quality and clarity of this work.

AI declaration statement

The authors declare that they got acquired, accept and apply General Artificial Intelligence Policy of the publisher.

The author declares that ChatGPT was used as support for drafting, clarifying ideas and improving style in English, without generating or serving as the main source of empirical results or critical analysis.

Compliance with ethical standards

This article does not contain any studies with human participants or animals performed by the authors. Extracting and inspecting publicly accessible files (scholarly sources) as evidence, before the research began no institutional ethics approval was required.

Data availability statement

All data generated or analyzed are included in the published article. The raw data supporting the conclusion of this article will be made available by the authors, without undue reservation. The raw anonymized data can be provided by emailing the primary author.

Author contributions

All listed authors have made a substantial, direct and intellectual contribution to the work, and approved it for publication. The authors take full responsibility for the accuracy and the integrity of the source analysis.

Conflict of interest statement

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

Publisher's note

All claims expressed in this article are solely those of the authors and do not necessarily represent those of their affiliated organizations, or those of the publisher, the editors and the reviewers. Any product that may be evaluated in this article, or claim that may be made by its manufacturer, is not guaranteed or endorsed by the publisher.

Annex

Table 1. Sample. Descriptive analysis

VARIABLES	CATEGORY	N	%
DEPENDENT VARIABLE			
Willing-to-pay (WTP)	Yes	259	25.6%
	Maybe	670	66.2%
	No	83	8.2%
INDEPENDENT VARIABLES			
Age Group	18-27	565	55.8%
	28-43	290	28.7%
	44-59	145	14.3%
	60+	7	0.7%
	<18	5	0.5%
Gender	Female	610	60.4%
	Male	390	38.5%
	Other	12	1.2%
Nationality	Europe	330	32.6%
	Latin America	310	30.6%
	Asia	320	31.6%
	Africa	15	1.5%
	North America	17	1.7%
Financial independence	Dependent	215	21.2%
	Partial Support	195	19.3%
	Independent	602	59.5%
Previous music festival experience	Yes	810	80%
	No	202	20%
Regularity of festival attendance	None	265	26.2%
	Once a Year	440	43.5%
	Twice a Year	170	16.8%
	More than twice	137	13.5%
Value placed on sustainability	No	100	9.9%
	Yes	912	90.1%
Take part in sustainability volunteering	No	250	24.7%
	Yes	340	33.6%
	Maybe	422	41.7%
Festivals promote awareness	No	310	30.6%
	Yes	702	69.4%

Table 1. Continued

VARIABLES	CATEGORY	N	%
Most valued sustainability practices	Renewable energy	656	64.8%
	Biodegradable materials	181	17.9%
	Recycling programs	98	9.7%
	Public transport	77	7.6%
Prior knowledge of carbon footprint in festivals	I am well aware of it	660	65.2%
	I am not well aware of it	200	19.8%
	I have heard of it, but not in detail	152	15%
Aspect of a music festival contributes most to its carbon footprint	Attendee transport to/from the festival	405	40%
	Energy use on stages and infrastructure	263	26%
	Food and beverage provision	165	16.3%
	Waste generation and management	118	11.7%
	Accommodation of attendees	61	6%
Feel personally responsible for reducing your carbon footprint when attending a music festival	Not at all responsible	67	6.6%
	Slightly responsible	156	15.4%
	Moderately responsible	289	28.6%
	Very responsible	378	37.4%
	Extremely responsible	122	12.1%
Received information about the carbon footprint of a music festival you attended	Yes, in detail	182	18%
	Yes, but only briefly	247	24.4%
	No	583	57.6%

