TOWARDS SUSTAINABLE TOURISM: ANALYZING TOURISTS´ ENVIRONMENTAL VALUES, PREFERENCES AND WILLINGNESS TO PAY FOR NATURE-BASED TOURISM IN GRAN CANARIA, SPAIN.

DOCTORAL THESIS

by

Tim Cedric Fichter

University of Las Palmas de Gran Canaria

Towards sustainable tourism: Analyzing tourists' environmental values, preferences and willingness to pay for nature-based tourism in Gran Canaria, Spain.

Tim Cedric Fichter
Las Palmas de Gran Canaria
2024

Supervisor:
Prof. Concepción Román

Thesis for the degree of Doctor of Philosophy
In Tourism, Economics and Management - University of Las Palmas de Gran Canaria

UNIVERSIDAD DE LAS PALMAS DE GRAN CANARIA
ESCUELA DE DOCTORADO

Programa de Doctorado en Turismo, Economía y Gestión
Título de la Tesis:

“Towards sustainable tourism: Analyzing tourists’ environmental values, preferences and willingness to pay for nature-based tourism in Gran Canaria, Spain.”

Tesis Doctoral presentada por Tim Cedric Fichter
Dirigida por el Prof. Concepción Román

El Director

Concepción Román

(firma)

El Doctorando

Tim Cedric Fichter

(firma)

Las Palmas de Gran Canaria, Junio de 2024

“A sustainable world means working together to create prosperity for all.”

Jacqueline Novogratz (The Guardian, 2013)

Table of Contents

List of Tables

List of Figures

List of Abbreviations

3S	Sea, Sun, and Sand, used synonymous for mass tourism
ACE tourism	Adventure-, Culture-, and Ecotourism
DCE	Discrete Choice Experiment
CS	Community Support
DITF	Deutsches Institut für Tourismusforschung (Transl. German Institute of Tourism Research)
DMO	Destination Management Organization
EFA	Exploratory factor analysis
EU	European Union
GDP	Gross Domestic Product
GEN Z	Generation Z, born in the late 1990s and early 2000s
GEN Y	Generation Y or Millennials, born in the 1980 to the late 1990s
KPIs	Key Performance Indicators
NI	Nature Interaction
NC	Nature Connection
SDGs	Sustainable Development Goals
STIs	Sustainable Tourism Indicators
TAS	Tourism Acceptance Saldo: Indicates the level of residents' perceptions for tourism
TIDES	Research Institute for Tourism and Sustainable Economic Development at the ULPGC
ULPGC	University of Las Palmas de Gran Canaria
UNWTO	United Nations World Tourism Organization
UN	United Nations
WTA	Willingness To Accept
WTP	Willingness To Pay

Declaration

This thesis is my own work and has not been submitted for any other degree or diploma at any university or college. Where information has been taken from the published or unpublished work of others, this has been acknowledged in the text and a list of sources provided.

Acknowledgements

First and foremost, a special thanks goes to my supervisor Prof. Concepción Román, who has guided me through the journey as a Ph.D. student at the University of Las Palmas de Gran Canaria. She is not only a great Professor and researcher, but also on a personal level I couldn't have thought of a better supervisor. Thank you for your guidance, your patience, and your helpful advice.

I would also like to thank Professor Juan Carlos Martín, as he motivated me to go down the path of research when I finished my master's degree and played a key role in the here presented research. Additionally, I extend my appreciation to Beatriz Tovar who is a supportive and responsible person at TIDES Institute. I would also like to express my gratitude to my other professors at the University of Las Palmas de Gran Canaria, HTW Saar and KIT Karlsruhe in Germany, where I have learned how to deal with fascinating topics on a scientific basis, which encouraged me to continue with university research. The work at TIDES Institute in the Doctorate has allowed me to dive deep into the essential field of sustainability, where it is also worth mentioning that this area has received much more attention in the last few years, during my time as a doctoral student.

The research area of sustainable tourism allows me to work in an important field where I can do something meaningful to our planet. At this point I would like to highlight my personal connection to nature, which has had a profound impact on my research and my entire life. In particular, the force of the ocean and the waves was one of the reasons that brought me to the Canary Islands. This fascination also inspired me to work for more than ten years in the sector of nature-based tourism alongside the Atlantic Coast in Spain, Portugal, and France. I truly hope that our and future generations can find a way to protect nature and the planet while preserving the privilege of traveling that allowed me to take a backpack and explore the beauty of this world after finishing high school.

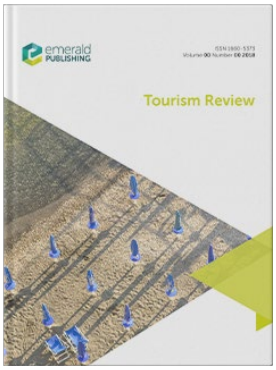
Finally, I want to express my gratitude to the most important thing in life, my family, and friends. Special thanks are due to my parents for instilling me the value of education and encouraging me in my academic journey.

Thank you!

List of Publications

Journal Articles:

Fichter, T., & Román, C. (2023). Rural tourism activities in mass tourism destinations: residents vs non-residents perspectives. *Tourism Review*, *78*(3), 778-793. https://doi.org/10.1108/TR-05-2022-0225



Fichter, T., & Román, C. (2024). Analysing preference heterogeneity and willingness to pay for nature-based tourism activities in Gran Canaria for young Germans. *Journal of Policy Research in Tourism, Leisure and Events*, 1-20. https://doi.org/10.1080/19407963.2024.2325696

Fichter, T., Martín, J. C., & Román, C. (2023). Young Segment Attitudes towards the Environment and Their Impact on Preferences for Sustainable Tourism Products. *Sustainability*, *15*(24), 16852. https://doi.org/10.3390/su152416852

Abstract

This thesis contributes to an enhanced academic understanding of sustainable tourism consumption in Gran Canaria. Tourism offers in rural areas represent more sustainable alternatives to traditional 3S (sea, sun and sand) mass tourism on the island.

The study focuses on a young tourist segment with great potential that will shape the future of travel, where two crucial customer segments of the Spanish and the German markets were researched. The study is based on a discrete choice experiment (DCE) that incorporates types of ecotourism accommodations as well as different rural tourism activity clusters: active, passive, cultural, and aquatic. The thesis consists of three respective studies with different approaches and objectives.

Study one (Chapter I), “Rural tourism activities in mass tourism destinations: residents vs non-residents perspectives” focuses on the understanding of tourists’ preferences and willingness to pay for various holiday packages in the remote area of Veneguera in Gran Canaria, Spain. Results reveal that the inclusion of the investigated attributes in holiday packages increases tourists’ utility, which indicates the existence of an interest in rural vacation for the sample. Furthermore, significant differences in perceptions of attributes between residents and non-residents were found.

The concern of study two (Chapter II) is “Analyzing preference heterogeneity and willingness to pay for nature-based tourism activities in Gran Canaria for young Germans”. The results not only prove that preferences in this important market segment are highly significant and heterogeneous, but also find correlations between preferences and socio-demographic variables. Furthermore, willingness to pay values are analyzed, which help to improve pricing strategies for alternative tourism offers.

Study three (Chapter III), “Young Segment Attitudes towards the Environment and Their Impact on Preferences for Sustainable Tourism Products” focused on the question of how tourists’ environmental concerns influence choice behavior of nature-based tourists in Gran Canaria. The results confirm the hypothesis and identify three latent factors behind environmental concerns: Community Support (CS), Nature Interaction (NI) and Nature Connection (NC).

A better understanding of this niche market will contribute to the sustainable development of Gran Canaria, as well as to the UN Sustainable Development Goals, which are set out in the island’s tourism strategy.

Keywords: Sustainable tourism, Rural tourism, Discrete choice experiment, Ecotourism consumption, Tourist preferences, Willingness to pay, Preference heterogeneity, Environmental concerns, Sustainable development goals

German abstract

Die hier vorliegende Doktorarbeit soll zu einem besseren wissenschaftlichen Verständnis des nachhaltigen Tourismuskonsums auf der Insel Gran Canaria beitragen. Dabei stellen Tourismusprodukte in den ländlichen Gegenden der Insel eine Alternative zum dominierenden 3S Massentourismus (sea, sun & sand) dar, und sollen dabei helfen eine nachhaltige Entwicklung in der Destination zu fördern. Die Studie basiert auf einem diskreten Auswahlexperiment, das verschiedene Arten von ökotouristischen Unterkünften sowie verschiedene Aktivitätscluster des ländlichen Tourismus untersucht: aktiv, passiv, kulturell und aquatisch. Dabei liegt der Fokus auf einer jungen Zielgruppe mit großem Potential, welches die Zukunft des Reisemarktes prägen wird. Neben den Reisepräferenzen wird in der Arbeit auch der Preis ermittelt, den grüne Touristen für verschiedene Reiseprodukte zu zahlen bereit sind (WTP).

Die in dieser Arbeit untersuchte wirtschaftliche Komponente ist bedeutsam und stellt zusammen mit ökologischen und sozialen Faktoren eine wichtige Säule zur Förderung der nachhaltigen Entwicklung dar (Purvis et al., 2019)[1]. Nach Dwyer et al. (2000) sind die Auswahl der richtigen Produkte, die Ansprache der richtigen Zielgruppen, sowie darauf abgestimmte Preisstrategien wichtige Elemente für die allgemeine Wettbewerbsfähigkeit einer Destination. Die Arbeit besteht aus einem Rahmenpapier und drei Publikationen mit jeweils unterschiedlichen Ansätzen:

Die erste Studie (Kapitel I), „Ländliche Tourismusaktivitäten in Massentourismusdestinationen: Perspektiven von Einheimischen vs. Nicht-Einheimischen“, konzentriert sich auf das Verständnis der Präferenzen und der Zahlungsbereitschaft von Touristen für verschiedene Urlaubspakete in der abgelegenen Gegend von Veneguera. Die Studie findet signifikante Unterschiede in den Urlaubspräferenzen zwischen spanischen und deutschen Touristen.

Die zweite Studie (Kapitel II) befasst sich mit der „Analyse der Präferenzheterogenität und Zahlungsbereitschaft junger Deutscher für naturnahe touristische Aktivitäten auf Gran Canaria“. Die Ergebnisse zeigen nicht nur, dass die Präferenzen in diesem wichtigen Marktsegment hoch signifikant und heterogen sind, sondern belegen auch Korrelationen zwischen den Präferenzen und soziodemographischen Variablen. Die Ergebnisse können unter anderem dabei helfen Preisstrategien für alternative Tourismusangebote zu verbessern.

Studie drei (Kapitel III), „Einstellungen junger Touristen gegenüber der Umwelt und deren Auswirkungen auf die Präferenzen für nachhaltige Tourismusprodukte“, bestätigt, dass Umweltbelange von Touristen das Entscheidungsverhalten von naturverbundenen Touristen auf Gran Canaria beeinflusst. Die Studie identifiziert

[1] All references to citations in this abstract are listed at the end of the introduction section

dabei drei latente Faktoren, die hinter den Umweltbelangen stehen: Community Support (CS), Nature Interaction (NI) und Nature Connection (NC).

Ein besseres Verständnis dieses Nischenmarktes wird zur nachhaltigen Entwicklung Gran Canarias sowie zur Umsetzung der UN-Ziele für eine globale nachhaltige Entwicklung (SDGs) beitragen, welche in der Tourismusstrategie der Insel festgelegt sind.

Resumen extendido en español

Esta tesis contribuye a una mejor comprensión científica del consumo turístico sostenible en la isla de Gran Canaria. Para ello, los productos turísticos en áreas rurales de la isla presentan una alternativa al turismo de masas dominante, normalmente conocido por turismo 3S, que hace referencia a las siglas inglesas de *sun* (sol), *sea* (mar) y *sand* (arena) y contribuyen a promover el desarrollo sostenible del destino.

La relevancia del tema se puede ver, entre otras cosas, en las manifestaciones que tuvieron lugar en las Islas Canarias en abril del 2024, donde algunos residentes locales levantaron su voz en contra del "*sobreturismo*", las altas cifras turísticas, los efectos negativos sobre la población y la contaminación ambiental que genera (El País, 2024)[2].

El término turismo sostenible debe comprenderse en este trabajo como un término genérico que incluye varios conceptos basados en la naturaleza, y con frecuencia otros conceptos difíciles de diferenciar, como el ecoturismo, el turismo rural o el turismo activo (Diamantis & Ladkin, 1999; Šimková, 2007).

La base para esta investigación se apoya en la diversidad natural de Gran Canaria que permite ofrecer y analizar alternativas de viajes además del turismo clásico de sol y playa. El estudio se basa en un experimento de elección discreta, que contiene paquetes vacacionales con distintos tipos de alojamientos ecoturísticos, y también diferentes grupos de actividades de turismo rural: activo, pasivo, cultural y acuático. La encuesta se dirigió a una muestra de visitantes potenciales incluyendo residentes y no residentes en Gran Canaria. Los datos correspondientes a los no residentes se obtuvieron mediante entrevistas personales entre los meses de agosto de 2017 y marzo de 2018 en un centro vacacional situado en un entorno natural del suroeste de Francia, popular entre los alemanes; los residentes fueron entrevistados en los distintos campus de la Universidad de Las Palmas de Gran Canaria. En el análisis, se aplicaron técnicas de modelización avanzadas, mediante la estimación de modelos logit mixto y modelos híbridos de elección discreta.

En el trabajo, además del estudio de las preferencias, también se determina el precio que los turistas estarían dispuestos a pagar por las diferentes actividades consideradas en el análisis. Este componente económico es significativo y representa, junto a los factores ecológicos y sociales, un pilar importante para promover el desarrollo sostenible (Purvis et al., 2019). Según Dwyer et al. (2000), la selección del producto adecuado, dirigirse al grupo objetivo idóneo, así como diseñar las estrategias de precio correctas, son elementos importantes para lograr la competitividad de un destino. El análisis realizado en este trabajo está dirigido a

[2] Todas las referencias correspondientes a las citas de este resumen se relacionan al final de la introducción

un grupo de personas jóvenes, en su mayoría pertenecientes a la generación Y, quienes representan un segmento importante con visión de turismo a futuro.

El cuerpo central de esta tesis (Capítulos I-III) está compuesto por tres artículos previamente publicados, cada uno con distintos objetivos, que en este documento marco, presentan una relación entre sí y se contextualizan de forma general. Para ello se establece la relación que el trabajo guarda con la estrategia de turismo de Gran Canaria y con los objetivos globales de desarrollo sostenible.

A continuación, se presenta un resumen de los principales objetivos de cada uno de estos trabajos, así como las principales conclusiones y resultados obtenidos tras el análisis.

Capítulo I:

El primer estudio, ”actividades de turismo rural en destinos de turismo de masas: perspectivas de los residentes frente a los no residentes”, se centra en comprender las preferencias y la disposición a pagar de los turistas por distintos paquetes vacacionales en el espacio natural de Veneguera en Gran Canaria.

En el estudio se analizan las diferencias entre dos segmentos de mercado. Por un lado, los turistas alemanes que constituyen uno de los segmentos de clientes más grandes e importantes para Gran Canaria y; por otro lado, los residentes locales, quienes no sólo en temporada baja representan un importante nicho de clientes, sino cuyos intereses deben de ser tomados en cuenta, en general, con vistas al desarrollo de turismo sostenible (Patronato de Turismo de Gran Canaria, 2023).

Los resultados muestran que todos los atributos considerados en el experimento aumentan la utilidad del individuo, lo que puede interpretarse como un interés general, en el grupo objetivo de jóvenes estudiado, por pasar unas vacaciones relacionadas con la naturaleza en Gran Canaria. El análisis además muestra resultados significativos en relación a las preferencias: aquí el *clúster acuático* (representado por el buceo y el esnórquel), así como el *clúster activo (*senderismo activo/ciclismo), son de mayor interés que el *clúster cultural* (senderismo cultural) y el *clúster pasivo* (taller de observación de las estrellas).

Respecto a los tipos de alojamiento ecoturístico (Wight, 1997), en la muestra estudiada se detecta una preferencia por variantes de alojamiento en casas de campo o rurales (con techo fijo), frente a opciones que consideran el alojamiento al aire libre en tiendas de campaña (sin un techo fijo).

Comparando los dos segmentos se revelan diferencias significativas. Por ejemplo, los turistas alemanes tienen mayor disposición a pagar por el clúster acuático, mientras que la valoración monetaria por el clúster pasivo y el alojamiento en casa de campo es más alta en los residentes locales. Las diferencias identificadas en las preferencias por los distintos elementos que integran el paquete turístico pueden

ser de utilidad para crear experiencias vacacionales más adecuadas al mercado potencial (Vespestad & Mehmetoglu, 2010).

Capítulo II:

El segundo estudio se encarga del "análisis de la heterogeneidad de las preferencias y de la disposición a pagar de los jóvenes alemanes por actividades turísticas de naturaleza en Gran Canaria". Los resultados no solo prueban que las preferencias en este importante segmento de mercado son altamente significativas y heterogéneas, sino que también se muestra que existen correlaciones entre las preferencias y las características sociodemográficas. En el análisis se utilizan modelos flexibles de elección discreta (véase capítulo 2.2.), que permiten determinar las preferencias por las distintas actividades a nivel individual.

La heterogeneidad identificada en las preferencias de los turistas alemanes apunta a que se deberían ofrecer productos flexibles en el sector del turismo de naturaleza en Gran Canaria, coincidiendo con los resultados de Liao y Chuang (2020), los cuáles mencionan la importancia de qué el turista tenga la capacidad de crear sus propios paquetes de viaje. Las ofertas de paquetes definidos de forma establecida a menudo se manejan en el área 3S, por lo que no son una opción para las vacaciones basadas en la naturaleza en Gran Canaria.

La metodología empleada no solo permite obtener la disposición a pagar de cada individuo por las distintas actividades, sino que también revela el monto de una posible compensación, en caso de que el paquete incluya atributos no deseados. En este caso, la compensación más alta se obtiene para el clúster acuático, mientras que la compensación más baja corresponde a las actividades en el área cultural.

Se obtienen además interesantes interacciones en referencia a las preferencias y las características sociodemográficas de los turistas. En este sentido, la edad resultó ser un factor determinante ya que la preferencia por las actividades del clúster acuático y por el alojamiento en tiendas de campaña disminuyen significativamente a medida que aumenta la edad del turista, a la vez que el precio del paquete cobra menos relevancia. Estos resultados resaltan la importancia de realizar estudios de mercado en este sector, aunque se debe señalar que la segmentación del mercado hoy en día debe considerarse más allá de las características sociodemográficas (SINUS Markt- und Sozialforschung, 2024).

Capítulo III:

La tercera publicación, "actitudes del segmento joven hacia el medio ambiente y su impacto en las preferencias por productos turísticos sostenibles", examina cómo influye la preocupación medioambiental de los turistas en las preferencias y la

disposición a pagar por el desarrollo de productos turísticos sostenibles en Gran Canaria. Esta es una cuestión relevante, ya que muchas veces el punto de vista de los viajeros sobre temas relacionados con el medio ambiente no coincide con su comportamiento real en los viajes. Por ello, profundizar en el estudio de sus preferencias es crucial para contribuir a la sostenibilidad de los destinos turísticos (e.g. Karampela et al., 2021; Maltese & Zamparini, 2022; Xu & Fox, 2014).

Mediante la realización de un análisis factorial exploratorio (AFE), utilizando indicadores de conciencia ambiental en el contexto del ecoturismo, se identificaron tres factores latentes diferentes: apoyo comunitario (CS), interacción con la naturaleza (NI) y cercanía a la naturaleza (NC). La comprensión de la estructura latente subyacente en relación con la conciencia medioambiental de los turistas ayudará a profundizar en el conocimiento de esta cuestión en Gran Canaria.

Los resultados revelan que los encuestados más jóvenes muestran una mayor preocupación medioambiental en relación con todas las variables latentes, lo que subraya la importancia que tiene implicar a grupos de destinatarios jóvenes para lograr un desarrollo sostenible. Por ejemplo, los viajeros con altos valores de CS, también conocidos como “Community-Based Tourism” (Lee & Jan, 2019), demuestran una alta preferencia por alojamientos rurales y la participación en actividades orientadas a la cultura, mientras que los turistas con un valor más alto de NI se inclinan por los clústeres activo, acuático y pasivo. También resulta interesante que las personas que muestran una actitud de mayor cercanía a la naturaleza (NC), conocidos como valores biosféricos (De Groot & Steg, 2008), demuestran un interés menor por los paquetes de turismo activo, lo que se traduce en una mayor preferencia por la opción de no elegir ninguna de las dos alternativas mostradas en el experimento de elección. Una posible explicación podría ser que estos individuos prefieren que la naturaleza no se vea alterada de ningún modo, aun cuando se proponga el desarrollo de actividades de turismo sostenible.

Conclusiones generales y limitaciones:

En general debe mencionarse que el turismo basado en la naturaleza no sustituye la importancia económica del turismo de sol y playa en Gran Canaria, sino que debe ser visto como una diversificación de las ofertas turísticas definidas en la estrategia de desarrollo turístico de la isla (Patronato de Turismo de Gran Canaria, 2021). El presente estudio proporciona datos valiosos para que los responsables de la toma de decisiones en Gran Canaria promuevan ofertas turísticas basadas en la naturaleza y tengan en cuenta las preferencias obtenidas para el segmento de turistas jóvenes analizado. Este trabajo constituye una investigación pionera de la demanda de turismo de naturaleza en destinos de turismo de masas, que proporciona una base para otros estudios en este ámbito. Los resultados de este trabajo deben considerarse, por tanto, como un primer acercamiento a la

investigación que ayude a comprender mejor como se percibe la oferta basada en la naturaleza en Gran Canaria y en otros destinos.

La investigación presenta algunas limitaciones en términos de mercados, atributos y composición de la muestra, que deben ser abordadas en futuras investigaciones. En primer lugar, este estudio se limita a un grupo específico de personas entre 18 y 35 años de edad, y a dos mercados importantes, dejando de lado otros mercados clave como el del Reino Unido. Además, los clústeres de turismo rural (Pesonen, 2015) solo están representados por un número limitado de atributos. Futuras investigaciones pueden replicar este tipo de estudio con diferentes actividades adaptadas a diferentes mercados con el fin de definir los clústeres rurales con mayor precisión.

Otra limitación se observa en las características de la muestra. Cabe recordar que los no residentes se entrevistaron en una zona vacacional (conocida por el turismo de naturaleza), mientras que la información de los residentes se recogió cerca de los campus universitarios de Gran Canaria. Además, el rango de edad se limita a la generación joven, que representa una parte importante pero relativamente pequeña de la población.

También debe tenerse en cuenta que las propuestas alternativas deben ser observadas de manera crítica, ya que a pesar de que enfoques como el ecoturismo, en general, son vistos como una solución sostenible, estos no conducen automáticamente a un desarrollo sostenible (Place, 1995; Wall, 1997; Xu et al., 2023). En este contexto, el trabajo aborda la importancia de los llamados indicadores de turismo sostenible (ITS), los cuales pretenden hacer medible y evaluable el desarrollo sostenible (Rasoolimanesh et al., 2023; Torres-Delgado & Saarinen, 2017).

A pesar de las limitaciones, el estudio ofrece resultados importantes que deberían servir de ayuda para ampliar la investigación mediante estudios de mercado más amplios y detallados, cruciales para el desarrollo de ofertas sostenibles (Cini et al., 2012). Una mejor comprensión de este nicho de mercado contribuirá al desarrollo sostenible de Gran Canaria, así como al logro de las metas propuestas por la ONU, para alcanzar un desarrollo sostenible global, las cuales están implementadas en las estrategias turísticas de la isla.

Introduction

a Context and concepts

a.1 Significance of sustainable tourism development

The aim of this framework section is to place the three publications, each addressing different thematic aspects in the field of nature-based tourism consumption, in the global context of sustainable tourism development and in the broader context of tourism in Gran Canaria. Furthermore, the objective is to comprehend and apply the findings of the articles in a practical manner related to the islands' tourism strategy.

Gran Canaria island is a popular tourist destination that belongs to the Canary Islands Archipelago in Spain. In Gran Canaria and beyond, tourism is a complex issue where travelers consume scarce resources and different areas such as accommodation, suppliers and mobility must be considered in relation to their environmental impacts (Steinhauser & Heinemann, 2022). Many destinations and tourism organization are now questioning the viability of pure growth and aim for a development that considers alternative key figures regarding environmental, social, and economic sustainability (Miller & Delgado, 2023).

A recent example is the protest movement in the Canary Islands in April 2024, where local activists have raised their voices against negative impacts of high tourist numbers on the islands. Residents demonstrated against uncontrolled mass tourism, advocating for more affordable housing, environmental protection, and more sustainable tourism in general (El País, 2024; Tagesschau, 2024; ZDF, 2024). In this context, the biologist Felipe Ravina from Tenerife stated in a social media post: "For years, we've been promoting ourselves as a unique nature destination in the world, but tourism is deteriorating the product we are selling. The numbers of tourists are unsustainable from a social and environmental perspective." (Tenerife Weekly, 2024).

The phenomenon can be described as overtourism, defined by the UNWTO as:

"The impact of tourism on a destination, or parts thereof, that excessively influences perceived quality of life of citizens and/or quality of visitors experiences in a negative way." (UNWTO et al., 2018, p.4)

In Gran Canaria, overtourism and the problems caused by too many tourists have been an issue for several decades now. With high numbers of tourist arrivals, around 4.3 million visitors per year, and a large proportion of traditional mass tourism, the problems are comparable to those of Tenerife and numerous other beach destinations worldwide (Brodtrager, 2023; Moreira et al., 2022; Patronato de Turismo de Gran Canaria, 2023). Fennell (2008) and GhulamRabbany et al. (2013) underline the importance of sustainable tourism development, and this approach is reflected in Gran Canaria's growth model, which is established in the island's strategy to generate more value for local people, businesses, tourists, and the conservation of the natural and cultural environment. Hereby, the promotion of tourism in rural areas has been identified as products of importance for the island's

development (Patronato de Turismo de Gran Canaria, 2021). Weaver (2001) highlighted the importance of alternative tourism concepts to support sustainable development with environmental, social, and economic benefits for 3S (sea, sun, sand) destinations. For the purposes of simplicity, the terms *sustainable tourism* and *nature-based tourism* are used as overarching terms in this framework section. An extended overview of the terminology is presented in section a.4. The focus of the thesis is to gain a deeper insight into the consumption patterns in this segment of growing importance (Haukeland et al., 2023) in terms of tourists' preferences, willingness to pay (WTP) and environmental attitudes.

The promotion of sustainable tourism concepts can contribute to solve bigger global challenges, raise environmental awareness of tourists and local communities, support biodiversity or support to increase terrestrial carbon storage capacity, among others (Dutha et al., 2023; Hakim & Nakagoshi, 2014; Rein & Strasdas, 2017).

The urgent need for action in terms of environmental protection and climate change, is stated in the Canary Islands Climate Action Master Plan, published in 2022, with the call to achieve progress by 2033 (Turismo de Islas Canarias, 2022, p.4).

"The Canary Islands and the planet as a whole are faced with a huge challenge. We are confronted with the prelude to a critical period for Humanity, one nobody can isolate themselves from, and which could be classed as a climate crisis. And there is only one possible response to the scientific evidence, with the necessary moral commitment to conserving and caring for life on the planet and the future of coming generations: decisive climate action in the framework of a global response geared towards limiting the average temperature increase on the planet to no more than 2ºC compared to pre-industrial levels by 2100, and endeavouring to keep the increase as close as possible to 1.5ºC."

Negative forecasts highlight this problem, with estimates suggesting that the contribution of the tourism sector to global greenhouse gas emissions stood at approximately 8% in 2019 and is expected to increase by at least 25% by 2030 (Turismo de Islas Canarias, 2022; Umweltbundesamt, 2020). A review of tourism and climate change mitigation indicates that without global policy efforts to address the sector's emissions, tourism will become an even more significant driver of climate change (Gössling et al., 2023). Environmental effects caused by tourism transportation, infrastructure, facilities among others contribute to this increase and can therefore destroy the natural resources that tourism is based on (GhulamRabbany et al., 2013).

Travel requires physical movement to change locations and Gran Canaria exemplifies a destination where tourism heavily depends on air transport. The dependence on the aviation sector demonstrates the complex relationship between tourism consumption and sustainability. Many destinations seek sustainable development, but are also economically dependent, as in the Canary Islands where

35% of the Gross Domestic Product (GDP) contributes to tourism (Hernández Martin et al., 2021).

The issue is complex, and it seems difficult to counteract this problem in the long run, also because the implementation of a sustainable strategic policy at the macro level seems to be difficult (García-Falcón & Medina-Muñoz, 1999). The European Climate Law which sets a legally binding target of net zero greenhouse gas emissions by 2050 to limit global warming to 1.5°C will have, according to Wirth et al. (2024), an immediate change on tourism demand in the future. A key question that many stakeholders in the tourism industry are currently facing is how travel will develop in the future, and which forms of travel can be combined with environmental goals or changing political framework (European Commission, 2021; Wirth et al., 2024).

In essence, sustainable tourism represents a potential avenue for transforming the nature of tourism in Gran Canaria, also in terms of target groups. Despite its reputation as one of Europe's most popular mass tourism destinations, the island has a wide range of natural attractions that make it an ideal testing ground for low impact tourism proposals with the potential for sustainable development in the future.

a.2 Research objectives

This thesis aims to contribute to the scientific understanding of consumer behavior for sustainable tourism products in Gran Canaria. To achieve a deeper understanding of this alternative tourism market to 3S beach tourism in Gran Canaria, two crucial customer segments, the Spanish and German market, are analyzed. The study is focused on a specific target group of Millennials and a small proportion of Generation Z, a demographic with significant potential as these are important future markets that will shape the future of travel.

An important factor that needs to be considered when achieving sustainable development is the economic perspective. According to Dwyer et al. (2020) suitable tourism products, target groups and pricing are crucial for the overall competitiveness of destinations. Therefore, the here presented study not only analyzes ecotourists' preferences, but also their willingness to pay (WTP) for different attributes is calculated. Given that consumers are becoming increasingly attuned to environmental concerns, it is crucial to ascertain the relationship between environmental attitudes and travelers' behavior (e.g. Karampela et al., 2021; Maltese & Zamparini, 2023; Xu & Fox, 2014).

The objectives of the thesis can, therefore, be summarized as follows:

1. To analyze differences in perception and willingness to pay for rural nature-based tourism activities among residents and non-residents.

2. To identify the main sources of heterogeneity in preferences and willingness to pay for the above-mentioned activities for the target group of potential young German visitors.
3. To investigate how attitudes towards the environment could influence the preferences and willingness to pay for the development of more sustainable tourism products in a 3S mass tourism destination such as Gran Canaria.

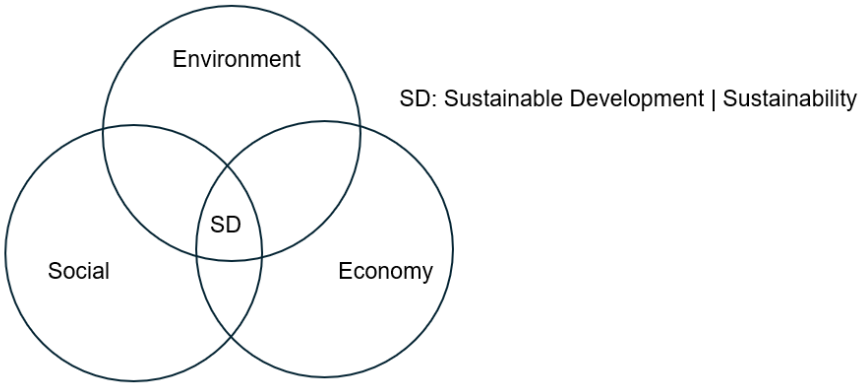
A discrete choice experiment (DCE) was conducted to collect the data required for the analysis. This is a widely accepted method for comparing customer preferences and determining willingness to pay for goods and services. The application of advanced choice modelling techniques, including the estimation of mixed Logit and hybrid choice models, allowed the research objectives to be achieved. Though several studies have investigated willingness to pay in the alternative tourism market, to our knowledge no study has compared the perspectives of residents and non-residents regarding rural tourism consumption in a mass tourism destination. The study also offers novel insights into the heterogeneity of preferences among ecotourists in Gran Canaria and the influence of environmental attitudes on their choices.

In the next sections important definitions, concepts, and strategies related to the field of research are provided.

a.3 The integrative model of sustainability as a foundational concept

The thesis is aligned with the integrative model of sustainability, which encompasses environmental, social, and economic dimensions. Purvis et al. (2019) mentions the importance of interconnecting all three dimensions to achieve sustainable development, which is illustrated in Figure 1. The approach of the three pillars can be considered the state of the art, in accordance with the UN (United Nations, 2015).

Figure 1. Integrative model of sustainability



Source: Own illustration based on Purvis et al., 2019, p.682

The concept of sustainability goes back to the 16th century and is based in forestry. At that time, the idea was that only as much wood should be harvested from forests as can naturally regenerate (Suda & Zormaier, 2002). The basic premise of this approach can be applied to today's idea of sustainability. In 1987, the United Nations Brundtland Commission described sustainable development as "meeting the needs of the present without compromising the ability of future generations to meet their own needs" (United Nations, 1987, Section I.3).

In the tourism sector, the UNWTO defines sustainable development as "tourism that takes full account of its current and future economic, social and environmental impacts, addressing the needs of visitors, the industry, the environment and host communities" (UNWTO, 2013, p.8). The influence of tourism on various mass tourism destinations within Europe is substantial. Parson described the emergence of international mass tourism as one of the few phenomena with significant and irreversible consequences on all three dimensions since the Second World War (Parson, 1973). To clarify the distinctions and correlations between the three dimensions in tourism, a quick overview with few examples is given below.

The environmental dimension refers to several challenges, such as the conservation of environmental resources, natural heritage, or biodiversity (UNWTO, 2013). Typical practical examples to minimize negative impacts in tourism are the use of green electricity in hotels, waste reduction and minimizing cleaning processes and water consumption but also purchase of regional and seasonal products (Steinhauser & Heinemann, 2022). Hereby the implementation of eco-certifications and ecolabels is a common tool that can encourage and support businesses to improve their environmental performance (Font & Buckley, 2001; Steinhauser & Heinemann, 2022).

The social dimension plays a substantial role in fostering tolerance and greater intercultural understanding. This entails respecting the socio-cultural authenticity of local communities, valuing their traditions and the preservation of cultural heritage (UNWTO, 2013). In practical terms, important subjects are fair working conditions, diversity, gender equality, compliance with human rights, including along the downstream supply chains, among others (Rein & Strasdas, 2017; UNWTO, 2015). A key point in the social dimension are residents' attitudes towards tourism, which considers quality of life of local people as an important factor for sustainable development (Schmücker & Eisenstein, 2021; Seeler & Eisenstein, 2023). The demonstrations against mass tourism in the Canary Islands in 2024 (mentioned in Section a.1) can be considered a counterexample of the acceptance of tourism, at least among the protestors.

To gain a valid picture of residents' perceptions in destinations, the German Institute for Tourism Research (DITF) invented a method under the term *Tourism Acceptance Saldo* (TAS) to analyze and compare the level of residents' perceptions in German tourism regions (Deutsches Institut für Tourismusforschung, 2024). The

aforementioned study by Moreira Gregori and colleagues analyzed important factors for locals' perceptions in Gran Canaria, mentioning important topics like creating new jobs, development of infrastructures, creation of wealth and economic growth and the economy of the municipality. The results suggest that perceptions towards tourism may depend on several factors and socio-demographic characteristics. For example, older age is associated with negative perceptions of tourism (Moreira Gregori et al., 2020). A study by Martín et al. (2020) on the perceptions of the local population towards tourism indicates that the main benefits of tourism development in Gran Canaria are related to economic effects and that the negative impacts are more related to the environment.

In terms of economical sustainability, Steinhauser & Heinemann (2022) mention the importance of stable profit generation that strengthens local economies where travelers contribute value. Ensuring long-term economic viability is essential to establish fair socio-economic distribution and stable employment opportunities that contribute to overarching development goals like poverty reduction (UNWTO, 2015). The promotion of tourism in rural areas can represent an alternative market option to support all three dimensions of sustainable development of a region which is discussed in more detail in section a.5 (Weaver, 2001). Some authors add a fourth aspect in management, which is helpful to implement sustainable development in tourism organizations, often conducted by sustainability managers (Rein & Strasdas, 2017). The key challenge for the management is to integrate sustainable concepts into the existing organization or destination in an economically viable way (Steinhauser & Heinemann, 2022).

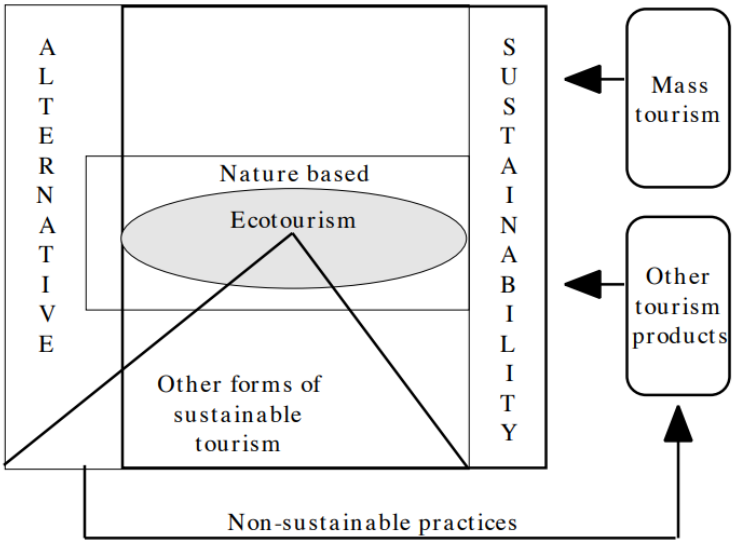
a.4 Terminology of sustainable tourism concepts: Alternative tourism as a tool for sustainable development

The term sustainable tourism is used as an overarching term in this thesis, which is introduced by Diamantis and Ladkin (1999) as an umbrella term that is often used to describe various "green" tourism products. In this context a variety of concepts are associated with achieving sustainability, such as nature tourism, nature-based tourism, adventure tourism, responsible tourism, green tourism, ecotourism, or rural tourism (Diamantis & Ladkin, 1999; Šimková, 2007).

To provide a brief overview, this section will explain some of the most commonly used definitions and those that are most relevant to this thesis. The term rural tourism is defined by the UNWTO as "a type of tourism activity in which the visitor's experience is associated with a wide range of products generally related to nature-based activities, agriculture, rural lifestyle / culture, fishing and sightseeing." (UNWTO, n.d.) The here presented case study investigates activities with different characteristics in rural areas of Gran Canaria Island, ranging from being more adventure-oriented, to others focused on exploring the cultural diversity of the island. Given the wide range of characteristics that these activities exhibit, it is

particularly difficult to categorize them with a single, specific term. This is consistent with Buckley (2006a, 2006b) indicating that the boundaries separating terms in this field are diffuse.