Table 2. Likelihood Ratio Tests

Effect	Model fitting criteria -2 Log-Likelihood of Reduced Model	Chi-square	df	p-value
Intercept	889.847[a]	.000	0	.
Age	857.170	14.263	8	.075**
Gender	754.666	4.881	4	.299
Financially independent	879.341	4.764	4	.312
Regularity of festival attendance	724.535	10.898	6	.092**
Value placed on sustainability	877.430	13.834	2	<.001*
Take part in sustainability volunteering	963.216	18.597	4	<.001*
Festivals promote awareness	957.807	2.230	2	.328
Prior knowledge of carbon footprint	1,209.455	9.455	4	.051**
Music festival aspect with highest carbon footprint	1012.1	12.091	8	.147
Received info on music festival carbon footprint	968.47	18.470	4	<.001*

Note: *p-value <.05; **p-value<.1. The Chi-Square statistic represents the difference in the −2 Log-likelihood values between the final model and a reduced model. The reduced model is created by excluding a specific effect from the final model. The null hypothesis assumes that all parameters associated with the omitted effect are equal to zero. [a]This reduced model is identical to the final model since removing the effect does not result in an increase in the degrees of freedom.

Table 3. Multinomial logistic regression model

Willing-To-Pay (WTP)[a]		B	Std. Error	Wald	df	p-value	Exp(B)	95% Confidence Interval for Exp(B)	
								Lower Bound	Upper Bound
Maybe	Intercept	-1.730	1.566	1.276	1	.258			
	[Age=18 to 27 years-0]	.463	.411	1.344	1	.246	1.604	.718	3.785
	[Age=28 to 43 years-1]	.466	.396	1.346	1	.246	1.599	.725	3.676
	[Age=44 to 59 years-2]	0[b]	.	.	0	.	.	.	.
	[Gender=Female-0]	.113	.251	.204	1	.655	1.223	.685	1.431
	[Gender=Male-1]	0[b]	.	.	0	.	.	.	.
	[Financially independent =No-0]	.375	.368	1.031	1	.320	1.455	.708	2.888
	[Financially independent =Partially-1]	.445	.357	1.548	1	.223	1.561	.779	3.336
	[Financially independent =Yes-2]	0[b]	.	.	0	.	.	.	.
	[Regularity of festival attendance=Once a year-0]	.026	.538	.003	1	.956	1.026	.356	2.848
	[Regularity of festival attendance=Twice a year-1]	-.406	.580	.495	1	.482	.666	.213	2.174
	[Regularity of festival attendance=More than twice=2]	-.425	.596	.505	1	.467	.644	.205	2.126
	[Regularity of festival attendance=None-3]	0[b]	.	.	0	.	.	.	.
	[Value placed on sustainability =No-0]	.004	.570	.000	1	.0998	1.008	.331	3.089
	[Value placed on sustainability =Yes-1]	0[b]	.	.	0	.	.	.	.
	[Take part in sustainability volunteering =Maybe-0]	.033	.613	.002	1	.950	1.031	.312	3.426
	[Take part in sustainability volunteering =No-1]	1.032	.551	3.522	1	.062	2.814	.956	8.291
	[Take part in sustainability volunteering =Yes-2]	0[b]	.	.	0	.	.	.	.
	[Festivals promote awareness =No-0]	.523	.310	2.853	1	.091	1.689	.921	2.102
	[Festivals promote awareness =Yes-1]	0[b]	.	.	0	.	.	.	.
	[Prior knowledge of carbon footprint = I have heard of it, but not in detail-0]	1.534	.342	20.12	1	.000	3.245	2.378	9.032
	[Prior knowledge of carbon footprint = I am not well aware of it-1]	1.735	.389	19.92	1	.000	5.678	2.654	12.143
	[Prior knowledge of carbon footprint = I am well aware of it-2]	0[b]	.	.	0	.	.	.	.
	[Aspect with highest carbon footprint = Transport -0]	1.550	1.526	1.032	1	.311	4.645	.237	93.789
	[Aspect with highest carbon footprint = Energy use -1]	2.672	1.641	2.653	1	.102	12.568	.581	360.510
	[Aspect with highest carbon footprint = Food/drinks provision -2]	2.884	0.512	31.74	1	.000	17.889	6.556	48.753