Figure 2. The position of ecotourism within the tourism product spectrum



Source: Diamantis & Ladkin, 1999, p.42, based on Diamantis, 1998

A graph by Diamantis (1998), cited and explained in Diamantis and Ladkin (1999), provides a helpful overview of different concepts in the field of sustainable tourism. The authors stated interconnections between different forms of tourism, where ecotourism is classified as a sub-sector of alternative tourism and nature-based tourism, which is considered as a component of a sustainable tourism spectrum (see Figure 2).

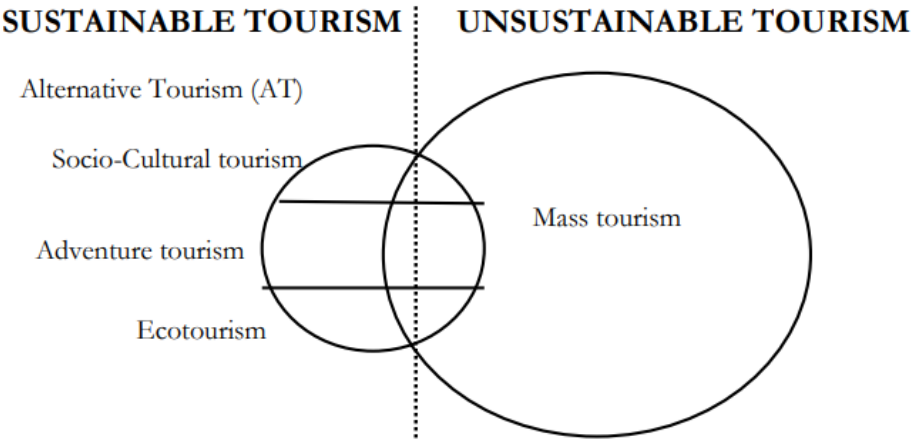
The term nature-based tourism, which is frequently mentioned in this thesis, is described by Thapa et al. (2022) as a recreational activity that take place in natural areas and can be used as an overarching term that represents other forms of tourism, like adventure or ecotourism. This constellation is also demonstrated by Diamantis and Ladkin (1999) in Figure 2.

Ecotourism is another frequently used term in the field of sustainable tourism, yet it is difficult to define due to the multitude of different definitions. The concept is often used synonymously with similar terms such as nature tourism, adventure tourism, alternative tourism, consumption-free, or sustainable tourism (Diamantis & Ladkin, 1999; Weaver, 2001). The variety and complexity in this sector are, among others, demonstrated in a study by Fennell, where a content analysis of eighty-five definitions was applied to better understand the concept of ecotourism (Fennell, 2001). The author concludes that the most common variables mentioned in the definitions are *natural areas*, *conservation*, *culture*, *benefits to local people*, and

education. These results are consistent with the attributes under research in this thesis and with the definition of TIES (The International Ecotourism Society, 2015), which defines ecotourism as "responsible travel to natural areas that conserves the environment, sustains the well-being of the local people, and involves interpretation and education".

Regardless of the precise designation, it is significant for the advancement of tourism in Gran Canaria, that alternative forms of tourism are consistently linked to the concept of sustainability, as Weaver (2001) asserts is the case with ecotourism. Furthermore, in Gran Canaria, this form of tourism should serve as a sustainable alternative to traditional 3S tourism on the island. Figure 3 shows that even despite the separation of mass tourism and ecotourism, there is still an overlapping area between the two. One common example is *scuba diving*, which is very often associated with 3S tourism, but is also concerned with marine conservation and biodiversity preservation and is therefore also considered part of ecotourism. (Eriksson, 2003; Weaver, 2001)

Figure 3. The relationship between different forms of tourism



Source: Eriksson, 2003, p.21

Eriksson's graph provides a useful overview of different forms of tourism and their interrelationships and categorization as being sustainable or non-sustainable. The author points out that there is no clear dividing line between sustainable and non-sustainable tourism. Though the author also makes note, that mass tourism is often deemed to be unsustainable, with its negative impacts on society, environment, and economies. Furthermore, the graph includes different terms of tourism concepts that are categorized to be sustainable, e.g., adventure tourism, sociocultural tourism, and ecotourism. (Eriksson, 2003; Kiper, 2013)

In addition, the existence of summarizing definitions is helpful, such as ACE tourism (Fennell, 1999), which is a combination of adventure, eco and cultural tourism, and NEAT tourism, which stands for nature, eco and adventure tourism (Buckley, 2000).

Adventure Tourism is defined as “guided commercial tours, where the principal attraction is an outdoor activity that relies on features of the natural terrain, generally requires specialized equipment, and is exciting for the tour clients.” It is important to note that adventure tourism does not necessarily require natural environments as a setting (Buckley, 2007, p.1428). It may also take place within theme parks.

To conclude, another frequently used term in the field of sustainable travel is *active tourism* which can be described as a low impact traveling philosophy that combines adventure, ecotourism, and cultural aspects. Herby, it includes recreational aspects, educational aspects, but also brings advantages to local economies (International Organization for Active Tourism, 2002).

This section is designed to facilitate a deeper understanding of the theoretical foundations of various concepts, as well as to provide clarity on the objectives of this study. Irrespective of the precise terminology employed, the objective must be the primary consideration. As indicated by the UN, alternative tourism concepts have the potential to make a significant contribution to the promotion of local economic and social change (UNWTO, 2017).

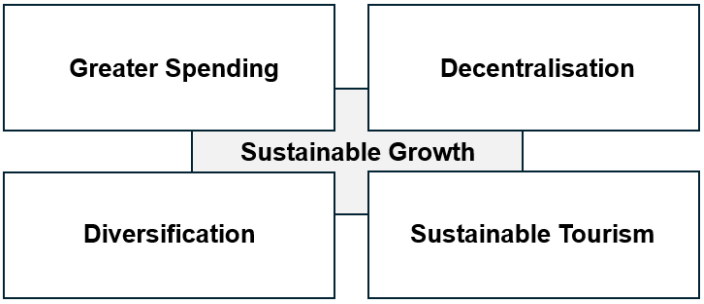
a.5 Gran Canaria: Quality tourism and sustainable growth model

In the context of sustainable tourism development, the term *quality tourism* is a key term that is frequently invoked. The 2024 protests, which have adopted the slogan "The Canary Islands have a limit" address this issue in a manner that prioritizes quality over quantity (El País, 2024). Gran Canaria’s tourism strategy also contains to strengthen its position as a “quality tourist destination, growing in a more sustainable and competitive way" (Patronato de Turismo de Gran Canaria, 2021, p.2).

There is no universally accepted definition of quality tourism. On the contrary, it is a widely used term in the tourism industry, which is often associated with economic benefits, positive social impact, environmental protection, and sustainability (Jennings, 2006). In addition, different regions may define quality tourism differently, depending on underlying values, framework, and political conditions within the destination. To give a practical example within the European Union (EU), the tourism organization of Berlin describes quality tourism as an essential part of Berlin’s tourism plan and defines "what quality tourism in Berlin is" for visitors, residents, and the global society. Herby the goal is to implement quality tourism that is tailored to the region and is not limited to high standards and guest satisfaction (visitBerlin, 2021). Especially in destinations with a high concentration of tourists, such as those designated as 3S, the objective is to prioritize quality over quantity. Nedelcu (2010) stated that it is essential for the Canary Islands to find a balance between tourist satisfaction, the potential for regional development and the protection and conservation of tourism resources.

A sustainable growth model has been established in Gran Canaria's tourism strategy to facilitate the achievement of sustainable development. This model is comprised of four distinct major strategy goals, as shown in Figure 4.

Figure 4. Major strategy goals for sustainable growth in Gran Canaria



Source: Own graph based on Patronato de Turismo de Gran Canaria, 2021, p.5

Hereby the field sustainable tourism is one aspect, along with increased expenditure, decentralization, and diversification. All major goals are linked to the topic and the objectives of this thesis. The goal *Sustainable Tourism* implies that the growth model is in line with the sustainable development goals (SDGs), to generate value not only for tourists, but also for nature, culture, and local people (Patronato de Turismo de Gran Canaria, 2021).

Hereby *Decentralization* aims for an improved distribution of tourists on the island. This includes to integrate areas that are less developed for tourism, such as Veneguera, the location where the discrete choice experiment is taking place. At this point it should be noted that Veneguera is only one of the possible regions in Gran Canaria that is suitable for nature tourism offers. The model also considers *Greater spendings*, which is associated with growth in terms of quality. One way to achieve this type of growth is by attracting tourists with greater purchasing power or by encouraging longer stays (Patronato de Turismo de Gran Canaria, 2021). Several studies proved significant connections between ecotourism and higher levels of education (Eusébio et al., 2017), which can also be interpreted as indicating a greater propensity for affluent target groups. Furthermore, revenues in ecotourism goes more to the local economy by improved income generation, employment opportunities and business opportunities, which is often not the case in 3S tourism (Yacob et al., 2007).

Diversification of growth is being sought to enhance the resilience of destinations to economic and political situations (Patronato de Turismo de Gran Canaria, 2021). For instance, promoting tourism in rural areas is a good strategy to mitigate the volatility of mass tourism, which is more sensitive to price and income fluctuations (Muñoz, 2007). An example is the decrease in tourism demand during the pandemic, which resulted in major problems for the local economy and was a trigger

for Gran Canaria and other destinations to put more effort into sustainable and crisis-proof tourism development (Vărzaru et al., 2021).

UNWTO's Secretary-General stated during the pandemic in 2020, that "the crisis is an opportunity to rethink how tourism interacts with our societies, other economic sectors and our natural resources and ecosystems; to measure and manage it better; to ensure a fair distribution of its benefits and to advance the transition towards a carbon neutral and resilient tourism economy" (United Nations Philippines, 2020).

a.6 Tourism and the achievement of sustainable development goals

The tourism strategy of Gran Canaria is aligned with achieving the sustainable development goals (Figure 5). The SDGs are a core element of the UN's agenda and aim to strengthen global sustainable development until 2030 through seventeen different goals that address major global challenges such as climate change, poverty, inequality, hunger, health, and education (UNWTO, 2017).

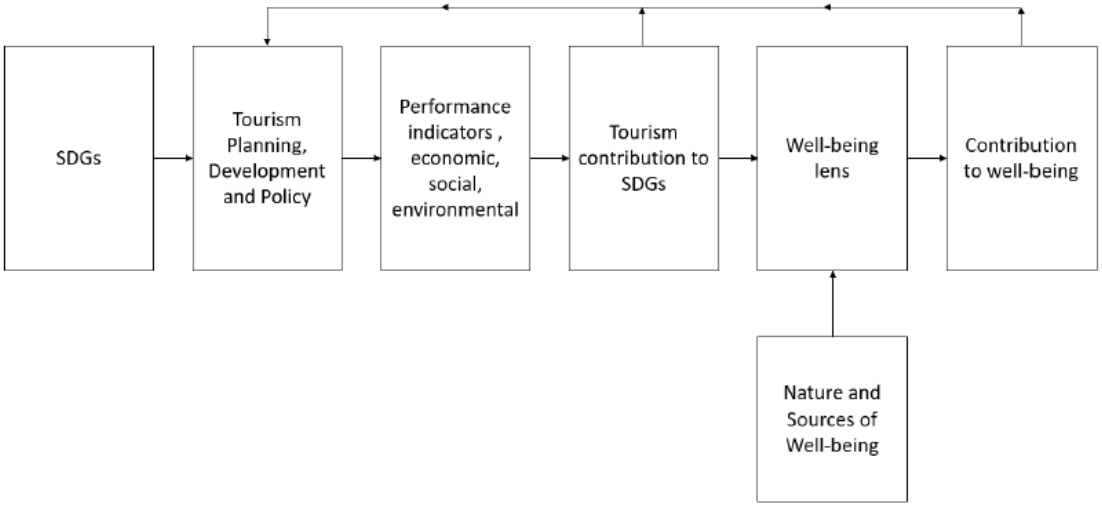
Figure 5. UN's Seventeen Sustainable development goals

Source: UNWTO, 2020

The approach builds on previous international efforts, such as the agenda 21 in 1992 and the Millennium Development Goals in 2000. After discussions on the SDGs at the Rio+20 conference in 2012, the agenda was adopted in 2015. It should be noted that at the halfway point to 2030, only about fifteen percent of the global goals are on the way to be achieved (United Nations, 2023, 2024). UN's Secretary-General drew special attention to the significant influence of tourism on the achievement of the goals (UNWTO, 2017). Figure 6 illustrates how the SDGs drive the development strategies for tourism and influence the field of "Tourism Planning,

Development and Policy" which also includes an action plan for tourism stakeholders (Dwyer, 2022). The figure indicates the importance of implementing Key Performance Indicators (KPIs) to make sustainable development measurable and revisable. This is also needful to evaluate the success of certain measures on its contribution to the SGDs. The author hereby highlights the relevance of well-being indicators on the here presented framework of tourism and SDG achievements.

Figure 6. Tourism and SGD achievement



Source: Dwyer, 2022, p.6

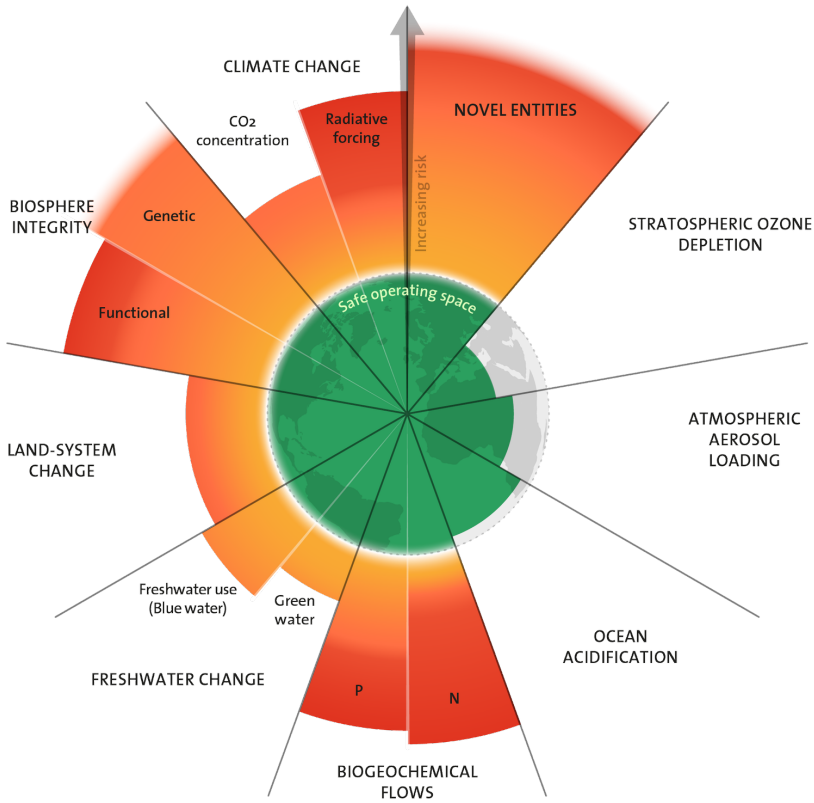
While tourism can contribute directly and indirectly to all the SDGs, some of the goals are described more relevant to tourism than others. Of note are SDG 8, 12, 14 and 17, *Decent work and economic growth*, *Responsible consumption and production*, *Life under water* as well as *Partnership for the Goals*, which aims to enhance implementation. The UNWTO also identified other tourism challenges, including unsustainable consumption and production, and poor management of natural resources, which can significantly impact other goals, such as *Sustainable cities and communities*, *Climate action*, *Life on land*, or *Peace, justice, and strong institutions*. (UNWTO, 2017)

The importance of tourism for sustainable development is mentioned by several authors. An extended systematic literature review about the progression of sustainable development goals in tourism by Khizar et al. (2023) summarizes that policy makers and scientific communities have highlighted the need for the development of the tourism sector for the achievement of the SDGs. The challenging question is how tourism must develop in order to create positive impact and how this can be implemented in the *tourism planning* of destinations (Figure 6). Miller and Delgado (2023) also highlight the importance of sustainable tourism indicators (STIs) and indicate that the data generated by indicators allows for more

effective management of the industry and destinations. Another study by Rasoolimanesh et al. (2023) conducted a systematic scoping review of sustainable tourism indicators in relation to the SDGs. The authors describe sustainable development indicators alongside governance and stakeholders as a crucial element of sustainable tourism management. Examples for indicator are manifold and range from local satisfaction level, impacts on flora and fauna, biodiversity, water quality, local participation, waste management, the level of site protection up to visitor satisfaction (White et al., 2002). For instance, Bulatović and Rajović (2016) demonstrate in their study on the application of sustainable tourism indicators in Montenegro, that the implementation of ecotourism initiatives in areas where sustainable development is required could help to protect natural landscapes, biodiversity and, at the same time, increase the prosperity of residents.

To underline the rationale behind the goals, it is crucial to reference to the concept of planetary boundaries, in which eminent scientists have defined nine limits within which humanity can live in a sustainable manner. The boundaries in Figure 7 show fundamental factors like climate change, biosphere integrity, land-system change, freshwater change, biogeochemical fluxes, stratospheric ozone depletion, ocean acidification, and atmospheric aerosol loading.

Figure 7. The Concept of Planetary Boundaries



Source: Azote for Stockholm Resilience Centre, 2023

The development from 2009 to 2023 shows a notable negative trend. The state in 2023 already exceeds six levels defined by the Stockholm Resilience Centre as a risk of severe environmental change. As a result, tourism destinations have a responsibility to act, where alternative tourism concepts can have a positive impact on several boundaries, such as climate change, biodiversity conservation and land use or ecosystems. (Richardson et al., 2023; Stockholm Resilience Centre, 2023)

b Case study in Gran Canaria

b.1 The natural area of Veneguera

In this section, the study area, the experiment, the questionnaire, and the sample are introduced. As the study settings and respective methodologies are explained in each of the publications, only an overview and important theoretical background information is briefly explained here.

Figure 8. San Agustín in the Southern part of the island

Source: Patronato de Turismo de Gran Canaria, 2024a

Although certain parts of the island are characterized by 3S beach tourism, such as Playa de Inglés, Maspalomas or San Agustín (shown in Figure 8), many natural landscapes and local traditions have fortunately been preserved, for example in the southwestern part of the island (Patronato de Turismo de Gran Canaria, 2024b). This part of the island is also home to the village of Veneguera, which belongs to the municipality of Mogan and is part of the Canary Islands Network of Nature Reserves since the year 2003 (Figure 9).

Figure 9. The protected area of Veneguera

Source: Patronato de Turismo de Gran Canaria, 2024c

b.2 Introduction to the discrete choice experiment and the questionnaire

The case study is based on a DCE in which participants choose different hypothetical rural tourism packages in Gran Canaria, representing a weekend excursion with two overnight stays and a range of group activities in the authentic area surrounding Veneguera. The experiment comprises twelve different scenarios, with Figure 10 serving as an illustrative example of the first scenario (Remark: the full experiment is shown in Appendix B2).

To create a choice situation that is more realistic, pictures were shown to the interviewees to improve their imagination and understanding of the different tourism packages in Veneguera. To make the selection process of the DCE more understandable, an example of the first scenario is presented in Figure 10. In this scenario participants can choose between option A, B, and a non-choice option, if none of the two options aligns with their vacation preferences. For instance, one opportunity to choose is *option A*, which includes a holiday package with accommodation in a tent, active hiking, and diving/snorkeling (not included the cultural and the passive activity cluster) at a cost of 60 Euro. In face-to-face interviews a questionnaire was used to collect the participants' choices of the twelve different scenarios.

Furthermore, a range of information, in addition to the choice experiment was collected in the questionnaire (an extract of the questionnaire is shown in Figure 11). In section A, information about the tourists' concerns about the environment is gathered, while in section B specific attitudes are requested. Section D is related to

the importance of the different attributes presented in the experiment, while section E gathers the sociodemographic data of the participants. Finally, Section F poses an open question to identify favorite activities tourists would like to perform during their active vacation. The full questionnaire is presented in the appendix (Appendix B1. Tourists' survey).

Figure 10. Attributes and levels in the choice experiment

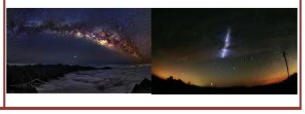
SCENARIO 1		
ATTRIBUTES	**OPTION A**	**OPTION B**
PRICE PER PERSON 2 NIGHTS (FOOD NOT INCLUDED)	60.00 €	40.00 €
TYPE OF ACCOMMODATION	TENT 	RURAL HOUSE 
CULTURAL TRAIL Duration of the activity: 3 hours Guided route where you can see native species of fauna and flora and heritage sites (Group 12 people maximum)	NOT INCLUDED	NOT INCLUDED
ACTIVE HIKING Duration of the activity: 3 hours Guided tour to Veneguera Blue Pools. The route includes a bath in natural pools. Optional race/mountain-bike circuit. (Group 12 people maximum)		
DIVE / SNORKEL (Duration of the activity: 1:30 hours) Scuba diving or snorkeling activity with monitor in the Beach of Veneguera. (Group 12 people maximum)		NOT INCLUDED
STAR GAZING WORKSHOP Duration of the activity: 2 hours (Group 24 people maximum)	NOT INCLUDED	
☐ None of the two	☐ Choose A	☐ Choose B

Figure 11. Concern about the Environment in the questionnaire

A. CONCERN ABOUT THE ENVIRONMENT

1 Indicate how often you go out to the countryside to enjoy nature

☐ 1 once a year or less ☐ 2-5 times per year ☐ 6-10 times per year ☐ more than 10 times per year

On a scale of 1 to 5 indicate the degree of importance of the following statements:

	Low importance				High importance
2 The connection of the human being with nature	1	2	3	4	5
3 The preservation of nature	1	2	3	4	5
4 Know and share the customs and traditions of the peoples	1	2	3	4	5
5 That agricultural and livestock activities be carried out in a traditional way and with low impact	1	2	3	4	5
6 To promote the economic development of communities where ecotourism activities are carried out	1	2	3	4	5
7 Enjoy the grandeur of the mountains and its landscape when walking on natural trails.	1	2	3	4	5
8 Observe birds and other species in their natural habitat.	1	2	3	4	5
9 Getting to know the native flora	1	2	3	4	5
10 Recovering trails and routes for ecotourism purposes	1	2	3	4	5

b.3 Sample and data collection: Young ecotourists from Germany and Spain

In the experiment potential tourists from Spain (residents from Gran Canaria) and Germany (non-residents) are surveyed. Both groups belong to the islands' four strategic source markets, along with the UK and Scandinavian countries (Patronato de Turismo de Gran Canaria, 2021).

The data collection was conducted through face-to-face interviews between August 2017 and March 2018 in a remote resort popular among Germans in the southwest of France and for residents at the campus in Las Palmas de Gran Canaria. The participants were between 18 and 35 years[3], with only a very small number of individuals exceeding the required age range. The average income of the respondents is relatively low, which can be explained by the high proportion of students among the participants.

A common feature is that the majority of respondents are familiar with outdoor leisure activities. In the survey 50% of residents and 78% of non-residents stated that they carried out nature-based activities more than six times a year.

b.4 Theoretical background regarding rural activities

The DCE includes diverse types of rural activities. The study is based on an activity-based segmentation approach, which is according to Pesonen (2015) more useful than using travel motivations to reach different market segments. The investigated activities in the DCE are *active hiking*, *cultural trail*, *dive/snorkel*, and *star gazing workshops* and were among others selected in accordance with Pesonen's (2015) classification of rural tourism clusters. These include active, passive, nature, water, and winter activities, while the winter segment is not relevant for holiday offers in Gran Canaria. Eusébio et al. (2017) identified similar clusters: active visitors, passive nature observers, inactive, and summer family holidaymakers.

Furthermore, the selection of activities is guided by the assumption that most of the adventure market consists of high-volume, low-difficulty products for unskilled customers. The opposite would be low-volume, high-cost activities that require, for example, greater prior knowledge or involve significant individual risk (Buckley, 2004, 2007). Additionally, a survey about physical activity behavior of German citizens was considered, where hiking and bicycle activities were the most popular sports and leisure activities, among others. As the survey results from 2016 are no

[3] The majority of the sample is made up of millennials, also known as Generation Y (i.e. those born between the early 1980s to the late 1990s). It should be noted that some of the participants also belong to the first cohorts of Generation Z.

longer accessible, a more recent study on the same topic is referenced here (Techniker Krankenkasse, 2016, 2022).

Figure 12. Products defined in the marketing plan

Source: Patronato de Turismo de Gran Canaria, 2021, p.10

The selection of activities is in line with Gran Canaria's current strategy and is tailored to the island's offering, which is presented in Figure 12. Alongside customer segments and source markets, tourism products are among the three key prioritization processes in the strategy (Patronato de Turismo de Gran Canaria, 2021).

Figure 12 illustrates the identification of three strategic products, five products earmarked for development and four products to be explored in Gran Canaria. While sun and beach products (3S) are one of the most important segments for the islands' natural areas like Veneguera offer great opportunities to explore the more untouched regions of the islands in a more active way. *Active hiking* refers to the strategic product "Active" and offers a guided tour to the Veneguera Blue Pools and can be optionally replaced by race-/or mountain biking. In contrast *cultural trail* is more related to the scale up product "Nature and Rural", which is more focused on

native species, fauna, and local culture. *Diving/Snorkeling* is linked to “Nautical” activities in the product segment to scale up in Gran Canaria’s marketing strategy and offers a guided tour to the remote beach of Veneguera.

The passive activity is linked to the area “Special Interest” based in the products to explore range. Several areas around Veneguera offer a pure night sky (Figure 13) and there represent a great opportunity to include *Star gazing workshops* as an ecotourism activity in the experiment. It should be noted that the investigated attributes are only a selection of activities and do not cover all rural activities that can be offered in Gran Canaria (Patronato de Turismo de Gran Canaria, 2021).

Figure 13. Star gazing in Gran Canara, Temisas Observatory

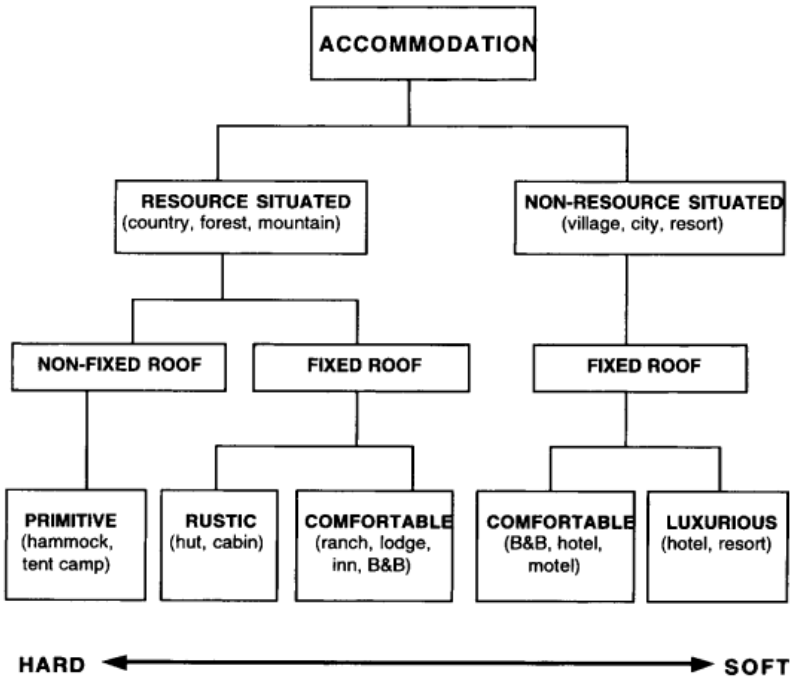
Source: Patronato de Turismo de Gran Canaria, 2024d

b.5 Theoretical background regarding accommodation types

Furthermore, different types of accommodation, in a tent and in a rural house were included in the discrete choice experiment. A study by Wight (1997) explained an ecotourism accommodation spectrum ranging from hard to soft accommodation types. The author mentions that “destination areas and operators need to understand this range of accommodation desired, and to match their accommodation supply to the current and shifting market preferences, taking into account the local community preferences and environmental constraints” (Wight, 1997, p.219).

Figure 14 illustrates the spectrum which ranges from "*hard*", resource situated accommodation with primitive (hammock, tent), to rustic (hut, cabin), to more comfortable (lodge, bed, and breakfast). The opposite end of the spectrum "softer side" contains non-resource situated accommodation in hotels, motels, and luxury resorts. Wight (1997) stated the existence of a significant ecotourism market on the softer side, chosen by 56% of the ecotourists, but only by 41% of the more experienced ones. Furthermore, the author adds that many ecotourists seem interested in more adventurous accommodations, but also indicates that in some destinations the supply does not align with the demand, which makes research crucial.

Figure 14. Ecotourism Accommodation Spectrum



Source: Wight, 1997, p.211, based on Wight, 1993

To differentiate the offers in Veneguera from traditional hotel tourism, the accommodation options are positioned towards the middle or harder end of Wight's ecotourism accommodation spectrum. To facilitate an objective comparison, one option is presented as a non-fixed roof (tent) and another as a fixed roof (rural house). Furthermore, both options should be affordable for a young target group under research.

b.6 Methodological overview

This section provides a brief overview of the methodology employed in the thesis (Table 1). A more comprehensive explanation of the methodologies can be found in the individual chapters I-III.

Table 1. Methodological overview

The basis of the study is a discrete choice experiment (DCE) that includes the type of accommodation as well as different rural tourism activities.
The empirical analysis is grounded in random utility theory (Domencich & McFadden, 1975).
Two mixed logit (ML) modes are estimated for the analysis of preferences using the software BIOGEME 2.0. (Bierlaire, 2009). WTP figures are directly calculated from the estimated choice model.
The maximum simulated likelihood technique is used to estimate the unknown parameters to analyze preference heterogeneity in the sample respondents. A random parameter mixed Logit model with heterogeneous mean is estimated. Individual specific coefficients are obtained.
An integrated choice and latent variable model (ICLVM) analyses how different latent constructs related to environmental concern influence preferences.
An exploratory factor analysis (EFA) is carried out to determine latent variables (LV).

References

Azote for Stockholm Resilience Centre. (2023). Planetary boundaries [Image]. Retrieved June 8, 2024, from https://www.stockholmresilience.org/images/200.3d04209a18a2642b2fc15eb6/1694596418196/Planetary%20Boundaries%202023.png

Bierlaire, M. (2009). An introduction to BIOGEME 1.8. *Transport and Mobility Laboratory, École Polytechnique Fédérale de Lausanne.* https://biogeme.epfl.ch/

Brodtrager, F. (2023). *Fighting for Sustainability: A Case Study about Tenerife's Activism Movement.* [Masters' Thesis, Uppsala Universitet]

Buckley, R. (2000). Neat trends: Current issues in nature, eco-and adventure tourism. *International Journal of Tourism Research*, *2*(6), 437–444. DOI: 10.1002/1522-1970(200011/12)2:63.3.CO;2-R · Source: OAI

Buckley, R. (2004). Skilled commercial adventure: the edge of tourism. In *New horizons in tourism: Strange experiences and stranger practices* (pp. 37-48).

Wallingford, UK: CABI Publishing. https://doi.org/10.1079/9780851998633.0037

Buckley, R. (2006a). *Adventure Tourism.* CABI.

Buckley, R. (2006b). Adventure tourism research: a guide to the literature. *Tourism Recreation Research*, *31*(2), 75-83. https://doi.org/10.1080/02508281.2006.11081265

Buckley, R. (2007). Adventure tourism products: Price, duration, size, skill, remoteness. *Tourism management*, *28*(6), 1428-1433. https://doi.org/10.1016/j.tourman.2006.12.003

Bulatović, J., & Rajović, G. (2016). Applying sustainable tourism indicators to community-based ecotourism tourist village Eco-Katun Štavna. *European Journal of Economic Studies*, (2), 309-330. DOI: 10.13187/es.2016.16.309

Cini, F., Leone, L., & Passafaro, P. (2012). Promoting ecotourism among young people: A segmentation strategy. *Environment and Behavior*, *44*(1), 87-106. https://doi.org/10.1177/0013916510389313

De Groot, J. I. M., & Steg, L. (2008). Value Orientations to Explain Beliefs Related to Environmental Significant Behavior. *Environment and Behavior, 40*(3), 330–354. https://doi.org/10.1177/0013916506297831

Deutsches Institut für Tourismusforschung. (2024). *Tourismusakzeptanz in der Wohnbevölkerung.* Retrieved June 1, 2024, from https://di-tourismusforschung.de/de/details-zu-projekte/tourismusakzeptanz-in-der-wohnbevoelkerung-tas

Diamantis, D. (1998). *Ecotourism: characteristics and involvement patterns of its consumers in the United Kingdom* [Doctoral dissertation, Bournemouth University].

Diamantis, D., & Ladkin, A. (1999). The links between sustainable tourism and ecotourism: a definitional and operational perspective. *Journal of Tourism Studies*, *10*(2), 35-46.

Domencich, T.A. & McFadden, D. (1975). *Urban Travel Demand. A Behavioural Analysis.* North-Holland, Amsterdam.

Dutha, I., Kaihatu, T. S., Budidharmanto, L. P., Karya, D. F., & Rusadi, N. W. P. (2023). The role of ecotourism in preserving environmental awareness, cultural and natural attractiveness for promoting local communities in Bali, Indonesia. *Journal of Eastern European and Central Asian Research, 10(7), 1063-1075.* https://doi.org/10.15549/jeecar.v10i7.1386

Dwyer, L., Forsyth, P., & Rao, P. (2000). The price competitiveness of travel and tourism: a comparison of 19 destinations. *Tourism management*, *21*(1), 9-22.

Dwyer, L. (2022). Tourism contribution to the SDGs: Applying a well-being lens. *European Journal of Tourism Research*, *32*, 3212-3212. https://doi.org/10.54055/ejtr.v32i.2500

El País. (2024). *Canarias tiene un límite: las manifestaciones contra el turismo en las islas, en imágenes.* Retrieved June 4, 2024, from https://elpais.com/economia/2024-04-20/canarias-tiene-un-limite-las-manifestaciones-contra-el-turismo-en-las-islas-en-imagenes.html

Eriksson, H. (2003). Rhetoric and marketing device or potential and perfect partnership? -a case study of Kenyan ecotourism. *Umea University*, 1-8.

European Commission. (2021). *European Climate Law.* Retrieved May 04, 2024, from https://climate.ec.europa.eu/eu-action/european-climate-law_en

Eusébio, C., Carneiro, M. J., Kastenholz, E., Figueiredo, E., & da Silva, D. S. (2017). Who is consuming the countryside? An activity-based segmentation analysis of the domestic rural tourism market in Portugal. *Journal of hospitality and tourism management*, *31*, 197-210. https://doi.org/10.1016/j.jhtm.2016.12.006

Fennell, D.A. (1999). *Ecotourism: An Introduction.* Routledge, London.

Fennell, D. A. (2001). A content analysis of ecotourism definitions. *Current issues in tourism*, *4*(5), 403-421.

Fennell, D. A. (2008). *Ecotourism* (3rd ed.). Routledge.

Font, X., & Buckley, R. (Eds.). (2001). *Tourism ecolabelling: Certification and promotion of sustainable management*. CaBI.

García-Falcón, J. M., & Medina-Muñoz, D. (1999). Sustainable tourism development in islands: A case study of Gran Canaria. *Business Strategy and the Environment*, *8*(6), 336-357. https://doi.org/10.1002/(SICI)1099-0836(199911/12)8:6%3C336::AID-BSE217%3E3.0.CO;2-7

GhulamRabbany, M., Afrin, S., Rahman, A., Islam, F., & Hoque, F. (2013). Environmental effects of tourism. *American Journal of Environment, Energy and Power Research*, *1*(7), 117-130.

Gössling, S., Balas, M., Mayer, M., & Sun, Y. Y. (2023). A review of tourism and climate change mitigation: The scales, scopes, stakeholders and strategies of carbon management. *Tourism Management*, *95*, 104681. https://doi.org/10.1016/j.tourman.2022.104681

Hakim, L., & Nakagoshi, N. (2014). Ecotourism and Climates changes: the ecolodge contribution in global warming mitigation. *Journal of Tropical Life Science*, *4*(1), 26-32.

Haukeland, J. V., Fredman, P., Tyrväinen, L., Siegrist, D., & Lindberg, K. (2023). Prospects for nature-based tourism: identifying trends with commercial potential. *Journal of Ecotourism*, 1-18. https://doi.org/10.1080/14724049.2023.2178444

Hernández Martín, R., Antonova, N., Celis Sosa, D., Fernández Hernández, C., González Hernández, M., Herrera Priano, F. Á., ... & Simancas Cruz, M. R. (2021). *Tourism Observatory of the Canary Islands.* https://doi.org/10.25145/b.TourismCanary.2021

International Organization for Active Tourism. (2002). *International Organization of Active Tourism.* Retrieved January 25, 2023, from www.active-tourism.com

iStock. (2019). *Playa-de-guayedra-strand-naturpark-tamadaba* [Image, Cover page]. Retrieved June 10, 2024, from https://www.istockphoto.com/de/foto/playa-de-guayedra-strand-naturpark-tamadaba-an-der-k%C3%BCste-des-ozeans-in-der-n%C3%A4he-von-gm1156395828-315141122?clarity=false [Photographer ID: iStock.com/1156395828, Standard license]

Jennings, G. (2006). Perspectives on quality tourism experiences: an introduction. In *Quality tourism experiences* (pp. 1-21). Routledge.

Karampela, S., Andreopoulos, A., & Koutsouris, A. (2021). "Agro","Agri", or "Rural": The different viewpoints of tourism research combined with sustainability and sustainable development. *Sustainability*, *13*(17), 9550. https://doi.org/10.3390/su13179550

Khizar, H. M. U., Younas, A., Kumar, S., Akbar, A., & Poulova, P. (2023). The progression of sustainable development goals in tourism: A systematic literature review of past achievements and future promises. *Journal of Innovation & Knowledge*, *8*(4), 100442. https://doi.org/10.1016/j.jik.2023.100442

Kiper, T. (2013). Role of ecotourism in sustainable development. *InTech.* DOI: 10.5772/55749

Lee, T. H., & Jan, F. H. (2019). Can community-based tourism contribute to sustainable development? Evidence from residents' perceptions of the sustainability. *Tourism Management*, *70*, 368-380. https://doi.org/10.1016/j.tourman.2018.09.003

Liao, C. S., & Chuang, H. K. (2020). Tourist preferences for package tour attributes in tourism destination design and development. *Journal of Vacation Marketing*, *26*(2), 230-246. https://doi.org/10.1177/1356766719880250

Maltese, I., & Zamparini, L. (2023). Sustainable mobility choices at home and within destinations: A survey of young Italian tourists. *Research in Transportation*

Business & Management, *48*, 100906. https://doi.org/10.1016/j.rtbm.2022.100906

Martín, J. C., Moreira, P., & Román, C. (2020). A hybrid-fuzzy segmentation analysis of residents' perception towards tourism in Gran Canaria. *Tourism Economics*, *26*(7), 1282-1304. https://doi.org/10.1177/1354816619873463

Miller, G., & Torres-Delgado, A. (2023). Measuring sustainable tourism: a state of the art review of sustainable tourism indicators. *Journal of Sustainable Tourism*, *31*(7), 1483-1496. https://doi.org/10.1080/09669582.2023.2213859

Moreira Gregori, P. E., Roman, C., & Martín, J. C. (2022). Residents' perception of a mature and mass tourism destination: The determinant factors in Gran Canaria. Tourism Economics, 28(2), 515-534. https://doi.org/10.1177/1354816620968330

Muñoz, T. G. (2007). German demand for tourism in Spain. *Tourism management*, *28*(1), 12-22. https://doi.org/10.1016/j.tourman.2005.07.020

Nedelcu, A. (2010). A model for sustainable development of tourism in the Canary Islands, Spain.