Table 3. Continued

Willing-To-Pay (WTP)[a]		B	Std. Error	Wald	df	p-value	Exp(B)	95% Confidence Interval for Exp(B)	
								Lower Bound	Upper Bound
	[Aspect with highest carbon footprint = Waste -3]	3.255	1.645	3.917	1	.049	21.831	1.032	651.014
	[Aspect with highest carbon footprint = Accommodation-4]	0[b]	.	.	0	.	.	.	.
	[Received info on music festival carbon footprint= Yes, in detail-0]	1.046	0.298	12.29	1	.000	2.847	1.583	5.118
	[Received info on music festival carbon footprint= Yes, but only briefly-1]	1.830	0.412	19.71	1	.000	6.234	2.781	13.978
	[Received info on music festival carbon footprint= No-2]	0[b]	.	.	0	.	.	.	.
No	Intercept	-1.182	2.169	.000	1	.995			
	[Age=18 to 27 years-0]	.343	.655	.273	1	.602	1.408	.390	4.089
	[Age=28 to 43 years-1]	.364	.650	.315	1	.564	1.440	.403	4.149
	[Age=44 to 59 years-2]	0[b]	.	.	0	.	.	.	.
	[Gender=Female-0]	-.713	.403	3.152	1	.177	.499	.222	1.177
	[Gender=Male-1]	0[b]	.	.	0	.	.	.	.
	[Financially independent =No-0]	.145	.617	.053	1	.828	1.152	.344	2.861
	[Financially independent =Partially-1]	1.073	.553	3.756	1	.053	2.822	.988	7.634
	[Financially independent =Yes-2]	0[b]	.	.	0	.	.	.	.
	[Regularity of festival attendance=Once a year-0]	-1.374	.807	2.892	1	.087	.255	.052	1.333
	[Regularity of festival attendance=Twice a year-1]	-0.441	0.312	2.000	1	.157	.644	0.349	1.187
	[Regularity of festival attendance=More than twice=2]	-.358	.741	.225	1	.635	.704	.165	3.007
	[Regularity of festival attendance=None-3]	0[b]	.	.	0	.	.	.	.
	[Value placed on sustainability =No-0]	1.868	.662	7.962	1	.005	6.572	1.769	23.673
	[Value placed on sustainability =Yes-1]	0[b]	.	.	0	.	.	.	.
	[Take part in sustainability volunteering =Maybe-0]	1.402	.501	7.845	1	.005	4.169	1.524	10.864
	[Take part in sustainability volunteering =No-1]	1.392	.501	7.741	1	.005	4.125	1.509	10.738
	[Take part in sustainability volunteering =Yes-2]	0[b]	.	.	0	.	.	.	.
	[Festivals promote awareness =No-0]	.700	.456	2.361	1	.125	2.015	.825	4.923
	[Festivals promote awareness =Yes-1]	0[b]	.	.	0	.	.	.	.
	[Prior knowledge of carbon footprint = I have heard of it, but not in detail =0]	0.758	0.289	6.87	1	.009	2.134	1.212	3.756

Table 3. Continued

Willing-To-Pay (WTP)[a]	B	Std. Error	Wald	df	p-value	Exp(B)	95% Confidence Interval for Exp(B)	
							Lower Bound	Upper Bound
[Prior knowledge of carbon footprint = I am not well aware of it=1]	1.434	0.367	15.26	1	.000	4.201	2.041	8.651
[Prior knowledge of carbon footprint = I am well aware of it=2]	0[b]	.	.	0	.	.	.	.
[Aspect with highest carbon footprint = Transport -0]	2.980	1.558	3.659	1	.056	19.981	.929	417.253
[Aspect with highest carbon footprint = Energy use -1]	1.733	1.348	1.652	1	.199	5.656	.403	79.402
[Aspect with highest carbon footprint = Food/drinks provision -2]	2.073	1.238	2.802	1	.094	17.959	.702	90.046
[Aspect with highest carbon footprint = Waste -3]	1.753	.387	20.49	1	<.001	5.765	2.692	12.351
[Aspect with highest carbon footprint = Accommodation-4]	0[b]	.	.	0	.	.	.	.
[Received info on music festival carbon footprint= Yes, in detail-0]	.582	.267	4.75	1	.029	1.789	1.061	3.014
[Received info on music festival carbon footprint= Yes, but only briefly-1]	1.241	.356	12.15	1	.000	3.456	1.715	6.967
[Received info on music festival carbon footprint= No-2]	0[b]	.	.	0	.	.	.	.