Parsons, J. J. (1973). Southward to the sun: The impact of mass tourism on the coast of Spain. *Yearbook of the Association of Pacific Coast Geographers*, *35*(1), 129-146. https://doi.org/10.1353/pcg.1973.0009

Patronato de Turismo de Gran Canaria. (2021). *Gran Canaria 2021-2025 Strategic Tourism Plan and Marketing Plan. Executive Summary.* Retrieved June 4, 2024, from https://www.grancanaria.com/turismo/fileadmin/areaprofesional/varios/promocion/GC_PlanEstrat_Marketing_ING_.pdf

Patronato de Turismo de Gran Canaria. (2023). *Situatión del Sector Turístico, Año 2023*, [Annual Report]. Retrieved June 14, 2024, from https://www.grancanaria.com/turismo/fileadmin/PDF/informes/ICT_cierre_2023.pdf

Patronato de Turismo de Gran Canaria. (2024a). *San Augustin [Image].* Retrieved June 9, 2024, from https://www.grancanaria.com/turismo/fileadmin/diseno2014/img/playas/cabeceras_estaticas/9._san_agustinv2.jpg

Patronato de Turismo de Gran Canaria. (2024b). *Gran Canaria – now a World Biosphere Reserve.* Retrieved June 9, 2024, from https://www.grancanaria.com/turismo/en/nature/world-biosphere-reserve/

Patronato de Turismo de Gran Canaria. (2024c) *Wellness [Image].* Retrieved June 9, 2024, from

http://www.grancanaria.com/turismo/fileadmin/diseno2014/img/wellness/slider/8.wellness.jpg

Patronato de Turismo de Gran Canaria. (2024d). *Gran-Canaria-Bentayga* [Image]. Retrieved June 9, 2024, from https://www.grancanaria.com/blog/fileadmin/_processed_/csm_Gran-Canaria-Bentayga_08_e05fdd4ff6.jpg

Pesonen, J. A. (2015). Targeting rural tourists in the internet: Comparing travel motivation and activity-based segments. *Journal of Travel & Tourism Marketing*, *32*(3), 211-226. https://doi.org/10.1080/10548408.2014.895695

Place, S. (1995). Ecotourism for sustainable development: Oxymoron or plausible strategy?. *GeoJournal*, 161-173.

Purvis, B., Mao, Y., & Robinson, D. (2019). Three pillars of sustainability: in search of conceptual origins. *Sustainability science*, *14*, 681-695.

Rasoolimanesh, S. M., Ramakrishna, S., Hall, C. M., Esfandiar, K., & Seyfi, S. (2023). 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

Rein, H., & Strasdas, W. (Eds.). (2017). *Nachhaltiger Tourismus: Einführung* (Vol. 4196). UTB.

Richardson, K., Steffen, W., Lucht, W., Bendtsen, J., Cornell, S. E., Donges, J. F., ... & Rockström, J. (2023). Earth beyond six of nine planetary boundaries. *Science advances*, *9*(37), eadh2458. https://doi.org/10.1126/sciadv.adh2458

Schmücker, D., & Eisenstein, B. (2021). Tourismusakzeptanz in der Wohnbevölkerung–Messmethode und Ergebnisse. *Berichte. Geographie und Landeskunde*, *94*(3), 206-224. https://doi.org/10.25162/bgl-2021-0011

Seeler, S., & Eisenstein, B. (2023). Tourismus als Treiber der Lebensqualität–Wahrnehmungen der einheimischen Bevölkerung. In *Resilienz als Erfolgsfaktor im Tourismus* (pp. 97-115). Erich Schmidt Verlag GmbH & Co. KG, Berlin.

SINUS Markt- und Sozialforschung. (2024). The gold standard for target group segmentation. Retrieved, June 10, 2024, from https://www.sinus-institut.de/en/sinus-milieus

Šimková, E. (2007). Strategic approaches to rural tourism and sustainable development of rural areas. *Agricultural economics*, *53*(6), 263-270. https://doi.org/10.17221/979-agricecon

Steinhauser, C., & Heinemann, S. (2022). *Nachhaltiges 360°-Management im Tourismus*. Walter de Gruyter GmbH & Co KG.

Stockholm Resilience Centre. (2023). Planetary boundaries. Retrieved from, June 8, 2024, from https://www.stockholmresilience.org/research/planetary-boundaries.html

Suda, M., & Zormaier, F. (2002). Anmerkungen zur Rolle der Forstwirtschaft im Diskurs der Nachhaltigkeit. *Forst und Holz*.

Tagesschau. (2024). Zehntausende protestieren gegen Massentourismus. Retrieved June 4, 2024, from https://www.tagesschau.de/ausland/europa/kanaren-proteste-massentourismus-100.html

Techniker Krankenkasse. (2016). Bewegungsstudie 2016, Beweg dich, Deutschland. Retrieved February 03, 2018, from tk.de/centaurus/servlet/contentblob/819848/Datei/79770/TK-Bewegungsstudie-2016-Beweg-dich-Deutschland.pdf.

Techniker Krankenkasse. (2022). *Beweg dich Deutschland!* Retrieved June 10, 2024, from https://www.tk.de/resource/blob/2137718/e36e0c1b6bf74908d1c8e541eaa4a0c3/tk-studie-bewegungsstudie-2022-data.pdf

Tenerife Weekly. (2024). *Exploring Tourism in the Canary Islands: Is Tourismphobia on the Rise?* Retrieved June 4, 2024 from https://tenerifeweekly.com/2024/04/06/tourism-in-the-canary-islands-tourismphobia-model-out-of-stock/

Thapa, K., King, D., Banhalmi-Zakar, Z., & Diedrich, A. (2022). Nature-based tourism in protected areas: a systematic review of socio-economic benefits and costs to local people. *International Journal of Sustainable Development & World Ecology*, *29*(7), 625-640. https://doi.org/10.1080/13504509.2022.2073616

The Guardian. (2013). Acumen's Jacqueline Novogratz: making sustainability profitable. Retrieved, June 9, 2024, from https://www.theguardian.com/sustainable-business/acumen-jacqueline-novogratz-profile-sustainability

The International Ecotourism Society. (2015). *What is Ecotourism?* Retrieved June 4, 2024, from www.ecotourism.org/what-is-ecotourism

Torres-Delgado, A., & Saarinen, J. (2017). Using indicators to assess sustainable tourism development: A review. *New research paradigms in tourism geography*, 31-47.

Turismo de Islas Canarias. (2022). *The Journey to decarbonisation of the Canary Islands destination. Climate action master plan 2022-2030.* Retrieved April 19, 2024, from

https://turismodeislascanarias.com/sites/default/files/plan_maestro_de_accion_climatica_def_en.pdf.

Umweltbundesamt. (2020). *Treibhausgas-Emissionen im Deutschland-Tourismus. Themenpapier im Rahmen des Projektes „Weiterentwicklung des nachhaltigen Tourismus: Identifizierung von Synergieeffekten zur Stärkung der Kooperation mit und zwischen wichtigen Akteuren.* Retrieved April 20, 2024, from https://www.umweltbundesamt.de/sites/default/files/medien/479/publikationen/texte_149-2020_treibhausgas-emissionen_im_deutschland-tourismus.pdf

United Nations. (1987). *Report of the World Commission on Environment and Development: Our Common Future*. Retrieved June 02, 2024, from http://www.un-documents.net/our-common-future.pdf

United Nations. (2015). *Transforming our world: The 2030 agenda for sustainable development.* Retrieved June 4, 2024, from https://sustainabledevelopment.un.org/content/documents/21252030%20Agenda%20for%20Sustainable%20Development%20web.pdf

United Nations. (2023). United Nations General Assembly, Seventy-seventh session, 64th plenary meeting, Friday, 14 July 2023, 10 a.m., New York. Official Records. Retrieved June 9, 2024, from https://press.un.org/en/2023/gashc4372.doc.htm

United Nations. (2024). *Sustainable Development Goals*. United Nations. Retrieved June 8, 2024, from https://sdgs.un.org/goals

United Nations Philippines. (2020). *Secretary-General examines impact of COVID-19 on tourism.* Retrieved April 8, 2024, from https://philippines.un.org/en/88661-secretary-general-examines-impact-covid-19-tourism

UNWTO. (2013). *Sustainable tourism for Development Guidebook - Enhancing capacities for sustainable tourism for development in developing countries.* Retrieved April 4, 2024, from https://www.e-unwto.org/doi/epdf/10.18111/9789284415496

UNWTO. (2015). *Tourism and the Sustainable Development Goals.* Retrieved June 9, 2024, from https://www.e-unwto.org/doi/pdf/10.18111/9789284417254

UNWTO. (2017). Tourism and the sustainable development goals–Journey to 2030. *Highlights. Madrid*. https://www.undp.org/sites/g/files/zskgke326/files/publications/UNWTO_UNDP_Tourism%20and%20the%20SDGs.pdf

UNWTO. (2018). *Overtourism? Understanding and Managing Urban Tourism Growth beyond Perceptions*. UNWTO: Madrid, Spain, 2018.

UNWTO, Centre of Expertise Leisure, Tourism & Hospitality, NHTV Breda University of Applied Sciences, & NHL Stenden University of Applied Sciences (Eds.). (2018). *'Overtourism'? – Understanding and managing urban tourism growth beyond perceptions. Executive Summary.* Retrieved June 4, 2024, from https://www.drv.de/public/Downloads_2019/2019_Studie_UNWTO_Overtourism_Urban_Tourism_Growth.pdf

UNWTO. (2020). Expert Meeting on Tourism and the SDGs: Case Studies by the UNWTO Affiliate Members. Retrieved, June 6, 2024, from https://www.unwto.org/expert-meeting-on-tourism-and-the-sdgs

UNWTO. (n.d.). *Rural Tourism.* Retrieved June 05, 2024, from https://www.unwto.org/rural-tourism

Vărzaru, A. A., Bocean, C. G., & Cazacu, M. (2021). Rethinking tourism industry in pandemic COVID-19 period. *Sustainability*, *13*(12), 6956. https://doi.org/10.3390/su13126956

Vespestad, M. K., & Mehmetoglu, M. (2010). The relationship between tourist nationality, cultural orientation and nature-based tourism experiences. *European journal of tourism research*, *3*(2), 87-104.

visitBerlin. (2021). What is quality tourism in Berlin? May 25, 2024, Retrieved, June 9, 2024, from https://about.visitberlin.de/en/what-quality-tourism-berlin

Wall, G. (1997). Is ecotourism sustainable?. *Environmental management, 2*1(4), 483-491.

Weaver, D. B. (2001). Ecotourism in the context of other tourism types. *The encyclopedia of ecotourism*, 73-83. https://doi.org/10.1079/9780851993683.0073

White, V., McCrum, G., Blackstock, K. L., & Scott, A. (2002). Indicators of sustainability & sustainable tourism: some example sets. *Indicators*, 18.

Wight, P. A. (1993). Sustainable ecotourism: Balancing economic, environmental and social goals within an ethical framework. *Journal of Tourism studies*, *4*(2), 54-66. https://doi.org/10.1080/02508281.1995.11014727

Wight, P. A. (1997). Ecotourism accommodation spectrum: Does supply match the demand?. *Tourism management*, *18*(4), 209-220. https://doi.org/10.1016/S0261-5177(97)00008-3

Wirth, S., Tanner, M. B., Strahm, A., & Lendi, D. (2024). Netto-Null-Tourismus im Jahr 2050–Ein Blick in die Zukunft und Thesen zur Transformation.

In *Klimaschutz und Nachhaltigkeit im Tourismus* (pp. 41-57). Erich Schmidt Verlag GmbH & Co. KG, Berlin.

Xu, F., & Fox, D. (2014). Modelling attitudes to nature, tourism and sustainable development in national parks: A survey of visitors in China and the UK. *Tourism Management*, *45*, 142-158. https://doi.org/10.1016/j.tourman.2014.03.005

Xu, L., Ao, C., Liu, B., & Cai, Z. (2023). Ecotourism and sustainable development: a scientometric review of global research trends. *Environment, Development and Sustainability*, *25*(4), 2977-3003.

Yacob, M. R., Shuib, A. H. M. A. D., Mamat, M. F., & Radam, A. L. I. A. S. (2007). Local economic benefits of ecotourism development in Malaysia: The case of Redang Island Marine Park. *International Journal of Economics and Management*, *1*(3), 365-386.

ZDF. (2024). *Kanaren: Protest gegen Massentourismus. Retrieved June 4, 2024, from* https://www.zdf.de/nachrichten/panorama/kanaren-inseln-demo-tourismus-umwelt-100.html

Chapter I

1 Rural tourism activities in mass tourism destinations: Residents vs non-residents perspectives

Cite (APA):

Fichter, T., & Román, C. (2023). Rural tourism activities in mass tourism destinations: residents vs non-residents perspectives. *Tourism Review*, *78*(3), 778-793. https://doi.org/10.1108/TR-05-2022-0225

Abstract

Purpose

This paper examines rural tourism preferences as an alternative niche market to mass tourism destinations. The analysis discusses the differences in perceptions and willingness to pay for various packages of rural tourism activities in Gran Canaria Island among residents and non-residents.

Design/methodology/approach

The analysis is based on a convenience sample of potential young customers who are familiar with outdoor recreational activities in nature. The study considers a discrete choice experiment that includes the type of accommodation as well as four types of rural tourism activities: active, passive, cultural and aquatic. The degree of preference for the considered attributes is obtained from the estimation of different discrete choice models.

Findings

Results reveal that the inclusion of the investigated attributes in holiday packages increases tourists' utility, which motivates the promotion of rural tourism for young residents and non-residents. The most significant differences in perceptions of attributes between residents and non-residents were found in the activities of diving/snorkeling and stargazing, as well as the type of accommodation and package price.

Practical implications

The study will contribute to a better understanding of an alternative tourism market which will help key stakeholders in the tourism sector to better serve this important segment of the industry and to encourage more sustainable tourism in the future.

Originality/value

To the best of the authors' knowledge, this is the first study evaluating the willingness to pay for rural tourism packages as a more sustainable alternative in mass tourism destinations and taking into account resident vs non-resident perceptions.

Keywords:

Discrete choice experiment, Willingness to pay, Rural tourism, Nature-based active tourism, Tourism demand, Global pandemic

1.1 Introduction

Rural tourism represents an important approach for destinations to achieve income generation and sustainable development while the relevance becomes even clearer and more urgent in times of a global pandemic. According to a recent paper by Rahman et al. (2021) travel movement has become more selective since the pandemic and also independent travel has become more important. Many tourists avoid overcrowded destinations, which makes it necessary to evaluate their travel planning. Thus, the global travel and tourism industry could benefit from this transformation by paying attention to the fact that a higher proportion of tourists prefer to visit quiet destinations. Mulder et al. (2020) emphasize the importance of tourism as a fundamental component of the global economy in achieving the Goals of the 2030 Agenda for Sustainable Development, such as decent work and economic growth, life on land and water, and climate action. The development of domestic tourism, which is subject of this paper, could play an important role in reducing global greenhouse gas emissions. According to Mulder et al. (2020), transportation is the primary source of greenhouse gas emissions in the tourism sector, which can be significantly reduced by shortening travel distances. In this regard, the significance of alternative rural tourism concepts such as agrotourism is highlighted.

Rural tourism represents an alternative market niche for 3S (sun, sea and sand) tourism destinations (Weaver, 2001). Many beach destinations are dominated by 3S mass tourism, but they also have other interesting attractions that not adequately exploited. Aside from the positive economic impact of 3S tourism in host countries, negative environmental, cultural, and economic aspects have been known for many years, as highlighted by Parsons (1973) when researching the impact of mass tourism on the Spanish coast. Not only do many visitors and buildings have a high environmental impact, but they also have irreversible effects on local society and culture. There is also very little income that stays in the regions and generates revenue for the people who live there (Fennell, 2008). The aforementioned negative consequences of 3S increase the importance of adopting other types of tourism in which nature, culture and the local population could benefit.

The establishment of alternative tourism in 3S destinations will also contribute to changing the destination image of mass tourism sites. This is, according to a study by Rao et al. (2022), vital to achieve a pro-environmental private behavior in line with the relationship that should exist between destination-image and quality-coordination. In this regard, Dai et al. (2021) conducted research on diving activities in Taiwan and concluded that promoting environmentally friendly activities in a destination will adapt tourists to a more environmentally conscious and sustainable lifestyle. Furthermore, residents will be more willing to participate in such activities. Changes in tourism are more likely to be positively accepted by residents during or after a crisis, according to Garau-Vadell et al. (2018), which supports Rahman et al.

(2021) previously mentioned statement that the current pandemic is an opportunity to promote alternative tourism concepts. Another study by Garau-Vadell et al. (2019) is limited to p2p holiday accommodation, but clearly shows that new concepts are more supported by the local population when there are positive impacts for residents, particularly economic benefit, where understanding residents' perceptions and attitudes is critical for the sustainable development of tourism activities (Gutiérrez-Taño et al., 2019).

In this regard, the island of Gran Canaria in Spain, which is a paradigm of 3S tourism development, could be regarded as a good model for the research and promotion of more sustainable tourism products. In 2019, the island received over 4.25 million visitors and is a well-known tourism destination in Europe, offering warm weather and beaches all year long (Patronato de Turismo de Gran Canaria, 2019). Gran Canaria also has one of Europe's most extensive protected areas, with 42% of its surface designated as natural conservation areas (Espino et al., 2008). Fostering alternative tourism products is thus a regional opportunity that can be developed on the island in order to increase tourism diversity (Weaver, 1993). According to Muñoz (2007), promoting rural tourism is a good strategy for mitigating the volatility of mass tourism, which is more sensitive to price and income fluctuations.

There are several terms and definitions for alternative tourism approaches in rural areas, such as eco-, nature-, sustainable-, green-, or rural-tourism and the definition of rural areas itself is also a discussed issue (Šimková, 2007). In general, rural tourism allows tourists to experience rural lifestyles and connect with rural communities while also supporting the region's long-term development. (Pakurar & Olah, 2008). New rural developments can attract a diverse group of users with varying motivations and interests. (Confer et al., 2005; Neumann & Mason, 2019). Local residents and visiting tourists are likely the two most important segments to be analyzed, which have mostly been studied separately so far (Hughes & Paveglio, 2019), with the literature comparing preferences of both segments being rather scarce. Mimbs et al. (2020) is one of the few studies that compares residents' and tourists' preferences for water-based activities using importance performance analysis. A better understanding of both groups' preferences is essential for developing successful rural tourism products (Boley et al., 2014; Erul et al., 2020).

In this paper, we conduct a discrete choice experiment to assess differences in preferences for various packages of rural tourism activities for two important customer groups of this type of tourism on Gran Canaria Island: residents and non-residents. The analysis is based on data gathered from a convenience sample of potential young customers who are familiar with outdoor recreation activities in contact with nature. Participants in the experiment were asked to choose between two packages that included various outdoor activities that could be done in the natural protected area of Veneguera, in the south of Gran Canaria. To account for the potential dislike for the activities considered in the package, the experiment

included the option of not selecting any of the alternatives. The activities were chosen in accordance with Pesonen (2015) classification of rural tourism clusters, which included actives, passives, nature, water, and winter activities. Similar clusters were obtained by Eusébio et al. (2017): active visitors, passive nature observers, inactives and summer family vacationers. In addition, data from a large study conducted by a German health insurance company on the most popular sports and leisure activities among German citizens was considered (Techniker Krankenkasse, 2016). The findings of these studies demonstrate the heterogeneity in rural tourism consumption, emphasizing the importance of researching preferences for various products and customer segments, as well as their willingness to pay.

Having in mind the aforementioned research and considering the information provided by the owners of the property regarding the activities that could be carried out and promoted in the area under analysis, the final set of attributes included active hikes, cultural trails, diving/snorkeling and stargazing workshops. Furthermore, different accommodation types were also included in the analysis. Following the collection of survey data, the degree of preference for various activities and accommodation types, as well as their corresponding willingness to pay, for both residents and non-residents, is obtained through the estimation of various discrete choice models.

Choice experiments have been successfully applied in other tourism contexts, such as, preferences for hotel room attributes (Masiero et al., 2015), hotel choice (Román & Martín, 2016), horse riding lessons (Tienhaara et al. 2017), trail running (Ribet & Brander, 2020), wildlife watching (Kubo & Shoji, 2016) and glamping attributes (Lyu et al., 2020), among others. They represent an interesting method for gathering the data set required to estimate discrete choice models. Unlike other widely used methods in tourism, such as structural equation modelling (SEM), which aim to find causal relationships between observable and latent variables, the ultimate goal of discrete choice methods is to predict the choice between a set of discrete alternatives. Regarding the obtaining of willingness to pay figures in tourism, there exist a vast literature using direct methods such as contingent valuation as in León et al., (2003) and Cheung and Jim (2014), where survey respondents are directly asked about their willingness to pay. Nevertheless, Hole and Kolstad (2012) pointed out the difficulties of using these methods since direct questions are cognitively more difficult to answer and respondents may answer more strategically. Instead, discrete choice methods solve this cognitive burden by inferring willingness to pay indirectly from model parameter estimates.

The use of discrete choice models to analyze tourism demand is not new in the literature (see e.g. Crouch & Louviere, 2001 and Kemperman, 2021 for extensive literature reviews) and represents a methodology with a solidly grounded microeconomic basis that, in general, yields reliable results. Our findings attempt to

shed some light on the preferences for rural tourism activities in a context of a mature mass tourism destination where 3S based products are strong competitors. Results obtained represent an interesting managerial instrument for assisting decision-makers in setting pricing policy, product selection, and marketing strategies when promoting rural tourism packages. These results are especially significant in the context of the current global pandemic, in which most mass tourism destinations are facing a major crisis due to a drop in demand. In this regard, it is deemed critical to promote alternatives to 3S tourism that are perceived not only as more sustainable but also as safer options.

The rest of the paper is organized as follows. The second section describes the data and the context of the research. The methods applied in the analysis are presented in section three. Model results, willingness to pay estimates and the validation of results through the analysis of attributes' importance are presented in sections four, five and six, respectively. Finally, the last section concludes and presents interesting policy implications.

1.2 Data and context of the research

The case study takes place is the authentic and natural protected area of Veneguera, in the south of Gran Canaria, close to 3S tourism hotspots, such as Maspalomas or Playa Ingles. The area has a wide range of landscapes and attractions, including mountains, ravines, local food, fresh fruits, and pristine local culture, as well as lakes and remote beaches within hiking distance. This versatility allows for the testing of rural activities with various orientations, as well as the exploration of opportunities to develop alternatives to mass tourism. As stated in the preceding section, this type of tourist product is aimed not only at international visitors but also at local residents. As a result, the analysis of both perspectives, residents versus non-residents, is deemed critical to the initiative's success.

The heterogeneity in preferences for rural tourism attributes was evaluated through two convenience samples of respondents composed of residents and non-residents of the island. The sampled individuals were aged between 18 and 35 years[4] and had in common the characteristic of being familiar with the context of the study, since around 60 percent of the interviewees (50 percent of residents and 78 percent of non-residents) declared that they carried out outdoor activities, in contact with nature, more than 6 times a year.

[4] The majority of the sample is made up of millennials, also known as Generation Y (i.e. those born between the early 1980s to the late 1990s). It should be noted that some of the participants also belong to the first cohorts of Generation Z.

The residents' sample was made up college students from the University of Las Palmas de Gran Canaria who were intercepted at the different campuses locations. Although authors are aware that this sample is not representative of the total population in the aforementioned age range, they could represent an interesting group of potential visitors of the area, since active tourism and nature-based activities are very popular among young island residents[5]. Non-residents sample was made up of a group of German tourists participating in a sport summer camp in the holiday-village Carcans Plage in South West of France. They were interviewed during their vacation on a camping site very close to the ocean and lakes, but also inside a natural protected area. An interesting difference that needs to be considered when comparing the two samples is the fact that non-residents were preselected as active tourists, as they were participating in a great variety of active tourism nature-based activities. Germans were selected because they represent the most important group of inbound tourists in Gran Canaria. In fact, 21 percent of tourists who entered Gran Canaria in 2019 were Germans and around 42 percent were under 44 years old (Patronato de Turismo de Gran Canaria, 2019). Thus, participants in the non-residents sample could represent a group of potential visitors.

A face-to-face survey was conducted during August 2017 and March 2018 and a total of 476 valid questionnaires, equally distributed between residents and non-residents, were obtained. The questionnaire was divided into five sections. The first two sections, which are not required for the present research, collected information about environmental concerns, as well as attitudes of the individuals towards a sustainable behavior. The third section consists of a discrete choice experiment with twelve different scenarios that confronted the individuals with the choice between two hypothetical alternatives defining rural tourism packages, as well as the non-choice option. In the fourth section respondents were asked to rate the importance given to the different attributes in the choice experiment. Finally, the last section collected the main socio-economic characteristics of the individual.

The alternatives in the choice experiment were defined in terms of a set of attributes with different levels, and the choice scenarios were generated by an efficient design using the software package N-Gene (ChoiceMetrics, 2018). The attributes considered in the analysis are the *price* of 2-days holiday, the type of *accommodation* (shared by 4 people), and different activities that can be offered in the package, which include *cultural trails*, *active hikes*, *diving/snorkeling* and *stargazing workshops*. Depending on the scenario, the package could include two or three activities. The range of price levels was defined considering prices of rural

[5] Gran Canaria had a population of 843,159 inhabitants in 2017, with 16.23% of them aged between 18 and 31 years; and a total population of 19,251 university students in the 2017-18 academic year (ISTAC, 2017a).

houses in Gran Canaria published in different internet portals, official statistics about average prices of extra-hotel accommodations, including tourist apartments, rural houses and camps (55.68 €/day), as well as some information provided by the property owners (ISTAC, 2017b).

Cultural trails focus on cultural and knowledge acquisition, whereas the *active hiking*, which may include visits to natural pools and even bicycle riding, is more action oriented. The attribute *diving/snorkeling* focuses on water sports and the ocean environment, whereas the last attribute, a *stargazing workshop*, makes better use of the great opportunity of a remote and natural protected area by exploiting the potential of the Canary Islands skies to observe the stars. A summary of the attribute levels considered in the experiment is presented in Table 2.

Table 2. Attribute levels

Attribute	Level 0	Level 1	Level 2
Price per person of 2-days holiday	80€	60€	40€
Type of accommodation	Tent	Rural house	-
Active hiking	Not included	Included	-
Cultural trail	Not included	Included	-
Diving/snorkeling	Not included	Included	-
Stargazing workshop	Not included	Included	-

Figure 15 presents an example of the first choice scenario in the experiment. Many authors (see e.g. Strazzera et al., 2010 and Hurtubia et al., 2015) have recognized the advantages of using images in discrete choice experiments because they offer a better representation of the physical characteristics of the choice scenario and complement the semantic description of particular attribute levels. As a result, some images were shown to respondents to help them better understand the rural tourism packages considered in each choice task, in order to make the hypothetical setting more realistic. In addition, some extra information describing each of the activities available is provided.

Figure 15. Example of choice scenario

SCENARIO 1		
ATTRIBUTES	**OPTION 1**	**OPTION 2**
PRICE PER PERSON 2 NIGHTS (FOOD NOT INCLUDED)	**60.00 €**	**40.00 €**
TYPE OF ACCOMMODATION	TENT 	RURAL HOUSE 
CULTURAL TRAIL **Duration of the activity: 3 hours** **Guided route where you can see native species of fauna and flora and heritage sites** **(Group 12 people maximum)**	NOT INCLUDED	NOT INCLUDED
ACTIVE HIKING **Duration of the activity: 3 hours** **Guided tour to Veneguera Blue Pools.** **The route includes a bath in natural pools.** **Optional race/mountain-bike circuit.** **(Group 12 people maximum)**	INCLUDED 	INCLUDED 
DIVING / SNORKELLING **(Duration of the activity: 1:30 hours)** **Scuba diving or snorkeling activity with monitor in the Beach of Veneguera.** **(Group 12 people maximum)**	INCLUDED 	NOT INCLUDED
STAR GAZING WORKSHOP **Duration of the activity: 2 hours** **(Group 24 people maximum)**	NOT INCLUDED	INCLUDED 

☐ Choose option 1
☐ **Choose option 2**
☐ None of the two (option 3)

The greatest differences in choice scores between residents and non-residents were observed in scenarios 1, 8, and 9. In scenario 1, 59% of non-residents preferred option 1 (60€, tent accommodation, active hiking, and dive/snorkeling), whereas 64% of residents preferred option 2 (40€, tent accommodation, active hiking, and stargazing). In scenario 8, 48% of non-residents preferred option 1 (80€, tent accommodation, cultural trail, active hiking, and stargazing), whereas 54% of residents preferred option 2 (60€, rural house accommodation, cultural trail, and stargazing). Finally, in scenario 9, 53% of non-residents preferred alternative 2 (80€, tent accommodation, cultural trail, active hiking, dive/snorkeling), while 50% of residents preferred alternative 1 (60€, rural house accommodation, active hiking, and stargazing). In the remaining scenarios, the majority of the individuals in both groups preferred the same option.

Table 3 shows the sociodemographic characteristics of the respondents in the two samples. The proportion of residents and non-residents is the same, and gender proportions are balanced in both groups. The female proportion in the resident sample is slightly lower (43.7%), whereas females (55%) are more prevalent in the non-resident sample.

Table 3. Socio-demographic characteristics of the sample

Characteristics	Residents		Non-residents	
	No. of respondents	*(%)*	*No. of respondents*	*(%)*
Origin	238	50	238	50
Gender				
Female	104	43.7	131	55
Male	134	56.3	107	45
Others				
Having a job/work	59	24.8	195	81.9
Car for leisure activities	168	70.6	124	52.1
Live independently	43	18.1	195	81.9
Live with Family	195	81.9	43	18.1
Age	Years			
Age mean	22.79		24.49	
Age-range	18 - 31		16 - 37	
Income per month	Euro			
Income mean	221.23		740.49	
Income-range	20 - 1800		40 - 4000	

The average age and age range differ slightly between the two samples. The average age of the residents is 22.79 years, which is 1.7 years younger than the average age of the non-residents, which is 24.49 years. Residents' age range (18-31 years) is narrower than that of non-residents (16-37 years)[6]. Young residents have a significantly lower monthly income of 221.23 Euro which is 519.26 Euro less than the German sample with 740.49 Euro. This could be attributed to Spain's overall lower income level, but it could also be explained by the fact that the majority of local students on the island (81.9%) still live with their families. This could also explain why only 24.8% of residents work while attending university, whereas the majority of non-residents work (81.9%) and live independently (81.9%). The slightly older age of non-residents may also have an impact on the aforementioned characteristics. In addition, the non-residents sample contained a high proportion (87%) of students/or academics.

[6] Only an extremely small number of participants doesn't fulfill the requested age-range of 18-35 years

1.3 Methods

The empirical analysis is theoretically grounded in random utility theory (Domencich and McFadden, 1975) where the utility of alternative *j* in choice scenario *s* for individual *q*, U_{jsq}, is made up the sum of two components; a systematic or measurable utility V_{jsq}, represented by the attributes of the alternatives as well as some sociodemographic characteristics of the individual, all accompanied by a set of unknown coefficients, and a random error term, ε_{jsq}, which explains the unobserved effects. Thus, under the utility maximization decision rule, and assuming hypothesis about the distribution of the error terms, different discrete choice models can be derived yielding the choice probabilities of the alternatives included in the choice set. Train (2009) provides an interesting reference guide for this methodological approach.

Two mixed logit (ML) modes are estimated for the analysis of preferences for these rural tourism activities using the software BIOGEME 2.0. (Bierlaire, 2009). Since we are dealing with stated choice data, in which each interviewee provides several statistical observations corresponding to the 12 choice scenarios included in the experiment, the mixed logit specification includes an error component to test for potential correlation in choices made by the same respondent (Ortúzar & Willumsen, 2011; Bliemer & Rose, 2010; Train, 2009). Thus, the error term should include a random variable μ_{jq} following a distribution with zero mean, with the standard deviation σ indicating the degree of said correlation. In this regard, the specification of the utility function for the mixed logit is defined as follows:

$$U_{jsq} = V_{jsq} + \mu_{jq} + \varepsilon_{jsq}$$

where μ_{jq} are random variables iid $N(0, \sigma)$, and ε_{jsq} are random variables iid following the Gumbel distribution with location parameter 0 and scale parameter β.

For the utility of the first two alternatives in the choice set, we considered a linear-in-the-parameter specification, with the unknown coefficients represented by a set of fixed parameters. The utility of the third option, the non-choice option, included an alternative specific constant and an error component that accounted for the panel correlation effect.

A first base model, ML1, examines the preferences for rural tourism activities without making any distinction about the origin of the decision makers, whereas a second model, ML2, was examines whether residents' preferences differ from those of non-residents. Thus, for the first model ML1, the systematic utility of alternative *j* is expressed as:

$$U_j = \theta_P P_j + \theta_{AC} AC_j + \theta_{AH} AH_j + \theta_{CT} CT_j + \theta_{DS} DS_j + \theta_{SG} SG_j \quad j = 1, 2$$

Where P_j is the *price* of alternative *j*, $AC_j = 1$ if the *accommodation* offered in alternative *j* is a rural house instead of a tent ($AC_j = 0$); $AH_j = 1$ if the alternative *j* offers *active hiking* activities, $CT_j = 1$ if the alternative *j* offers *a cultural trail*, $DS_j = 1$ if the alternative *j* offers *diving/snorkeling* activities, $SG_j = 1$ if a *stargazing workshop* is offered in the alternative *j*, and θs are the unknown parameters representing the marginal utilities.

The second model adds the interaction of the attributes and the dummy NR=1 if the individual is non-resident to the base model. The systematic utility of the alternative *j* for ML2 in this case is represented by:

$$U_j = \theta_P P_j + \theta_{AC} AC_j + \theta_{AH} AH_j + \theta_{CT} CT_j + \theta_{DS} DS_j + \theta_{SG} SG_j + \theta_{P_{NR}} P_j \cdot NR + \theta_{AC_{NR}} AC_j \cdot NR + \theta_{AH_{NR}} AH_j \cdot NR + \theta_{CT_{NR}} CT_j \cdot NR + \theta_{DS\_NR} DS_j \cdot NR + \theta_{SG\_NR} SG_j \cdot NR \qquad j = 1, 2$$

which can be rewritten as follows:

$$U_j = \left(\theta_P + \theta_{P_{NR}} NR\right) P_j + \left(\theta_{AC} + \theta_{AC_{NR}} NR\right) AC_j + \left(\theta_{AH} + \theta_{AH_{NR}} NR\right) AH_j + \left(\theta_{CT} + \theta_{CT\_NR} NR\right) CT_j + \left(\theta_{DS} + \theta_{DS\_NR} NR\right) DS_j + \left(\theta_{SG} + \theta_{SG\_NR} NR\right) SG_j \qquad j = 1, 2$$

In this case, the marginal utilities of the two groups differ. Thus, the impact of including a specific activity K on utility would be $\theta_K + \theta_{K\_NR}$ for non-residents and θ_K for residents.

WTP figures express the variations in an individual's utility caused by changes in the explanatory variables in monetary units. They can be directly derived from the estimated choice model by considering the ratio between the marginal utility of the corresponding attribute and the marginal utility of income (λ), which is obtained as the negative of the marginal utility of the cost (price) attribute ($-\partial U_j / \partial P_j$) according to the discrete choice theory (McFadden, 1981). Since the attributes in the experiment are qualitative variables, the marginal utility is defined as the difference in the utility obtained when the activity K is included in the package (U_j^1) and when it is not included (U_j^0), while all other variables remain constant. Thus, for model ML2, the WTP for including activity K in the package is expressed as:

$$WTP_K = \frac{U_j^1 - U_j^0}{\lambda} = \frac{U_j^1 - U_j^0}{-\partial U_j / \partial P_j} = \begin{cases} -\dfrac{\theta_K}{\theta_P} & \text{for residents} \\ -\dfrac{\theta_K + \theta_{K_{NR}}}{\theta_P + \theta_{P_{NR}}} & \text{for non-residents} \end{cases}$$

Confidence intervals for the WTP figures are obtained by adapting the asymptotic t-test proposed in Armstrong et al. (2001) when considering the null hypothesis $H_0: \left[\left(U_j^1 - U_j^0\right) + WTP_k \frac{\partial U_j}{\partial P_j}\right] = 0$, where WTP_k is true WTP for including activity K. Given that parameter estimates and any linear combination of them distribute asymptotically Normal (as in the case of non-residents), the $(1-\alpha)$ confidence interval is determined by the set of values with WTP_k satisfying $-z_{\alpha/2} \leq \frac{\left(\hat{U}_j^1 - \hat{U}_j^0\right) + WTP_k \frac{\partial \hat{U}_j}{\partial \hat{P}_j}}{\sqrt{var\left(\left(\hat{U}_j^1 - \hat{U}_j^0\right) + WTP_k \frac{\partial \hat{U}_j}{\partial \hat{P}_j}\right)}} \leq z_{\alpha/2}$, where α is the significance level.

1.4 Model results

Estimation results corresponding to these two models are presented in Table 4. The majority of the parameters resulted significant at the 99% confidence level, with the exception of the interaction $(SG_j \times NR)$ that was significant the 95% confidence level, as well as $(AH_j \times NR)$ and $(CT_j \times NR)$, which had low significance levels. These results suggest that the attributes included in the experiment were relevant in the selection of a holiday package of these characteristics. In addition, all parameters corresponding to the rural tourism activities were estimated with a positive marginal utility, indicating that including these activities in the package increases the utility of tourists. The marginal utility for *accommodation* was also positive, suggesting a preference for staying in a rural house rather than a tent. In contrast, the price effect was negative, indicating that increasing the cost of the holidays reduced utility. The alternative specific constant included in the non-choice option resulted also negative, indicating a preference for the options offering a vacation package (alternatives 1 and 2, in this case) even if the effect of the attributes included in the experiment were negligible. The panel correlation among the choices made by the same respondent is confirmed by the high significance found for the standard deviation of the error component (σ).

Table 4. Preferences for rural tourism attributes. Estimation results

Attributes (coefficient θ)	ML1		ML2	
	Estimate	t-test	Estimate	t-test
Accommodation (θ_{AC})	0.489	10.34***	0.697	11.68***
Accommodation×Non-resident (θ_{AC_NR})	-	-	-0.447	-5.85***
Active Hiking (θ_{AH})	1.010	15.23***	0.997	11.94***
Active Hiking×Non-resident (θ_{AH_NR})	-	-	0.096	0.90
Cultural Trail (θ_{CT})	0.646	8.33***	0.733	7.03***
Cultural Trail×Non-resident (θ_{CT_NR})	-	-	-0.158	-1.17
Diving/Snorkeling (θ_{DS})	1.520	25.40***	1.310	16.57***
Diving/Snorkeling×Non-resident (θ_{DS_NR})	-	-	0.497	4.57***
Price (θ_{P})	-0.045	-20.92***	-0.041	-14.43***
Price ×Non-resident (θ_{P_NR})	-	-	-0.011	-3.08***
Stargazing Workshop (θ_{SG})	0.501	7.19***	0.638	7.00***
Stargazing Workshop×Non-resident (θ_{SG_NR})	-	-	-0.269	-2.33**
ASC_3 (θ_{ASC_3})	-3.220	-11.61***	-3.200	-11.54***
Sigma (σ)	2.260	14.08***	2.210	13.95***
Number of observations:	5712		5712	
Number of individuals:	476		476	
Null log-likelihood:	-6275.273		-6275.273	
Initial log-likelihood:	-5611.137		-5611.137	
Final log-likelihood:	-4113.742		-4044.368	
Likelihood ratio test:	4323.064		4461.81	
Rho-square:	0.344		0.356	

*Confidence level of significance: *** 99% , ** 95% , * 90%*

Additionally, the estimation results for ML2 demonstrate the disparities in perception of the attributes considered in the analysis between residents and non-residents. The sign obtained in the interaction terms and their significance level are used to interpret these differences. Therefore, the difference between residents and non-residents for *active hiking* and *cultural trail* did not result significant, indicating that both groups perceive the same levels of satisfaction from engaging in these activities. In contrast, *diving/snorkeling* produces more utility to the non-residents group, whereas the *stargazing* workshop and the *accommodation* in a rural house are more preferred by locals. Non-residents were recruited while they were attending a camp, so it is likely that they took into account their current experience when evaluating this attribute. This last result can be largely explained by this fact. In addition, the negative sign obtained for the interaction term (θ_{P_NR}) indicates that for the group of non-resident tourists, an additional monetary unit in the cost of vacations results in greater disutility. The reason for this is that, even with a higher income level, non-residents often incur extra costs for travel and accommodation on the island if the rural tourism package is combined with another type of vacation.

1.5 Willingness to pay figures

The WTP figures obtained for both models are presented in Table 5. Considering the ML1 results, the activity for which individuals are willing to pay the most is *diving/snorkeling* (33.70€), followed by *active hiking* (22.39€), *cultural trail* (14.32€) and *stargazing* (11.11€). Despite a lower income level in the Spanish sample, residents are willing to pay more for the different activities, as shown by the estimates obtained from ML2. The only exception is *diving/snorkeling,* where non-residents are willing to pay 2.67€ more than residents. These results can be explained by the highest negative impact that the price has on visitors coming from abroad, where some extra expenditure must be done in order to pay for travelling expenses. In the case of *accommodation* facilities, non-residents are willing to pay approximately € 12 less than residents to stay in a rural house instead of a tent; and, as we have already pointed out, this result could be explained by the fact that all of them were sampled when they attended a summer camp.

To test for the accuracy of the WTP point estimates, the 95% confidence intervals were obtained according to the procedure explained in the methods section. Observing ML2 results, the greatest overlap between the resident and non-resident intervals is obtained for *active hiking* and *diving/snorkeling*, suggesting that the discrepancy in the WTP for these two groups can be obtained to a lesser extent. In contrast, the intersection is null or very small for *accommodation*, *cultural trail* and *stargazing*, indicating that the probability of obtaining a similar figure for the WTP is very low.

Table 5. Willingness to pay figures

Attributes	Willingness to pay (€) Point estimate; [Confidence interval]			
	ML1	ML2		
		Residents	Non-residents	Difference
Accommodation (AC)	10.84; [8.44 , 13.55][1]	17.21; [13.63 , 21.52]	4.84; [2.34 , 7.96]	12.36
Active Hiking (AH)	22.39; [18.78 , 26.49]	24.62; [19.78 , 30.39]	21.18; [17.01 , 27.58]	3.43
Cultural Trail (CT)	14.32; [10.89 , 17.96]	18.10; [12.79 , 24.08]	11.14; [8.68 , 14.56]	6.96
Diving/Snorkeling(DS)	33.70; [30.22 , 37.69]	32.35; [27.07 , 38.83]	35.02; [28.92 , 44.52]	-2.67
Stargazing (SG)	11.11; [7.94 , 14.52]	15.75; [11.11 , 20.98]	7.15; [5.07 , 9.91]	8.60

[1]*Confidence intervals in brackets*

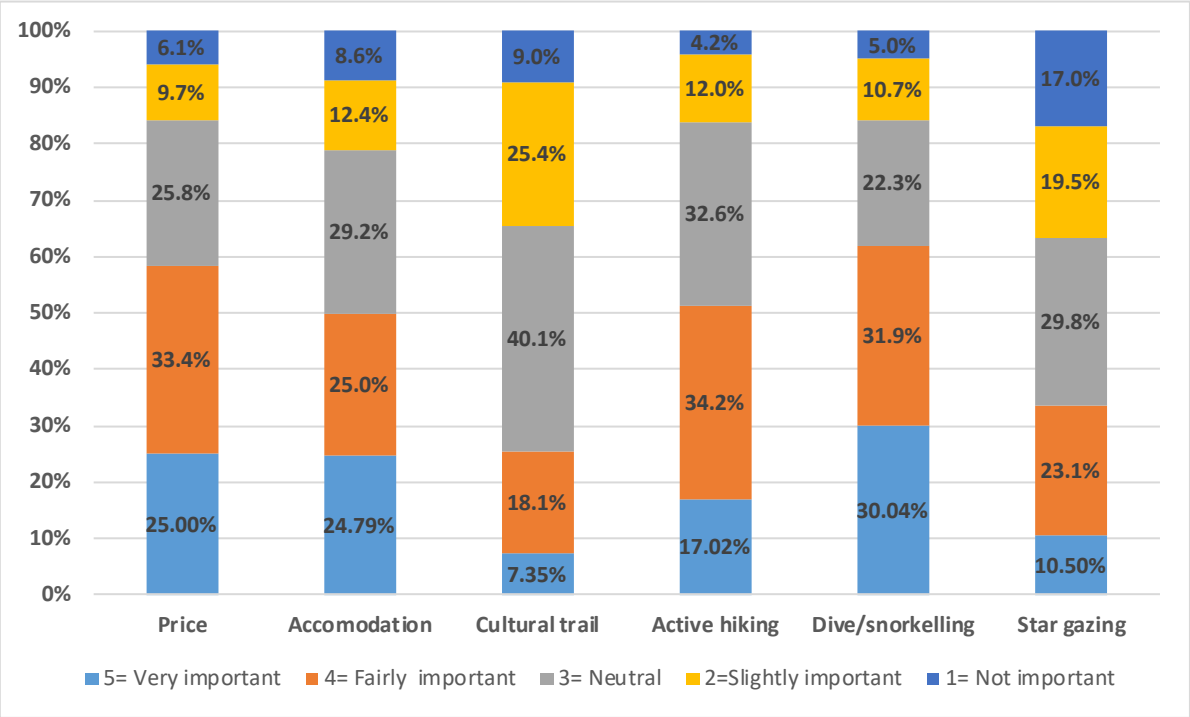
1.6 Importance of attributes

The aim of this section is to validate the model results of the previous sections. To do so, participants were asked to rate the importance given to the attributes in the choice experiment in an additional section of the questionnaire. The assessment was made using a five-point Likert scale, ranging from not at all important (1) to very important (5). In this way, participants evaluate the attributes according to their own judgements. Figure 16 summarizes the scores obtained for the attributes analyzed. The results indicate that most individuals rate the price of the holiday package as well as the two attributes, *active hiking* and *dive/snorkeling* to be fairly or very important. In contrast, *cultural trail* and *stargazing* activities obtain this score for less than 25.45% and 33.6% of the sampled individuals, respectively.

To analyze whether residents evaluate attributes differently from non-residents, a Pearson Chi-square test was performed to examine a possible association between the tourist origin (residents/non-residents) and the importance score of the investigated attributes. Test results suggest significant differences between observed and expected frequencies for *accommodation* (χ^2=19.40, *df*=4, *p*=0.001), *diving/snorkeling* (χ^2=9.96, *df*=4, *p=0.041*) and *stargazing workshop* (χ^2= 29.28, *df*=4, *p*=0.000) when considering a 95% confidence level. Therefore, for the

aforementioned attributes independence cannot be assumed, validating the model results obtained from the choice experiment.

Figure 16. Importance of attributes considered in the choice experiment



In contrast, the distinction between residents and non-residents did not result significant for *active hiking* (χ^2=8.96, *df*=4, *p=0.062)*, *cultural trail* (χ^2*=7.61, df=4, p=0.107)* and *price* (χ^2*=9.10, df=4, p=0.059)* which means that both groups perceive equivalent levels of importance when analyzing these attributes in the experiment. Only the result obtained for price does not validate the model results from the choice experiment, which resulted in a higher disutility for non-residents. Notwithstanding, it is worth noting that, for this attribute, the hypothesis of independence would be rejected at the 94.1% confidence level, which suggests the presence of differences in the importance of the price to a lesser extent than with the rest of the attributes.

To assess the strength of association between the variables, the Cramer's V test is performed, where the association is measured on a 0-1 scale, with 1 corresponding to the perfect association (McHugh, 2013). Test results show the existence of weak associations between residence and the importance given to the attribute under analysis as V is < 0.25 in all the cases. The effect size for *stargazing workshops* is higher (V=0.248) than the value for *accommodation* (V=0.202) and *diving/snorkeling* (V=0.145). A lower association for *diving/snorkeling* in comparison to *stargazing workshops* and *accommodation* validates the results from the previous sections.

1.7 Conclusion, limitations and policy implications

The primary goal of this paper was to better understand the preferences of residents and non-residents regarding the demand for rural tourism on the island of Gran Canaria. Despite being known as one of Europe's most popular mass tourism destinations, Gran Canaria has a diverse range of natural attractions that make it an ideal laboratory for testing low-impact tourism proposals that could provide an alternative to 3S tourism in the future. The analysis used discrete choice modelling, which has been widely demonstrated as an appropriate method for comparing customer preferences and determining willingness to pay for goods and services. Data used in the models came from a discrete choice experiment aimed at a group of young customers, which allowed us to create different rural tourism packages with varying activities, types of accommodation, and prices.

The results of the analysis show that all the attributes considered increased the utility of the participants in the experiment, demonstrating the existence of an interest for a market niche focused on the development of more sustainable activities. In this regard, these findings provide an interesting tool for tourism service providers to use when developing rural tourism packages for younger generation clients. Our results will also serve as useful information for key stakeholders, such as governmental organizations like the Gran Canaria Tourist Board, whose primary mission is to protect the island's tourism interests as a basis for economic development. The work is also valuable for academics and researchers in the field of outdoor recreation because our choice experiment can be easily adapted to a range of outdoor activities that can be developed in other geographical areas.

Research in the field of alternative tourism is required in order to contribute more to sustainable tourism and meet the goals of the 2030 Agenda for Sustainable Development (Mulder et al., 2020). Aside from the long-term necessity of rethinking the travel sector, other constraints such as unaffordable air travel rates exacerbated by crises like the Ukraine conflict can make changes in consumer behavior critical. One method of reducing travel distance is to build man-made leisure and recreation venues in domestic tourism. When the number of man-made leisure and recreation attractions increases, regions become more appealing to domestic tourists (Camacho-Murillo et al., 2021).

The study presented here investigates preferences for natural attraction, which can include mountains, forests, coastline, lakes, landscape features, or native wildlife. The activities included in in the experiment represent various clusters of rural tourism activities (Pesonen, 2015). Potential visitors of both origins mostly preferred the "Water activities" cluster (represented by *diving/snorkeling*), followed by "Actives" (*active hiking*), "Nature activities" (*cultural trails*) and "Passives" (*star gazing workshops*). Decision-makers can use these preferences to meet the expectations and needs of both groups as well as develop concepts to make rural tourism for both nationalities more appealing. Moreover, the magnitude of the WTP

differs (with varying statistical significance) between residents and foreign customers in these clusters. While non-residents are willing to pay 2.67€ more for the water activities, local tourists are willing to spend more on passive recreation (+8.60€) and accommodation in a rural house (+12.36€). Although it is worth noting that the survey was conducted prior to the pandemic crisis, these findings have interesting managerial implications for rural tourism operators looking to differentiate their prices.

Some limitations of the study should be mentioned when analyzing the results. First, the non-resident investigation was limited to the German market. Second, the clusters are only represented by a limited number of attributes. Nevertheless, future research can replicate this type of study with different activities tailored to different markets in order to more accurately determine clusters for rural tourism. It would also be practical to include other man-made attractions in the investigation that go beyond the alternative niche markets in order to satisfy tourists closer to their home destination and reduce travel distances. Furthermore, another limitation resides on the sample characteristics. Non-residents were interviewed while on vacation in a rural area, whereas residents' information was gathered around the University Campus of Las Palmas de Gran Canaria, assuming that nature-based activities are popular among the young island residents' sample.

Another limitation is the restricted age group of millennials which constitute a comparatively small proportion of the population. As a result, the chosen sample's intention is to engage a younger target group to help secure the destinations' long-term revenues. Such studies will aid in attracting and retaining above-average educated and affluent customers to destinations. Our findings show a link between rural tourism and higher levels of education, but it is important to note that our findings can only be extrapolated to the two population groups studied.

Despite the limitations mentioned above, the results obtained can have a significant impact on the development of rural tourism. The findings of our study are a first step toward analyzing the demand for rural tourism vacation packages in mass tourism destinations, and they pave the way for future research. The experiment's goal is to encourage researchers to redesign research methods for tourism development based on novel thinking, and to use the pandemic as a transformative force to initiate change (Abbas et al., 2021).

Even if the impact of mass tourism is unlikely to be reversed, research in alternative tourist products can help to reduce the dependence on low-cost mass tourism. In the long run, this can help to provide a broader range of products in destinations and address the issue of high price sensitivity in 3S (Mu*ñoz*, 2007). Finally, our findings can be applied to other 3S destinations that have natural resources that can be used for tourism development in a more sustainable manner. Studies like this one may also help decision-makers in other destinations achieve the dual goals of income generation and nature conservation (Hearne & Salinas, 2002).

References

Abbas, J., Mubeen, R., Iorember, P. T., Raza, S., & Mamirkulova, G. (2021). Exploring the impact of COVID-19 on tourism: transformational potential and implications for a sustainable recovery of the travel and leisure industry. *Current Research in Behavioral Sciences*, *2*, 100033. https://doi.org/10.1016/j.crbeha.2021.100033

Armstrong, P., Garrido, R., & de Dios Ortúzar, J. (2001). Confidence intervals to bound the value of time. *Transportation Research Part E: Logistics and Transportation Review*, *37*(2-3), 143-161. https://doi.org/10.1016/S1366-5545(00)00019-3

Bierlaire, M. (2009). An introduction to BIOGEME 1.8. *Transport and Mobility Laboratory, École Polytechnique Fédérale de Lausanne. http://biogeme.epfl.ch. Accessed July*, *3*.

Bliemer, M. C., & Rose, J. M. (2010). Construction of experimental designs for mixed logit models allowing for correlation across choice observations. *Transportation Research Part B: Methodological*, *44*(6), 720-734. https://doi.org/10.1016/j.trb.2009.12.004.

Boley, B. B., McGehee, N. G., Perdue, R. R., & Long, P. (2014). Empowerment and resident attitudes toward tourism: Strengthening the theoretical foundation through a Weberian lens. *Annals of Tourism research*, *49*, 33-50. https://doi.org/10.1016/j.annals.2014.08.005

Camacho-Murillo, A., Gounder, R., & Richardson, S. (2021). Regional destination attributes that attract domestic tourists: the role of man-made venues for leisure and recreation. *Heliyon*, *7*(6). https://doi.org/10.1016/j.heliyon.2021.e07383

Cheung, L. T., & Jim, C. Y. (2014). Expectations and willingness-to-pay for ecotourism 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

ChoiceMetrics. (2018). *Ngene 1.2. User manual & reference guide. The Cutting Edge in Experimental Design.* Retrieved, November 12, 2020, from www.choice-metrics.com/NgeneManual120.pdf

Confer, J. J., Thapa, B., & Mendelsohn, J. L. (2005). Exploring a typology of recreation conflict in outdoor environments. *World Leisure Journal*, *47*(1), 12-23. https://doi.org/10.1080/04419057.2005.9674382

Crouch, G. I., & Louviere, J. J. (2001). A review of Choice Modelling research in tourism, hospitality and leisure. *Consumer psychology of tourism, hospitality and leisure. Volume 2*, 67-86. https://doi.org/10.1079/9780851995359.0067

Dai, Y. D., Huang, F. H., Chen, K. Y., Chen, W. J., & Huan, T. C. (2024). Recreational scuba diving as a special form of tourism: lessons from Taiwan. *Tourism Review*, *79*(3), 757-779. https://doi.org/10.1108/TR-11-2020-0547

de Dios Ortúzar, J., & Willumsen, L. G. (2011). *Modelling transport*. John wiley & sons.

Domencich, T.A. and McFadden, D. (1975). *Urban Travel Demand. A Behavioural Analysis.* North-Holland, Amsterdam.

Erul, E., Woosnam, K. M., & McIntosh, W. A. (2020). Considering emotional solidarity and the theory of planned behavior in explaining behavioral intentions to support tourism development. *Journal of Sustainable Tourism*, *28*(8), 1158-1173. https://doi.org/10.1080/09669582.2020.1726935

Espino, R., Martín, J. C., & Román, C. (2008). Analyzing the effect of preference heterogeneity on willingness to pay for improving service quality in an airline choice context. *Transportation Research Part E: Logistics and Transportation Review*, *44*(4), 593-606. https://doi.org/10.1016/j.tre.2007.05.007

Eusébio, C., Carneiro, M. J., Kastenholz, E., Figueiredo, E., & da Silva, D. S. (2017). Who is consuming the countryside? An activity-based segmentation analysis of the domestic rural tourism market in Portugal. *Journal of hospitality and tourism management*, *31*, 197-210. https://doi.org/10.1016/j.jhtm.2016.12.006

Fennell, D. A. (2008). *Ecotourism third edition*. Routledge.

Garau-Vadell, J. B., Gutierrez-Taño, D., & Diaz-Armas, R. (2018). Economic crisis and residents' perception of the impacts of tourism in mass tourism destinations. *Journal of destination marketing & management*, *7*, 68-75. https://doi.org/10.1016/j.jdmm.2016.08.008

Garau-Vadell, J. B., Gutiérrez-Taño, D., & Díaz-Armas, R. (2019). Residents' support for P2P accommodation in mass tourism destinations. *Journal of Travel Research*, *58*(4), 549-565. https://doi.org/10.1177%2F0047287518767067

Gutiérrez-Taño, D., Garau-Vadell, J. B., & Díaz-Armas, R. J. (2019). The influence of knowledge on residents' perceptions of the impacts of overtourism in P2P accommodation rental. *Sustainability*, *11*(4), 1043. https://doi.org/10.3390/su11041043

Hearne, R. R., & Salinas, Z. M. (2002). The use of choice experiments in the analysis of tourist preferences for ecotourism development in Costa Rica. *Journal of environmental management*, *65*(2), 153-163. https://doi.org/10.1006/jema.2001.0541

Hole, A. R., & Kolstad, J. R. (2012). Mixed logit estimation of willingness to pay distributions: a comparison of models in preference and WTP space using data from a health-related choice experiment. *Empirical Economics*, *42*, 445-469. https://doi.org/10.1007/s00181-011-0500-1

Hughes, C. A., & Paveglio, T. B. (2019). Managing the St. Anthony Sand Dunes: Rural resident support for off-road vehicle recreation development. *Journal of Outdoor Recreation and Tourism*, *25*, 57-65. https://doi.org/10.1016/j.jort.2018.12.001

Hurtubia, R., Guevara, A., & Donoso, P. (2015). Using images to measure qualitative attributes of public spaces through SP surveys. *Transportation Research Procedia*, *11*, 460-474. https://doi.org/10.1016/j.trpro.2015.12.038

ISTAC (2017a). *Explotación estadística del padrón municipal,* Instituto Canario de Estadística. Gobierno de Canarias.

ISTAC (2017b). *Alojamiento Turístico en Establecimientos Extra-hoteleros*, Instituto Canario de Estadística. Gobierno de Canarias.

Kemperman, A. (2021). A review of research into discrete choice experiments in tourism: Launching the Annals of Tourism Research Curated Collection on Discrete Choice Experiments in Tourism. *Annals of Tourism Research*, *87*, 103137. https://doi.org/10.1016/j.annals.2020.103137

Kubo, T., & Shoji, Y. (2016). Demand for bear viewing hikes: Implications for balancing visitor satisfaction with safety in protected areas. *Journal of outdoor recreation and tourism*, *16*, 44-49. https://doi.org/10.1016/j.jort.2016.09.004

León, C. J., Araña, J. E., & Melián, A. (2003). Tourist use and preservation benefits from big-game fishing in the Canary Islands. *Tourism Economics*, *9*(1), 53-65. https://doi.org/10.5367/000000003101298268

Lyu, S. O., Kim, J. W., & Bae, S. W. (2020). Family vacationers' willingness to pay for glamping travel sites: A family functioning segmentation. *International Journal of Tourism Research*, *22*(2), 155-167. https://doi.org/10.1002/jtr.2325

Masiero, L., Heo, C. Y., & Pan, B. (2015). Determining guests' willingness to pay for hotel room attributes with a discrete choice model. *International Journal of Hospitality Management*, *49*, 117-124. https://doi.org/10.1016/j.ijhm.2015.06.001

McFadden, D. (1981), "Econometric models of probabilistic choice". In: Manski C and McFadden D (eds), *Structural Analysis of Discrete Choice Data with Econometric Applications,* MIT Press, Cambridge, pp.198–272.

McHugh, M. L. (2013). The chi-square test of independence. *Biochemia medica*, *23*(2), 143-149. https://doi.org/10.11613/bm.2013.018

Mimbs, B. P., Boley, B. B., Bowker, J. M., Woosnam, K. M., & Green, G. T. (2020). Importance-performance analysis of residents' and tourists' preferences for water-based recreation in the Southeastern United States. *Journal of Outdoor Recreation and Tourism*, *31*, 100324. https://doi.org/10.1016/j.jort.2020.100324

Mulder, N. (2020), *The impact of the COVID-19 pandemic on the tourism sector in Latin America and the Caribbean, and options for a sustainable and resilient recovery*. *Series International Trade*, 157. Cepal, America Latina y El Caribe

Muñoz, T. G. (2007). German demand for tourism in Spain. *Tourism management*, *28*(1), 12-22. https://doi.org/10.1016/j.tourman.2005.07.020

Neumann, P., & Mason, C. W. (2019). Managing land use conflict among recreational trail users: A sustainability study of cross-country skiers and fat bikers. *Journal of Outdoor Recreation and Tourism*, *28*, 100220. https://doi.org/10.1016/j.jort.2019.04.002

Pakurár, M., & Oláh, J. (2008). Definition of rural tourism and its characteristics in the northern great plain region. *System*, *7*(3), 777-782.

Parsons, J. J. (1973). Southward to the sun: The impact of mass tourism on the coast of Spain. *Yearbook of the Association of Pacific Coast Geographers*, *35*(1), 129-146. https://doi.org/10.1353/pcg.1973.0009

Patronato de Turismo de Gran Canaria (2019), *Situatión del Sector Turístico, Año 2019 [Annual Report]*. Retrieved November 12, 2020, from www.grancanaria.com/turismo/fileadmin/PDF/informes/ICT_cierre_19.pdf

Pesonen, J. A. (2015). Targeting rural tourists in the internet: Comparing travel motivation and activity-based segments. *Journal of Travel & Tourism Marketing*, *32*(3), 211-226. https://doi.org/10.1080/10548408.2014.895695

Rao, X., Qiu, H., Morrison, A. M., Wei, W., & Zhang, X. (2022). Predicting private and public pro-Environmental behaviors in rural tourism contexts using SEM and fsQCA: The role of destination image and relationship quality. *Land*, *11*(3), 448. https://doi.org/10.3390/land11030448

Rahman, M. K., Gazi, M. A. I., Bhuiyan, M. A., & Rahaman, M. A. (2021). Effect of Covid-19 pandemic on tourist travel risk and management perceptions. *Plos one*, *16*(9), e0256486. https://doi.org/10.1371/journal.pone.0256486

Ribet, S., & Brander, L. M. (2020). Willingness to pay of trail runners for sustainable country park use in Hong Kong. *Journal of Outdoor Recreation and Tourism*, *31*, 100320. https://doi.org/10.1016/j.jort.2020.100320

Román, C., & Martín, J. C. (2016). Hotel attributes: Asymmetries in guest payments and gains–A stated preference approach. *Tourism management*, *52*, 488-497. https://doi.org/10.1016/j.tourman.2015.08.001

Šimková, E. (2007). Strategic approaches to rural tourism and sustainable development of rural areas. *Agricultural economics*, *53*(6), 263-270. https://doi.org/10.17221/979-agricecon

Strazzera, E., Cherchi, E., & Ferrini, S. (2010). Assessment of regeneration projects in urban areas of environmental interest: a stated choice approach to estimate use and quasi-option values. *Environment and Planning A*, *42*(2), 452-468. https://doi.org/10.1068%2Fa4213

Techniker Krankenkasse (2016), *Beweg dich Deutschland! TK-Bewegungsstudie 2016*. Retrieved November 11, 2024, from www.tk.de/resource/blob/2033598/9f2d920e270b7034df3239cbf1c2a1eb/beweg-dich-deutschland-data.pdf

Tienhaara, A., Pouta, E., Lunner Kolstrup, C., Pinzke, S., Janmere, L., & Järvinen, M. (2020). Consumer preferences for riding lessons in Finland, Sweden and Finland. *Journal of Outdoor Recreation and Tourism*, *32*. pp. 100141. https://doi.org/10.1016/j.jort.2017.06.002

Train, K. (2009). Discrete Choice Methods with Simulation, 2nd ed. Cambridge University Pres, Cambridge.

Weaver, D. B. (1993). Ecotourism in the small island Caribbean. *GeoJournal*, *31*(4), 457-465.

Weaver, D. B. (2001). Ecotourism in the context of other tourism types. *The encyclopedia of ecotourism*, 73-83. https://doi.org/10.1079/9780851993683.0073

Chapter II

2 Analysing preference heterogeneity and willingness to pay for nature-based tourism activities in Gran Canaria for young Germans

Cite (APA):

Fichter, T., & Román, C. (2024). Analysing preference heterogeneity and willingness to pay for nature-based tourism activities in Gran Canaria for young Germans. *Journal of Policy Research in Tourism, Leisure and Events*, 1-20. https://doi.org/10.1080/19407963.2024.2325696

Abstract

This paper examines the heterogeneity in preferences and willingness to pay for various nature-based tourism activities that can be carried out in natural areas on Gran Canaria Island (Spain). A discrete choice experiment is designed to obtain information about potential visitors' preferences in a set of hypothetical scenarios involving various activity packages created by combining the levels of the attributes according to an efficient design. Collected information is used to estimate a Mixed Logit model which will allow us to evaluate random and systematic heterogeneity in preferences. A key finding of the research emanates from obtaining individual-specific parameters to calculate not only the willingness to pay for the various activities, but also the amount that could guide a potential compensation when undesired activities are included in the package. Results provide interesting managerial tools that can be used by tourism entrepreneurs to promote nature-based tourism products in the area.

Keywords: Nature-based Tourism, Sustainable Tourism, Active Tourism, Discrete Choice Experiment, Willingness to Pay, Preference Heterogeneity

2.1 Introduction

Tourism as a fundamental component of the global economy is essential to achieve the Sustainable Development Goals of the 2030 Agenda such as responsible consumption and production, decent work, economic growth or climate action (Mulder, 2020). The new scenario created after the global Covid-19 pandemic has triggered a debate on how countries should deal with the aftermath of the crisis, taking into account the lessons learned and addressing reforms that will increase the value of promoting more sustainable tourism development. Han (2021) highlights the importance of academic research in the tourist industry in minimizing environmental impacts caused by consumer behavior and encouraging customers' consumption patterns to transition toward more sustainable tourism.

However, the concept of sustainable tourism is still controversial, existing numerous definitions on the topic. For the World Tourism Organization, sustainable tourism addresses the demands of travelers, the industry, the environment, and host communities, taking full account of its current and future economic, social, and environmental implications (UNWTO, 2017, 2023). Buckley (2006a, 2006b) contends that the lines separating terms such as nature tourism, ecotourism, adventure tourism, adventure travel, commercial expeditions, outdoor recreation, and outdoor education are diffuse.

A popular form of sustainable travel is active tourism. This type of tourism encompasses responsible travel to foreign countries that involves the tourist's physical and mental activity and adheres to the tenets of sustainability, biodiversity protection, and cultural preservation. (International Organization for Active Tourism, 2002). Similar definitions are ACE tourism (Fennell, 1999) which represents a combination of adventure, eco and cultural tourism, or NEAT, which stands for nature, eco and adventure tourism (Buckley, 2000). Hanna et al. (2019) further contend that outdoor adventure activities, as a kind of sustainable tourism, improve participants' understanding and engagement with sustainability through fostering connections between visitors and the local people, which is, according to Gautam (2023), crucial to support the sustainable growth of the tourism sector.

In recent years, there has been an upsurge in the use of discrete choice analysis to investigate various issues affecting the tourism industry. Discrete choice models (DCMs) and discrete choice experiments (DCEs), in particular, have been used to investigate a wide range of aspects related to sustainable tourism, including: (a) cultural tourism (Fitch et al., 2022; Hearne & Tuscherer, 2008); (b) ecosystems preservation (Coayla, 2022; Estifanos et al. 2021); (c) ecotourism (Xu et al., 2021); (d) residents perception (Birenboim et al., 2022); and (e) rural tourism (Fichter & Román, 2022; Li et al., 2023).

In addition, various types of activities have also been investigated, namely: (a) scubadiving (Hindsley et al., 2023; Kim et al., 2022; Makumbirofa & Saayman, 2022); (b) sport hunting (Fischer et al., 2015); (c) stargazing (Fernández-Hernández

et al., 2022); and (d) wildlife viewing (Bach & Burton, 2017; Kubo & Shoji, 2016; Lindberg et al., 2019; Stemmer et al., 2022).

Most of the literature contributions address the study of preference heterogeneity using different modelling approaches ranging from simpler specifications, such as the Multinomial Logit model (MNL), to more flexible ones, such as Mixed Logit (ML) family and Latent Class (LC) models. Hybrid Choice (HC) models offer a more advanced modelling approach that integrates a latent variable model into a discrete choice model, extending the classical discrete choice modelling framework.

Although the application of ML models is becoming more and more widespread, their full potential for estimating preferences at the individual level is still seldom used. To the authors' knowledge, only the work of Nicolau (2009) estimated individual parameters to test the effect of price sensitivity on holiday packages.

This paper aims to fill this gap by analyzing preferences and willingness to pay for nature-based tourism activities at the individual level in the island of Gran Canaria (Spain). The island is commonly known as the miniature continent due to the diverse range of landscapes and microclimates it offers. These particular characteristics allow visitors to perform an ample variety of nature-based tourism activities ranging from beach, mountain and water activities, to other more cultural-related. The analysis targets a market segment of potential visitors consisting mainly of young Germans belonging to Generation Y and the first cohorts of Generation Z. Germans are the island's most important source of incoming tourists (Patronato de Turismo de Gran Canaria, 2021). As a result, focusing on this segment represents an opportunity to link a category of young and environmentally conscious customers with a holiday destination like Gran Canaria, which is primarily dominated by sun, sand and sea (3S) mass tourism, which has a negative image on social and ecological issues such as local population quality of life or environmental impact (Parsons, 1973).

The analysis is based on the design of a discrete choice experiment (DCE) consisting of several hypothetical scenarios in which participants express their preferences regarding different packages of nature-based tourism activities. The objective of conducting a DCE is to identify the independent influence of design attributes on the choices made by respondents (ChoiceMetrics, 2009). DCEs provide fundamental data sources to estimate DCMs which, in turn, represent the appropriate methodology for the evaluation of different policies, leading companies to the optimization of the economic value (Bliemer and Rose, 2006). Their theoretical underpinnings are very well grounded in the discrete choice theory (McFadden, 1981) and have become an essential tool in many different fields including transportation, health, tourism and environmental studies.

It is important to keep in mind that most tourists are keen to the excitement of leisure activities but are not willing to take risks. According to Buckley (2007), the majority of the adventure market is made up of high-volume, low-difficulty products for

unskilled customers. The cutting edge, in contrast, consists of low-volume, high-cost products that need prior abilities, involve significant individual risk for clients, and operate in more distant and hostile places.

The importance of pricing competitiveness as a crucial element of a destination's overall tourist competitiveness was also highlighted by Dwyer et al. (2000). They pointed out that there is broad consensus that one of the key elements influencing whether and where tourists travel is pricing. Therefore, in light of these findings, the activities selected are consistent with the classification of rural clusters suggested by Pesonen (2015) and Eusébio et al. (2017); and include cultural trails (nature), active hiking (active tourists), diving/snorkeling (water activities), and stargazing (passives). The cost of the package and the type of accommodation are also considered relevant to conform the experiment.

Data collected from the choice experiment is used to estimate a Mixed Logit model that will allow us to investigate the presence of random or unexplained heterogeneity in the preferences of potential visitors. Individual specific parameter estimates will allow us to calculate not only the willingness to pay for the various activities but also the amount accepted as compensation when undesired activities are included in the tourism package. In particular, the utility specification is represented by a linear-in-the-parameter function where attributes' coefficients are continuous random variables following the Normal distribution. Finally, the specification also considers the systematic heterogeneity in the population mean of the coefficients, allowing it to be explained by some socioeconomic characteristics of the individual.

The overarching goal of this research is to contribute to the development of nature-based tourism products for these particular segments understudied in the previous literature and, thus, to encourage a more sustainable development in mass tourism destinations. In this regard, our findings will offer interesting information that can shed light in answering the central research question related to our choice experiment which is "how could preference heterogeneity be used to develop nature-based tourism packages that better meet the demand needs of the target group?"

The rest of the paper is organized as follows. The materials and methods used for the analysis presented in section two. Section three focus on the analysis of preferences and willingness to pay for nature-based tourism activities. The discussion of results and managerial implications are presented in section four. The final section presents the main conclusions and limitations of the research.

2.2 Materials and methods

2.2.1 The stated choice experiment

The context of the choice experiment takes place in the Veneguera area of Gran Canaria, a protected natural zone rich in natural resources that runs through a ravine leading to a beautiful beach. It simulates a tourist product for a group of four people spending two nights in this destination, where participants can engage in activities that allow them to enjoy the natural environment in a sustainable way.

The experiment consisted of 12 choice tasks in which the respondent had to choose between two hypothetical nature-based active tourism packages with varying activities, accommodation type, and costs, and a non-choice alternative. Thus, considering the utility maximization behavioral rule, the alternative chosen is interpreted, for modelling purposes, as that producing the highest utility to the individual.

Table 6 shows the attributes and levels considered in this experiment, which include price per person, the type of accommodation and the following activities: cultural trail, active hiking, diving/snorkeling and a stargazing workshop. The price had three different levels whereas the rest of the attributes had only two.

One of the key drawbacks of DCEs is hypothetical bias, stemming from individuals' inclination to deviate from their stated preferences in real-world market settings. This bias can be mitigated by designing scenarios that closely mirror respondents' real-world experiences. Thus, to make the choice scenarios more realistic, some images were shown to respondents to better define the tourism packages considered in each choice task. Some extra information on the activity, such as the duration and the group size, was also provided.

Table 6. Attributes and levels in the choice experiment

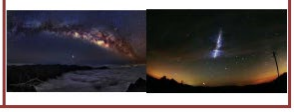
Attributes	Level 1	Level 2	Level 3
Price per person 2 nights (P)	80 €	60 €	40 €
Type of accommodation (AC)	Tent	Rural House	-
Cultural trail (CT)	Not Included	Included	-
Active hiking (AH)	Not Included	Included	-
Diving / snorkeling (DS)	Not Included	Included	-
Stargazing workshop (SG)	Not Included	Included	-

The combination of the attribute levels that define the different choice tasks was obtained through an efficient design using the specialized software N-gene (ChoiceMetrics, 2009). Efficient designs are created to obtain asymptotically efficient parameter estimates with a minimum sample size. Thus, considering a fixed number of choice observations, the design produces parameter estimates with the smallest possible standard errors. The efficiency criteria considered in our

experiment is the minimization of the D-error, which requires parameters' prior information as well as the type of model to estimate (Rose & Bliemer, 2004). In this case, an efficient design was generated for a Multinomial Logit model and parameters' priors were obtained from pilot tests and qualitative information consistent with the obtaining of willingness to pay figures for potential visitors within an acceptable range.

In the experiment, the packages shown to respondents consisted of two or three activities each. An example of a choice scenario is presented in Figure 17. In this case, the holiday package corresponding to option A costs 60 Euro and includes two nights of tent accommodation, active hiking, and diving/snorkeling activities. Option B costs 40 Euro and includes two nights' accommodation in a rural house, active hiking, and a stargazing workshop.

Figure 17. Example of choice scenario

SCENARIO 1		
ATTRIBUTES	**OPTION A**	**OPTION B**
PRICE PER PERSON 2 NIGHTS (FOOD NOT INCLUDED)	60.00 €	40.00 €
TYPE OF ACCOMMODATION	TENT 	RURAL HOUSE 
CULTURAL TRAIL Duration of the activity: 3 hours Guided route where you can see native species of fauna and flora and heritage sites (Group 12 people maximum)	NOT INCLUDED	NOT INCLUDED
ACTIVE HIKING Duration of the activity: 3 hours Guided tour to Veneguera Blue Pools. The route includes a bath in natural pools. Optional race/mountain-bike circuit. (Group 12 people maximum)		
DIVE / SNORKEL (Duration of the activity: 1:30 hours) Scuba diving or snorkeling activity with monitor in the Beach of Veneguera. (Group 12 people maximum)		NOT INCLUDED
STAR GAZING WORKSHOP Duration of the activity: 2 hours (Group 24 people maximum)	NOT INCLUDED	
□ None of the two	□ Choose A	□ Choose B

2.2.2 The questionnaire and data collection

The questionnaire was structured in different sections. The first two requested tourists' concerns and attitudes regarding the environment and were not used in the current study. Questions related to the choice experiment were then displayed and included the 12 hypothetical scenarios as well as the importance given by respondents to the different attributes while responding to the choice tasks.

Previously, the context of the choice experiment was duly introduced by the interviewer, explaining the characteristics of the place, the duration of the stay, the description of the activities that could be carried out, including the duration and group size as well as accommodation options. The questionnaire concluded with sociodemographic information and an open question inviting participants to list up to five activities that would be willing to perform as active tourists during their vacation.

Data were collected in the village Carcans Plage, in the popular holiday-region of Gironde in the southwest of France. Participants were surveyed during their summer vacation on a campsite with a high proportion of German customers. The most favored tourist activities typically involve surfing and other beach-related pursuits, although there are plenty of options for biking and hiking trails inside the pine forests. In addition, many visitors enjoy unguided stargazing on the beach at night due to the exceptional clarity of the night sky. A significant proportion of respondents had participated in a summer sports camp, which offers guided adventure tourism packages that include sports lessons, food and accommodation in tents.