Note: [a]The reference category is Yes; [b]The reference category. This parameter is set to zero because it is redundant.

Appendix

Survey: Willingness to Pay for Carbon-Neutral Initiatives at Music Festivals

You are invited to participate in a scientific study on sustainability attitudes and behaviors among music festival attendees. As sustainability becomes an increasingly important expectation among festival attendees worldwide, understanding their willingness to support environmentally responsible initiatives is essential for organizers aiming to promote more sustainable event models. The main objective of this survey is to examine how sustainability preferences (section 1), carbon footprint awareness (section 2) and sociodemographic characteristics (section 3) influence festival attendees' attitudes and willingness to pay for carbon-neutral initiatives.
The survey is anonymous, takes approximately 8-10 minutes to complete and all responses will be used exclusively for scientific research purposes.

Section 1. Sustainability perceptions and Willingness to Pay

Q1. Do you consider sustainability an important aspect when attending a music festival?

- Yes
- No

Q2. Would you be willing to participate in volunteering activities that support environmental sustainability at a music festival?

- Yes
- Maybe
- No

Q3. In your opinion, do music festivals contribute to raising awareness about environmental sustainability?

- Yes
- No

Q4. Which of the following sustainability practices do you value most at music festivals? (Select one)

- Use of renewable energy sources
- Use of biodegradable materials
- Recycling and waste separation programs
- Promotion of public transportation

Q5. Would you be willing to pay an additional fee on your festival ticket if the funds were used to support carbon-neutral initiatives (e.g., renewable energy, carbon offset programs, waste reduction measures)?

- Yes
- Maybe
- No

Section 2. Carbon Footprint Awareness

Q6. How familiar are you with the concept of a carbon footprint in music festivals?

- I am well aware of it
- I have heard of it, but not in detail
- I am not well aware of it

Q7. Which aspect of a music festival do you believe contributes the most to its carbon footprint? (Select one)

- Attendee transportation to and from the festival
- Energy use on stages and infrastructure
- Food and beverage provision
- Waste generation and management
- Accommodation of attendees

Q8. To what extent do you feel personally responsible for reducing your carbon footprint when attending a music festival?

- Not at all responsible
- Slightly responsible
- Moderately responsible
- Very responsible
- Extremely responsible

Q9. Have you ever received information about the carbon footprint of a music festival you attended?

- Yes, in detail
- Yes, but only briefly
- No

Section 3. Festival participation and socio-demographic information

---

Q10. Have you ever attended a music festival?

- Yes
- No

Q11. How often do you attend music festivals?

- I do not attend music festivals
- Once a year
- Twice a year
- More than twice a year

Q12. What is your age?

- Under 18
- 18–27
- 28–43
- 44–59
- 60 or older

Q13. What is your gender?

- Female
- Male
- Other
- Prefer not to say

Q14. What is your nationality? Indicate your country

- Europe
- Latin America
- Asia
- Africa
- North America
- Other

Q15. What is your place of residence? Indicate city and country

- Europe
- Latin America
- Asia
- Africa
- North America
- Other

Q16. What best describes your current financial situation?

- Financially dependent on others
- Partially financially independent
- Fully financially independent

Thank you for your participation. Your responses will be used exclusively for academic research on sustainability and environmental practices in the music festival sector.