Consequently, all participants in the experiment shared the characteristic of being interested in active tourism activities in contact with nature. A total of 238 valid questionnaires were obtained for the sample. Face-to-face interviews were conducted during the data collection process to ensure that respondents could answer questions in English and had a good understanding of the choice experiment, hence improving the survey's overall quality.

Regarding the sample composition, there is a moderately higher proportion of female respondents (55.04%), the average age is 24 years, and the annual income is 8885 Euro. The significantly lower income compared to the average gross wage of 45000 Euro in Germany can be attributable to the fact that the majority of the participants are university students (Statista, 2017). 81.93 percent of the sample is employed, which is assumed to be mostly part-time work while studying, but there are some respondents with higher salaries who have completed university education and are working in full-time jobs.

2.2.3 The discrete choice model

To analyze preferences for nature-based tourism activities a discrete choice model is estimated using data obtained from the choice experiment described in the previous section.

Disaggregate demand analysis uses discrete choice models as the main toolbox and their theoretical principles are very well grounded in the random utility theory (Domencich & McFadden, 1975). It states that rational decision makers, when faced with the choice among a finite set of mutually exclusive alternatives, always choose the one that maximizes their utility. The utility is a mathematical function

representing individual's preferences and normally adopts the linear functional form. As the analyst has not perfect information about all the factors considered by decision makers, a stochastic error term must be added to the measurable component of the utility (also known as the systematic utility) in order to account for all the unobserved effects.

When using data obtained from discrete choice experiments, each individual provides several statistical observations. In these cases, it is important to account for the pseudo panel nature of the data set. Then, it is assumed that preferences could vary between individuals but not within the set of observations provided by the same respondent. In addition, the potential correlation among choices made by the same individual must be accounted by the model (see e.g. Train, 2009; Bliemer & Rose, 2010; and Ortúzar & Willumsen, 2011). Thus, for the panel Mixed Logit (ML) model, the utility U_{iqs} of alternative *i* for individual *q* in choice scenario *s* is represented by

$$U_{iqs} = V_{iqs} + \xi_{iq} + \varepsilon_{iqs}$$

where ε_{iqs} distributes iid extreme value and accounts for the effect of unobserved factors; ξ_{iq} is an error component (EC) represented by a random variable following the Normal distribution $N(0, \sigma)$, where σ represents the degree of correlation among choices made by the same respondent; and V_{iqs} is the systematic component of the utility which is expressed in terms of: i) the attributes vector of the alternative *i* for individual *q* in choice scenario *s* (X_{iqs}), ii) the vector of socioeconomic characteristics of the individual *q* (S_q); and iii) a set of unknown parameters β_i. Model parameters can be either fixed or random variables representing, in this case, the random heterogeneity in the individual's preferences. In our model, V_{iqs} is represented by a linear-in-the parameters function, thus the systematic utility is expressed as

$$V_{iqs} = \alpha_i + \sum_k \beta_i^k X_{iqs}^k$$

where α_i is the alternative specific constant, X_{iqs}^k represents the value of attribute *k* in alternative *i* to individual *q* in choice scenario *s*; and coefficients β_i^k, representing the marginal utilities, distribute $N(\tau_k, \sigma_k)$, being the mean τ_k, the standard deviation σ_k and α_i unknown parameters to estimate. It is important to note that when the attribute *k* refers to activities or accommodation type, $X_{iqs}^k = 1$ when the activity is offered, or the accommodation is a rural house, and 0 otherwise.

Attribute coefficients can be expressed in terms of the standard Normal distribution as $\beta_i^k = \tau_k + \sigma_k \eta_k$, where η_k distribute $N(0,1)$. If we allow for the systematic heterogeneity in the population mean, τ_k may vary according to some socioeconomic characteristics of the individual as

$$\tau_k = \mu_k + \sum_r \mu_{kS_{qr}} S_{qr}$$

where μ_k and $\mu_{kS_{qr}}$ are parameters to estimate and S_{qr} represents the socioeconomic characteristic *r* of individual *q*. Thus, the marginal utilities in our model must be interpreted as random Normal variables whose population mean may vary according to some socioeconomic group.

The incorporation of random parameters in the model prevents the choice probabilities from having a closed form. Thus, the maximum simulated likelihood technique is used to estimate the unknown parameters. Once the (unconditional) distribution of model coefficients is estimated, it is possible to use the Bayes rule to derive the distribution of these coefficients conditional on individual's choices. Then, simulation techniques are applied to approach individual specific parameters estimates by computing the conditional expectation of the coefficients. The authors refer the reader to Train (2009), chapters 6 and 11, for a comprehensive description of these methods.

2.3 Results

2.3.1 Estimation Results

Estimation results, obtained with the Nlogit6 software package (Greene, 2016), are presented in Table 7 where the columns include the name of the parameter as well as the corresponding attribute, the estimated coefficient, the significance test, the probability value, and the extremes of the confidence interval for the parameter. All the parameters included in the specification of the utility were statistically significant considering the 99% confidence level. The only exception was found for the mean of the accommodation that was significant at the 95% level. In contrast, the standard deviation of the error components included in the first and second alternatives did not result statistically significant suggesting that choices made by the same respondent in the 12 choice scenarios were treated independently.

The only fixed parameter was the alternative-specific constant included in the third option (no-choice) which was estimated with a negative sign. This suggests that respondents typically prefer the activity packages (options A and B) over not experiencing either of them when the effect of the attributes included in the experiment is negligible. Since the standard deviation of the attributes' coefficients was highly significant, the hypothesis of random heterogeneity in preferences is confirmed. Also, the systematic heterogeneity in the population mean was proved significant for some of the random coefficients. Thus, in the population mean, the negative effect of price decreases as income rises, and the preference for lodging in a rural house rather than a tent increases with age. In this regard, it is important

to highlight that that the mean of the coefficient could be negative for the youngest individuals, indicating their preference for staying in a tent rather than a rural house; finally, the preference for undertaking diving/snorkeling activities is reduced as age increases. For the rest of the activities, namely cultural trail, active hiking and stargazing, the mean of the random parameter was fixed and positive, indicating in average, a preference in the population for the inclusion of these activities in the package.

Table 7. Estimation results

Parameter and attribute names		Estimated coefficient	t-test	p-value	Confidence interval Lower	Upper.
Fixed parameters						
α_{ASC3}	Asc None	-2.45839	-5.99	0.000	-3.26213	-1.65465
Random parameters (estimated mean)						
μ_{P}	Price	-0.08244	-12.59	0.000	-0.09528	-0.06961
μ_{AC}	Accommodation	-1.24299	-2.00	0.046	-2.46392	-0.02205
μ_{CT}	Cultural trail	0.80645	5.32	0.000	0.50932	1.10358
μ_{AH}	Active Hiking	1.77707	11.67	0.000	1.47851	2.07563
μ_{DS}	Diving / snorkeling	4.69427	5.75	0.000	3.09383	6.29472
μ_{SG}	Stargazing	0.71035	5.45	0.000	0.45493	0.96577
Random parameters (estimated standard deviation)						
σ_{P}	Price	0.02832	10.64	0.000	0.02310	0.03353
σ_{AC}	Accommodation	1.20555	12.49	0.000	1.01643	1.39468
σ_{CT}	Cultural trail	0.95542	8.04	0.000	0.72237	1.18848
σ_{AH}	Active hiking	0.86036	6.96	0.000	0.61801	1.10270
σ_{DS}	Diving / snorkeling	1.22862	11.16	0.000	1.01294	1.44431
σ_{SG}	Stargazing	0.50380	3.94	0.000	0.25312	0.75448
Systematic heterogeneity in mean (Interactions)						
μ_{P*INC}	Price*Income	0.00002	3.16	0.002	0.00001	0.00003
μ_{AC*AGE}	Accommodation*Age	0.06944	2.76	0.006	0.02012	0.11877
μ_{DS*AGE}	Diving / Snorkeling*Age	-0.08110	-2.61	0.009	-0.14190	-0.02030
Error components for panel correlation						
Standard deviation EC (Alt1)		0.30467	1.88	0.061	-0.01361	0.62296
Standard deviation EC (Alt2)		0.15481	0.65	0.518	-0.31492	0.62454
$l^*(0)$	-3137.63670					
$l^*(\theta)$	-1882.52106					
ρ^2	0.4000					
Observations	2586					

Assuming that model coefficients follow the Normal distribution implies that coefficients can take both positive and negative values, indicating a potential positive or negative preference for the corresponding attribute. While this is advantageous in the case of the coefficients associated with activities and type of accommodation because it demonstrates the richness of the model in analyzing whether individuals have a positive or negative preference for the attribute, it may be problematic in the case of the price coefficient because positive values can reveal the microeconomic inconsistency of the model. In this regard, it should be emphasized that the negative of the price coefficient corresponds to the marginal utility of income, which is always positive according to discrete choice theory (McFadden, 1981).

Thus, considering the estimated distribution and evaluating the population mean in the average of the socioeconomic variables (age and income), the probability of obtaining the incorrect sign (positive) for the price coefficient is 0.008. This low figure ensures the microeconomic consistency of the model because a high proportion of individuals with positive marginal utility of price would result in a misinterpretation of the willingness to pay figures and other model applications.

The rest of the coefficients could eventually take both positive and negative sign as they are subject to consumers' preferences. Thus, a positive sign would imply that the inclusion of the activity in the package would generate an increase in the individual's utility whereas a negative sign would represent a source of dissatisfaction. According to our model, the probability of perceiving disutility for including active hiking and diving/snorkeling activities is also very low (less than 0.02) indicating that these activities are positively perceived by the majority of the individuals. In contrast, the probability of obtaining a negative preference for the cultural trail activity and the rural house accommodation would be higher, with 0.20 and 0.36, respectively. This result suggests that for a significant proportion of customers a compensation should be offered in case these options were included in the package.

2.3.2 Willingness to pay for nature-based tourism activities

One of the most widely used applications of discrete choice experiments is the derivation of the willingness to pay (WTP) measures which are essential inputs to evaluate different policies or programs. Once the discrete choice model is estimated, the WTP to improve a given attribute k is calculated as the quotient between the marginal utility of this attribute and the marginal utility of the price (Train, 2009), that is:

$$WTP_k = -\frac{\partial V_i / \partial X_i^k}{\partial V_i / Price_i} = -\frac{\beta_i^k}{\beta_i^{Price}}$$

When random coefficients are considered, this ratio is a random variable that normally has an unknown probability distribution (Sillano & Ortúzar, 2005). One way to address this problem is to estimate individual-level parameters using the information revealed by the individual's choices. In this way, one can derive individual specific WTP estimates by applying a similar method to that used to obtain individual specific parameters (Train, 2009).

Figure 18 shows the kernel density plots of the WTP for the different activities obtained from individual specific estimates. The shape of these probability distributions highlights the existence of heterogeneity in the WTP for the activities considered in the experiment. Thus, the highest dispersion in the WTP distribution is obtained for the diving/snorkeling activity whereas the highest concentration is found for stargazing. Observing the area under the plot and the negative part of the horizontal axis, the highest proportion of individuals with negative WTP is obtained for the accommodation in a rural house instead of a tent (black line), while the lowest is found for the diving/snorkeling activity (purple line).

Figure 18. Distribution of the WTP. Kernel density estimates

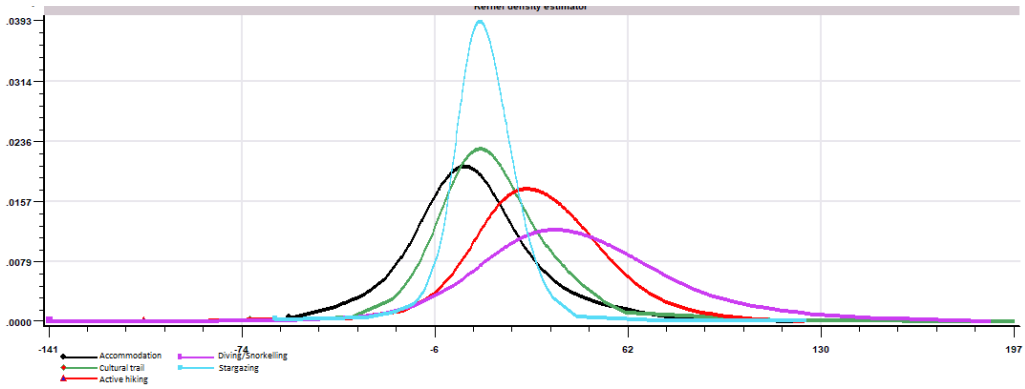


Table 8 presents the average WTP figures obtained for the whole sample as well as the average for different socioeconomic groups. Thus, the highest WTP is obtained for diving/snorkeling activities (47.91€) followed by active hiking (30.32€). In contrast, the least valued activities are cultural trail and stargazing with 14.46€ and 11.05€ respectively. It is also worth to point out that individuals are only willing to pay 8.46€ for staying in a rural house instead of tent. Regarding the different socioeconomic groups, it is interesting to note that those living independently of their

families exhibit substantially higher willingness to pay figures for all the activities. In addition, active workers and those having a car available for leisure use are more willing to pay for accommodation in a rural house and for the stargazing activity than non-workers and those without car.

Average figures in Table 8 were obtained including individuals who perceive disutility for doing certain activities; that is, those with negative willingness to pay. In other words, these individuals would be willing to accept a monetary compensation if such activities were included in the package.

Table 8. WTP figures. Average for socioeconomic group

Socioeconomic Group	Willingness to pay (€)				
	Accommodation in rural house vs tent	Cultural trail	Active hiking	Diving / Snorkeling	Stargazing
Gender					
Female	8.37	14.25	30.80	47.11	11.03
Male	8.57	14.72	29.72	48.89	11.09
Car availability for leisure					
No	5.97	14.09	30.78	48.04	10.50
Yes	10.74	14.81	29.90	47.79	11.57
Live with the family					
No	10.07	15.29	31.87	50.00	11.83
Yes	1.00	10.66	23.14	38.27	7.45
Active worker					
No	5.81	15.45	31.56	47.09	8.96
Yes	9.05	14.25	30.04	48.09	11.52
Total	8.46	14.46	30.32	47.91	11.05

To obtain a more accurate segmentation of our sample, the Table 9 presents a characterization of the individuals who are willing to pay a positive amount of money for including the different activities in the package. The vast majority of individuals (more than 86%) are willing to pay for the activities considered in the analysis and 66.95% would be willing to pay 19.10€ for accommodating in a rural house. The most valued activity is diving/snorkeling (52.31€) whereas the least valued one is stargazing, with only 12.88€. For all the activities, this group contains a higher proportion of females, active workers, car users and individuals who do not live with the family. The average age is around 24 years, and the monthly income is between 712 and 720 Euro.

Table 9. Characterization of individuals who are willing to pay for the different activities

	Accommodation in rural house vs. tent	Cultural trail	Active hiking	Diving / Snorkeling	Stargazing
Individuals [a]	66.95%	86.86%	94.49%	96.19%	94.49%
WTP for the activity	19.10€	18.34€	34.40€	52.31€	12.88€
Males [b]	47.47%	44.39%	43.95%	44.05%	44.39%
Car available for leisure activities [b]	53.16%	51.71%	51.12%	51.54%	51.57%
Live with the family [b]	13.92%	16.10%	17.49%	17.62%	17.94%
Active workers [b]	84.18%	81.46%	81.61%	81.94%	82.06%
Age [c]	25	24	24	24	24
Income [c]	713	720	715	713	712

[a] *% with respect to total*
[b] *% with respect to the number of individuals who are willing to pay for the activity*
[c] *average with respect to the number of individuals who are willing to pay for the activity*

Individuals exhibiting a negative WTP would be those willing to accept (WTA) a compensation if the activity is included in the package. The characterization of these individuals is presented in Table 10. This group consists of a minority of individuals (less than 13.14%), with 33.05% being individuals who should be compensated with 13.09€ for staying in a rural house rather than a tent. Those who dislike diving/snorkeling activity would claim for the highest compensation (63.03€), whilst the lowest figure is claimed for those who dislike cultural trails (11.17€). The composition of this group is more heterogeneous in terms of gender, age and income; with a higher proportion of individuals living with the family in most of the cases.

2.4 Discussion and managerial implications

This section evaluates and discusses the results of the study to provide interesting insights to different stakeholders on addressing the central research topic of identifying how preference heterogeneity can be used in developing nature-based tourism products that better meet the demand needs of the target group. Furthermore, the debate focuses on how the findings might aid in the development of suitable holiday packages for young clients and contribute to a sustainable development of the tourism sector in a mass tourism destination like Gran Canaria.

Table 10. Characterization of individuals who are not willing to pay for the different activities

	Accommodation in rural house vs. tent	Cultural trail	Active hiking	Diving / Snorkeling	Stargazing
Individuals [a]	33.05%	13.14%	5.51%	3.81%	5.51%
WTA for the activity (compensation)	13.09€	11.17€	39.73€	63.04€	20.28€
Males [b]	39.74%	48.39%	61.54%	66.67%	53.85%
Car available for leisure activities [b]	50.00%	54.84%	69.23%	66.67%	61.54%
Live with the family [b]	25.64%	29.03%	23.08%	22.22%	15.38%
Active workers [b]	76.92%	83.87%	84.62%	77.78%	76.92%
Age [c]	23	25	25	25	26
Income [c]	778	830	1065	1276	1117

[a] *% with respect to total*
[b] *% with respect to the number of individuals who are not willing to pay for the activity*
[c] *average with respect to the number of individuals who are not willing to pay for the activity*

2.4.1 Integrating active tourism consumption into a broader framework of sustainable tourism development

Active tourism places significant emphasis on sustainable elements. It can be regarded as an adventure tourism product, which sets value on sustainable aspects, setting it apart from the 3S mass tourism in Gran Canaria (Buckley, 2006a, 2006b).

The tourism industry is characterized by high competitiveness and many destinations are competing for the same travelers. Conducting market research on the alternative tourism market, as illustrated in this study, is vital for gaining a deeper understanding of the target audience, identifying customer preferences, and developing appropriate pricing strategies (Dwyer et al., 2000; Vukic et al., 2015).

This, in turn, enables destinations to gain a competitive advantage, which is critical in attracting more visitors, generating higher revenue, and attracting investment from tourism-related enterprises. Ultimately, this can also drive a greater emphasis on sustainable tourism practices, such as promoting responsible tourism, minimizing the environmental impact of tourism, creating job opportunities with better conditions and supporting local communities.

Buckley (2006a, 2006b) suggested that activities with lower skill and risk levels tend to attract a larger volume of customers, bigger group sizes, and a worldwide participation. To align with these findings, the experiment investigates customer

preferences for activities that can attract to a larger audience. The ability to reach a wider customer base can have a significant impact on sustainable development by generating a greater demand for sustainable products and services.

2.4.2 The suitability of the chosen activities for the target group of young Germans

The activities are chosen based on the categorization of rural tourism clusters and comprise active, passive, cultural, and water activities (Pesonen, 2015). The experiment also takes into account the results of a survey performed by a German public healthcare firm, which found that hiking, diving, swimming, and cycling are among the top six favored activities of young German consumers aged 18 to 39 (Techniker Krankenkasse, 2016, 2022)

Furthermore, the analysis results indicate that the inclusion of all the considered attributes increased (in average) the utility of the individuals, revealing the presence of a latent demand for all these activities among the experiment participants.

Moreover, the analysis of the open question in which participants were asked about their favorite sports activities during vacation demonstrates that the activities chosen were appropriate for the sample under consideration. Hiking trails, walking, trekking, and landscapes were ranked second with 16.4 percent, followed by bike riding and mountain biking in third place with 9.74 percent among the ten most popular activities found in the survey. Swimming, while not a core activity in the DCE, is a side activity of active hiking and ranks fourth with 7.33 percent. Diving and snorkeling were also popular activities, with about 9% of people interested.

Fitness and running sports are not regarded as essential during vacation (3.97%), compared to favorite activities in everyday life, when fitness and running sports are very important (Techniker Krankenkasse, 2016, 2022). One possible explanation for this finding is that when customers go on vacation, they break away from their typical routines and their tastes may vary.

The popularity of surfing among active tourists in the study can be attributed to the fact that the survey was conducted in an environment where surfing was the most popular activity. However, this finding also emphasizes the significance of water-based activities as a vital component of active tourist packages.

Another piece of evidence was how respondents prioritized the importance of various attributes when completing the DCE questions. Diving/snorkeling is evaluated as an important selection criterion by 68.9 percent of the sample, followed by active hiking at 57.14 percent. In comparison, the stargazing workshop is important to only 25.63 percent of people, while the cultural trail is crucial to 28.15 percent. In summary, hiking, biking, and diving are all suitable options for active

tourism in Veneguera. In contrast, it appears that stargazing and culturally oriented trails are not the most significant activities for the majority of respondents.

2.4.3 The most valued activities by potential nature-based tourists

The estimated WTP figures in Table 9 are consistent with the previous results from 2.4.2. Thus, in average, the highest WTP values are for diving/snorkeling with 52.31€ and active hiking with 34.40€; whereas the WTP for cultural trail is significantly lower with 18.31€. In the previous section, the stargazing workshop was assumed to be the least important activity among tourists. This result is consistent with lowest WTP figure (12.88€) obtained for this activity.

When creating active tourism products, entrepreneurs must have in mind the heterogeneous customer preferences, meaning that not all the activities are equally preferred. There are individuals who dislike participating in certain activities and they could be compensated in case they were included in the package. Even considering that the research context is that of voluntary consumption of activity packages, it is important to note that, in some cases, customers may have imperfect information when making the purchase decisions. Thus, as more information about the product becomes available, the a priori perceived utility is re-evaluated. For example, a tourist may be unaware of the real difficulty of a hiking trail or a diving experience, but once he acquires more information, the participation in the activity might eventually cause disutility.

Ultimately, once the package is purchased, individuals may choose not to participate in an activity if they believe it will result in disutility, but it is certain that they would be better off if some form of compensation (either monetary or in the form of a substitution for another activity) was offered.

In our analysis, the highest compensation should be given to those who do not like diving/snorkeling with 63.04€; but this amount would be claimed only by 3.81 percent of individuals. Similarly, there is also a small group (5.51%) that must be compensated for including the activities of hiking and stargazing in the package. However, a significant proportion of respondents (33.05%) manifested their preference for accommodation in a tent, claiming 13.09€ in case the package include staying in a rural house (Table 10). In this regard, the information provided in Tables 9 and 10 represent and interesting managerial tool to create active tourism products that better fit to customers' preferences. Thus, in order to reduce the number of unsatisfied clients, the creation of customized packages where tourist could choose the activities to participate seems to be the best option to promote active tourism in Veneguera.

Our WTP results are not easily comparable with other figures obtained in previous research as these seems to be highly context and methodology dependent. For example, Fitch at al. (2022) used a discrete choice experiment to analyze

millennials' preferences for Native American cultural tourism and obtained rather high figures for guided hiking trails (US$116) and stargazing and storytelling (US$92). These results contrast with those reported by Loomis (2005) who obtained an average net WTP of US$30.84 for hiking, US$32.36 for scuba-diving and US$30.31for snorkeling, based on studies conducted in the United States between 1967 and 2003. Other cultural related activities such as visiting environmental education centres are substantially less valued (US$6.01). A more recent study by Lorber et al. (2021) obtained WTP figures for hiking trails to Multnomah Falls, Oregon, ranging from US$8.24 to US$9.66 using the contingent valuation method.

Diving activities are very appreciated by young tourists. Existing research on preferences and willingness to pay for scuba diving, using different methods, has found that divers are willing to pay US$4.51 to avoid crowding at dive sites (Schuhmann, 2013), with an average willingness to pay of US$4.51 per additional diver. In specific locations, such as the Mu Ko Similan Marine National Park in Thailand, divers are willing to pay between US$27.07 and US$62.64 per dive, resulting in significant aggregate benefits (Asafu-Adjaye, 2008). This willingness to pay is also evident in the context of marine sanctuaries, where divers are willing to pay entrance fees to support coral reef conservation (Arin, 2002). Furthermore, in the case of cave diving, divers are willing to pay between US$52 and US$83 per dive, with a preference for higher quality dive sites (Huth & Morgan, 2011).

Stargazing is also becoming a strategic option for a growing number of destinations who aim to exploit their natural and land-based resources. The study by Fernández-Hernández et al. (2022) estimated a Latent Class model that analyses heterogeneity and willingness to pay for stargazing tourism activities on the island of La Palma (Canary Islands). The authors identified three segments of tourists which are those interested in culture, active stargazers and those focused on astronomic tourism, obtaining WTP figures for a network of walking paths for stargazing observation ranging from 1.67 to 10.67 euros. Due to the similarity of the research context these figures are pretty consistent with those obtained in the present study.

2.4.4 Critical aspects of the studied holiday packages that are crucial to make them a feasible economic activity

The holiday packages included in the DCE usually consisted of accommodation, combined with two or three outdoor activities. As shown in the previous sections the best suitable holiday package (in the DCE) for young Germans is active hiking or cycling with a visit to natural pools (active) and diving or snorkeling (water), with accommodation in rural houses.

One important aspect is that, in average, individuals are only willing to pay €8.46 for overnight stay in a house instead of a tent, which suggests that from an economic

perspective, it could be a feasible option to offer camping holidays with lower purchasing costs, for this specific target group.

Vital seems the age of the active tourists. With increasing age, the importance for the price becomes less important, the preference for house over tent becomes more important and the preference for the water activity decreases. This suggests that as the age of active visitors increases, clusters of nature, active and passive should be more integrated. In fact, we observe that active employees are more willing to pay for accommodation in a rural house and for the activity of stargazing.

Despite preferences for the experiment's activities, it is crucial to consider potential improvements. It is possible to classify the preferred holiday activities using the ones listed in the open question. Water activities and mountain-related activities are thus the most popular categories, accounting for 32.99 and 31.48 percent, respectively.

The popularity of water sports in the sample brings the idea of setting more focus on various activities by using the available natural resources in Gran Canaria. Stand up Paddle, Surf, Windsurf, Kitesurf, Canoe, Kayak, and Fishing are among the other popular activities that can attract a larger volume of customers (Buckley, 2006a), as highlighted by the Gran Canaria Tourist Board (Patronato de Turismo de Gran Canaria, 2023).

Mountain-related sports are the second most popular activities. This group includes not only hiking activities and cycling activities, but also climbing, bouldering and mountaineering. The popularity for climbing activities in the sample makes to think about potential products with focus on this more action orientated category for young tourists. It also seems to be reasonable to connect mountain activities with water related sports, as it is the case in the attribute active hiking with includes visiting the blue pools in Veneguera.

While a study by León et al., 2003 highlights the importance of leisure activities as a primary motive of holiday choice, another study by Vukic et al. (2015) finds that other attributes seem to be more important. The authors undertook a conjoint analysis to examine the importance of attributes of Generation Y travelers' destination choice. While pricing was the most important factor, leisure and cultural offerings were less relevant in comparison to political stability and duration of permanence. According to the study, respondents preferred trips lasting 8 to 12 days and 4 to 7 days over those lasting 2 to 3 days. Thus, to make active tourism packages more appealing to young tourists, it is suggested that packages should be offered for a longer duration compared to the 2 days packages in the DCE.

Another night-time activity, related to nature, local culture and food could complement the activity of stargazing, which is not well-liked by the sample. This suggestion aligns with the findings of Reiseanalyse (2018), which indicates that the most important holiday expectations for German tourists are excellent weather,

scenic views, regional cuisine and beverages, as well as the opportunity to engage with local life and people.

2.5 Conclusions and limitations

This study investigates the heterogeneity in preferences and willingness to pay for the development of nature-based tourism activities in a natural setting on the Spanish island of Gran Canaria for a market segment made up of young German potential visitors. The estimation of a flexible choice model, which allow us to derive preferences at the individual level, is the basis of the analysis. Our results reveal that customers' preferences are very heterogeneous regarding the studied activities. For this reason, the commercialization of not flexible tourism products, which is a very common practice in most destinations, could not adequately meet the demand needs.

According to our findings, the most suitable holiday package for the majority of potential visitors (young German tourists) might include sleeping in cottages or tents, hiking trails visiting some natural sites and diving or snorkeling activities. Other activities such as cultural tours and stargazing workshops were less appealing to research participants.

The obtained results emphasize the importance of market research in identifying customer preferences and tailoring products accordingly, to ensure that the activities offered are attractive and relevant to the target population. By doing so, entrepreneurs could increase company competitiveness and profitability while also improving customer satisfaction and retention through creating alternative nature-based products.

In particular, our findings provide interesting managerial tools that may be applied to the promotion of products based on the interaction with nature and aimed at consumers who enjoy outdoor activities. These products represent a more sustainable alternative for Gran Canaria, which has traditionally been dominated by mass tourism (3S-Tourism). As a result, when designing these products, it should be taken into account that there are consumers who have a negative preference for particular activities. Therefore, nature-based tourism packages should be flexible in order to satisfy customers' preferences; otherwise, they should include mechanisms for compensating activities that report a negative utility.

The study has several limitations. Firstly, it focused only on the German market and was limited to Generation Y (with a small portion belonging to Generation Z), which represents a relatively small segment of the population. The idea of this specific sample is to commit a younger customer group to destinations and to ensure long-term profitability. Although Germans may constitute a considerable proportion of tourists visiting Gran Canaria (approximately 20%), the scope of the conclusions reached in this study should be limited to the market segment under consideration.

Moreover, the clusters are studied by a limited number of attributes, and for water-related activities like diving/snorkeling, it was not possible to distinguish between scuba diving and snorkeling as to which option would maximize the utility of holiday packages. The same applies for hiking and mountain biking in the active cluster. Future research can address these limitations by exploring preferences for various activities suitable for young active tourists.

It should be noted that regardless of tourists' preferences for different attributes, the price remains the most crucial purchase factor for Generation Y tourists. Therefore, future research should also examine alternative water-related activities that are more affordable for young active tourists. Scuba diving, for example, requires a lot of expensive equipment as well as skilled guiding.

Nevertheless, our findings provide a foundation for studying the demand for active tourism products in a natural environment and pave the way for future research. An interesting line that could extend the scope of the present study is the analysis of the effect of latent variables related to tourists' environmental concerns and attitudes on their preferences for these type of products using hybrid choice models. Such studies can assist entrepreneurs and decision-makers in developing sustainable tourism and achieving the Sustainable Development Goals of the 2030 Agenda.

References

Arin, T., & Kramer, R. A. (2002). Divers' willingness to pay to visit marine sanctuaries: An exploratory study. *Ocean & Coastal Management*, *45*(2-3), 171–183. https://doi.org/10.1016/S0964-5691(02)00049-2

Asafu-Adjaye, J., & Tapsuwan, S. (2008). A contingent valuation study of scuba diving benefits: Case study in Mu Ko Similan Marine National Park, Thailand. *Tourism Management*, *29*(6), 1122–1130. https://doi.org/10.1016/j.tourman.2008.02.005

Bach, L., & Burton, M. (2017). Proximity and animal welfare in the context of tourist interactions with habituated dolphins. *Journal of Sustainable Tourism*, *25*(2), 181–197. https://doi.org/10.1080/09669582.2016.1195835

Birenboim, A., Farkash, M. Z., & Fleischer, A. (2022). Residents' willingness to pay for mitigation measures: The case of tourism impacts in Tel Aviv's neighborhoods. *Annals of Tourism Research Empirical Insights*, *3*(2), 100068. https://doi.org/10.1016/j.annale.2022.100068

Bliemer, M. C., & Rose, J. M. (2006). *Designing stated choice experiments: State-of-the-art*. Paper presented at the 11th international conference on Travel Behaviour Research, Kyoto, Japan, August 2006.

Bliemer, M. C., & Rose, J. M. (2010). Construction of experimental designs for mixed logit models allowing for correlation across choice observations. *Transportation Research Part B: Methodological*, *44*(6), 720–734. https://doi.org/10.1016/j.trb.2009.12.004

Buckley, R. (2000). Neat trends: Current issues in nature, eco-and adventure tourism. *International Journal of Tourism Research*, *2*(6), 437–444. DOI: 10.1002/1522-1970(200011/12)2:63.3.CO;2-R · Source: OAI

Buckley, R. (2006a). *Adventure Tourism*. CABI.

Buckley, R. (2006b). Adventure tourism research: A guide to the literature. *Tourism Recreation Research*, *31*(2), 75–83. https://doi.org/10.1080/02508281.2006.11081265

Buckley, R. (2007). Adventure tourism products: Price, duration, size, skill, remoteness. *Tourism management*, *28*(6), 1428–1433. https://doi.org/10.1016/j.tourman.2006.12.003

ChoiceMetrics. (2009). Ngene 1.0. User manual & reference guide. The Cutting Edge in Experimental Design. www.choice-metrics.com

Coayla, E. (2022). Willingness to pay to conserve the recreational service of condor flight at Colca Canyon, Peru. *Journal of Sustainability Science and Management*, *17*(4), 99–116. http://doi.org/10.46754/jssm.2022.4.008

Domencich, T. A., & McFadden, D. (1975). *Urban travel demand: A behavioral analysis*. North Holland Publishing Company.

Dwyer, L., Forsyth, P., & Rao, P. (2000). The price competitiveness of travel and tourism: A comparison of 19 destinations. *Tourism management*, *21*(1), 9–22. https://doi.org/10.1016/S0261-5177(99)00081-3

Estifanos, T., Polyakov, M., Pandit, R., Hailu, A., & Burton, M. (2021). What are tourists willing to pay for securing the survival of a flagship species? The case of protection of the Ethiopian wolf. *Tourism Economics*, *27*(1), 45–69. https://doi.org/10.1177/1354816619880430

Eusébio, C., Carneiro, M. J., Kastenholz, E., Figueiredo, E., & da Silva, D. S. (2017). Who is consuming the countryside? An activity-based segmentation analysis of the domestic rural tourism market in Portugal. *Journal of hospitality and tourism management*, *31*, 197–210. https://doi.org/10.1016/j.jhtm.2016.12.006

Fennell, D. A. (1999). *Ecotourism: An Introduction*. Routledge. https://doi.org/10.4324/9780203382110

Fernández-Hernández, C., Araña, J. E., de León, J., & León, C. J. (2022). Tourists' preferences for stargazing land resources. *Land*, *11*(2), 198. https://doi.org/10.3390/land11020198

Fichter, T., & Román, C. (2022). Rural tourism activities in mass tourism destinations: Residents vs non-residents perspectives. *Tourism Review*, *78*(3), 778–793. https://doi.org/10.1108/TR-05-2022-0225

Fischer, A., Tibebe Weldesemaet, Y., Czajkowski, M., Tadie, D., & Hanley, N. (2015). Trophy hunters' willingness to pay for wildlife conservation and community benefits. *Conservation biology*, *29*(4), 1111–1121. https://doi.org/10.1111/cobi.12467

Fitch, R. A., Mueller, J. M., Ruiz, R., & Rousse, W. (2022). Recreation matters: Estimating millennials' preferences for native American cultural tourism. *Sustainability*, *14*(18), 11513. https://doi.org/10.3390/su141811513

Gautam, V. (2023). Why local residents support sustainable tourism development? *Journal of Sustainable Tourism*, *31*(3), 877–893. https://doi.org/10.1080/09669582.2022.2082449

Greene, W. H. (2016). *Nlogit Version 6.0 Reference Guide*. Econometric Software, Inc.

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

Hanna, P., Wijesinghe, S., Paliatsos, I., Walker, C., Adams, M., & Kimbu, A. (2019). Active engagement with nature: Outdoor adventure tourism, sustainability and wellbeing. *Journal of Sustainable Tourism*, https://doi.org/10.1080/09669582.2019.1621883

Hearne, R. R., & Tuscherer, S. (2008). Stated preferences for ecotourism alternatives on Standing Rock Sioux Indian Reservation. *Great Plains Research*, *18*(2), 131–142.

Hindsley, P., Morgan, O. A., & Whitehead, J. C. (2023). Combining revealed and stated preference models for artificial reef siting: A study in the Florida Keys. *Journal of Environmental Management*, *325*, 116481. https://doi.org/10.1016/j.jenvman.2022.116481

Huth, W. L., & Morgan, O. A. (2011). Measuring the willingness to pay for cave diving. *Marine Resource Economics*, *26*(2), 151–166. https://doi.org/10.5950/0738-1360-26.2.151

International Organization for Active Tourism. (2002). Retrieved January 25, 2023, from www.active-tourism.com

Kim, M., Oh, C. O., Nam, J., & Hong, J. H. (2022). Assessing the Willingness-to-Pay of a Scuba Diving Management in a Soft Coral Marine Protected Area. *Ocean and Polar Research*, *44*(3), 235–247. https://doi.org/10.4217/OPR.2022017

Kubo, T., & Shoji, Y. (2016). Demand for bear viewing hikes: Implications for balancing visitor satisfaction with safety in protected areas. *Journal of outdoor recreation and tourism*, *16*, 44– 49. https://doi.org/10.1016/j.jort.2016.09.004

León, C., Araña, J., & Melián, A. (2003). Tourist use and preservation benefits from big-game fishing in the Canary Islands. *Tourism Economics*, *9*(1), 53–65. https://doi.org/10.5367/000000003101298268

Li, Y., Yao, Z., & Guo, Z. (2023). 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

Lindberg, K., Veisten, K., & Halse, A. H. (2019). Analyzing the deeper motivations for nature- based tourism facility demand: A hybrid choice model of preferences for a reindeer visitor center. *Scandinavian Journal of Hospitality and Tourism*, *19*(2), 157–174. https://doi.org/10.1080/15022250.2018.1482565

Loomis, J. B. (2005). *Updated outdoor recreation use values on national forests and other public lands* (No. 658). US Department of Agriculture, Forest Service, Pacific Northwest Research Station.

Lorber, C., Dittrich, R., Jones, S., & Junge, A. (2021). Is hiking worth it? A contingent valuation case study of Multnomah Falls, Oregon. *Forest Policy and Economics*, *128*, 102471. https://doi.org/10.1016/j.forpol.2021.102471

Makumbirofa, S. D., & Saayman, A. (2022). The Influence of Environmental Value Orientations on the Overall Scuba Diving Experience within a Marine Protected Area. *Journal of Coastal Research*, *38*(1), 168–181. https://doi.org/10.2112/JCOASTRES-D-21-00014.1

McFadden, D. (1981). Econometric models of probabilistic choice. In C. Manski, & D. McFadden (Eds.), *Structural analysis of discrete data with econometric applications* (pp. 198–272). MIT Press.

Mulder, N. (2020). *The impact of the COVID-19 pandemic on the tourism sector in Latin America and the Caribbean, and options for a sustainable and resilient recovery, series international trade", 157*. Cepal, America Latina y El Caribe.

Nicolau, J. L. (2009). The smile of the tourist: The relationship between price sensitivity and expenses. *The Service Industries Journal*, *29*(8), 1125–1134. https://doi.org/10.1080/02642060902764640

Ortúzar, J., de, D., & Willumsen, L. G. (2011). *Modelling transport* (4th edition). John Wiley & Sons.

Parsons, J. J. (1973). Southward to the sun: The impact of mass tourism on the Coast of Spain. *Yearbook of the Association of Pacific Coast Geographers*, *35*(1), 129–146. https://doi.org/10.1353/pcg.1973.0009

Patronato de Turismo de Gran Canaria. (2021). Perfil del turista en Gran Canaria. Informe annual 2021. Retrieved January 25, 2023, from https://www.grancanaria.com/turismo/fileadmin/PDF/informes/EGT_2021.pdf

Patronato de Turismo de Gran Canaria. (2023). Retrieved March 23, 2023, from https://www.grancanaria.com/turismo/en/sports/sports/

Pesonen, J. A. (2015). Targeting rural tourists in the internet: Comparing travel motivation and activity-based segments. *Journal of Travel & Tourism Marketing*, *32*(3), 211–226. https://doi.org/10.1080/10548408.2014.895695

Reiseanalyse. (2018). Retrieved April 13, 2018, from www.reiseanalyse.de/wp-content/uploads/2018/03/RA2018_First-results_EN.pdf

Rose, J., & Bliemer, M. (2004). *The design of stated choice experiments: The state of practice and future challenges*. University of Sydney and Logistic Studies, Institute of Transport.

Schuhmann, P. W., Cazabon-Mannette, M., Gill, D., Casey, J. F., & Hailey, A. (2013). Willingness to pay to avoid high encounter levels at dive sites in the Caribbean. *Tourism in Marine Environments*, *9*(1–2), 81–94. https://doi.org/10.3727/154427313X13659574650063

Sillano, M., & de Dios Ortúzar, J. (2005). Willingness-to-pay estimation with mixed logit models: Some new evidence. *Environment and Planning A*, *37*(3), 525–550. https://doi.org/10.1068/a36137

Statista. (2017). *Durchschnittseinkommen.* Retrieved December 10, 2017, from www.statista.com/themen/293/durchschnittseinkommen

Stemmer, K., Aas, Ø, Veisten, K., & Lindberg, K. (2022). Assessing recreation specialization to guide nature-based tourism development: A hybrid choice model of birder destination preferences. *Journal of Outdoor Recreation and Tourism*, *39*, 100516. https://doi.org/10.1016/j.jort.2022.100516

Techniker Krankenkasse. (2016). Bewegungsstudie 2016, Beweg dich, Deutschland. Retrieved February 3, 2018, from tk.de/centaurus/servlet/contentblob/819848/Datei/79770/TK-Bewegungsstudie-2016-Beweg-dich-Deutschland.pdf.

Techniker Krankenkasse. (2022). Bewegungsstudie 2022, Beweg dich, Deutschland. Retrieved March 23, 2023, from https://www.tk.de/resource/blob/2033598/9f2d920e270b7034df3239cbf1c2a1eb/beweg-dich-deutschland-data.pdf

Train, K. (2009). *Discrete choice methods with simulation* (2nd ed). Cambridge University Pres.

UNWTO. (2017). Tourism and the sustainable development goals–Journey to 2030. *Highlights. Madrid*, https://doi.org/10.18111/9789284419340

UNWTO. (2023). Sustainable Development. Retrieved, February 3, 2023 from https://www.unwto.org/sustainable-development

Vukic, M., Kuzmanovic, M., & Kostic Stankovic, M. (2015). Understanding the heterogeneity of Generation Y's preferences for travelling: A conjoint analysis approach. *International Journal of Tourism Research*, *17*(5), 482–491. https://doi.org/10.1002/jtr.2015

Xu, L., Ao, C., Liu, B., & Cai, Z. (2021). Exploring the influence of multidimensional tourist satisfaction on preferences for wetland ecotourism: A case study in Zhalong National Nature Reserve, China. *Wetlands*, *41*(8), 117. https://doi.org/10.1007/s13157-021-01515-5

Chapter III

sustainability

3 Young Segment Attitudes towards the Environment and Their Impact on Preferences for Sustainable Tourism Products

Cite (APA):

Fichter, T., Martín, J. C., & Román, C. (2023). Young Segment Attitudes towards the Environment and Their Impact on Preferences for Sustainable Tourism Products. *Sustainability*, *15*(24), 16852. https://doi.org/10.3390/su152416852

Abstract

This paper aims to understand better how attitudes towards the environment could influence preferences and willingness to pay for the development of sustainable tourism products on the Spanish island of Gran Canaria. A hybrid choice model is estimated to analyze how different latent constructs related to environmental concerns affect individuals' preferences for a set of sustainable tourism activities. The data used in the analysis is obtained from a discrete choice experiment where different scenarios with nature-based tourism packages are created. A set of measurement indicators allowed us to gain insight into the underlying latent structure regarding the individuals' attitudes towards the environment. The analysis consists of integrating these attitudes into a choice model, focusing on a market segment primarily comprised of potential customers who are young residents and non-residents. Results reveal significant heterogeneity in preferences and willingness to pay for the various activities under study when attitudinal latent factors are incorporated into the model. Our findings provide valuable insights for researchers, policymakers, and practitioners promoting sustainable tourism products.

Keywords: Sustainable Tourism, Active Tourism, Hybrid Choice Model, Discrete Choice Experiments, Willingness to Pay, Tourism Demand

3.1 Introduction

According to the United Nations World Tourism Organization (UNWTO), around 1.45 billion people visited foreign countries in 2019. Global tourism spending was estimated at $1468 billion, generating 334 million jobs, making it one of the world's largest economic sectors (UNWTO, 2020). As a consequence of the global COVID-19 pandemic, these figures plummeted over the next two years, and countries heavily reliant on tourism suffered a significant decline in economic activity, which also led to a reduction in the externalities generated by the overexploitation of tourism resources. In this sense, the post-pandemic scenario represents an opportunity for countries to undertake the required reforms to achieve more sustainable tourism development.

Global concern about the state of the environment and the need for sustainable practices in all aspects of life has grown in recent years. The tourism industry has witnessed an important transition towards sustainable tourism as visitors become more aware of their impact on the places they visit. In this regard, attitudes towards the environment are crucial in shaping preferences for sustainable tourism, influencing travelers' behavior and processes (Karampela et al., 2021; Maltese & Zamparini, 2022; Xu & Fox, 2014).

In particular, one of the most interesting trends observed in recent decades has been the shift from vacationing for relaxation and recreation to more health and quality-of-life-related vacation experiences, which include more sports and adventure activities. The UNWTO predicted that active and adventure travel related to nature and culture would be one of the primary sources of tourism revenue growth (Honey, 1999). According to De Knop (1990), "sports and active recreation during the holiday has become very successful, probably due to increased urbanization and of changing leisure time pursuit". Sport's significance in tourism can also be seen in the scientific context, where academics have increasingly integrated the two disciplines into a scientific theme. Sport & Tourism, a scientific journal founded in 1993, exemplifies this trend.

This article aims to contribute to the academic understanding of consumer behavior and the environmental attitudes that underpin sustainable tourism choices. In particular, the study considers a hybrid choice model to analyze how attitudes toward the environment influence preferences and willingness to pay for sustainable tourism products on the Spanish island of Gran Canaria. The analysis consists of integrating these attitudes, represented by a set of latent variables, into a choice model and focuses on a market segment comprised primarily of potential customers who are young residents and non-residents with a strong interest in nature tourism. The sample ensures a certain homogeneity in the researched group in terms of common interests as well as similar budgetary constraints.

Although the island is best known for being a popular year-round mass tourism destination, it also offers many landscapes and microclimates. It is often referred to as a *miniature continent*. These features enable visitors to participate in a variety of tourism and sports activities that are more environmentally friendly. Beach activities,

mountain and water sports, as well as cultural activities, are among them. A year-round warm climate, with an average monthly temperature of 20 degrees Celsius contributes to this (Börjes, 2008).

Gran Canaria is dominated by hotel and mass tourism, which often has adverse effects on environmental and social issues, such as pollution and a decrease in the quality of life of the local residents. Therefore, a thorough understanding of consumer preferences in this context would be highly beneficial to promote active, more nature-based, eco-friendly and environmentally sustainable tourism activities. Thus, the main motivation of the study is to analyze whether Gran Canaria and other similar tourist destinations could promote alternative forms of tourism that benefit nature, culture and the local population.

Nature-based tourism has the potential to offer sustainable tourism products that are different from the traditional mass tourism products based on sun, sea, and sand (3S). Gran Canaria is a famous destination in the EU for such mass tourism products, but it is essential to develop alternative sustainable tourism products. Nature-based tourism developments require specific environments where certain activities and attractions can be marketed to particular segments (Giddy & Webb, 2018).

Tourists' environmental attitudes significantly influence their preferences, but how these could impact nature-based tourist product development is under researched, either by the use of proper scales measuring the environmental attitudes or by the characteristics of the tourist products developed. Therefore, this study aims to fill this gap by analyzing how environmental attitudes, categorized into three latent variables: community support, nature interaction, and nature connection, shape nature-based tourists' preferences. In addition, the WTP figures are indirectly obtained from model parameters for a group of activities including diving/snorkeling, active hiking, cultural trails and star gazing for tourists who could be accommodated in a tent or rural house.

Thus, our study contributes to the scarce research on understanding pro-sustainable behavior and its influence on the economic implications (Pulido-Fernández & López-Sánchez, 2016). To our knowledge, this is the first time the hybrid choice model has been applied using the environmental concern scale and the type of activities included in the analysis. The study also investigates the development of a potential commercial tourist area in Veneguera, a protected natural space located in the south of Gran Canaria that is rich in natural resources running along a beautiful ravine and pristine coastline.

3.2 Literature review

Growing environmental concerns and increased ecological awareness have impacted consumer habits worldwide. Budeanu (2007) contended that a limited understanding of the dynamics between different determinants of tourists' sustainable behavior could hinder the tourists’ choices of more sustainable

alternatives. In addition, assessing tourist demand, motivations, preferences, and willingness to pay (WTP) an extra premium for more sustainable tourist alternatives is crucial for investors and operators interested in developing environmentally friendly tourist products that promote nature conservation and more sustainable tourist consumption (Cordente-Rodríguez et al., 2014; Wahnschafft & Wolter, 2023).

Tourists' choices are influenced by promoting their behavior towards more sustainable options in the whole chain of the tourism industry (Verma & Chandra, 2018). Some previous studies found that biospheric values, positive attitudes toward sustainable tourism, and higher levels of affinity toward diversity can predict more sustainable tourism choices, while personality traits play a more indirect role (Passafaro et al., 2015). Other studies also found connections between environmental attitudes and sustainable tourism choices. For example, Santos et al. (2023) analyzed attitudes towards more sustainable academic conferences depending on some sociodemographic variables. An extensive review of studies can be consulted in Passafaro (2020).

Different modelling approaches are used in the literature to analyze this connection from qualitative, quantitative and triangulation methods, smart partial least squares, exploratory factor analysis, structural equation models, latent variable methods and discrete choice methods. After reviewing fifty-nine papers that analyze this connection, we deduce that one of the methods that has been more used in the last decade is the smart partial least squares method. Nevertheless, hybrid choice models like the one used in this study have not been so commonly used.

For example, Sultana et al. (2022) found, using a Partial Least Square method (PLS), a significant positive influence of perceived green knowledge and green trust on customers' intention to visit green hotels in Dhaka, Bangladesh. Nowacki et al. (2021) use a similar PLS approach to find significant relationships between attitudes towards the environment, an eco-friendly destination, social and personal norms and behavioral control, with intentions to travel to eco-destinations. However, the same study also found a very weak relationship between positive attitudes towards environmentally friendly destinations and the willingness to pay a premium for a more environmentally conscious trip. Thus, the authors found that even though tourists have a positive attitude towards sustainable tourism, only some of them are willing to pay higher prices for sustainable tourism purchases, green transport choices and responsible behavior in the destinations.

Pinho and Gomes (2023) also used a PLS model to demonstrate the existence of a dissonance between the tourists' interest in the Sustainable Development Goals (SDGs), and their behavior when they are travelling. Thus, the authors showed that most of the Portuguese participants were interested in choosing a sustainable destination, but on the other hand, they did not show the same interest in preserving the sustainability of the destinations or in demonstrating pro-environmental habits. Wahnschafft and Wolter (2023) used a triangulation approach to find that a small extra willingness to pay existed for more sustainable excursions on environmentally friendly tourist boats in the context of solar-battery-electric boats cruising the Spree

River in downtown Berlin. During interviews, several passengers expressed their desire for a more sustainable form of boat excursion, even if it meant paying a higher price. All customer groups were willing to pay the extra premium regardless of their preferences, motivations, consumption patterns, and interests.

Moreover, other studies are inconclusive and find different tourist segments that support sustainable tourism development. Puciato et al. (2023) used a systematic literature review and found that tourists with higher levels of education and financial status, as well as younger travelers, are more likely to accept higher prices for sustainable services. Pulido-Fernández and López-Sánchez (2016) also found different segments investigating if tourists are willing to pay extra premiums for sustainable destinations. To that aim, the authors used a logistic regression model to show that tourists with more level of commitment, attitude, knowledge, and behavior regarding sustainability, named pro-sustainable tourists, are willing to pay more to visit sustainable destinations in the Costa del Sol, Spain. However, at the same time, there is also an important segment which is reluctant to pay the extra premium.

Sultana et al. (2022) highlighted the need to study the young generation because this segment will be the largest group of travelers in the future. The authors used a PLS model to find a significant positive influence of perceived green knowledge and trust on customers' green hotel visit intention. Gan and Nuli (2018) also studied young tourists' sustainable choices, finding that environmental awareness was an important driver of Millennials' willingness to pay for green hotels. However, the Malaysian millennials' green hotel demand must be viewed in the context of a relatively low environmental awareness compared to the current study.

Nowacki et al. (2023) found that the perceived green image of a destination has the strongest impact on Gen Z's intention to travel to a destination and that this perception has more impact than the pro-environmental attitudes towards green tourism and personal norms. They concluded that the WTP an extra premium are more significant for Gen Z than for other generations. The authors also showed the existence of intercultural differences among Indians and Poles and challenged other researchers to contribute shedding more light on this topic using other destinations and cultural groups. Moreover, Gen Z is becoming a popular trait studied in tourism (Dragin et al., 2022; Stojanović et al., 2023).

Campos-Soria et al. (2021) used a hierarchical linear model to show that tourists' environmental concerns are influenced by individual and travel-related factors and their place of residence. The authors found that the different trends observed in European countries are mainly due to differences in economic, cultural, and environmental factors and that such between-country differences mainly explain the heterogeneous pattern. Frank et al. (2015) also found some country differences in analyzing the nature-based (surf) products in the Algarve, Portugal. The study found that the WTP is related to nationality, with respondents from Germany, Austria and Switzerland showing higher WTP figures. Nevertheless, contrary to the current

study, WTP figures were directly obtained by the questionnaire, which usually offered biased and less accurate results (Hole & Kolstad, 2012).

The section ends with studies that used latent variables and hybrid choice models that have been recently applied in tourism. As previously said, the literature is still scant. For example, Albadalejo and Díaz-Delfa (2021) analyzed the rural accommodation choice process using a hybrid discrete choice (HDC) that take into account latent motivation variables through a multiple indicator multiple cause (MIMIC) model. The results showed that motivations affected the rural accommodation choice and interacted with other attributes that depend on the accommodation characteristics. In a similar fashion, Masiero and Hrankai (2022) analyzed the transport modal choice of some urban destinations studying the less visited peripheral uncongested areas. The authors provided a methodological framework based on tourist accessibility for peripheral urban attractions. A discrete choice experiment was designed to investigate latent variables according to different types and ratings of tourist attractions and the main characteristics of mass public and private transport alternatives. The authors estimated a hybrid choice model finding that repeat visitation, length of stay and public transport system perceptions were determinants in the tourists' modal choice. Song et al. (2023) also used a hybrid choice model to investigate low-carbon footprint travel choices, considering as latent variables both destinations and climate change perceptions. The authors also examined the impacts of nudging altering tourists' behavior that mitigated the carbon footprint in destinations. The study found that the destination type, carbon emissions and travel cost had significant effects on tourists' choices of destinations, and nudging was a great tool to reduce the tourists' carbon footprint. Tourists who were more aware of climate change were more likely than others to select low-carbon destinations.

3.3 Methodology

3.3.1 Data and Choice Experiment

The data set used in the analysis is obtained from a discrete choice experiment (DCE), which allowed us to determine individuals' preferences and willingness to pay for various active tourism activities. The DCE was integrated into a questionnaire with attitudinal questions and a section for gathering socio-demographic data. Other sections of the questionnaire were not used in the present research.

DCEs represent an adequate data collection tool that is very helpful in understanding how individuals make decisions. Since the method generates hypothetical choice scenarios, they are handy for analyzing the demand for alternatives that have not yet been marketed (Bliemer & Rose, 2010). Moreover, DCEs have a solid theoretical foundation anchored in the discrete choice theory (McFadden, 1981) and have emerged as a vital instrument in various areas such as transportation, health, and environmental research.

Some popular outdoor activities are investigated in our experiment, where tourists can explore rural lifestyles and interact with rural communities. These activities will take place in Veneguera, Gran Canaria, declared a protected natural space in 2003, rich in natural resources, that runs along a stunning ravine and a pristine coastline. A map of the study area is included in the Annex (Figure A1).

When choosing the activities, those that could be addressed to a large audience were considered and those that could be implemented in the natural space under investigation. As a result, the tested attributes include active hiking trails that include visits to some natural spots, such as the "Blue Pools of Veneguera"; a more culturally oriented version of hiking; and guided group activities such as snorkeling/scuba diving and star gazing. The lodging type and the vacation package cost were also considered. The context of the experiment is designed to create a simulated tourist experience for a group of four individuals over a weekend, spanning two nights. The participants are provided with opportunities to engage in various activities that enable them to appreciate and enjoy the natural environment in a sustainable manner. The activities studied followed Pesonen's categorization of rural tourism clusters, which include active, passive, nature, and aquatic activities (Pesonen, 2015). According to this author, activity segmentation is a more useful segmentation approach than using travel motivations to reach different market segments.

In the choice experiment, respondents answered twelve choice scenarios defined by two hypothetical active tourism packages and a non-choice alternative. The choice scenarios were obtained by combining the different levels of the attributes considered in the analysis through an efficient design built using the software Ngene (ChoiceMetrics, 2009). The definition of the attributes' levels is shown in Table 11. Thus, the alternative chosen by the individual would be regarded during the modelling process as the one that maximizes his utility based on the behavioral rule of utility maximization.

The experiment consisted of 12 choice scenarios, so each participant provided 12 statistical observations. A total sample of 476 individuals was collected, generating 5712 valid observations for model estimation. The sample was evenly distributed by gender and between Gran Canaria residents and non-residents, with a slightly higher proportion of active workers (53.3%). Sampled individuals had an average age of 23.6 years and a monthly income of 481 euros. The non-resident sample was drawn from participants in a summer sports camp in a small village in the southwest of France and was primarily made up of Germans. Residents' sample was mainly obtained from university students randomly recruited in different campus locations. Trained interviewers completed all the questionnaires through face-to-face interviews to ensure the quality of the information obtained.

The attitudinal questionnaire included nine items or indicators related to the individuals' environmental concerns in the context of an ecotourism trip. Answers were collected using a 5-point anchored semantic scale where 1 means low importance, and 5 means high importance. Table 12 shows the description of the

items included in the analysis as well as their justification after a literature review about nature-based ecotourism products.

Table 11. Attributes levels used in the choice experiment

Attributes (Name of the variable)*	Level 0	Level 1	Level 2
Price of the package per person/2 nights (P)	80 €	60 €	40 €
Type of accommodation (AC)	Tent (AC=0)	Rural House (AC=1)	-
Cultural Trail (CT)	Not Included in the package (CT = 0)	Included in the package (CT=1)	-
Active hiking (AH)	Not Included in the package (AH = 0)	Included in the package (AH = 1)	-
Diving/snorkeling (DS)	Not Included in the package (DS = 0)	Included in the package (DS=1)	-
Stargazing workshop (SG)	Not Included in the package (SG = 0)	Included in the package (SG = 1)	-

**In brackets, the denomination of the variables and their codification in the model*

There is no agreement in the literature regarding the sustainability of ecotourism activities. While Ruhanen et al. (2015) argue that ecotourism and sustainable tourism are equivalent concepts, some authors contend that ecotourism is not always sustainable (Wall, 1997). Weaver and Lawton (2007) suggest that ecotourism attractions should be nature-based and focused on learning and education, with product management pursuing ecological, socio-cultural and economic sustainability.

In order to gain insight into the underlying latent structure regarding the individuals' concern for the environment, an exploratory factor analysis (EFA) was performed to determine the existence of latent factors that explain the variability of the scores obtained in the indicators used as a measurement instrument. These latent factors will be integrated a posteriori into the structure of the hybrid choice model.

Results of the EFA are presented in Table A1 in the Annex. Three latent factors are identified, namely, community support (CS), nature interaction (NI) and nature connection (NC) using the Varimax rotation method. The results obtained for Bartlett's sphericity test (Bartlett, 1937) suggest the existence of correlations between the indicators that allow the dimension to be reduced. In addition, the Kaiser-Olkin-Meyer test (Kaiser, 1970) was 0.828, confirming the adequacy of the sample to perform an EFA.

Community support tourism is also known as Community-based tourism (CBT) (Lee & Jan, 2019), which is mainly defined as the ability to improve the quality of life of the local residents (Dodds et al., 2018). Developing such products improves the number of facilities, roads, parks, and other types of infrastructure, benefitting the residents' quality of life without disrupting the local culture (Brunt & Courtney, 1999).

Environmental attitudes also interact with nature-based tourist products, and the activities developed in natural settings have also been influenced by tourists' preferences. Nevertheless, the challenges imposed by nature-based tourist developments regarding environmental preservation have been controversial in the tourist literature (McCool, 2009). Lee and Jan (2015) contended that nature-based tourism is mainly based on the recreational feelings tourists experience from their contact with natural settings. For example, when tourists observe wildlife, they establish a close connection with them and consider protecting their environment and habitat important.

Nature connection is related to what other authors have denominated as a biospheric value representing personal moral norms about responsible behavior towards the environment, nature or non-human objects (De Groot & Steg, 2008). Thus, a biospheric attitude uniquely explains a more pro-environmental behavior associated with green consumption in the whole value chain that agglutinates the tourist experience (Han, 2015). Van der Werff et al. (2013) showed that tourists with a higher biospheric value are more personally connected to nature and the environment. For that reason, they are more naturally inclined towards protecting nature, ecosystems and the environment.

Table 12. Indicators about the environmental concern in an ecotourism context.

Name of the indicator	Description	References
I1	The connection of the human being with nature	(Bimonte & Faralla, 2014), (Ye & Xue, 2008)
I2	The preservation of nature	(Root-Bernstein, Rosas, Osman, & Ladle, 2012), (Neger & Propin Frejomil, 2018)
I3	Know and share the customs and traditions of the peoples	(Baral, Stern, & Hammett, 2012), (Lee & Jan, 2018)
I4	That agricultural and livestock activities be carried out in a traditional way and with low-impact	(Buzinde, Kalavar, & Melubo, 2014), (Bastian, McLeod, Germino, Reiners, & Blasko, 2002)
I5	To promote the economic development of communities where ecotourism activities are carried out	(Baral et al., 2012), (Lee & Jan, 2018)
I6	Enjoy the grandeur of the mountains and its landscape when walking on natural trails.	(Prazeres & Donohoe, 2014), (Lawson, Williams, Young, & Cossens, 1998)
I7	Observe birds and other species in their natural habitat.	(Curtin, 2009), (Mathis & Rose, 2016)
I8	Getting to know the native flora	(Chen & Jim, 2012), (Mathis & Rose, 2016),(Santarém, Silva, & Santos, 2015)
I9	Recovering trails and routes for ecotourism purposes	(Prazeres & Donohoe, 2014), (Santarém et al., 2015)

3.3.2 The Hybrid Choice Model

Based on the assumptions of the Theory of Planned Behavior (Ajzen, 1991) where attitudes and perceptions play an important role in determining individuals' choice behavior, this paper estimates an integrated choice and latent variable model (ICLVM) to analyze how different latent constructs related to environmental concern influence preferences for sustainable tourism activities. After the seminal work of McFadden (1986) as well as posterior contributions of Ben-Akiva et al. (1999, 2002), ICLVM, also referred to in the literature as hybrid choice models (HCM), are currently considered the appropriate tool to incorporate the effect of latent variables into discrete choice models (Albaladejo & Díaz-Delfa, 2021; Masiero & Hrankai, 2022).

Latent variables (LVs), such as attitudes and perceptions, represent intangible attributes not directly observed by the researcher but may affect an individual's decisions. These variables do not account for specific measurement scales, so they must be indirectly measured through indicators that manifest the underlying latent structure.

LVs are typically derived from a multiple indicator multiple causes (MIMIC) model, in which individuals' socioeconomic characteristics explain these variables through structural equations. LVs, in turn, explain a collection of indicators through a set of measurement equations. LVs are then incorporated into the choice model as explanatory variables. In our case, LVs are specified by interacting with some of the attributes of the experiment. The parameters of the structural equation and the choice model are estimated simultaneously using the full information likelihood function.

The structure of the hybrid choice model is depicted in Figure 19, and the specification of the equations of the different model components are as follows:

1) The MIMIC model

a) Structural equations

In the structural equations, the LVs are treated as random variables explained by a set of observed factors, such as socioeconomic data and a random term. In our model, the following structural equations for community support, nature interaction and nature connection are considered:

$$CS = \beta^s_{0_{CS}} + \beta^s_{GENDER_{CS}} GENDER + \beta^s_{AGE_{CS}} AGE + \beta^s_{WORK_{CS}} WORK + \beta^s_{RESI_{CS}} RESI + \beta^s_{INCOME_{CS}} INCOME + \sigma^S \varepsilon^S$$
$$NI = \beta^s_{0_{NI}} + \beta^s_{GENDER_{NI}} GENDER + \beta^s_{AGE_{NI}} AGE + \beta^s_{WORK_{NI}} WORK + \beta^s_{RESI_{NI}} RESI + \beta^s_{INCOME_{NI}} INCOME + \sigma^S \varepsilon^S$$
$$NC = \beta^s_{0_{NC}} + \beta^s_{GENDER_{NC}} GENDER + \beta^s_{AGE_{NC}} AGE + \beta^s_{WORK_{NC}} WORK + \beta^s_{RESI_{NC}} RESI + \beta^s_{INCOME_{NC}} INCOME + \sigma^S \varepsilon^S$$

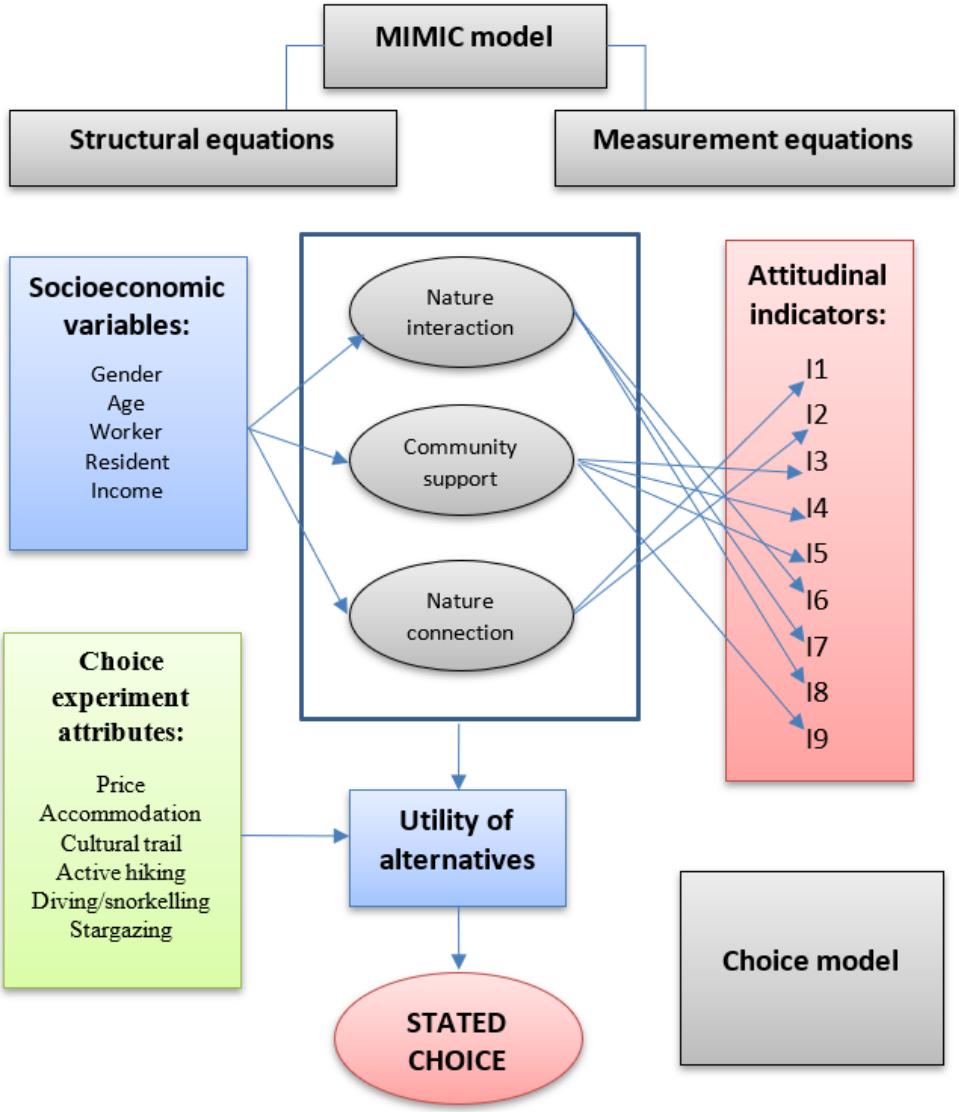
where *GENDER* is 1 for males, *AGE* is one if the individual is older than 22 years, *WORK* is 1 for active workers, *RESI* is 1 for residents in Gran Canaria, and *INCOME* represents the monthly income in thousands; the set of coefficients β^s_i and σ^S are unknown parameters to estimate; and ε^S is a random variable following the Standard Normal distribution.

For the sake of simplicity, the structural equations can be rewritten as:

$$CS = \overline{CS} + \sigma^S \varepsilon^S$$
$$NI = \overline{NI} + \sigma^S \varepsilon^S$$
$$NC = \overline{NC} + \sigma^S \varepsilon^S$$

where $\overline{CS}$, $\overline{NI}$ and $\overline{NC}$ represent the mean of the latent random variables.

Figure 19. Structure of the Hybrid Choice Model



b) Measurement equations

As stated above, LVs are indirectly measured by a set of indicators. Thus, measurement equations represent the relationship between the LV and the measurement instrument. Considering the latent structure obtained in the previous EFA, the measurement equations represent the indicators as random variables through the following expressions:

$$I_3 = \beta_{0_3}^m + \beta_{CS_3}^m \overline{CS} + \sigma_3^* \varepsilon_3^*$$
$$I_4 = \beta_{0_4}^m + \beta_{CS_4}^m \overline{CS} + \sigma_4^* \varepsilon_4^*$$
$$I_5 = \beta_{0_5}^m + \beta_{CS_5}^m \overline{CS} + \sigma_5^* \varepsilon_5^*$$
$$I_9 = \beta_{0_9}^m + \beta_{CS_9}^m \overline{CS} + \sigma_9^* \varepsilon_9^*$$

$$I_6 = \beta_{0_6}^m + \beta_{NI_6}^m \overline{NI} + \sigma_6^* \varepsilon_6^*$$
$$I_7 = \beta_{0_7}^m + \beta_{NI_7}^m \overline{NI} + \sigma_7^* \varepsilon_7^*$$
$$I_8 = \beta_{0_8}^m + \beta_{NI_8}^m \overline{NI} + \sigma_8^* \varepsilon_8^*$$

$$I_1 = \beta_{0_1}^m + \beta_{NC_1}^m \overline{NC} + \sigma_1^* \varepsilon_1^*$$
$$I_2 = \beta_{0_2}^m + \beta_{NC_2}^m \overline{NC} + \sigma_2^* \varepsilon_2^*$$

where ε_j^* are random variables following the Standard Normal distribution and coefficients β_i^m and σ_j^* are parameters to estimate. As not all the parameters are identifiable, the intercept coefficients $\beta_{0_3}^m$, $\beta_{0_6}^m$ and $\beta_{0_1}^m$ are normalised to 0; the slope parameters $\beta_{CS_3}^m$, $\beta_{NI_6}^m$ and $\beta_{NC_1}^m$ are normalised to 1; and the standard deviations σ_3^*, σ_6^* and σ_1^* are normalised to 1.

Depending on the nature of the indicators, they can be treated as continuous or discrete variables. In our case, we use a semantic ordered scale of importance as a measurement instrument. Therefore, indicators are represented by discrete ordered variables. Thus, each measurement equation represents a latent regression that can be modelled using an ordered Probit model, where each score is identified as pertaining to a category delimited by specific threshold values of the dependent variable. Four threshold values could be estimated for 5-point scales. However, the assumption of symmetry in the indicators could reduce the number of parameters to just two by considering $\delta_1 > 0$ and $\delta_2 > 0$ so that the thresholds are defined as $\tau_1 = -\delta_1 - \delta_2$, $\tau_2 = -\delta_1$, $\tau_3 = \delta_1$ and $\tau_4 = \delta_1 + \delta_2$ (see Greene & Hensher, 2010 for a comprehensive revision of ordered choice models).

2) The choice model

The utility of the alternatives in the choice model is defined in terms of the attributes considered in the experiment and the LVs obtained from the MIMIC model. Incorporating these LVs variables into the choice model was in the form of interactions with the attributes of the alternatives. Different specifications were tested during the modelling process, and the one producing more consistent results

was that considering the interactions of community support and the accommodation type and cultural trail; nature interaction and active hiking, diving/snorkeling and stargazing; and nature connection and the alternative specific constant of the non-choice option. Thus, the utility of the alternatives are specified as follows:

$$U_{Alt\ 1} = \beta_P P_1 + \left(\beta_{AC} + \beta_{AC\_CS} CS\right) AC_1 + \left(\beta_{CT} + \beta_{CT\_CS} CS\right) CT_1 + \left(\beta_{AH} + \beta_{AH\_NI} NI\right) AH_1 + \left(\beta_{DS} + \beta_{DS\_NI} NI\right) DS_1 + \left(\beta_{SG} + \beta_{SG\_NI} NI\right) SG_1 + \varepsilon_1$$

$$U_{Alt\ 2} = \beta_P P_2 + \left(\beta_{AC} + \beta_{AC\_CS} CS\right) AC_2 + \left(\beta_{CT} + \beta_{CT\_CS} CS\right) CT_2 + \left(\beta_{AH} + \beta_{AH\_NI} NI\right) AH_2 + \left(\beta_{DS} + \beta_{DS\_NI} NI\right) DS_2 + \left(\beta_{SG} + \beta_{SG\_NI} NI\right) SG_2 + \varepsilon_2$$

$$U_{Non-choice} = \beta_{ASC_3} + \beta_{ASC_3\_NC} NC + \varepsilon_3$$

where β_i are parameters to be estimated, and the explanatory attributes are named as in Table 11.

Assuming the error terms ε_j are iid Extreme Value Type I distributed, the choice probabilities for the multinomial Logit model can be derived (Train, 2009). It is worth noting that attribute coefficients are interpreted as marginal utilities; thus, calculating the ratio of these marginal utilities and the negative of the price coefficient, the willingness to pay figures (WTP) are obtained (McFadden, 1981).

There are different approaches to estimating the parameters of the hybrid choice model. Sequential estimation entails first estimating the MIMIC model and then including the latent variables into the specification of the choice model in a subsequent stage. Although this is a relatively straightforward strategy, it yields inefficient estimates. In this sense, Bierlaire (2018) suggests simultaneously estimating the parameters of the structural and choice models by considering the full information likelihood function obtained from indicators and choice data.

3.4 Results

Estimation results are presented in Tables 13 and 14. Unknown parameters were estimated using the simulated maximum likelihood method with the software Pandas Biogeme 3.2.8. (Bierlaire, 2018). All the measurement model parameters were significant and estimated with the appropriate sign. All the slope parameters were positive, consistent with the measurement instrument used for the latent factors. Thus, a higher value of the corresponding LV would be compatible with a higher score obtained for the indicator. In this sense, we highlight that all the items included in the measurement model were positive; that is, a higher value of the indicator means a higher environmental concern.

In the structural model, all parameters resulted significant at the 95% confidence level, with the only exceptions of income in community support and nature interaction and work in nature connection. Regarding the impact of socioeconomic characteristics on the different LVs, females, local residents, those not currently working, and those younger than 22 have higher community support attitudes. Females, non-local residents, those not currently working, and those younger than

22 have higher nature interaction attitudes. Finally, females, non-local residents, younger than 22 and those with lower income present higher nature connection attitudes. In addition, the intercept parameters were all positive, indicating that other unknown factors positively impacted the three LVs' attitudes towards the environment.

In the choice model, our results support the hypothesis that attitudes related to environmental concerns affect choice behavior. In this case, most of the parameters resulted significant at the 95% confidence level, except the reference coefficients for active hiking (β_{AH}), cultural trail (β_{CT}) and stargazing (β_{SG}). These results indicate that including these activities in the package is preferred by those with positive and non-negligible attitudes towards nature interaction and community support. In contrast, the accommodation in a rural house and diving/snorkeling activity would be more preferred even for individuals for whom these attitudes were represented by figures close to zero.

It is important to stress that negative attitudes may lead to a negative preference — i.e. a negative marginal utility— for the attribute in question. In our model, the majority of individuals presented positive attitudes towards community support (84.87%), nature interaction (97.18%) and nature connection (94.45%). Our findings show that individuals with higher community support attitudes exhibit higher preferences for rural house accommodation and cultural trail activities. In addition, individuals with higher nature interaction attitudes have a stronger preference for active hiking, diving/snorkeling, and stargazing activities. On the contrary, individuals with a higher attitude related to nature connection show a lower preference for active tourism packages; in other words, a higher preference for the no-choice option. Figure 20 depicts the preference for the no-choice option regarding nature connection. The graphic shows that, for most individuals, the constant term of the no-choice alternative is negative, suggesting the existence of unobservable factors that indicate a clear preference for alternatives offering sustainable tourism packages when the effect of the characteristics of the package itself is considered negligible.

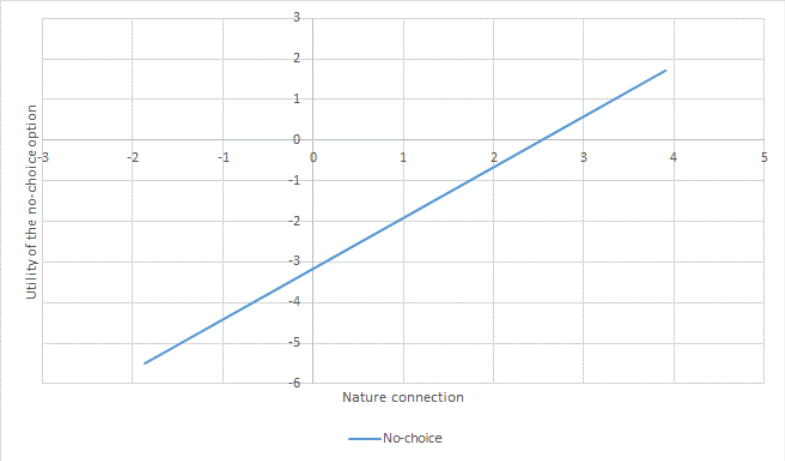
Table 13. Estimation results

	Parameter and variable names	Estimated coefficient	Std. err.	t-test	p-value
Choice model parameters					
$\beta_{ASC_3\_NC}$	ASC3 x Nature connection	1.250	0.180	6.93	0.000
β_{ASC_3}	ASC3	-3.180	0.298	-10.70	0.000
β_{AC_CS}	Accommodation x Community support	0.133	0.060	2.21	0.027
β_{AC}	Accommodation	0.394	0.063	6.25	0.000
β_{AH_NI}	Active Hiking x Nature interaction	0.662	0.085	7.76	0.000
β_{AH}	Active Hiking	0.076	0.131	0.58	0.561
β_{CT_CS}	Cultural trail x Community support	0.815	0.096	8.46	0.000
β_{CT}	Cultural trail	-0.015	0.103	-0.14	0.886
β_{DS_NI}	Diving/snorkeling x Nature interaction	0.521	0.075	6.97	0.000
β_{DS}	Diving/snorkeling	0.767	0.115	6.64	0.000
β_P	Price	-0.042	0.002	-20.60	0.000
β_{SG_NI}	Stargazing x Nature interaction	0.504	0.090	5.61	0.000
β_{SG}	Stargazing	-0.214	0.142	-1.51	0.131
Measurement model parameters					
	LV community support				
$\beta_{0_4}^m$	Intercept I_4	-0.209	0.028	-7.36	0.000
$\beta_{0_5}^m$	Intercept I_5	0.134	0.028	4.80	0.000
$\beta_{0_9}^m$	Intercept I_9	0.175	0.028	6.16	0.000
$\beta_{CS_4}^m$	Slope I_4	1.100	0.028	40.10	0.000
$\beta_{CS_5}^m$	Slope I_5	1.010	0.028	36.40	0.000
$\beta_{CS_9}^m$	Slope I_9	1.040	0.029	36.40	0.000
σ_4^*	Standard deviation I_4	0.941	0.015	63.60	0.000
σ_5^*	Standard deviation I_5	0.963	0.015	63.20	0.000
σ_9^*	Standard deviation I_9	0.949	0.016	61.40	0.000
	LV Nature interaction				
$\beta_{0_7}^m$	Intercept I_7	-1.320	0.052	-25.20	0.000
$\beta_{0_8}^m$	Intercept I_8	-1.290	0.046	-27.90	0.000
$\beta_{NI_7}^m$	Slope I_7	1.210	0.034	35.20	0.000
$\beta_{NI_8}^m$	Slope I_8	1.190	0.030	39.90	0.000
σ_7^*	Standard deviation I_7	1.200	0.019	63.40	0.000
σ_8^*	Standard deviation I_8	0.990	0.016	61.90	0.000
	LV Nature connection				
$\beta_{0_2}^m$	Intercept I_2	0.488	0.048	10.10	0.000
$\beta_{NC_2}^m$	Slope I_2	1.440	0.041	35.00	0.000
σ_2^*	Standard deviation I_2	1.100	0.023	47.00	0.000
δ_1	Threshold parameter	1.200	0.011	114.00	0.000
δ_2	Threshold parameter	0.702	0.013	52.80	0.000

Table 14. Estimation results (cont)

Structural model parameters					
$\beta^s_{0_{CS}}$	Intercept community support	0.915	0.038	24.30	0.000
$\beta^s_{0_{NI}}$	Intercept nature interaction	1.640	0.040	41.00	0.000
$\beta^s_{0_{NC}}$	Intercept nature connection	1.590	0.044	36.60	0.000
$\beta^s_{GENDER_{CS}}$	Gender in community support	-0.238	0.024	-10.10	0.000
$\beta^s_{GENDER_{NI}}$	Gender in nature interaction	-0.184	0.025	-7.47	0.000
$\beta^s_{GENDER_{NC}}$	Gender in nature connection	-0.178	0.027	-6.56	0.000
$\beta^s_{AGE_{CS}}$	Age in community support	-0.053	0.024	-2.16	0.031
$\beta^s_{AGE_{NI}}$	Age in nature interaction	-0.138	0.026	-5.39	0.000
$\beta^s_{AGE_{NC}}$	Age in nature connection	-0.064	0.028	-2.27	0.023
$\beta^s_{WORK_{CS}}$	Work in community support	-0.087	0.030	-2.93	0.003
$\beta^s_{WORK_{NI}}$	Work in nature interaction	-0.066	0.031	-2.14	0.032
$\beta^s_{WORK_{NC}}$	Work in nature connection	0.037	0.034	1.08	0.280
$\beta^s_{RESI_{CS}}$	Resi in community support	0.071	0.031	2.29	0.022
$\beta^s_{RESI_{NI}}$	Resi in nature interaction	-0.134	0.033	-4.11	0.000
$\beta^s_{RESI_{NC}}$	Resi in nature connection	-0.432	0.037	-11.70	0.000
$\beta^s_{INCOME_{CS}}$	Income in community support	-0.027	0.032	-0.84	0.399
$\beta^s_{INCOME_{NI}}$	Income in nature interaction	0.037	0.034	1.10	0.273
$\beta^s_{INCOME_{NC}}$	Income in nature connection	-0.212	0.037	-5.73	0.000
σ^S	Standard deviation structural model	0.702	0.013	52.80	0.000
$l^*(init\ values)$	Initial log-likelihood:	-121639.9			
$l^*(\beta)$	Final log-likelihood:	-67644.8			
ρ^2	Rho-square	0.444			
N	Number of observations	5712			
	Number of respondents	476			
	Respondents' characteristics				
	- Males	241 (50.6%)			
	- Age > 22	266 (55.9%)			
	- Active workers	254 (53.4%)			
	- Residents	238 (50.0%)			
	- Monthly income (average)	481 €			

Figure 20. Preference for the no-choice alternative



In monetary terms, the willingness to pay for improving an attribute (X_i) of alternative i represents the increases in the utility of the alternative V_i produced by this improvement. They can be obtained from the choice model parameters using the following expression (Train, 2009).

$$WTP_X = -\frac{\partial V_i / \partial X_i}{\partial V_i / Price_i}$$

where the partial derivatives are replaced by increments for discrete attributes.

In our model, the numerator in the former expression varies across individuals as the explanatory attributes representing the activities considered in the package and the type of accommodation interact with some of the LVs considered in the analysis.

Figure 21 shows the WTP for the accommodation in a rural house and cultural trail activity regarding the LV community support. It is important to note that the WTP for cultural trail yields a negative figure (15.8%) for some individuals, indicating that they perceive a negative utility when this activity is included in the package. The result will have important managerial implications suggesting incorporating compensation mechanisms when designing the tourism packages to meet this market segment's needs.

The WTP figure in terms of the LV nature interaction is depicted in Figure 22. The graphic shows that for all the individuals in the sample, diving/snorkeling is the most valued activity, followed by active hiking and stargazing. In this case, the proportion of individuals with negative WTP is substantially lower: 1.9% for active hiking, 0.02% for diving/snorkeling and 8.9% for stargazing.

Figure 21. Willingness to pay in terms of the LV community support

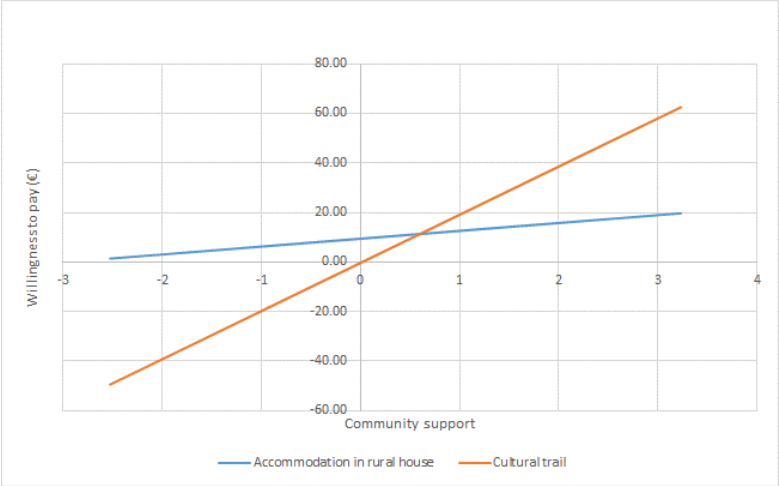


Figure 22. Willingness to pay in terms of the LV nature interaction

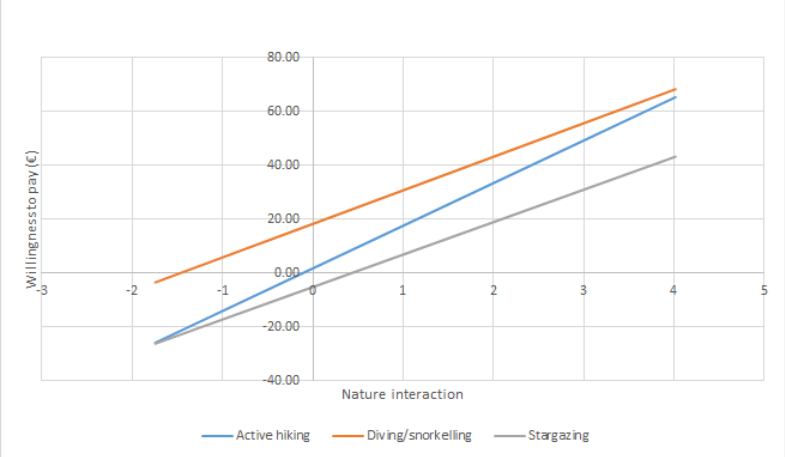


Table 15 presents the average WTP figures for the whole sample and the socioeconomic groups studied. Thus, on average, diving/snorkeling activities have the highest WTP (35.40€), followed by active hiking (23.53€). On the other hand, cultural trail and star gazing are the least valued, with 13.87€ and 11.43€, respectively. It is also worth pointing out that individuals are willing to pay 11.72€ to stay in a rural house rather than a tent. In general, females and those under 22 exhibit higher WTP figures for all the attributes. Similar figures are obtained for active and non-active workers, except in the case of the cultural trail, where non-active workers are willing to pay 2.7 euros more. Residents in Gran Canaria are willing to pay more for being accommodated in a rural house and for having cultural

trails in the packages. In contrast, non-residents value active hiking trails, diving/snorkeling and stargazing activities more. These results are consistent with the parameter estimates obtained in the structural model and highlight the importance of incorporating latent variables into the choice model.

Table 15. WTP figures (average/socioeconomic group)

Socioeconomic Group	Willingness to pay (€)				
	Accommodation in a rural house	Cultural trail	Active hiking	Diving / Snorkeling	Stargazing
Gender					
Female	12.11	16.21	25.29	36.79	12.77
Male	11.35	11.59	21.81	34.04	10.12
Age					
Younger than 22 years	11.99	15.51	25.16	36.68	12.67
Older than 22 years	11.51	12.58	22.24	34.38	10.44
Active worker					
No	11.96	15.33	23.50	35.37	11.40
Yes	11.52	12.60	23.56	35.42	11.45
Resident in Gran Canaria					
No	11.50	12.50	24.26	35.97	11.98
Yes	11.95	15.24	22.80	34.82	10.87
Total	**11.72**	**13.87**	**23.53**	**35.40**	**11.43**

3.5 Discussion

Our findings are not easily comparable to previous studies because, to our knowledge, this empirical analysis is applied for the first time considering the environmental concern scale and the type of ecotourism development in Gran Canaria. Another important difficulty in comparing the results has its origin in the young sample of respondents used in the study. Nevertheless, the results have important managerial implications, providing interesting information for those designing nature-based tourism products. In this regard, knowing the amount different market segments are willing to pay for a particular activity is paramount in creating successful product packages that consider the normally hidden tourists' preferences. This is especially relevant in the context of a mass tourism destination where young consumers could help in moving towards more sustainable tourism activities.

The community support dimension includes the following indicators: knowing and sharing the customs and traditions of the peoples, that agricultural and livestock activities be carried out in a traditional way and with low impact, to promote the

economic development of communities where ecotourism activities are carried out, and recovering trails and routes for ecotourism purposes. The study found that females, local residents, those not currently working, and those younger than 22 had higher community support attitudes and that 84.87 per cent of the sample presented positive attitudes towards community support. The results are similar to those found by Buffa (2015), where the author contended, analyzing a sample of 1,156 young Italians, that “most young tourists say they prefer local food, adapt as much as they can to the traditions and customs of the place in which they are holidaying, try to learn about their destination before travelling, would be willing to be involved in events organized by the local community and to interact with it, demonstrate interest in the protection of the authenticity of the destination, even if this means going without certain comforts, find out how to protect the local environment and reduce waste, and are concerned to ensure that their spending benefits the local population (p. 14051)”.

The dimension of nature interaction was measured by enjoying the grandeur of the mountains and its landscape when walking on natural trails, observing birds and other species in their natural habitat, and getting to know the native flora. Similarly to the above dimension, females, non-local residents, those not currently working, and those younger than 22 had higher nature interaction attitudes and 97.18 per cent of the sample presented positive attitudes on this dimension. On this occasion, the German segment had a higher nature interaction than the local Canarian segment. The results are only partly confirmed by Cakici and Harman (2007) as the authors found that birdwatchers in Turkey were more likely to be young and male, educated but with quite low incomes, and concluded that the relative novelty of this tourism niche might explain this. In our case, females were more common, but our study is not only focused on bird watching.

The environmental concern scale also included the nature connection dimension including the connection of the human being with nature and the preservation of nature. Results indicate that individuals who are female, non-local residents, under 22 years old, and have lower income exhibit higher nature connection attitudes and that 94.45 per cent of the sample presented a positive nature connection attitude. Related results are found in Cavagnaro et al. (2021) when investigating young travelers in China and Italy and found that young tourists were a very heterogeneous market segment that depended on socio-economic conditions, but more intensely on issues related to self-transcendence values connected to nature-related travel motivations such as to be in contact with nature, to experience beautiful natural landscapes, to see the beauty of the place. The authors concluded that this type of tourist is more open to a sustainable tourism offer.

The obtained WTP figures for diving/snorkeling, cultural trails, active hiking and stargazing included as activities in the tourist package as well as accommodation type are finally not compared to other WTP figures reported in previous studies as we consider that these are highly context and methodology dependent. In addition, our WTP results are obtained in terms of the LVs included in the choice model as

they are specified interacting with the attributes of the alternatives, and this also represents a significant contribution of this research.

3.6 Conclusions

This research addresses the role of sustainable tourism activities in Gran Canaria, which constitutes an exciting niche market on an island traditionally dominated by 3S hotel tourism. Like other tourist destinations, Gran Canaria must face the challenge of revitalizing tourism activity following the collapse caused by the Covid-19 pandemic. In this sense, promoting nature-based tourism products represents a challenge to achieve more sustainable tourism development.

3.6.1 Practical implications

The analysis results provide significant information about preferences and willingness to pay for diverse activities included in a typical active tourism package. In summary, it has been found that a majority of individuals prefer vacation packages that include sleeping in rural houses or tents, active hiking routes, visits to natural spots such as natural pools, and dive or snorkel activities. Despite having an a priori homogeneous sample composition of study participants, our findings reveal significant heterogeneity in preferences and willingness to pay for the various activities under consideration when attitudinal latent factors related to environmental concern are incorporated into the model. Our results reinforce the methodology's potential for extracting valuable information from study participants while providing interesting managerial recipes that tourism entrepreneurs can use to promote active tourism products as an alternative to the less sustainable 3S mass tourism.

Results are also valuable for the strategy of the Local Government of Gran Canaria Island (Cabildo de Gran Canaria). The Councillor for Tourism of the Cabildo de Gran Canaria, Carlos Álamo, affirms that "at the Tourist Board we understand that it is important to provide Gran Canaria with all possible resources that allow for the sustainable development of the island and, at the same time, serve to promote and strengthen rural or inland tourism in accordance with the values proposed by the Cabildo". He adds that "Gran Canaria has enormous potential and, with the participation of the business community and public institutions, we have a unique opportunity to promote our destination in a unique way and with the appeal of the attractions and sensations offered by active and sustainable tourism. All in all, ecotourism will be an excellent opportunity to attract those tourists who are looking for a respectful relationship with nature and who have in Gran Canaria an ideal destination to discover and enjoy" (Activa Canarias, 2023).

3.6.2 Limitations and future research

Our findings represent a first step towards understanding the demand for sustainable tourism products in a natural setting. As suggested by Passafaro (2020), a careful attention was paid to the wording used in the questionnaire to analyze how

the attitudes affect the complexity of the ecotourism preferences. Nevertheless, the study is not exempt from some limitations, which can serve as areas for future research. First, our study includes two different subsamples of residents and non-residents of very young segments. Second, the context of the case study, represented by a very specific area of Gran Canaria, could be better understood by the segment of residents because they are more familiar with the rural and natural areas of the island. In addition, our results might not be easily transferable to other natural areas where ocean-based activities could not be developed.

Other objectives for future research could include determining preferences for other water and mountain-related activities for tourism product development in other areas of the Canary Islands archipelago. It might also be interesting to look into preferences for other potential customer groups, such as other age ranges and nationalities. Other attitudinal factors, such as the mitigation measures taken by tourists and climate change awareness, could also be worth investigating.

References

Activa Canarias. (2023). *Turismo Activo y Ecoturismo en Gran Canaria*. Retrieved December 6, 2023, from https://www.turismoactivocanarias.com/single-post/activa-canarias-reflexiona-sobre-turismo-activo-y-ecoturismo-en-gran-canaria.

Ajzen, I. (1991). The Theory of Planned Behavior Organizational Behavior and Human Decision Processes. *Organizational Behavior and Human Decision Processes, 50*(2), 179–211. https://doi.org/10.1016/0749-5978(91)90020-T

Albaladejo, I. P., & Díaz-Delfa, M. T. (2021). The effects of motivations to go to the country on rural accommodation choice: A hybrid discrete choice model. *Tourism Economics, 27*(7), 1484-1507. https://doi.org/10.1177/1354816620912062

Baral, N., Stern, M. J., & Hammett, A. L. (2012). Developing a scale for evaluating ecotourism by visitors: A study in the Annapurna Conservation Area, Nepal. *Journal of Sustainable Tourism, 20*(7), 975–989. https://doi.org/10.1080/09669582.2012.663379

Bartlett, M. S. (1937). The statistical conception of mental factors. *British journal of Psychology, 28*(1), 97. https://doi.org/10.1111/j.2044-8295.1937.tb00863.x

Bastian, C. T., McLeod, D. M., Germino, M. J., Reiners, W. A., & Blasko, B. J. (2002). Environmental amenities and agricultural land values: A hedonic model using geographic information systems data. *Ecological Economics, 40*(3), 337–349. https://doi.org/10.1016/S0921-8009(01)00278-6

Ben-Akiva, M., McFadden, D., Gärling, T., Gopinath, D., Walker, J., Bolduc, D., Börsch-Supan, A., Delquié, P., Larichev, O., Morikawa, T., Polydoropoulou,

A., Rao, V. (1999). Extended Framework for Modeling Choice Behavior. *Marketing Letters, 10*, 187–203.

Ben-Akiva, M., McFadden, D., Train, K., Walker, J., Bhat, C., Bierlaire, M., Bolduc, D., Boersch-Supan, A., Brownstone, D., Bunch, D.S., Daly, A., de Palma, A., Gopinath, D., Karlstrom, A., Munizaga, M. A. (2002). Hybrid Choice Models: Progress and Challenges Massachusetts Institute of Technology. Marketing Letters, 13, 163–175.

Bierlaire, M. (2018). Estimating choice models with latent variables with PandasBiogeme. Rep. TRANSP-OR, 181227.

Bimonte, S., & Faralla, V. (2014). Happiness and nature-based vacations. *Annals of Tourism Research, 46*, 176–178. https://doi.org/10.1016/j.annals.2014.02.002

Bliemer, M. C., & Rose, J. M. (2010). Construction of experimental designs for mixed logit models allowing for correlation across choice observations. *Transportation Research Part B: Methodological, 44*(6), 720-734. https://doi.org/10.1016/j.trb.2009.12.004

Börjes, I. (2008). Gran Canaria, 4. Aktualisierte und überarbeitete Auflage, Michael Müller Verlag Gmbh, Erlangen.

Brunt, P., & Courtney, P. (1999). Host perceptions of sociocultural impacts. *Annals of Tourism Research, 26*(3), 493–515. https://doi.org/10.1016/S0160-7383(99)00003-1

Budeanu, A. (2007). Sustainable tourist behaviour–a discussion of opportunities for change. *International journal of consumer studies, 31*(5), 499-508. https://doi.org/10.1111/j.1470-6431.2007.00606.x

Buffa, F. (2015). Young tourists and sustainability. Profiles, attitudes, and implications for destination strategies. *Sustainability, 7*(10), 14042-14062. https://doi.org/10.3390/su71014042

Buzinde, C. N., Kalavar, J. M., & Melubo, K. (2014). Tourism and community well-being: The case of the Maasai in Tanzania. *Annals of Tourism Research, 44*(1), 20–35. https://doi.org/10.1016/j.annals.2013.08.010

Cakici, A. C., & Harman, S. (2007). Leisure involvement of Turkish birdwatchers. *Anatolia, 18*(1), 153-160. https://doi.org/10.1080/13032917.2007.9687043

Campos-Soria, J. A., Núñez-Carrasco, J. A., & García-Pozo, A. (2021). Environmental concern and destination choices of tourists: Exploring the underpinnings of country heterogeneity. *Journal of Travel Research, 60*(3), 532-545. https://doi.org/10.1177/0047287520933686

Cavagnaro, E., Staffieri, S., Carrieri, A., Burns, K., Chen, N., & Fermani, A. (2021). Profiling for sustainable tourism: Young travellers' self-transcendence values

and motivations. *European Journal of Tourism Research, 28*, 2810-2810. https://doi.org/10.54055/ejtr.v28i.2261

Chen, W. Y., & Jim, C. Y. (2012). Contingent valuation of ecotourism development in country parks in the urban shadow. *International Journal of Sustainable Development & World Ecology, 19*(1), 44–53. https://doi.org/10.1080/13504509.2011.588727

ChoiceMetrics (2009). Ngene 1.0. User manual & reference guide. The Cutting Edge in Experimental Design. Retrieved from www.choice-metrics.com

Cordente-Rodríguez, M., Mondéjar-Jiménez, J. A., & Villanueva-Álvaro, J. J. (2014). Sustainability of nature: The power of the type of visitors. *Environmental Engineering & Management Journal (EEMJ), 13*(10).

Curtin, S. (2009). Wildlife tourism: the intangible, psychological benefits of human–wildlife encounters. *Current Issues in Tourism, 12*(5–6), 451–474. https://doi.org/10.1080/13683500903042857

De Groot, J. I. M., & Steg, L. (2008). Value Orientations to Explain Beliefs Related to Environmental Significant Behavior. *Environment and Behavior, 40*(3), 330–354. https://doi.org/10.1177/0013916506297831

De Knop, P. (1990). Sport for all and active tourism. *World Leisure & Recreation, 32*(3), 30-36. https://doi.org/10.1080/10261133.1990.10559120

Dodds, R., Ali, A., & Galaski, K. (2018). Mobilizing knowledge: determining key elements for success and pitfalls in developing community-based tourism. *Current Issues in Tourism, 21*(13), 1547–1568. https://doi.org/10.1080/13683500.2016.1150257

Dragin, A. S., Majstorović, N., Janičić, B., Mijatov, M. B., & Stojanović, V. (2022). Clusters of Generation Z and Travel Risks Perception: Constraining vs. Push–Pull Factors. In The Emerald Handbook of Destination Recovery in Tourism and Hospitality (pp. 375-395). Emerald Publishing Limited. https://doi.org/10.1108/978-1-80262-073-320221022

Frank, F., Pintassilgo, P., & Pinto, P. (2015). Environmental awareness of surf tourists: A case study in the Algarve. *Journal of Spatial and Organizational Dynamics, 3*(2), 102-113.

Gan, J. E., & Nuli, S. (2018). Millennials' environmental awareness, price sensitivity and willingness to pay for Green Hotels. Journal of Tourism, Hospitality and Culinary Arts, 10(2), 47-62.

Giddy, J. K., & Webb, N. L. (2018). Environmental attitudes and adventure tourism motivations. *GeoJournal, 83*(2), 275–287. https://doi.org/10.1007/s10708-017-9768-9

Greene, W. H., & Hensher, D. A. (2010). Modeling ordered choices: A primer. Cambridge University Press.

Han, H. (2015). Travelers' pro-environmental behavior in a green lodging context: Converging value-belief-norm theory and the theory of planned behavior. *Tourism Management, 47*, 164–177. https://doi.org/10.1016/j.tourman.2014.09.014

Hole, A. R., & Kolstad, J. R. (2012). Mixed logit estimation of willingness to pay distributions: a comparison of models in preference and WTP space using data from a health-related choice experiment. *Empirical Economics, 42*, 445-469.

Honey, M. (1999). Ecotourism and Sustainable Development: Who Owns Paradise? Island Press, Washington, DC.

Kaiser, H.F. (1970). A second generation little juffy. *Psychometrika 35*, 401–415.

Karampela, S., Andreopoulos, A., & Koutsouris, A. (2021). "Agro", "Agri", or "Rural": The Different Viewpoints of Tourism Research Combined with Sustainability and Sustainable Development. *Sustainability (Switzerland), 13*(17). https://doi.org/10.3390/su13179550

Lawson, R. W., Williams, J., Young, T., & Cossens, J. (1998). A comparison of residents' attitudes towards tourism in 10 New Zealand destinations. *Tourism Management, 19*(3), 247–256. https://doi.org/10.1016/S0261-5177(98)00018-1

Lee, T. H., & Jan, F. H. (2015). The Effects of Recreation Experience, Environmental Attitude, and Biospheric Value on the Environmentally Responsible Behavior of Nature-Based Tourists. *Environmental Management, 56*(1), 193–208. https://doi.org/10.1007/s00267-015-0488-y

Lee, T. H., & Jan, F. H. (2018). Development and validation of the ecotourism behavior scale. *International Journal of Tourism Research, 20*(2), 191–203. https://doi.org/10.1002/jtr.2172

Lee, T. H., & Jan, F. H. (2019). Can community-based tourism contribute to sustainable development? Evidence from residents' perceptions of the sustainability. *Tourism Management, 70*, 368–380. https://doi.org/10.1016/j.tourman.2018.09.003

Maltese, I., & Zamparini, L. (2023). Sustainable mobility choices at home and within destinations: A survey of young Italian tourists. *Research in Transportation Business & Management, 48*, 100906. https://doi.org/10.1016/j.rtbm.2022.100906

Masiero, L., & Hrankai, R. (2022). Modeling tourist accessibility to peripheral attractions. *Annals of Tourism Research, 92*, 103343. https://doi.org/10.1016/j.annals.2021.103343

Mathis, A., & Rose, J. (2016). Balancing tourism, conservation, and development: a political ecology of ecotourism on the Galapagos Islands. *Journal of Ecotourism, 15*(1), 64–77. https://doi.org/10.1080/14724049.2015.1131283

McCool, S. F. (2009). Constructing partnerships for protected area tourism planning in an era of change and messiness. *Journal of Sustainable Tourism, 17*(2), 133–148. https://doi.org/10.1080/09669580802495733

McFadden, D. (1981). Econometric models of probabilistic choice. In: Manski, C., McFadden, D. (Eds.), Structural analysis of discrete data with econometric applications. MIT Press, Cambridge, Mass. 198-272.

McFadden, D., (1986). The Choice Theory Approach to Market Research. *Marketing science, 5*, 275–297. https://doi.org/10.1287/mksc.5.4.275

Neger, C., & Propin Frejomil, E. (2018). Regional Ecotourism Networks: Experiences and Lessons from Los Tuxtlas, Mexico. *Annals of the Austrian Geographical Society, 160,* 143–162. https://doi.org/10.1553/moeg160s143

Nowacki, M., Chawla, Y., & Kowalczyk-Anioł, J. (2021). What drives the eco-friendly tourist destination choice? The Indian perspective. *Energies, 14*(19), 6237. https://doi.org/10.3390/en14196237

Nowacki, M., Kowalczyk-Anioł, J., & Chawla, Y. (2023). Gen Z's Attitude towards Green Image Destinations, Green Tourism and Behavioural Intention Regarding Green Holiday Destination Choice: A Study in Poland and India. *Sustainability, 15*(10), 7860. https://doi.org/10.3390/su15107860

Passafaro, P. (2020). Attitudes and tourists' sustainable behavior: An overview of the literature and discussion of some theoretical and methodological issues. *Journal of Travel Research, 59*(4), 579-601. https://doi.org/10.1177/0047287519851171

Passafaro, P., Cini, F., Boi, L., D'Angelo, M., Heering, M. S., Luchetti, L., ... & Triolo, M. (2015). The "sustainable tourist": Values, attitudes, and personality traits. *Tourism and hospitality research, 15*(4), 225-239. https://doi.org/10.1177/1467358415576086

Pesonen, J. A. (2015). Targeting rural tourists in the internet: Comparing travel motivation and activity-based segments. *Journal of Travel & Tourism Marketing*, *32*(3), 211-226. https://doi.org/10.1080/10548408.2014.895695

Pinho, M., & Gomes, S. (2023). Generation Z as a critical question mark for sustainable tourism–An exploratory study in Portugal. *Journal of Tourism Futures*. Forthcomming. https://doi.org/10.1108/JTF-07-2022-0171

Prazeres, L., & Donohoe, H. (2014). The Visitor Sensescape in Kluane National Park and Reserve, Canada. Journal of Unconventional Parks, *Tourism & Recreation Research, 5*(2), 2–9.

Puciato, D., Szromek, A. R., & Bugdol, M. (2023). Willingness to pay for sustainable hotel services as an aspect of proenvironmental behavior of hotel guests. *Economics & Sociology, 16*(1), 106-122. DOI:10.14254/2071-789X.2023/16-1/8

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

Root-Bernstein, M., Rosas, N. A., Osman, L. P., & Ladle, R. J. (2012). Design solutions to coastal human-wildlife conflicts. *Journal of Coastal Conservation, 16*(4), 585–596. https://doi.org/10.1007/s11852-012-0198-z

Ruhanen, L., Weiler, B., Moyle, B. D., & McLennan, C. L. J. (2015). Trends and patterns in sustainable tourism research: A 25-year bibliometric analysis. *Journal of Sustainable Tourism, 23*(4), 517-535. https://doi.org/10.1080/09669582.2014.978790

Santarém, F., Silva, R., & Santos, P. (2015). Assessing ecotourism potential of hiking trails: A framework to incorporate ecological and cultural features and seasonality. *Tourism Management Perspectives, 16*, 190–206. https://doi.org/10.1016/j.tmp.2015.07.019

Santos, J. A. C., Fernández-Gámez, M. Á., Guevara-Plaza, A., Custódio Santos, M., & Pestana, M. H. (2023). The sustainable transformation of business events: sociodemographic variables as determinants of attitudes towards sustainable academic conferences. *International Journal of Event and Festival Management, 14*(1), 1–22. https://doi.org/10.1108/IJEFM-05-2022-0041

Song, H., Wu, H., & Zhang, H. (2023). Can nudging affect tourists' low-carbon footprint travel choices? *International Journal of Contemporary Hospitality Management*. Forthcoming. https://doi.org/10.1108/IJCHM-09-2022-1175

Stojanović, V., Mijatov Ladičorbić, M., Dragin, A. S., Cimbaljević, M., Obradović, S., Dolinaj, D., ... & Marković, V. (2023). Tourists' Motivation in Wetland Destinations: Gornje Podunavlje Special Nature Reserve Case Study (Mura-Drava-Danube Transboundary Biosphere Reserve). *Sustainability, 15*(12), 9598. https://doi.org/10.3390/su15129598

Sultana, N., Amin, S., & Islam, A. (2022). Influence of perceived environmental knowledge and environmental concern on customers' green hotel visit intention: mediating role of green trust. *Asia-Pacific Journal of Business Administration, 14*(2), 223-243. https://doi.org/10.1108/APJBA-08-2021-0421

Train, K. E. (2009). Discrete choice methods with simulation. Cambridge University Press.

UNWTO. (2020). *UNWTO World Tourism Barometer and Statistical Annex, January 2020*, 18(1).

Van der Werff, E., Steg, L., & Keizer, K. (2013). The value of environmental self-identity: The relationship between biospheric values, environmental self-identity and environmental preferences, intentions and behaviour. *Journal of*

Environmental Psychology, 34, 55–63. https://doi.org/10.1016/j.jenvp.2012.12.006

Verma, V. K., & Chandra, B. (2018). Sustainability and customers' hotel choice behaviour: a choice-based conjoint analysis approach. *Environment, development and sustainability, 20*, 1347-1363.

Wahnschafft, R., & Wolter, F. (2023). Assessing tourist willingness to pay for excursions on environmentally benign tourist boats: A case study and trend analysis from Berlin, Germany. *Research in Transportation Business & Management, 48*, 100826. https://doi.org/10.1016/j.rtbm.2022.100826

Wall, G. (1997). Is ecotourism sustainable?. *Environmental management, 2*1(4), 483-491.

Weaver, D. B., & Lawton, L. J. (2007). Twenty years on: The state of contemporary ecotourism research. *Tourism management, 28*(5), 1168-1179. https://doi.org/10.1016/j.tourman.2007.03.004

Xu, F., & Fox, D. (2014). Modelling attitudes to nature, tourism and sustainable development in national parks: A survey of visitors in China and the UK. *Tourism Management, 45*, 142–158. https://doi.org/10.1016/j.tourman.2014.03.005

Ye, W., & Xue, X. (2008). The differences in ecotourism between China and the West. *Current Issues in Tourism, 11*(6), 567–586. https://doi.org/10.1080/13683500802475927

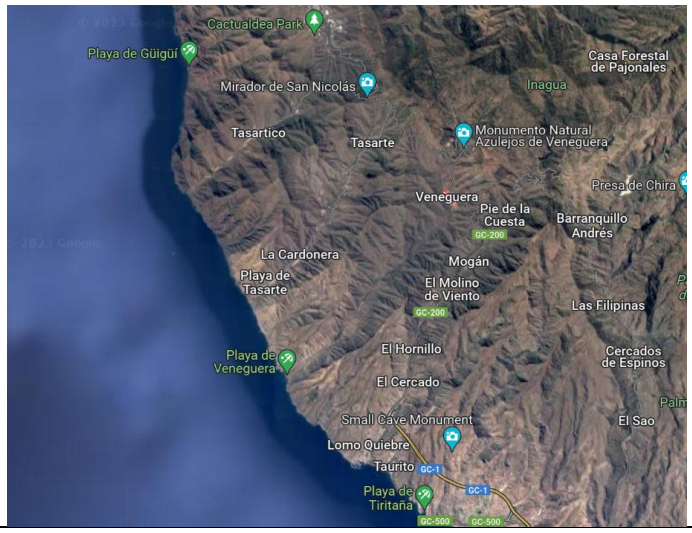
Appendix A. Part of the third article

Table A1. Exploratory factor analysis results

Indicator	Description	Factor Loadings*		
		Factor 1	**Factor 2**	**Factor 3**
I1	The connection of the human being with nature			0.698
I2	The preservation of nature			0.549
I3	Know and share the customs and traditions of the peoples		0.432	
I4	That agricultural and livestock activities be carried out in a traditional way and with low impact		0.556	
I5	To promote the economic development of communities where ecotourism activities are carried out		0.645	
I6	Enjoy the grandeur of the mountains and its landscape when walking on natural trails.	0.420		
I7	Observe birds and other species in their natural habitat.	0.813		
I8	Getting to know the native flora	0.619		
I9	Recovering trails and routes for ecotourism purposes		0.416	
	Factor labelling	Nature interaction	Community support	Nature connection
	SS Loading	1.507	1.326	1.240
	Explained Variance	16.7%	14.7%	13.8%
	Cumulative explained variance	16.7%	31.4%	45.2%

**Loadings below a threshold of 0.4 have been omitted*

Figure A1. Map of the area of study



Source: Google Maps

Conclusions

a Summary and discussion of the key findings

The results of the thesis contribute to an enhanced academic understanding of consumer behavior and environmental attitudes that underpin sustainable tourism choices.

First, the here presented research indicates the significance of sustainable tourism concepts for a specific customer segment in Gran Canaria. An overview of the most important outcomes of the different research topics is shown in Table 16. The results are presented and discussed below.

Table 16. Summary of important outcomes

1. Validation of interest in a nature-based tourism market as a subset of sustainable tourism in Gran Canaria for "young" customer groups.
2. Identification of significant results in terms of preferences and willingness to pay for different rural activity clusters.
3. Disparities in sustainable tourism consumption between residents and non-residents.
4. Sustainable tourism preferences are highly heterogeneous, facilitating the demand for adaptable tourism products.
5. Willingness to accept values proof price sensitivity in the market.
6. Correlations between tourists' preferences and sociodemographic variables (e.g. age).
7. Identification of latent factors behind environmental concerns: community support (CS), nature interaction (NI), and nature connection (NC).
8. Environmental concerns influence choice behavior of nature-based tourism in Gran Canaria.

- **Validation of interest in a nature-based tourism market as a subset of sustainable tourism in Gran Canaria for 'young' customer groups.**

The analysis of the sample of residents and non-residents (Chapter I) demonstrated that all the attributes considered increased the utility of the participants in the experiment. This indicates the existence of an interest in a nature-based tourism market and motivates the promotion of holiday packages in the rural areas of Gran Canaria for the investigated young target group. In the study the term *young tourists* describes that the majority of the sample consists of Gen Y, and a small proportion of Gen Z. Nowacki et al. (2023) and Sultana et al. (2022) mention the importance of

young segments, as being the largest travel segment in the future. Furthermore, there is evidence that Gen Z is more willing to pay premium prices for sustainability.

The mentioned interest can be considered an opportunity for the development of sustainable tourism in Gran Canaria where ecotourism concepts must be considered as a tool for sustainable development (Kiper, 2013). It is notable that alternative tourism approaches, despite their frequent presentation as solutions, are not necessarily sustainable (Wall, 1997). Different authors also identify critics of these concepts as it can also pose challenges to the environment (Place, 1995; Xu et al., 2023). A convenient example is the article “When ecotourism becomes overtourism” by Brett (2002). The author points out how alternative forms of tourism can create new problems in destinations, such as *overtourism* problems in Kruger National Park in South Africa. To avoid similar problems in Gran Canaria, a critical implementation and consideration of alternative tourism is important to ensure tourism that prioritizes not only economic benefits, but also ecological and social factors.

- **Identification of significant results regarding preferences and willingness to pay (WTP) for different rural activity clusters.**

The investigation of tourists’ preferences, which is based on Pesonen’s (2015) rural tourism activity clusters indicate significant outcomes. For young residents and non-residents, the most attractive combinations appear to be those involving water-based activities and active pursuits. In contrast are culture-oriented activities and passive outdoor experiences of less interest to the research participants. This is also reflected in the WTP values where young tourists were willing to pay the most for *dive/snorkel*, followed by *active hiking*, *cultural trails*, and *star gazing workshops*. Furthermore, a positive marginal utility for *accommodation* suggests a preference in terms of ecotourism accommodation (Wight, 1997) for staying in a fixed roof accommodation (e.g. rural house) rather than with a non-fixed roof (e.g. tent).

Using WTP-values can help to define pricing strategies for nature-based tourism offers in Gran Canaria. Hereby decision maker should recognize activity-specific expenditures and consider cost-benefit analysis, meaning that the benefits of a product outweigh the costs if the tourist’s willingness to pay exceeds the value of the resources used (Mules & Dwyer, 2005). A helpful approach here is that of Buckley, who distinguishes on an adventure activity scale between a high-volume, low-difficulty product for unskilled customers and a low-volume, high-cost product that requires more skill and risk and is operated in more remote areas (Buckley, 2004, 2007). Referring to the case study in Veneguera, scuba diving requires a higher level of technical difficulty and more expensive equipment than a hiking trip, which may only require a local guide.

- **Disparities in sustainable tourism consumption between residents and non-residents.**

Comparing the demand of residents (Gran Canaria) and non-residents (Germans), significant differences have been identified according to activities and types of accommodation.

Non-residents are willing to pay more for the water-based activities, while local tourists are willing to spend more on passive outdoor experiences (star gazing workshops) and accommodation with a fixed roof (rural houses) instead of a non-fixed roof option in a tent (Wight, 1997). In contrast, the difference for active hiking and cultural trails did not result significant, indicating that both groups perceive the same levels of satisfaction from engaging in these activities.

From a managerial point of view the consideration of different preferences will help to fulfil customer requirements and to create memorable holiday experiences (Vespestad & Mehmetoglu, 2010). The importance of market segmentation in strategic tourism marketing is among others highlighted by Dolnicar (2012).

- **Sustainable tourism preferences are highly heterogeneous, facilitating the demand for adaptable tourism products.**

The analysis based on a flexible choice model allows to derive preferences at the individual level for the German market (in Chapter II only the German sample is under research). The results indicate a significant heterogeneity in customer preferences for the investigated attributes. Consequently, the practice to promote a limited range of inflexible tourism products, which is a common practice, especially in the 3S market, does not adequately meet the nature-based tourism demand for Gran Canaria. The observed heterogeneity in tourism choices can be further interpreted to suggest that independent travel is a suitable mode of tourism for nature-based tourism in Gran Canaria, where travelers seek unique, personalized experiences that allow more flexibility.

Corresponding results can be found in a study by Liao and Chuang (2020) which demonstrate the importance to allow tourists to customize their travel experience with packaged tours. The study also indicates that the most crucial attributes for Taiwanese tourists, in line with the here presented study, are attractions, accommodation, price, length of stay, cuisine, transportation, and season. Furthermore, the authors suggest that decision makers should utilize these attributes to enhance the development of destinations which represents a significant managerial implication for Gran Canaria.

Both individual tourism and package tourism can contribute to sustainable tourism development, depending on the particular tourism offering. For instance, a study conducted in Bangladesh (Hassan, 2012) shows that ‘eco-package tourism’ can

mitigate the negative impacts on authenticity and biodiversity, disproving the assumption that package tourism, which is often associated with 3S, is generally unsustainable.

- **Willingness to accept values proof price sensitivity in the market.**

By determining individual parameters (in Chapter II), it is possible to calculate not only the willingness to pay, but also the amount that could serve as potential compensation if unwanted activities are included in the package.

Tourists who show a negative WTP are those who are willing to accept compensation for an activity included in the vacation package, which is a minority of less than 13.14%. WTA is also helpful for improving pricing strategies, e.g. to decide which discounts or surcharges are appropriate.

To give an example, the highest compensation is said to be paid to German tourists who do not like the water-based activity (dive/snorkel: 63.03€) while the lowest value is given for those who do not like cultural-based activities (cultural trail: 11.17€). This also demonstrates a limitation of the study, like the water cluster, which is only represented by limited alternatives, thus limiting the evaluability (a more detailed summary of limitations can be found in the next section).

- **Correlations between tourists' preferences and sociodemographic variables, such as age.**

The analyses in Chapter II demonstrated interesting correlations between preferences and sociodemographic variables. Hereby the age of the tourists appears to be an important factor. As age increases, the importance of price generally declines, as do the preference for accommodation in a tent and the preference for the water cluster. This suggests that the clusters of active, nature and passive activities (Pesonen, 2015) should be more integrated. This is particularly interesting because this effect occurs in the very small age range of the sample: 18 to 35 years.

The findings on accommodation are consistent with those of Wight (1997), who found that preferences for certain types of accommodation are also related to consumer demographics, such as age. Wight's study indicates that eco-lodges are preferred by older age groups (45-64), cabins by younger to middle age groups (18-44) and tents by younger age groups, mainly 18 to 24 years.

The demonstrated correlations reinforce the importance of market research to identify customer preferences and to offer relevant attributes to the target audience for nature-based tourism. Herby it should be mentioned that market segmentation in tourism goes beyond sociodemographic characteristics, such as age. Typical

approaches used by Destination management organizations (DMOs) contain social milieus research, such as the Sinus Milieu concept which is an internationally recognized standard (SINUS Markt- und Sozialforschung, 2024).

It is also notable that our study shows a link between nature-based tourists and higher education levels, which has already been confirmed in other studies (e.g. Eusébio, 2017). Among the German participants interviewed while being on a nature vacation, 86.97% have a university degree or were in the process of obtaining one. However, it is important to note that our findings can only be projected to the sample population.

- **Identification of latent factors behind environmental concerns: community support (CS), nature interaction (NI), and nature connection (NC).**

The third article (Chapter III) aimed to examine how environmental attitudes influence the preferences of ecotourists in Gran Canaria. The motivation for this research is a limited understanding of the dynamics between sustainable concerns and tourists' choices. A comprehensive market research on sustainable travel concludes the existence of a *sustainable travel dilemma* between cost and conscience. This means that many travelers worldwide actually want to contribute to environmental protection by travelling more responsibly, but are limited in their options by costs, negatively affected by the global energy crisis and the rising cost of living (Booking Holiday Inc., 2023; Statista, 2023).

To gain insight into the underlying latent structure regarding the individuals' concern for the environment in Gran Canaria will assist in furthering the understanding of this topic. For this purpose, an EFA was performed using indicators about the environmental concern in an ecotourism context (see Appendix A, Table A1).

Three latent factors were identified for nature-based tourists: community support, nature interaction and nature connection and their effect on preferences were studied.

- **Environmental concerns influence choice behavior of sustainable tourism in Gran Canaria.**

The results support the hypothesis that attitudes related to environmental concerns affect choice behavior.

Community support (CS):

A high proportion of the sample of residents and non-residents (84.87%) show positive attitudes towards community support. Herby, females, those not currently

working (most likely students), and those younger than 22 exhibited higher community support attitudes.

Community support is also known as Community-Based Tourism (Lee & Jan, 2019) with the ability to improve the quality of life for local people (Dodds et al., 2018). This is consistent with the observation that residents in Gran Canaria show higher levels of community support compared to non-residents in the sample. Regarding the impact of community support on tourist choice behavior, tourists with more positive attitudes towards the local community tend to prefer accommodation in rural houses (fixed roof) and participate in cultural trail activities.

Nature interaction (NI):

In the sample 97.18% show positive attitudes towards nature interaction. The data indicates that females, those not currently working, and those below the age of 22 exhibit higher attitudes towards nature interaction. However, the non-residents (German segment) showed higher nature interaction than the residents. Higher nature interaction attitudes have a stronger preference for the clusters active (active hiking), water (diving/snorkeling), and passive (stargazing workshop).

Nature connection (NS):

The concept of nature connection is related to what other authors have termed a biospheric value, which encompasses personal norms regarding responsible environment behavior (De Groot & Steg, 2008). 94.45% of the sample presented a positive nature connection attitude. The outcomes indicate that female tourists, non-locals, tourists under the age of 22 and tourists with lower income show higher nature connection attitudes. Furthermore, these tourists show a higher preference for the non-choice option, indicating a general lower interest in the tourism packages. A possible explanation could be that these tourists prefer that nature is not harmed in any way, even if sustainable tourism activities are proposed.

Although the sample can be described as very homogeneous, the results show significant heterogeneity in the activities analyzed when latent factors related to environmental concerns are included in the model. The results of this study confirm the potential of the method to obtain valuable information about the study participants and simultaneously provide interesting management prescriptions to promote sustainable tourism.

In conclusion it can be observed that younger participants show higher level of environmental concerns regarding all latent variables. This underlines the importance of engaging with younger target groups. Nowacki et al. (2023) and Sultana et al. (2022) posit that this travel segment of the future is willing to pay a premium for sustainability.

b Limitations, implications, and outlook

Based on the findings and the preceding discussion, important managerial and policy implications are summarized in this section. This also includes a discussion on the limitations of the here presented research and considers how the linking of our findings and practice can promote more sustainable development in Gran Canaria. An overview of the important key implications is summarized in Table 17.

Table 17. Overview of practical implications

The findings will help to offer suitable nature-based tourism offers in Gran Canaria and thereby can improve alternatives to mass tourism.
Promoting nature-based tourism can target more environmentally conscious tourists, which will support Gran Canaria's sustainable growth model and the consolidation of the island as a quality tourist destination (Patronato de Turismo de Gran Canaria, 2021).
The results encourage to conduct future research, as the study represents a first approach that is limited according to attributes, markets, or sample proposition.
Nature-based tourism is a useful a tool for sustainable development, but the development in Gran Canaria also highly depends on changes in the 3S segment.
Regulations and the implementation of an evaluation system (STI) for sustainable development in Gran Canaria and other destinations will support the development of sustainable development.

In general, it is important to mention that tourism concepts in rural areas will not substitute beach tourism in Gran Canaria, since the island is currently economically dependent on 3S (Patronato de Turismo de Gran Canaria, 2022). Rather, as stated in the strategy, it must be regarded as one alternative form of tourism that is considered an important part of the diversification strategy with the goal to grow different segments sustainably in the coming years (Patronato de Turismo de Gran Canaria, 2021). Hereby, alternative forms of tourism can represent a helpful tool to support sustainable development in the island.

In offering ecotourism for the investigated young tourists, decision-makers should consider the differences in preferences identified. The results proof that young participants show a high level of environmental concerns regarding all latent variables (CS, NI, NS). Therefore, the promotion of nature-based tourism will help to target tourists who are more conscious of the environmental impact of their travel choices. This will assist in the sustainable growth of Gran Canaria and the consolidation of the island as a quality tourist destination.

Our findings represent a first investigation into the demand for nature-based tourism in mass tourism destinations which provide a foundation for future research in this area. However, the study is limited according to markets and attributes and the

sample composition. For instance, the study is constrained to two important markets (Residents and Germans), whereas other strategic markets, such as the United Kingdom and the Nordic countries, are of comparable importance for the Canary Islands.

In general, it can be summarized that the investigated activities were well selected for the sample, as the results show a general interest of the participants in these activities. However, the rural tourism clusters (Pesonen, 2015) were only represented by a limited number of attributes. The affinity of the sample towards water-based and active clusters raises the interest for further investigation and the prioritization of future research on additional attributes. Another limitation is the fact that the DCE includes additional options for some attributes, in case of diving (and snorkeling) or active hiking (or bicycle tour), it is not possible to conclude which activities are preferred by the participants. Future research can replicate this type of study with different activities tailored to different markets to determine the rural clusters more accurately.

Another limitation lies in the characteristics of the sample, since the non-residents were interviewed while on holiday in a rural area and the residents' interviews were collected near the university campus in Gran Canaria. To get a more accurate understanding, it would be useful to conduct further studies that survey different samples under comparable conditions. Furthermore, the age of the participants is limited to a specific age range (18-35 years). This represents an important but relatively small part of the population. Although the here investigated young, educated demographic represents a promising target group for Gran Canaria, other important segments are not considered in this case study. Therefore, it would be beneficial to conduct further research into the preferences and willingness to pay of other segments of tourists. A recommendation for Gran Canaria is to use these initial results on customer preferences and environmental characteristics to carry out more detailed target group research for the island, which is an important approach for destinations (Cini et al., 2012). Hereby it should be also mentioned that the data has been collected pre-pandemic, which also reinforces the interest in further research. The results of this study on environmental decision making could be used as a reason and a first step to conduct more detailed research on the topic of target group segmentation and to include it in the new strategy.

Despite the limitations mentioned above, the results obtained could have a significant impact on the development of alternative tourism in rural areas of Gran Canaria. The research shows an interest in nature-based tourism among younger tourists, but the problem identified by different authors is that ecotourism is not necessarily sustainable (Brett, 2002; Wall, 1997; Xu et al., 2023). The practical consequence is to develop strategies for the island to measure and evaluate the sustainability of alternative tourism products, but also for tourism on the island in general. This means that sustainable development must also be implemented in the

dominant 3S sector. Sustainable tourism indicators can thus be an essential element of tourism planning and management (e.g. for DMOs) also regards aiming the SDGs (Rasoolimanesh et al., 2023; Torres-Delgado & Saarinen, 2017). Making sustainability and quality tourism measurable is a challenge currently faced by many tourism organizations. However, this will also be one of the most important foundations and tools for an effective realization und evaluation of measures to support the long-term sustainable development of destinations.

The outcomes of the studies are not only relevant to Gran Canaria but can also be applied in other destinations. The objective of sustainable tourism growth is an integral part of many DMOs and national tourism organizations worldwide. It is also anchored in the tourism plan of the Canary Islands (Gobierno de Canarias, 2024) and in the strategy of the Spanish National Government (Ministerio de Industria y Turismo, 2024). The here presented research provides valuable insights for decision-makers to develop and promote nature-based tourism experiences in destinations.

References

Booking Holiday Inc. (2023). *Cost vs Conscience: Booking.com Delves into the Dilemma Dividing Sustainable Travel in 2023*. Retrieved, June 3, 2024, from https://news.booking.com/cost-vs-conscience-bookingcom-delves-into-the-dilemma-dividing-sustainable-travel-in-2023.

Brett, M. (2022). The question of sustainability-when ecotourism becomes overtourism: The example of the Kruger National Park, South Africa. *Hosted By The School of Hospitality and Tourism*.

Buckley, R. (2004). Skilled commercial adventure: the edge of tourism. In *New horizons in tourism: Strange experiences and stranger practices* (pp. 37-48). Wallingford UK: CABI Publishing. https://doi.org/10.1079/9780851998633.0037

Buckley, R. (2007). Adventure tourism products: Price, duration, size, skill, remoteness. *Tourism management*, *28*(6), 1428-1433. https://doi.org/10.1016/j.tourman.2006.12.003

Cini, F., Leone, L., & Passafaro, P. (2012). Promoting ecotourism among young people: A segmentation strategy. *Environment and Behavior*, *44*(1), 87-106. https://doi.org/10.1177/0013916510389313

De Groot, J. I. M., & Steg, L. (2008). Value Orientations to Explain Beliefs Related to Environmental Significant Behavior. *Environment and Behavior, 40*(3), 330–354. https://doi.org/10.1177/0013916506297831

Dodds, R., Ali, A., & Galaski, K. (2018). Mobilizing knowledge: determining key elements for success and pitfalls in developing community-based tourism. *Current Issues in Tourism, 21*(13), 1547–1568. https://doi.org/10.1080/13683500.2016.1150257

Dolnicar, S. (2012). The role of market segmentation in strategic tourism marketing. *Strategic marketing in tourism services*, *17*(34).

Eusébio, C., Carneiro, M. J., Kastenholz, E., Figueiredo, E., & da Silva, D. S. (2017). Who is consuming the countryside? An activity-based segmentation analysis of the domestic rural tourism market in Portugal. *Journal of hospitality and tourism management*, *31*, 197-210. https://doi.org/10.1016/j.jhtm.2016.12.006

Gobierno de Canarias. (2024). *Plan de Canarias para el Turismo 2025.* Retrieved, June 9, 2024, from https://www.gobiernodecanarias.org/cmsgobcan/export/sites/turismo/dir_gral_ordenacion_promocion/0_BASE-DOC_PECT2025_RESUMENEJECUTIVO.pdf

Hassan, A. (2012). Package eco-tour' as special interest tourism product-Bangladesh perspective. *Developing Country Studies*, *2*(1), 1-8.

Kiper, T. (2013). Role of ecotourism in sustainable development. *InTech.*

Lee, T. H., & Jan, F. H. (2019). Can community-based tourism contribute to sustainable development? Evidence from residents' perceptions of the sustainability. *Tourism Management*, *70*, 368-380. https://doi.org/10.1016/j.tourman.2018.09.003

Liao, C. S., & Chuang, H. K. (2020). Tourist preferences for package tour attributes in tourism destination design and development. *Journal of Vacation Marketing*, *26*(2), 230-246. https://doi.org/10.1177/1356766719880250

Ministerio de Industria y Turismo. (2024). *Estrategia de Turismo Sostenible de España 2030.* Retrieved June 10, 2024, from Ministerio de Industria y Turismo - Estrategia de Turismo Sostenible de España 2030

Mules, T., & Dwyer, L. (2005). Public sector support for sport tourism events: The role of cost-benefit analysis. *Sport in Society*, *8*(2), 338-355. https://doi.org/10.1080/17430430500087864

Nowacki, M., Kowalczyk-Anioł, J., & Chawla, Y. (2023). Gen Z's attitude towards green image destinations, green tourism and behavioural intention regarding green holiday destination choice: A study in Poland and India. *Sustainability*, *15*(10), 7860. https://doi.org/10.3390/su15107860

Patronato de Turismo de Gran Canaria. (2021). *Gran Canaria 2021-2025 Strategic Tourism Plan and Marketing Plan. Executive Summary.* Retrieved June 4,

2024, from https://www.grancanaria.com/turismo/fileadmin/areaprofesional/varios/promocion/GC_PlanEstrat_Marketing_ING_.pdf

Patronato de Turismo de Gran Canaria. (2022). *Situation of the tourism sector. Year ending 2022.* Retrieved June 9, 2024, from https://www.grancanaria.com/turismo/fileadmin/PDF/informes/INFORME_COYUNTURA_CIERRE_2022_-_INGLES.pdf

Pesonen, J. A. (2015). Targeting rural tourists in the internet: Comparing travel motivation and activity-based segments. *Journal of Travel & Tourism Marketing*, *32*(3), 211-226. https://doi.org/10.1080/10548408.2014.895695

Place, S. (1995). Ecotourism for sustainable development: Oxymoron or plausible strategy?. *GeoJournal*, 161-173.

Rasoolimanesh, S. M., Ramakrishna, S., Hall, C. M., Esfandiar, K., & Seyfi, S. (2023). 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

SINUS Markt- und Sozialforschung. (2024). The gold standard for target group segmentation. Retrieved June 10, 2024, from https://www.sinus-institut.de/en/sinus-milieus

Statista. (2023). *The sustainable travel dilemma.* Retrieved May 29, 2024, from https://www.statista.com/chart/29977/share-of-travelers-who-agree-with-the-following-statements-about-sustainability/

Sultana, N., Amin, S., & Islam, A. (2022). Influence of perceived environmental knowledge and environmental concern on customers' green hotel visit intention: mediating role of green trust. *Asia-Pacific Journal of Business Administration*, *14*(2), 223-243. https://doi.org/10.1108/APJBA-08-2021-0421

Torres-Delgado, A., & Saarinen, J. (2017). Using indicators to assess sustainable tourism development: A review. *New research paradigms in tourism geography*, 31-47.

Vespestad, M. K., & Mehmetoglu, M. (2010). The relationship between tourist nationality, cultural orientation and nature-based tourism experiences. *European journal of tourism research*, *3*(2), 87-104.

Wall, G. (1997). Is ecotourism sustainable?. *Environmental management*, *21*(4), 483-491.

Wight, P. A. (1997). Ecotourism accommodation spectrum: Does supply match the demand?. *Tourism management*, *18*(4), 209-220. https://doi.org/10.1016/S0261-5177(97)00008-3

Xu, L., Ao, C., Liu, B., & Cai, Z. (2023). Ecotourism and sustainable development: a scientometric review of global research trends. *Environment, Development and Sustainability*, *25*(4), 2977-3003. https://doi.org/10.1007%2Fs10668-022-02190-0

Appendix B. Other contributions in the doctoral learning process

Appendix B1. Tourists' survey

University of Las Palmas de Gran Canaria
Institute of Tourism and Sustainable Economic Development

Study on preferences for sustainable tourism activities in the natural area of Veneguera

Young consumers (German Market)

The purpose of this survey is to study the preferences of young German consumers about the development of sustainable tourism activities in natural spaces. The survey is part of a Mater Thesis research on the Master Program in Tourism, Transport and Environmental Economics.

This research only pursues only **academic** and **non-commercial** objectives.

The researchers participating in this study are committed to guarantee the total confidentiality of the data provided by you, exploiting the information contained in the questionnaires in aggregate form and never individually.

Thank you for your collaboration

O. IDENTIFICATION OF THE QUESTIONNAIRE

Group code	☒	**Questionnaire number**	☐☐☐☐
Interviewer code	☒		

A. CONCERN ABOUT THE ENVIRONMENT

1 Indicate how often you go out to the countryside to enjoy nature

☐ 1 once a year or less ☐ 2-5 times per year ☐ 6-10 times per year ☐ more than 10 times per year

On a scale of 1 to 5 indicate the degree of importance of the following statements:

	Low Importance				High Importance
2 The connection of the human being with nature	1	2	3	4	5
3 The preservation of nature	1	2	3	4	5
4 Know and share the customs and traditions of the peoples	1	2	3	4	5
5 That agricultural and livestock activities be carried out in a traditional way and with low impact	1	2	3	4	5
6 To promote the economic development of communities where ecotourism activities are carried out	1	2	3	4	5
7 Enjoy the grandeur of the mountains and its landscape when walking on natural trails.	1	2	3	4	5
8 Observe birds and other species in their natural habitat.	1	2	3	4	5
9 Getting to know the native flora	1	2	3	4	5
10 Recovering trails and routes for ecotourism purposes	1	2	3	4	5

B. ATTITUDES TOWARDS THE ENVIRONMENT

These questions refer to what is usually done in your home

11 Do you usually classify trash for later recycling? ☐ Yes ☐ No

12 Do you deposit used batteries in the special container? ☐ Yes ☐ No

13 Do you unplug chargers from devices (mobile, computer) when you are not using them? ☐ Yes ☐ No

14 Do you completely disconnect the TV when you are not using it? ☐ Yes ☐ No

15 Do you use energy-saving bulbs? ☐ Yes ☐ No

16 Do you turn off the light when you leave a room and there is nobody? ☐ Yes ☐ No

17 Do you use energy-saving appliances (washing machine, refrigerator, etc)? ☐ Yes ☐ No

C. CHOICE EXPERIMENT

Indicate the option chosen in each scenario

SCENARIO 1	☐ A	☐ B	☐ None of the two
SCENARIO 2	☐ A	☐ B	☐ None of the two
SCENARIO 3	☐ A	☐ B	☐ None of the two
SCENARIO 4	☐ A	☐ B	☐ None of the two
SCENARIO 5	☐ A	☐ B	☐ None of the two
SCENARIO 6	☐ A	☐ B	☐ None of the two
SCENARIO 7	☐ A	☐ B	☐ None of the two
SCENARIO 8	☐ A	☐ B	☐ None of the two
SCENARIO 9	☐ A	☐ B	☐ None of the two
SCENARIO 10	☐ A	☐ B	☐ None of the two
SCENARIO 11	☐ A	☐ B	☐ None of the two
SCENARIO 12	☐ A	☐ B	☐ None of the two

D. IMPORTANCE OF THE ATTRIBUTES

Indicate the degree of importance you have given to each attribute in your choice

	Low importance				High importance
18 Price	1	2	3	4	5
19 Type of accommodation	1	2	3	4	5
20 That cultural trails be offered	1	2	3	4	5
21 That active-hiking activities be offered	1	2	3	4	5
22 That diving/snorkeling activities be offered	1	2	3	4	5
23 That a star gazing workshop be offered	1	2	3	4	5

E. SOCIODEMOGRAPHIC INFORMATION

24 In general, do you have a car available for your leisure activities? ☐ Yes ☐ No

25 Gender ☐ Male ☐ Female

26 Age _____

27 Studies (Bachelor, high school, etc) _____

~~*28 Occupation*~~ NOT APPLICABLE

29 I live with ☐ My Family ☐ Independently

30 Do you work? ☐ Yes ☐ No

31 Do you have a monthly budget for your expenses?

☐ Yes How much? _____€ ☐ No How much do you spend per month on your stuff? _____€

F. OPEN QUESTION

32 List up to 5 activities that you would be willing to perform as an active tourist during your vacation?

1 _____ 4 _____

2 _____ 5 _____

3 _____

Appendix B2. Full Discrete Choice Experiment

Imagine that you plan to spend a weekend with 3 friends in a natural space, such as the natural area of Veneguera in the southwest of Gran Canaria. There, you will be able to carry out activities that will allow you to enjoy the natural environment in a sustainable way

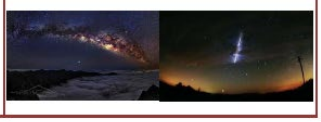
In the hypothetical scenarios shown below there are two packages of activities that you could carry out. In each option we will show you:

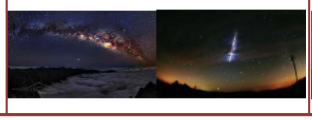
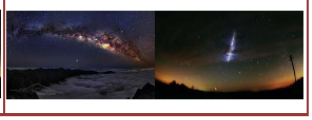
The price per person
The type of accommodation for 4 person (tent or rural house)
Whether or not cultural trails are included
Whether or not active hiking activities are included
Whether or not diving/snorkeling activities are included
Whether or not a star gazing workshop is included

All the equipment necessary to carry out the activity will be included in the price

Of the 2 options shown in each scenario, you must indicate which one you prefer. If you do not like any of them, select the option "none of the two".

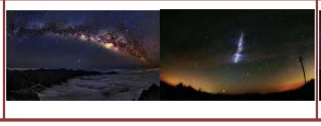
SCENARIO 1

ATTRIBUTES	OPTION A	OPTION B
PRICE PER PERSON 2 NIGHTS (FOOD NOT INCLUDED)	60.00 €	40.00 €
TYPE OF ACCOMMODATION	TENT 	RURAL HOUSE 
CULTURAL TRAIL Duration of the activity: 3 hours Guided route where you can see native species of fauna and flora and heritage sites (Group 12 people maximum)	NOT INCLUDED	NOT INCLUDED
ACTIVE HIKING Duration of the activity: 3 hours Guided tour to Veneguera Blue Pools. The route includes a bath in natural pools. Optional race/mountain-bike circuit. (Group 12 people maximum)		
DIVE / SNORKEL (Duration of the activity: 1:30 hours) Scuba diving or snorkeling activity with monitor in the Beach of Veneguera. (Group 12 people maximum)		NOT INCLUDED
STAR GAZING WORKSHOP Duration of the activity: 2 hours (Group 24 people maximum)	NOT INCLUDED	
☐ None of the two	☐ Choose A	☐ Choose B

SCENARIO 2		
ATTRIBUTES	**OPTION A**	**OPTION B**
PRICE PER PERSON 2 NIGHTS (FOOD NOT INCLUDED)	80.00 €	60.00 €
TYPE OF ACCOMMODATION	RURAL HOUS 	TENT 
CULTURAL TRAIL Duration of the activity: 3 hours Guided route where you can see native species of fauna and flora and heritage sites (Group 12 people maximum)	NOT INCLUDED	NOT INCLUDED
ACTIVE HIKING Duration of the activity: 3 hours Guided tour to Veneguera Blue Pools. The route includes a bath in natural pools. Optional race/mountain-bike circuit. (Group 12 people maximum)	NOT INCLUDED	NOT INCLUDED
DIVE / SNORKEL (Duration of the activity: 1:30 hours) Scuba diving or snorkeling activity with monitor in the Beach of Veneguera. (Group 12 people maximum)		
STAR GAZING WORKSHOP Duration of the activity: 2 hours (Group 24 people maximum)		
☐ None of the two	☐ Choose A	☐ Choose B

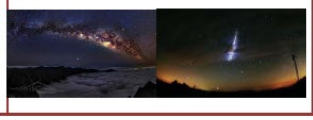
SCENARIO 3		
ATTRIBUTES	**OPTION A**	**OPTION B**
PRICE PER PERSON 2 NIGHTS (FOOD NOT INCLUDED)	40.00 €	80.00 €
TYPE OF ACCOMMODATION	RURAL HOUSE 	TENT 
CULTURAL TRAIL Duration of the activity: 3 hours Guided route where you can see native species of fauna and flora and heritage sites (Group 12 people maximum)		
ACTIVE HIKING Duration of the activity: 3 hours Guided tour to Veneguera Blue Pools. The route includes a bath in natural pools. Optional race/mountain-bike circuit. (Group 12 people maximum)		NOT INCLUDED
DIVE / SNORKEL (Duration of the activity: 1:30 hours) Scuba diving or snorkeling activity with monitor in the Beach of Veneguera. (Group 12 people maximum)	NOT INCLUDED	
STAR GAZING WORKSHOP Duration of the activity: 2 hours (Group 24 people maximum)	NOT INCLUDED	NOT INCLUDED
☐ None of the two	☐ Choose A	☐ Choose B

SCENARIO 4		
ATTRIBUTES	**OPTION A**	**OPTION B**
PRICE PER PERSON 2 NIGHTS (FOOD NOT INCLUDED)	80.00 €	60.00 €
TYPE OF ACCOMMODATION	TENT 	RURAL HOUSE 
CULTURAL TRAIL Duration of the activity: 3 hours Guided route where you can see native species of fauna and flora and heritage sites (Group 12 people maximum)		NOT INCLUDED
ACTIVE HIKING Duration of the activity: 3 hours Guided tour to Veneguera Blue Pools. The route includes a bath in natural pools. Optional race/mountain-bike circuit. (Group 12 people maximum)	NOT INCLUDED	
DIVE / SNORKEL (Duration of the activity: 1:30 hours) Scuba diving or snorkeling activity with monitor in the Beach of Veneguera. (Group 12 people maximum)		NOT INCLUDED
STAR GAZING WORKSHOP Duration of the activity: 2 hours (Group 24 people maximum)		
☐ None of the two	☐ Choose A	☐ Choose B

SCENARIO 5		
ATTRIBUTES	**OPTION A**	**OPTION B**
PRICE PER PERSON 2 NIGHTS (FOOD NOT INCLUDED)	40.00 €	40.00 €
TYPE OF ACCOMMODATION	RURAL HOUSE 	TENT 
CULTURAL TRAIL Duration of the activity: 3 hours Guided route where you can see native species of fauna and flora and heritage sites (Group 12 people maximum)		NOT INCLUDED
ACTIVE HIKING Duration of the activity: 3 hours Guided tour to Veneguera Blue Pools. The route includes a bath in natural pools. Optional race/mountain-bike circuit. (Group 12 people maximum)		
DIVE / SNORKEL (Duration of the activity: 1:30 hours) Scuba diving or snorkeling activity with monitor in the Beach of Veneguera. (Group 12 people maximum)	NOT INCLUDED	
STAR GAZING WORKSHOP Duration of the activity: 2 hours (Group 24 people maximum)		
☐ Ninguno	☐ Elijo A	☐ Elijo B

SCENARIO 6		
ATTRIBUTES	**OPTION A**	**OPTION B**
PRICE PER PERSON 2 NIGHTS (FOOD NOT INCLUDED)	40.00 €	40.00 €
TYPE OF ACCOMMODATION	TENT 	RURAL HOUSE 
CULTURAL TRAIL Duration of the activity: 3 hours Guided route where you can see native species of fauna and flora and heritage sites (Group 12 people maximum)		NOT INCLUDED
ACTIVE HIKING Duration of the activity: 3 hours Guided tour to Veneguera Blue Pools. The route includes a bath in natural pools. Optional race/mountain-bike circuit. (Group 12 people maximum)	NOT INCLUDED	
DIVE / SNORKEL (Duration of the activity: 1:30 hours) Scuba diving or snorkeling activity with monitor in the Beach of Veneguera. (Group 12 people maximum)	NOT INCLUDED	
STAR GAZING WORKSHOP Duration of the activity: 2 hours (Group 24 people maximum)		

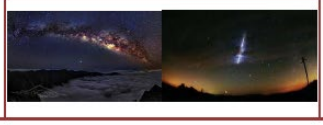
☐ None of the two ☐ Choose A ☐ Choose B

SCENARIO 7		
ATTRIBUTES	**OPTION A**	**OPTION B**
PRICE PER PERSON 2 NIGHTS (FOOD NOT INCLUDED)	40.00 €	80.00 €
TYPE OF ACCOMMODATION	RURAL HOUSE 	TENT 
CULTURAL TRAIL Duration of the activity: 3 hours Guided route where you can see native species of fauna and flora and heritage sites (Group 12 people maximum)		INCLUDED
ACTIVE HIKING Duration of the activity: 3 hours Guided tour to Veneguera Blue Pools. The route includes a bath in natural pools. Optional race/mountain-bike circuit. (Group 12 people maximum)	NOT INCLUDED	
DIVE / SNORKEL (Duration of the activity: 1:30 hours) Scuba diving or snorkeling activity with monitor in the Beach of Veneguera. (Group 12 people maximum)		NOT INCLUDED
STAR GAZING WORKSHOP Duration of the activity: 2 hours (Group 24 people maximum)		

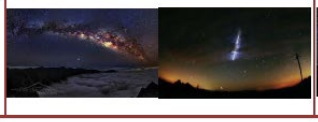
☐ None of the two ☐ Choose A ☐ Choose B

SCENARIO 8		
ATTRIBUTES	**OPTION A**	**OPTION B**
PRICE PER PERSON 2 NIGHTS (FOOD NOT INCLUDED)	80.00 €	80.00 €
TYPE OF ACCOMMODATION	TENT 	RURAL HOUSE 
CULTURAL TRAIL Duration of the activity: 3 hours Guided route where you can see native species of fauna and flora and heritage sites (Group 12 people maximum)	NOT INCLUDED	
ACTIVE HIKING Duration of the activity: 3 hours Guided tour to Veneguera Blue Pools. The route includes a bath in natural pools. Optional race/mountain-bike circuit. (Group 12 people maximum)		NOT INCLUDED
DIVE / SNORKEL (Duration of the activity: 1:30 hours) Scuba diving or snorkeling activity with monitor in the Beach of Veneguera. (Group 12 people maximum)		NOT INCLUDED
STAR GAZING WORKSHOP Duration of the activity: 2 hours (Group 24 people maximum)		

☐ None of the two ☐ Choose A ☐ Choose B

SCENARIO 9		
ATTRIBUTES	**OPTION A**	**OPTION B**
PRICE PER PERSON 2 NIGHTS (FOOD NOT INCLUDED)	60.00 €	80.00 €
TYPE OF ACCOMMODATION	RURAL HOUSE 	TENT 
CULTURAL TRAIL Duration of the activity: 3 hours Guided route where you can see native species of fauna and flora and heritage sites (Group 12 people maximum)	NOT INCLUDED	
ACTIVE HIKING Duration of the activity: 3 hours Guided tour to Veneguera Blue Pools. The route includes a bath in natural pools. Optional race/mountain-bike circuit. (Group 12 people maximum)		
DIVE / SNORKEL (Duration of the activity: 1:30 hours) Scuba diving or snorkeling activity with monitor in the Beach of Veneguera. (Group 12 people maximum)	NOT INCLUDED	
STAR GAZING WORKSHOP Duration of the activity: 2 hours (Group 24 people maximum)		NOT INCLUDED

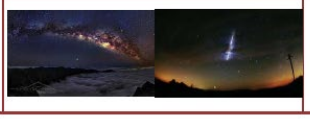
☐ None of the two ☐ Choose A ☐ Choose B

SCENARIO 10		
ATTRIBUTES	**OPTION A**	**OPTION B**
PRICE PER PERSON 2 NIGHTS (FOOD NOT INCLUDED)	40.00 €	40.00 €
TYPE OF ACCOMMODATION	TENT 	RURAL HOUSE 
CULTURAL TRAIL Duration of the activity: 3 hours Guided route where you can see native species of fauna and flora and heritage sites (Group 12 people maximum)		NOT INCLUDED
ACTIVE HIKING Duration of the activity: 3 hours Guided tour to Veneguera Blue Pools. The route includes a bath in natural pools. Optional race/mountain-bike circuit. (Group 12 people maximum)		
DIVE / SNORKEL (Duration of the activity: 1:30 hours) Scuba diving or snorkeling activity with monitor in the Beach of Veneguera. (Group 12 people maximum)	NOT INCLUDED	
STAR GAZING WORKSHOP Duration of the activity: 2 hours (Group 24 people maximum)		

☐ None of the two ☐ Choose A ☐ Choose B

SCENARIO 11		
ATTRIBUTES	**OPTION A**	**OPTION B**
PRICE PER PERSON 2 NIGHTS (FOOD NOT INCLUDED)	60.00 €	60.00 €
TYPE OF ACCOMMODATION	TENT 	RURAL HOUSE 
CULTURAL TRAIL Duration of the activity: 3 hours Guided route where you can see native species of fauna and flora and heritage sites (Group 12 people maximum)		
ACTIVE HIKING Duration of the activity: 3 hours Guided tour to Veneguera Blue Pools. The route includes a bath in natural pools. Optional race/mountain-bike circuit. (Group 12 people maximum)		NOT INCLUDED
DIVE / SNORKEL (Duration of the activity: 1:30 hours) Scuba diving or snorkeling activity with monitor in the Beach of Veneguera. (Group 12 people maximum)	NOT INCLUDED	
STAR GAZING WORKSHOP Duration of the activity: 2 hours (Group 24 people maximum)		NOT INCLUDED

☐ None of the two ☐ Choose A ☐ Choose B

SCENARIO 12		
ATTRIBUTES	**OPTION A**	**OPTION B**
PRICE PER PERSON 2 NIGHTS (FOOD NOT INCLUDED)	60.00 €	60.00 €
TYPE OF ACCOMMODATION	RURAL HOUSE 	TENT 
CULTURAL TRAIL **Duration of the activity: 3 hours** **Guided route where you can see native species of fauna and flora and heritage sites** **(Group 12 people maximum)**		
ACTIVE HIKING **Duration of the activity: 3 hours** **Guided tour to Veneguera Blue Pools.** **The route includes a bath in natural pools.** **Optional race/mountain-bike circuit.** **(Group 12 people maximum)**	NOT INCLUDED	
DIVE / SNORKEL **(Duration of the activity: 1:30 hours)** **Scuba diving or snorkeling activity with monitor in the Beach of Veneguera.** **(Group 12 people maximum)**	NOT INCLUDED	
STAR GAZING WORKSHOP **Duration of the activity: 2 hours** **(Group 24 people maximum)**		NOT INCLUDED
☐ None of the two	**☐ Choose A**	**☐ Choose B**